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СЕКЦИЯ АРХИТЕКТУРА ARCHITECTURE

DESIGNING SHIRAZ SALT LAKE HYDROTHERAPY COMPLEX WITH THE APPROACH TO PROMOTING PHYSICAL AND MENTAL HEALTH

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ABSTRACT

The present study aimed to create a health-promoting hydrotherapy complex at Shiraz Salt Lake. This is an applied study that was conducted using library research and field observations. Experts, psychologists, inhabitants of Sarvestan City, and visitors to Maharloo Lake are among the statistical population analyzed in this study. For this investigation, six centers were chosen from among the centers to achieve the requisite sample size. The findings of inferential statistics, student's t-test, binomial test, and analysis of variance were all subjected to inferential analysis. Friedman's technique was used to rank the most important components in the process of regaining physical and mental vigor. The findings revealed that hydrotherapy exercise promotes mental clarity, a sense of security, freshness, and vitality while also controlling psychological stress and making you feel healthy by creating a fun and invigorating environment, reducing muscle tension, and eliminating laziness and boredom. In major cities, noise pollution appears to have a substantial role as one of the most significant environmental contaminants. The Maharloo Lake area in Shiraz, which is tranquil and free of noise pollution, might be one of the most beneficial aspects of the creation of a hydrotherapy complex. The therapeutic powers of Maharloo Lake in Shiraz, as a healthy environmental substrate, appear to be able to improve physical ailments while also creating a great economic potential in the region's economic cycle.

Keywords: hydrotherapy comple; Salt lake (Maharloo); physical and mental health.

Introduction

Because exercise is one of the simplest, safest, least expensive, and most natural ways to deal with physical and mental problems, experts have begun to use it as a vaccine to treat physical and mental illnesses as a result of the stress and stressors that are increasing every day with the mechanization of life and the stresses of daily life (Ghasemi Nejad Dehkordi, 2007). Physical ailments impede a person's physical capacity and function, causing anxiety in a difficult situation and loss self-confidence and optimism.

Since the patient cannot engage in regular physical exercise due to his medical condition, and many of his activities are restricted, this circumstance causes her worry, rage, sadness, and stress and psychological crises. In these situations, the person becomes mentally susceptible, and mental illness is not uncommon. People who are physically and psychologically fit are happier, and happy persons are less likely to be sick or die than people who are miserable (Collection of Articles on Public Mental Health Education, 2010).

When compared to land-based exercise, water-based exercise lowers heart rate, cardiac working load, and oxygen consumption during movement. For persons with problems like back pain, joint discomfort, muscular pain, or those who have had surgery, this approach provides both maintenance and prevention effects (Ghaffari et al., 2008). People who are physically and psychologically fit are happier, and happy persons are less likely to be sick or die than people who are miserable (Omidvar et al., 2015). Hydrotherapy can help with pain, musculoskeletal strength and flexibility, performance, confidence, balance, and fitness, as well as reduce the recurrence of attacks in chronic diseases like rheumatism and back pain, as well as central nervous system diseases like MS and stroke (Ghaffari et al., 2008). Water treatment service centers have

been located in the lower reaches of the city for easy disposal of surface water, based on land use indicators compatible with hydrotherapy complexes, access to urban thoroughfares, proximity to residential centers, and appropriate distance from industrial and workshop centers. The recommended locations will next be incorporated on the city map based on the location of the present hydrotherapy centers and the current land use situation. The majority of the time, transportation to hydrotherapy institutes is done in groups. Large numbers also go to hydrotherapy centers on particular days. As a result, effective and secure access to these institutions is critical, and hydrotherapy complexes should be positioned near major passageways to achieve this purpose.

One of the essential requirements for the site of hydrotherapy complexes is their distance from obstructive uses such as repair shops, industrial-workshop centers, and polluting uses. As a result, the weight of land for the building of hydrotherapy complexes will be enhanced in proportion to the distance from these centers in the current research (Weiss et al., 2014).

As a result, it is important to pay attention to the fact that sporting facilities should be strategically placed across the city. Construction of new sports facilities necessitates scientific and detailed location studies, which, in addition to the inefficiency of the built facilities, wastes money, time, and energy and, most importantly, has a direct impact on future performance, particularly the quality of healthy sports programs and recreation. By legalizing signs and relevant elements in decision-making and giving rational answers, optimal location aims to assist decision-makers and planners in selecting optimum locations to perform our tasks (Azimi Dolarstaghi et al., 2016). Accordingly, the present study aims to develop the Shiraz Salt Lake hydrotherapy complex to boost physical and mental wellness. Consequently, the goal of this research is to develop the Shiraz Salt Lake hydrotherapy complex with the goal of boosting physical and mental wellness.

Theoretical foundations

Hydrotherapy

Hydrotherapy refers to the use of water to treat ailments, which both primitive tribes and developed civilizations have used. This issue has been widely overstated, and drinking a lot of water has been suggested in medicine for a few conditions such as kidney stones, diarrhea, and heatstroke, but it just compensates for lost water and dilutes the urine. Water has been utilized for healing by both primitive tribes and cultured societies since the dawn of time. Even wild and domestic animals have discovered that they must drink water when they become ill. By removing waste materials from the body, proper water consumption preserves our health and restores it in the case of illness or disturbance.

Barker et al. (2003) found that eight weeks of hydrotherapy with two sessions per week reduced tiredness in individuals with chronic back pain who were experiencing discomfort, muscular spasms, and incapacity to do everyday duties. In a hot water treatment center with a restricted budget, the emphasis on peace of mind is replaced by simpler activities and basic amenities, and simpler activities and basic facilities replace the emphasis on the naturalness of the hot water treatment center. For non-natives who are unfamiliar with the surroundings, appealing marketing for hot water treatment centers is often enticing.

The World Tourism Organization (WTO) defines health tourism as the use of services to improve or enhance a person's health and well-being in a location other than the person's usual residence for more than 24 hours (using mineral water, climate, natural and environmental factors, or medical interventions). In other words, "health tourism" is the provision of cost-effective medical facilities and services for individuals who travel to other nations for surgery, relaxation, or other treatments while balancing the tourism sector. Indeed, it must be noted that health tour-

ism encompasses more than just medical tourism; it also encompasses relaxation of the body and spirit, use of natural amenities, and hot and mineral waters.

Physical and mental health

Mental health, according to the World Health Organization (2004), is a condition of well-being in which a person realizes his or her own potential, uses it successfully and productively and contributes to the community. Generally, mental health is created by avoiding mental disease, managing the effective elements that cause it to arise, early diagnosis, preventing the causes of mental illness recurrence, and building a healthy environment in which normal human interactions may be established (Milanifard, 2007).

The pleasure of whole physical, mental, and social well-being, not merely the absence of sickness and impairment, is what health is all about. It is indeed fascinating that Hakim Nezami, in his book *Panj Ganj*, uses Persian poetry's brevity to represent the World Health Organization's extensive statement with just two words: health = comfort (health is a comfortable climate). According to this definition, the World Health Organization's concept of health is idealistic and realistically unattainable because no one can be perfectly well in physical, mental, and social health aspects. Indeed, however, there is no distinction between health and sickness; in fact, this definition is akin to a high peak that no one can reach but that everyone should aim for, and on the other hand, a degree of health should be regarded (Nejat, 2008). Exercise is also being explored as a therapeutic option for mental and psychological illnesses. Because exercise is one of the simplest, safest, least expensive, and most natural ways to deal with physical and mental problems, experts have begun to use it as a vaccine to treat physical and mental illnesses as a result of the stress and stressors that are increasing every day with the mechanization of life and the stresses of daily life (Mirkamali, 1998).

People with mental health have the following traits, according to a study by the National Mental Health Association: they are comfortable, accept themselves as they are, use their gifts, have minimal stress, fear, anxiety, or jealousy, and have self-confidence. Their life experiences have shaped their value system. They have a positive attitude toward others, are concerned about their well-being, and feel responsible for them. They do not try to take control of others. They are confronted with difficulties and feel responsible for their conduct. They try to alter their surroundings as much as possible while also adapting to it as much as feasible (Aghajani et al. 2002).


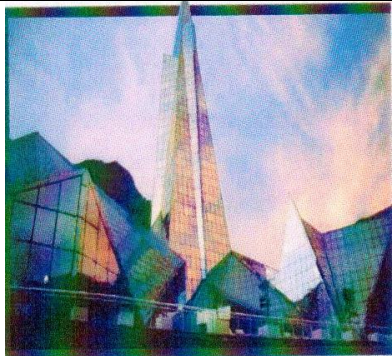


Method

This is an applied study that was conducted using library research and field observations. The current study falls within the descriptive research category in terms of type and approach. Experts, psychologists, inhabitants of Sarvestan City, and visitors to Maharloo Lake are among the statistical population analyzed in this study. Given that each center had an average of 40 patients, six centers were chosen from among the centers for this investigation to achieve the requisite sample size. As a result, 248 patients were chosen using Cochran's formula, a basic random selection approach.

The library approach was utilized to gather information regarding this study's research history and research literature. Articles, dissertations, and Internet databases were utilized to collect information on the literature of the study subject in this part, referring to the achievements and documents. Various procedures and instruments, such as surveys, interviews, and observations, are utilized to acquire the needed information from the statistical community about the research. A questionnaire approach was employed to obtain data from the statistical population in this investigation (sample).

Table 1

Some examples of hydrotherapy

Row	Name of complex	
1	Baden Baden hydrotherapy complex in Germany	
2	Calda hydrotherapy complex	
3	Mineral waters of Ardabil province	
4	Shabil Hydrotherapy Complex	

Cronbach's alpha coefficient was utilized to assess the questionnaire's reliability. Cronbach's alpha coefficient values were 0.842 and larger than 0.7, based on the findings. As a consequence, the questionnaire's dependability has been proven. In terms of validity, experts'

opinions were considered to create the questionnaire, resulting in a satisfactory degree of validity. Student's t-test, binomial test, and analysis of variance test are used to determine inferential statistics conclusions. Friedman's technique is used to rank the most important components in the process of regaining physical and mental vigor.

Study area

One of the functions of the Koohanjan part of Sarvestan city is Maharloo village. Maharloo Lake, which is also known as the village and is located nearby, is the most important natural attraction in the region and one of the country's natural attractions. Some of the most magnificent tourist attractions in this area include the mineral water spring, Khadijeh Banu holy site, Shah Abbasi Caravanserai, Sharghi Tal, Shahrokh Castle, son of Timur Lang, and Bibi Sharifa Khatoon mausoleum. Other tourist attractions in Maharloo village include the Maharloo mineral water spring, which is located in the settlement's southern section and has therapeutic properties for most skin problems. Chenar Mountain, in the southern section of the Maharloo Mountains, is covered in old and old sycamore trees, giving this location a unique picture. Garden of Haidar is one and a half kilometers away and located in the southwest. The Maharloo area's blood water aqueduct, which irrigates the region's gardens, is located in the western section of the region. Ab Brami is located in the village's southern section. Dengki Water is located in the village's southern section. Among the Kamab springs (Baghak water in the southeast, Qarjgeh in the south, Shamsu spring in the middle of the mountain, Mohammad Khaloo in the west).

Maharloo Lake (other names: Mahloo, Mahlouyeh, and Mahlouyeh; historical name: Jankal, or Salt Lake) is a lake in Iran's Fars region, situated in Sarvestan city. In the province of Fars, Maharloo Lake is situated at N2927 E5248. Maharloo Lake is 18 kilometers southeast of Shiraz. The lake's highest depth is 3 meters, and its maximum height is 1460 meters above sea level. As a result, the rate of evaporation is significant, and part of the bed is coated with a layer of salt, with water only present in the northern and central regions, where the depth is relatively shallow (maximum 50 cm), and the salinity is high. Rivers and streams draining from the northwest and southeast are the lake's major sources of water. Its size changes with the seasons and is dependent on rainfall. Aside from considerable evaporation, the Sachun Formation's gypsum deposits and the two salt domes to the east of the lake have a substantial impact on the lake's unfathomable salinity. Lake Maharloo is fed by the two seasonal rivers "Sultanabad" and the dry river. Water from a number of springs also enters the lake, mostly from the west and north.

This lake's water contains sodium chloride, magnesium, and sodium sulfate ($4\text{ SO } 2\text{Na}$, 2 MgCl , NaCl), and its salt is used in the petrochemical industry. Aside from the high quantities of potassium and magnesium in the Lake Maharloo brines, there is the prospect of economically extracting magnesium salts as the main product and potassium as a by-product.

Ninety-seven people (39.11 percent) were women, while 151 people (60.89 percent) were men, according to the results. The age group of 31 to 35 has the highest frequency, with 70 people (28.23 percent) falling into this category. The most prevalent reasons for going to the entertainment option have been identified. The Kolmogorov-Smirnov test was utilized to analyze the normality of the data distribution, and the results are shown in Table (2).

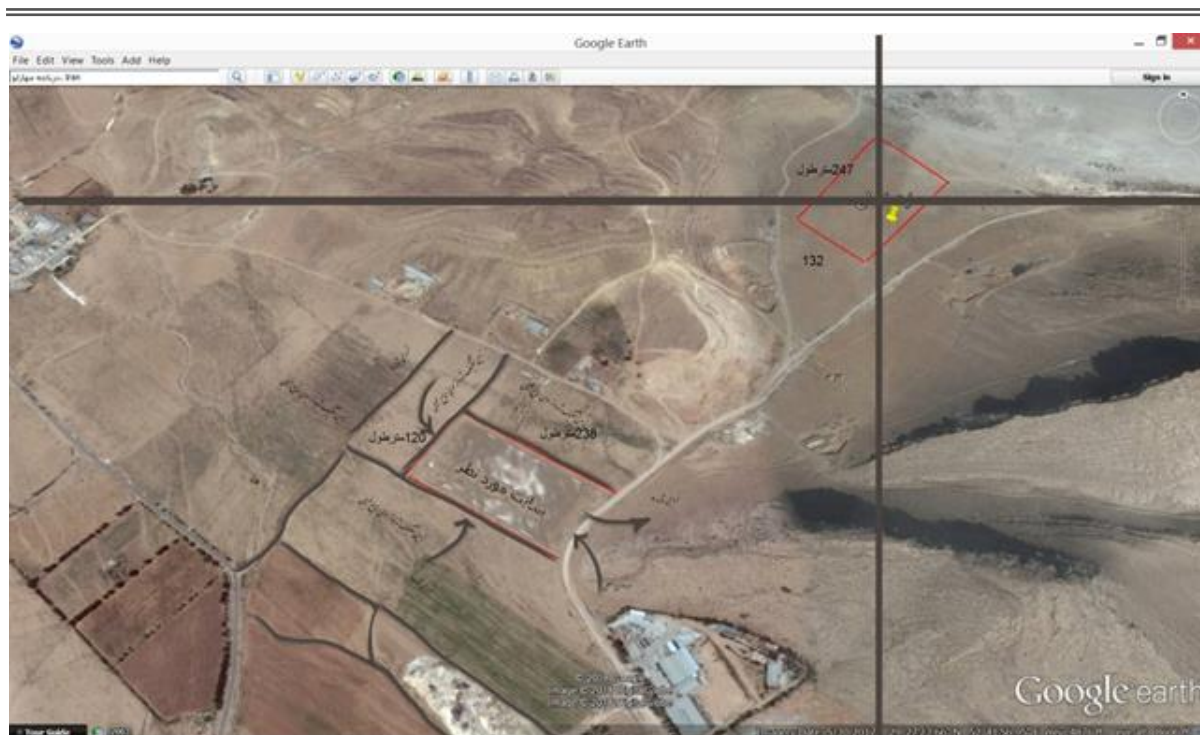


Figure 1 – Location of the studied site

Table 2

Kolmogorov-Smirnov and Lyon test results

Index	Kolmogorov-Smirnov test	
	Statistics	Significance level
First hypothesis	1.071	0.201
Second hypothesis	0.863	0.446
Third hypothesis	1.201	0.112

The assumption of normal data distribution is confirmed by the lack of significance of the test for all variables (p-value 0.05).

1. It seems that hydrotherapy exercise creates a fun and invigorating environment by reducing muscle tension and eliminating laziness and boredom, and on the other hand, it controls and causes psychological stress by creating a fun and invigorating environment by reducing muscle tension and eliminating laziness and boredom.

Table 3

Results of one-sample t-test to test the first hypothesis (mean criterion = 3)

Mean	Standard deviation	t	Degrees of freedom	Significance level
3.1309	0.74331	3.450	383	0.001

The index's mean was 3.130 ± 0.743 , according to Table (3) data. The t-statistic value is 3.450, and the significance level is 0.001. The test is significant at the 95 percent confidence level since this value is less than 0.05, indicating that there is a substantial difference between the mean

of the index and the mean of the criteria. Given that the index's mean was higher than the criterion's mean, the current hypothesis may be regarded to be verified by the sample persons.

2. It means that, on the one hand, hydrotherapy exercise creates a fun and invigorating environment by reducing muscle tension and eliminating laziness and boredom, and on the other hand, it controls and causes psychological stress by creating a fun and invigorating environment by reducing muscle tension and eliminating laziness and boredom. In major cities, noise pollution appears to have a substantial role as one of the most significant environmental contaminants. The Maharloo Lake area in Shiraz, which is tranquil and free of noise pollution, might be one of the most beneficial aspects of the creation of a hydrotherapy complex.

Table 4

The results of the one-sample t-test to examine the second hypothesis (mean criterion = 3)

Mean	SD	t	Degrees of freedom	Significance level
3.7461	0.81471	6.107	383	0.000

As shown, the index's mean was 3.746 ± 0.814 . The t-statistic value is 6.107, and the significance level is 0.000. The test is significant at the 95 percent confidence level since this result is smaller than 0.05. This indicates that there is a significant difference between the index's mean and the criterion's mean, and because the index's mean was bigger than the criterion's mean, the current hypothesis can be considered to be verified by the sample. This implies that noise pollution, as one of the major environmental contaminants in large cities, appears to account for a considerable portion. The Maharloo Lake area in Shiraz, which is tranquil and free of noise pollution, might be one of the most beneficial aspects of the creation of a hydrotherapy complex.

3. It appears that the therapeutic powers of Maharloo Lake in Shiraz, as a healthy environmental substrate, can aid in the recovery of physical ailments while also providing a significant economic boost to the region's economic cycle. As a result, it might be one of the most important aspects in the development of a hydrotherapy complex in Shiraz's Maharloo Lake area, which benefits human physical and mental health.

Table 5

Results of one-sample t-test to study the third hypothesis (mean criterion = 3)

Mean	SD	t	Degrees of freedom	Significance level
3.1576	0.762380	4.050	383	0.000

As shown, the index's mean was 3.156 ± 0.762 . The t-statistic value is 4.050, and the significance level is 0.000, indicating that the test is significant at the 95 percent confidence level because the value is smaller than 0.05. This indicates that there is a significant difference between the index's mean and the criterion's mean, and because the index's mean was higher than the criterion's mean, the current hypothesis is stated to be verified by the sample persons. This suggests that the therapeutic characteristics of Maharloo Lake in Shiraz, as a healthy environmental substrate, may aid in the rehabilitation of physical ailments while also providing a significant economic boost to the region's economic cycle. As a result, it might be one of the most important aspects in the development of a hydrotherapy complex in Shiraz's Maharloo Lake area, which benefits human physical and mental health.

The following tables show the weights and rankings of the examined locations based on proximity, site view, site view, access, noise pollution, and topography.

Table 6

The final weight of the site 1

Site selection factors	Weight of indicators for the site 1	Index weights	Multiplying the weight of the index by the relative weight
Neighborhood	0.199	0.007	0.014
View from the site	0.227	0.116	0.026
Site view	0.448	0.213	0.095
Access	0.561	0.242	0.135
Noise Pollution	0.248	0.152	0.038
topography	0.517	0.161	0.83
Total	3.003	-	final weight=0.391

Table 7

The final weight of the site 2

Site selection factors	Weight of indicators for the site 1	Index weights	Multiplying the weight of the index by the relative weight
<i>Neighborhood</i>	<i>0.678</i>	<i>0.117</i>	<i>0.079</i>
<i>View from the site</i>	<i>0.246</i>	<i>0.116</i>	<i>0.029</i>
<i>Site view</i>	<i>0.240</i>	<i>0.213</i>	<i>0.051</i>
<i>Access</i>	<i>0.305</i>	<i>0.242</i>	<i>0.074</i>
<i>Noise Pollution</i>	<i>0.381</i>	<i>0.152</i>	<i>0.058</i>
<i>topography</i>	<i>0.209</i>	<i>0.161</i>	<i>0.336</i>

Table 8

The final weight of the site 3

Site selection factors	Weight of indicators for the site 1	Index weights	Multiplying the weight of the index by the relative weight
Neighborhood	0.212	0.117	0.0248
View from the site	0.476	0.116	0.0552
Site view	0.311	0.213	0.0662
Access	0.133	0.242	0.202
Noise Pollution	0.334	0.152	0.0507
topography	0.275	0.161	0.0442
Total	1.741	-	Total weight=0.261

Site 1 had the highest ranking among the examined sites as a consequence of the results.

Design process

The land is 213.140 * 87.55 meters in size, with access to the street on both sides and the mountain on both sides. The design began after understanding the earth's temperature and natural features, as well as the prevailing wind. The overall size of the land is 18660 square meters, with 1760 square meters on the ground level, 2438 square meters on the first floor, and 2194 square meters on the second floor being deemed land occupancy. At night, there are 1/5m between the beginning and the finish of the site.

In a public setting, you should replace the air at least twice an hour. The temperature limit in these areas is 18 to 25 degrees Fahrenheit, with a relative humidity of 20%-70%. Because hot water contains a lot of sulfur and is damaging to one's health, the pool area and the complex's wet space are continually expelling and conveying fresh air. The complex's stairwell is 18cm high on the outside and 17cm on the inside with the stairwell floor, the stairwell steps are inside to access the first level, and the stairwell is one-sided. The windows should be at least 2.5×1.5 meters in size. In busy situations, the doors open to the outside and are 1/10 the size of regular doors. The lobby is situated on the bottom level in such a manner that the revolving and rotating modes of the stairs, as well as the two entrances, one leading out and the other leading to the suites, are all visible. The waiting area is placed along with the foyer and has a capacity of 80 people, allowing for a direct connection. The greenery set inspired by the city of Sarvestan trees is placed in the outdoor space with a variation in the level of gorgeous and entertaining location for strolling.



Figure 2 – Spatial communication plan

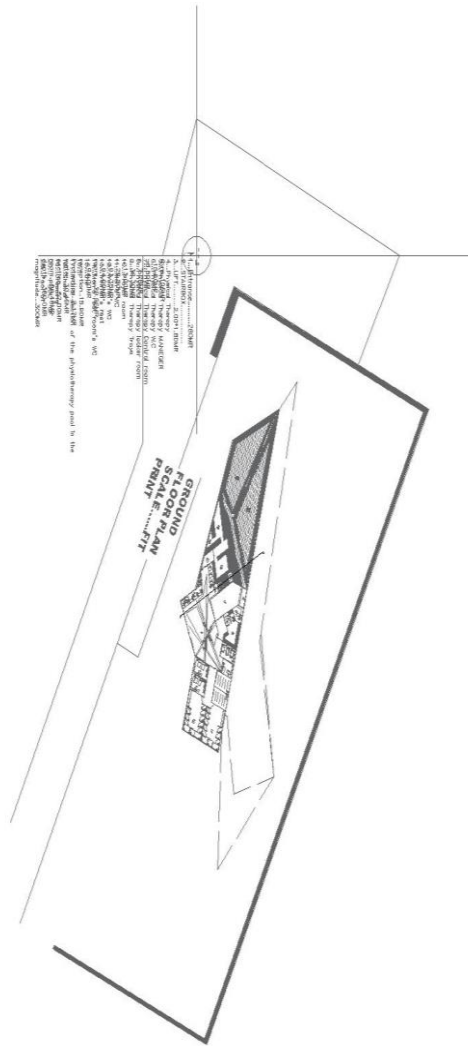


Figure 3 – Ground floor plan

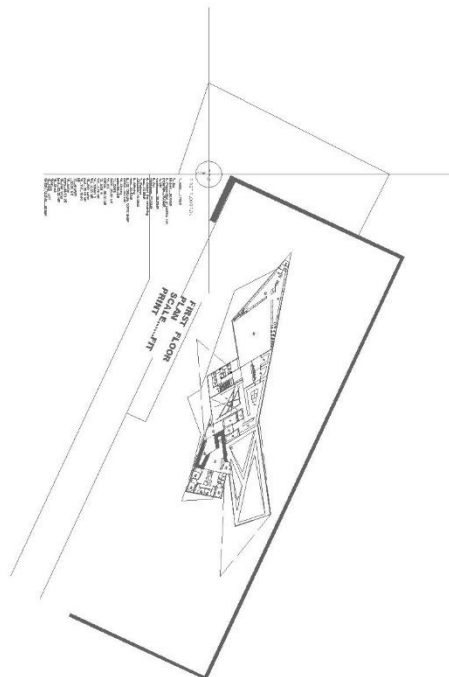


Figure 4 – First-floor plan

Conclusion

The present study aimed to create a Shiraz Salt Lake hydrotherapy complex that will promote both physical and mental wellness. According to the findings, the study index's mean was 3.130 ± 0.743 . The t-statistic value is 3.450, and the significance threshold is 0.001, indicating that the test is significant at the 95 percent confidence level because the value is smaller than 0.05. This indicates that there is a considerable difference between the index's mean and the criterion's mean, and given that the index's mean was higher than the criterion's mean, the first hypothesis may be accepted by the sample persons. This implies that hydrotherapy appears to provide peace of mind, a sense of security, freshness, and vigor; on the other hand, it reduces stress and helps you feel healthy by providing a joyful and uplifting atmosphere, decreasing muscular tension, and removing sloth and boredom.

According to the study's findings, the index's mean was 3.746 ± 0.814 . The t-statistic is 6.107, and the significance level is 0.000, indicating that the test is significant at the 95 percent confidence level because the value is less than 0.05. This indicates that there is a substantial difference between the index's mean and the criterion's mean, and because the index's mean was bigger than the criterion's mean, the second hypothesis is supported by the sample. As one of the most serious environmental pollutants in major cities, noise pollution has a substantial proportion. The Maharloo Lake area in Shiraz, which is tranquil and free of noise pollution, might be one of the most beneficial aspects of the creation of a hydrotherapy complex.

The index's mean was 3.156 ± 0.762 based on the findings. The t-statistic value is 4.050, and the significant level is 0.000, which indicates that the level test's 95 percent confidence is significant since the value is less than 0.05. This indicates that there is a substantial difference between the index's mean and the criterion's mean, and because the index's mean was bigger than the criterion's mean, the third hypothesis is supported by the sample. This suggests that the therapeutic characteristics of Maharloo Lake in Shiraz, as a healthy environmental substrate, may aid in the rehabilitation of physical ailments while also providing a significant economic boost to the region's economic cycle. As a result, it might be one of the most important aspects in the development of a hydrotherapy complex in Shiraz's Maharloo Lake area, which benefits human physical and mental health.

Sustainable recreation has been proposed as a new concept to deal with the destructive effects of tourism development. Today, sustainability is widely accepted as a fundamental approach for any type of development, including tourism development, and it has been proposed as a new concept to deal with the destructive effects of tourism development on social and environmental issues. In order to move toward the use of tourist attractions in accordance with today's needs and the preservation of these resources for the future, sustainability in the tourism perspective of recreational areas necessitates systematic attention to the technical, cultural, political, economic, historical, and environmental dimensions. With its tourist-recreational attractions and excellent ecological potential, the Maharloo Lake recreation area has a strong propensity to attract visitors. It goes without saying that leisure and recreational use of the environment necessitates the protection of natural resources, minimal environmental harm, and the principles of sustainable tourism development.

As a result, methods to enhance the recreational landscape of this region, taking into consideration its ecology and local circumstances, were established, taking into account the unique potentials of Maharloo Lake as well as solving and minimizing its challenges and difficulties. These strategies express fundamental concepts such as utilizing the site's unique and indigenous abilities and signs, establishing interaction between the site bed and users, revitalizing agricul-

tural landscapes, and paying attention to the region's ecology and vegetation, which are the main areas of sustainable tourism in Maharloo.

Forghani et al. investigated the content of heavy metals in Lake Maharloo sediments in 2009. Nickel, chromium, zinc, lead, copper, cadmium, and arsenic had the greatest densities among the metals investigated, with densities of 78.3, 12.8, 38.2, 37, 29, 4, 4.4, and 2.26 mg/kg, respectively. They also claimed that the density of heavy metals in the northern regions of the lake is substantially higher. According to them, the major cause of the growth was the inflow of urban and industrial effluent from Shiraz into the northern portions of the lake via the Shiraz dry river. The results of the current study's comparison of densities demonstrate that metal densities in lake salt are lower than those in lake sediments. However, the findings of their investigation suggest that the density of these metals in the northern regions of the lake is higher than in the southern and central parts, with the exception of nickel.

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ARCHITECTURAL PRINCIPLES IN DESIGNS OF KHAVARAN MULTIFUNCTIONAL CULTURAL SPORTS COMPLEX IN TABRIZ CITY IRAN

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ABSTRACT

In terms of the spatial environment, cultural exchanges and social interactions were done in some places, such as mosques, neighborhood centers, bazaars, and the whole city. And society culture developed and grew through a slow but cohesive trend. However, this trend experienced a change due to increasing population number and urbanization growth, as well as expansion of communication sciences and techniques and changing urbanization and residence methods in recent years. The urban spaces and characteristics, however, did not grow optimally at the scale of new residences through this expansion and new urbanization. Therefore, it was common to face distortions, biases, and shortcomings in the community. Because there are many distinguished and special

historical places and ancestors' beautiful architectures, as well as diverse natures in Iran, it is essential to have sports complexes and stadiums in Iran. Stadiums are defined to meet the cultural-recreational needs of the complex audiences in an area. It is essential to develop such spaces due to the lack of sports-recreational spaces and the urgent need of today's humans to use standard cultural spaces to fill leisure time and tourism attractions. The extant study strived to link sports and culture and to stabilize this connection in the body of a sports complex. To do this, the analytical-descriptive method was used in this study.

Keywords: sports; community; sports complex; stadium.

1. Introduction

Sports and recreational needs are important issues with a considerable contribution to society (Amiri, 2005: 11). Sports place is the center for a 3D documented world consisting of sports and recreational topics. It is also a center to foster all people by participating in a healthy and happy culture. One solution to keep and improve health culture is to create a space for individual and collective activities in all urban areas. Sports-recreational uses are the most important parts considered in the comprehensive plans of each city. Fun and sports are critical issues that must be considered to improve the cultural level of health and create a healthy space to reveal the sports talents of cities. Therefore, sports functions have a significant and lasting impact on the cities' form and function in terms of aesthetical, social, economic, and symbolic aspects. Because there are many important historical locations and ancestors' beautiful architectures, as well as diverse natures in Iran, sports complexes and stadia must exist in this country. Stadiums have been constructed to meet the cultural-recreational needs of an area based on the audiences' needs in such complexes (Fakhar & Haeri, 2006: 41).

It should be noted that stadiums have been the most considerable human-built projects in past due to technical problems in the construction of such huge buildings, such as the Olympic Stadium in Greece and the Colosseum in Rome, Italy). It is necessary to enhance sports-recreational spaces due to the lack of such places and the urgent need of modern men to use standard cultural spaces to fill their leisure time and attract tourists. The lack of such spaces causes overcrowding in other recreational spaces in the city, which intensifies social abnormal behaviors and weakens tourist attraction and investment in the area. The increased young population of Iranian cities has made it necessary to expand sports-cultural uses and their standard location to facilitate easy and inexpensive access.

Sports stadiums are broad recreational places, such as cinemas and theater salons that are architectural signs of a city or land. Finally, stadium design is accomplished if the structure and other buildings' issues of every stadium are considered at all dimensions from total to partial details in case of time and place. The structure designed in this research was divided into several parts: the structure of the volume's body shell is constructed as a monolithic concrete structure integrated with glass lattice structures in walls and ceilings. The internal structure of the volume is composed of concrete columns.

The extant study was conducted to create a proper connection between nature, art, and intelligent architecture and set this link in the body of a multifunctional sports-cultural complex. This stability is not a case predefined by architecture, but the audience in question observes the step-by-step natural and human process passed by architecture sciences from the beginning of the connection in the site of a modern stadium in Khavaran Town. To do this, the descriptive-analytical method was used.

2. Theoretical Foundations

2.1. Stadium, in terms of architecture

Sports stadiums are large recreational places, which are architectural signs of a city or land, like cinemas and theater salons. The stadium design finally is accomplished if the structure and

other buildings' issues of every stadium are considered at all dimensions from total to partial details in case of time and place. Naturally, the stadium's face is towards sports activities and back to its surrounding, which is equipped with fences and other security barriers.

A stadium is a combination of different elements (e.g., sits, stairs, getaways, entrances, ceilings, etc.) that are highly inflexible, so it is difficult to match them with traditional construction forms. In this case, traditional composition rules have been overlooked, and architecture firms tend to find possible factors that have stability and resilience, aesthetic and harmonic use, but also show good architecture. Stadiums usually spend many days without any activity per year; therefore, they occupy large useful space for short-term use.

2.2. Spatial Intervention Perspectives

2.2.1. Functionalist Insight

The interventional side of this thought stems from boosting man's mental-moral aspects for production realms. Man's productivity and production are reduced due to working a lot, so space is required to overcome it and spend leisure time. In this insight, whenever space confronts time, then dysfunction occurs. In other words, such confrontation between space performances and time requires change by such intervention through capital in the land improving value-added. Although his insight considers humans in the collective production, the important point is that individual form is useable regardless of social relationships. Practical application of this perspective has led to the following outcomes.

2.2.2 Naturalist Insight

This insight focuses on the originality of man and nature emphasizing that nature rules relationships. This belief puts humans in nature, and man must rely on nature to prove his/her centrality, so man's freedom depends on the creation of natural spaces. According to this insight, leisure time can be in line with nature-based activities.

2.2.3. Culturalism Insight

This belief introduces cultural conditions and values as dominant factors in forming a space. In other words, space is the spatial outcome of each society's culture, which indicates itself as a symbol, makes a connection between forms, makes the space meaningful, and forms society's behavioral patterns. This insight defined the place as a composition of specific natural and cultural elements, which distinguish it from other places. According to this insight, the space is defined in man-environment and man-man commutations in the frame of social relationships. This insight emphasizes the past to give identity (Habib, 2009) to today's man by protecting and producing past symbolic achievements, i.e., it puts today's contents in the past's body. In general, this insight has a social-cultural approach to space and considers the form as the outcome of the human-environment relationship believing that the form will gain aesthetical aspects when is matched with environmental properties and is influenced by them.

3. Design regulations and standards

The football field's size depends on the match classes, but other internal dimensions and sizes of the field, including zoning and marking, are fixed, and lines are drawn based on a certain rule. A football field (also known as a football pitch) is a rectangle of 100-110m and 64-75m in length and width, respectively. A line divides the field into two equal parts from the middle side. The football field consists of 2 goal areas, two penalty areas, and four corners. The playing pitch

must include at least 6m edges on the sidelines and 9m edges behind the gate lines (Planning and Budget Organization, 2001).

According to the German standard, small or large fields are set on a longitudinal axis towards the northern-southern side. The deviation is possible from the north to northwest and northeast at about 15°. However, the northwest-northeast axis is preferred. Some track and field sports, such as throwing and jumping are navigated, in a way that athletes are away from sun rays (Nixdorf, 2007).

According to sports spaces' standards in Iran, sports amenities of stadiums are classified into three categories A-C:

Sports amenities type A: this field consists of eight paths for track-and-field matches with small and large match venues in the central space, and the place for hammer and disc throwing, height jumping, and javelin throwing is located on the southern side. Spear jump, disc throwing, and equipment related to javelin throw, as well as some holes are installed on the northern side for the hurdle race. The long jump and triple jump races are done in the eastern direction located behind the playing pitch.

Sports amenities type B: this category is like the playfield type A, and the difference is only the presence of six paths for track and field matches around the pitch.

Sports amenities type C: this field consists of four paths with small and large 4-6-band fields at the central spaces. Amenities associated with height jumping, javelin and disc throwing, long jump, triple jump, and disc throwing equipment are placed in the northern part (Ernst and Peter Neufert, 2000).

3.1. Spectator Stands

Longitudinal sides of the football field are the most suitable place for spectators. In areas and places where there are not many spectators, and on sports pitches, one longitudinal side of the field is used for spectator stands (grandstands). Proper and fast access to spectators must be considered in the design of grandstands for ease and rapid evacuation of spectators (Noi Consulting Engineers, 2006). Spectator stands must be divided into two controllable parts. Spectators and fans of different teams must sit in opposite grandstands as it is possible. It is better to consider different access parts for fans of each team.

The color used for seats is another significant factor. Seats' colors have many visual effects, especially when some seats are empty. Some colors resist ultraviolet (UV) rays, and designers must pay attention to this point in the design process. The seats must be designed in a way not to hold water in them and be cleaned easily. It must be simple to clean around and under the seats. The seats' connection must be strong not to be corroded.

Sitting and standing places must be isolated by fences. The retaining fences, walls, doors, or glass fences must be 110cm in height. The gathering place in the stadium must be an indoor space, and its dimensions should be matched its capacity. Rest stands must be located in an attractive and healthy environment; these stands must have easy access and distribute in all parts at equal levels. Rest stands must be near the sitting and standing spectators' stands. The spaces must invite spectators to rest there (using information signs), and there must be adequate WCs. People queues should not be a barrier for other spectators. Moreover, support service units, such as information stands or childcare amenities are parts of desired facilities in modern stadiums.

3.2. Spaces for popular and famous individuals and receiving organizations' guests

The teams and referees' changing room is mainly located in special guests' stands and media families; this room is not accessible for spectators and media. The allocated spaces with locker room, extra space with shower, and WC are located near the players changing room. There must be a table and seats in this space (Noi Consulting Engineers, 2006).

There are two changing rooms for four people, a room with extra facilities of modern infrastructures, and indoor accesses that are directly connected to the grandstand. This place is located far from the players' space but near to changing rooms. There is also a medical examination room near locker rooms on the playfield for players and referees in emergency cases and injured players. There must be suitable wide access for medical transportation (stretcher).

There is special access for honored guests far away from the public entrances. There are many differences between stadiums in terms of performance and deployment. Sometimes, separate entrances are designed. In many cases, special entrances for honored guests indicate signs of that stadium's address. The honored guests are usually received in a separate place even after competitions; this place is connected to a special space in the stadium's lodge. The guests enter the stadium through the reception hall or a large foyer depending on how they get to the stadium.

During important sports competitions, some media are redirected outward from the stand to the correction part (intelligent media center) located near the TV space (Nixdorf, 2007). Technical and situational equipment are critical factors: cameras must be away from sunlight in afternoon and evening competitions. The main camera is located on the main stand, and its height depends on the camera angle, and the stand's distance and height. According to the FIFA guideline, the camera's angles are set based on the horizon line.

3.3. Public space in a cultural sports complex

According to the proposed classifications, a public space in a cultural sports complex mainly is an indoor and private space with some limitations in access ownership and space users. Besides these limitations, cultural complexes provide some advantages, such as security, safety against climate changes, etc.








Public space in cultural complexes has recreational and identity functions. Public space users can be considered, as individuals who enter a cultural space where its recreational functions naturally provide cultural advantages. The important point, in this case, is the number of space users. The more the number of users, the more dynamisms and capacities of the space will be. Therefore, these spaces may have not been designed for interconnections, but the presence of individuals in these spaces has made them a place for such actions. So, ownership and access limitations may be obstacles in such spaces. Compared to urban public spaces like streets and squares, however, this can be considered a semi-public space. This is a space controlled by a public organization for public interests so that all people have access to it at any time (Mokhber, 2007).

Access to the space and its activities can be completed with two other dimensions of brokerage and interest. Therefore, public space can be defined as a space that allows people to have access to the space and do some activities there. This is a space that a public organization controls and a space managed for the public interest (Jahanbin, 2009).

Separate locker rooms, communication corridors, equipment warehouse, administrative spaces, workshops, stage undergrounds, etc. must be designed separately far away from the stage. All spaces mentioned above must have direct access to fresh air and ventilation (Habib, 2009).

Table 1

Examples

Row	Stadium name	Image
1	Santiago Bernabéu Stadium, Madrid	
2	Khalifa International Stadium, Doha, Qatar	
3	Mercedes-Benz Stadium, Atlanta	
4	Olympic Complex, Athene	
5	Azadi Stadium, Tehran	
6	Imam Reza Stadium, Mashhad	
7	Foolad Arena Stadium, Khuzestan	

4. Site's profile

East Azerbaijan province is located in this position: 36° and 47min-38° and 42min northern width, and 45° and 3min-47° and 43min eastern length of Greenwich meridian. This province has borders with the Aras River and the Republic of Azerbaijan in the north, Ardabil in the east, Zanzan and West Azerbaijan in the south, and Urmia Lake and West Azerbaijan Province in the west. Tabriz has a low-humid climate with an average rainfall of 285mm annually.

According to the examination of wind blow in terms of geographical directions, speed, number, and breeze percentage in Tabriz, the local winds blow severely and poorly from all directions. Of them, east and northeast winds last and blow more. The wind blows from the east followed by northeast direction winds. These winds are air flows with strong power blowing over Tabriz Plain during a year. Most winds blow from the East annually.

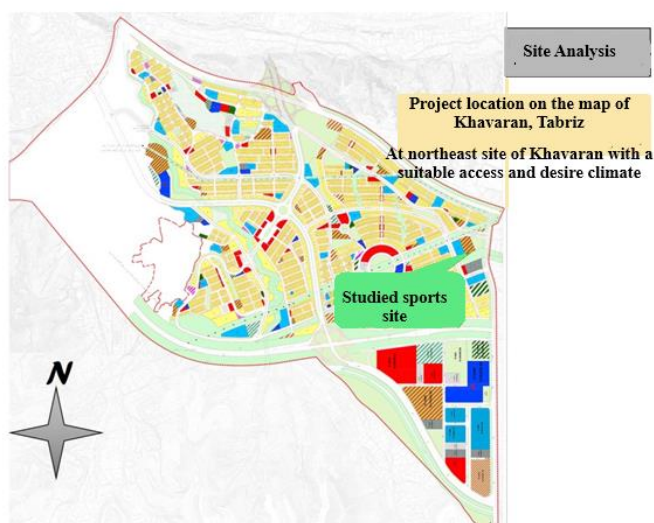


Figure 1 – Project site

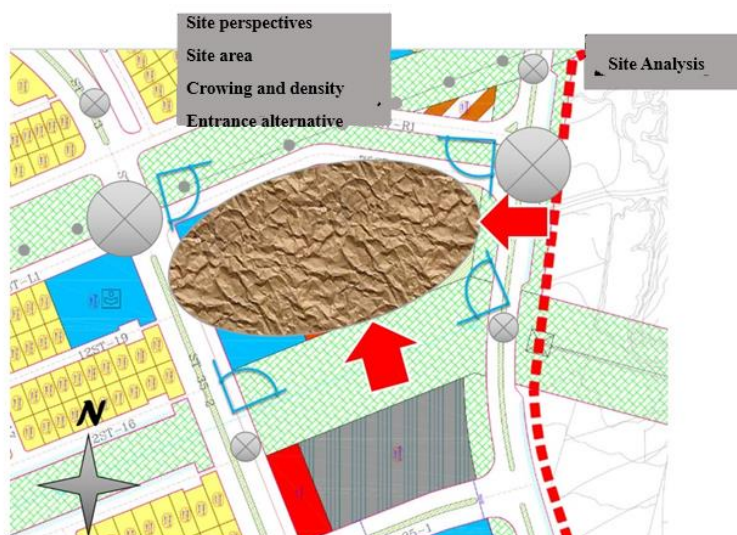


Figure 2 – Site accesses

5. Complex design

5.1. Design principles' attitude

- Provide a safe and calm space for users in urban life
- Provide special spaces for users based on the regular and planned programming

- Try to increase the social, cultural, and sports skills of users
- Create a suitable place for various educational, cultural, recreational, and sports activities
- Make users involved in the space
- Pay attention to human scale in the design process
- Proper use of the site for sports and entertainment
- Suitable application of open and semi-open spaces
- The structure designed in this plan is divided into several parts: the structure of the volume's body shell is constructed as a monolithic concrete structure integrated with glass lattice structures in walls and ceilings. The internal structure of the volume is composed of concrete columns.
- Night lighting
- Build two entrances on the site
- Different indoor and outdoor cultural sports spaces
- Design of headboards, canopy, and other rest spaces
- Use of vegetation for climate considerations and creating calmness and fresh air in the environment
- Design of indoor and semi-open parking lot
- Design of flooring on-site, skylights, and even complex' ceiling design

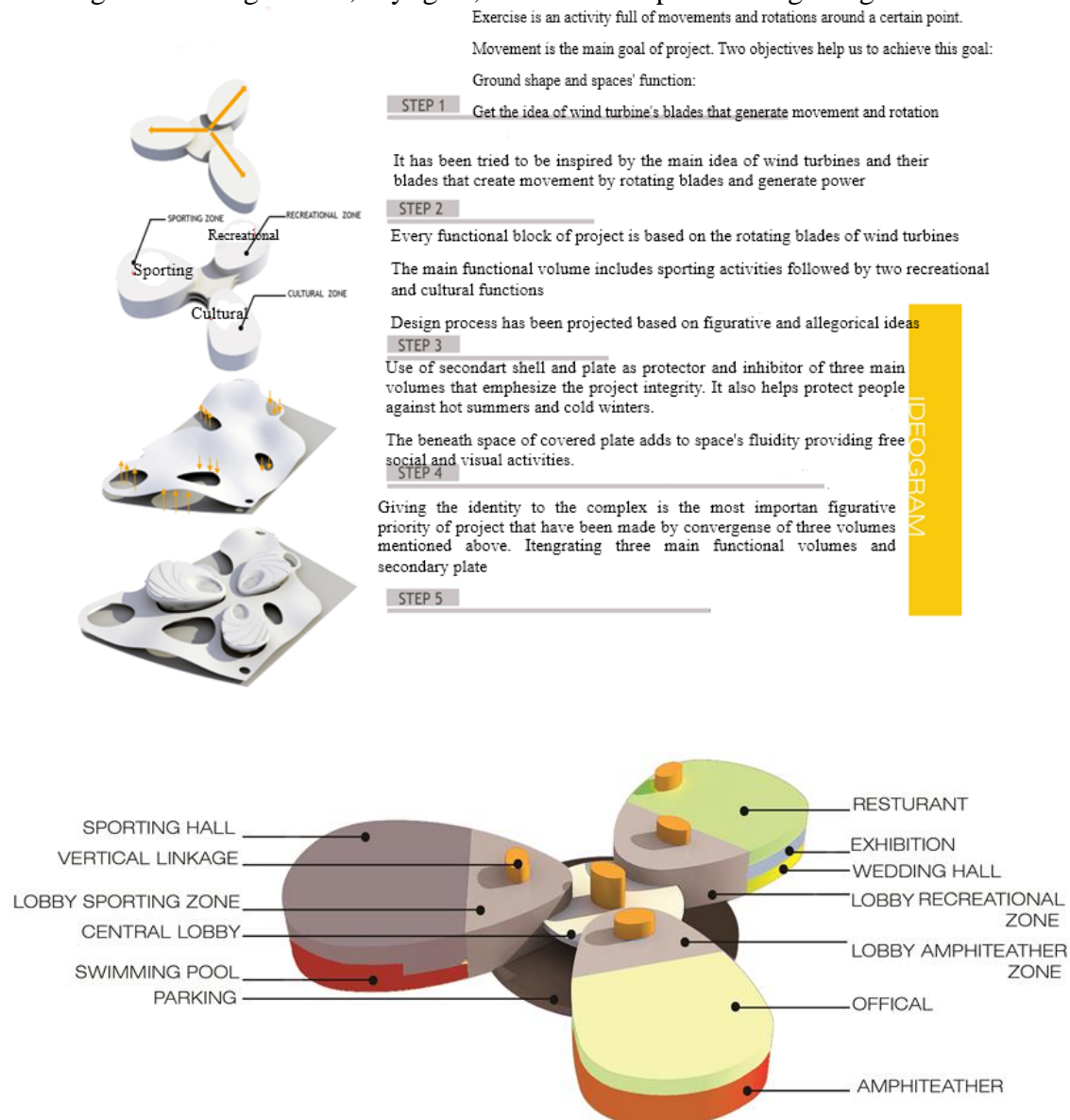


Figure 3 – Space's diagram

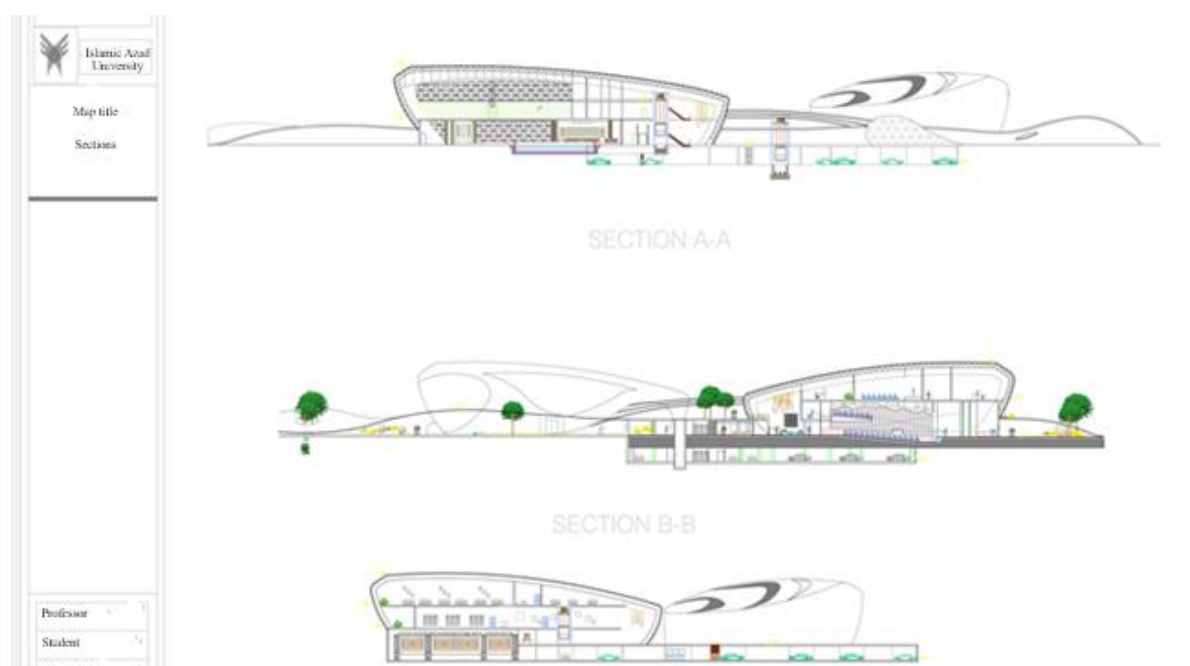


Figure 4 – Design Plan

Conclusion

In a suitable and vibrant city, citizens live in urban places from early morning until late night, and pedestrians walk in these places. In these spaces, people use motor vehicles. Citizens spend a long time in streets, parks, and markets, so a high-quality environment must be provided for people to meet their daily needs. A good city is a lively (24-hours) city where the issue of noises caused by vehicles at night has been solved. In the opinion of Lynch, a city must be functionally responsive and meet vitality, meaning, access appropriateness, supervision and authority, efficiency, and justice. In terms of environmental vitality, a good residence provides an individual's health and welfare and survival of living organisms.

Today's Iranian community highly lacks social-cultural focuses due to the unconditional dominance of cars so that streets, squares, and alleys are full of cars during the majority hours of the day and night. Such phenomenon has led to various environmental, noise, and visual pollution, as well as soulless and insecure spaces. Such spaces have caused many problems for citizens, including broken social relationships, lack of sense of belonging to the environment, destruction of collective memories, frustration, and numbness in social behaviors and relationships. However, squares, streets, and alleys must be centers for social behaviors, richness, diversity, legibility, uses' composition, spaces implementation, behavioral campgrounds, security, social supervision, functional attractions, and a combination of work uses and urban housing to create a suitable environment for life and vitality. Because sports stadia are closely connected with functional requirements, such as clear visual lines, circulation, etc., they can be considered as buildings whose forms directly depend on the contract performance. On contrary, the massive physical scale of a stadium is a specific issue in suburban areas that is difficult to put inside the city. Therefore, many attempts must be done to match the stadium's size and its surrounding environment.

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EVALUATING THE VULNERABILITY INDEX OF REINFORCED CONCRETE MOMENT-RESISTING FRAMES RETROFITTED WITH STEEL BRACES

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ABSTRACT

As a vast part of the structures, the reinforced concrete structures can provide very optimal buildings in case of being designed and implemented based on accurate calculations and ductility relations. These structures might be in need of reinforcement for various reasons, including designing and executive errors as well as procedural variations. In order to exactly evaluate such structures and determine the extent to which they may fail, the use of the failure indices that have been dealt with a lot during the recent decades can be a promising solution. The present study aims at studying the vulnerability indices of the reinforced concrete moment-resisting frames retrofitted with steel braces. The frames studied herein are in match with the criteria mentioned in the tenth chapter of the building regulations and 2800 guidelines with the buildings in which they are to be used featuring intermediate importance. In terms of the evaluating the vulnerability indices, the results indicated that the concrete moment-resisting frames are highly vulnerable when subjected to earthquake waves and they undergo a lot of displacement, movement and crushes. However, they would exhibit proper seismic behaviors if they are improved and retrofitted with steel braces. It has to be pointed out that a structure's performance status is specified in respect to its failure index.

Keywords: vulnerability index; improvement and retrofitting; concrete moment-resisting frames; steel braces.

Introduction

Earthquake is one of the natural devastative phenomena and it has left behind a lot of financial and life losses only within the past half a century. As one of the earthquake-prone countries of the world, Iran has sustained damages as a result of this phenomenon and the consequences stemming thereof. The possibility of a severe earthquake's occurrence due to the natural geological conditions of Iran, on the one hand, and, also, the designing and construction of buildings by the use of a lot of concrete for the mere non-observance of the seismic loading in them, on the other hand, make it necessary to evaluate the quakes of the existing buildings as well as their improvement. In concrete frames, the lateral stiffness is usually secured in separate and in combination with the moment-resisting frames and shear walls. Researchers have suggested various methods for seismic strengthening of the frames with each of them possessing certain advantages and disadvantages. One of these methods is retrofitting new structural components like shear wall or steel brace to the structure. The use of steel brace can be taken into account for the reason that it imposes the least overweight to the structure and, in the meanwhile, it can be more simply implemented as compared to the other methods. The blending of the concrete moment-resisting frames retrofitted with metal brace can be useful in certain cases.

The reason for this can be justified by lower construction costs and lower need for system repair and replacement after the earthquake. Moreover, if the concrete structure is found in need of improvement after construction, use can be made of metal bracing system in comparison to shear wall due to the easy implementation and lower cost that make it an appropriate method for concrete improving. During the recent years, many researchers and institutes have performed research works regarding the improvement of the structures. One of the most well-known of these institutions is the Federal Emergency Management Agency (FEMA). FEMA-273 is the first journal of this agency which was published under the title of seismic improvement guidelines in September 1996 for investigation of the buildings' vulnerabilities. In addition, it was in 2000 that the standard draft named FEMA-356 was published for seismic improvement of the buildings.

In 1981, Higashi Vando and Kavamata Vahnoma performed certain studies about the use of the concentric and eccentric braces in the concrete frames and they reached satisfactory results. In 1987 and 1991, Bush and others used a braced steel frame system of a complex type in concrete frames and they reached a considerable increase in in-plane shear resistance. In 1988, Ohiti and colleagues and Segi Guchi and others performed similar investigations about the use of chevron braces. In all of these studies, metal brace has been embedded indirectly into the concrete frame in this way that the metal brace is seminally inserted inside a metal frame which is per se subsequently confined onto an attached concrete frame. In this case, the shear force is indirectly transferred through a metal frame between the metal brace and the concrete frame. This system is termed indirect bracing system which is also very costly and not cost-effective. In direct bracing system, metal brace is directly connected to the concrete frame. Considering the abovementioned materials, the present study aims at evaluating the vulnerability index of the reinforced concrete moment-resisting frames retrofitted with steel braces.

Study Method

In this study, the selected 2D concrete frames have been designed for 5-storey, 8-storey and 12-storey heights (each storey 3 meters in height) buildings with fixed one-span plans. The span lengths of 5-storey, 8-storey and 12-storey buildings are 3m, 5m and 6m, respectively. The lateral load-bearing system of these frames includes strong moment-resisting frames with intermediate ductility. Each of the storeys is 3 meters in height.

ACI-318-99 guidelines have been applied herein for designing the elements of the models' reinforced concrete. Furthermore, the rules in the sixth chapter of Iran's national regulations have been exercised in regard of the loading procedures. The fifth and ninth chapters of Iran's national regulations, as well, have been utilized for the specifications and characteristics of the constructional materials such as concrete and steel.

The selected members' cross-sections with rectangular dimensions have been prepared for designing the beam elements for f-storey, 8-storey and 12-storey frames. The cross-sections of the columns have been selected in square shapes. Table (1) gives the names of the beam and column cross-sections along with the geometric specifications and applied reinforcements.

In order to determine the stiffness matrix of the entire structure in SAP 2000 finite element Software, the beams are considered without the existence of their reinforcements and only with their net concrete cross-sections; as for the columns, their concrete cross-sections along with their steel bars are taken into account. Based on the designing procedures of Iran's reinforced concrete buildings guidelines (ninth chapter of Iran's national building regulations), the bending stiffness is set at 35% about the strong axis, torsional stiffness of the beams at 15% and bending hardness at 70% around both axes of the columns for the reinforced concrete moment-resisting systems in line with the determination of the entire structure's total stiffness.

Table 1

Details of the specifications of the concrete cross-sections for the designing of the beam and column members

Cross-section's name	Cross section's height (b_f) in centimeters	Cross section's width (t_f) in centimeters	Reinforcement
B35x35	35	35	-
B35x40	35	35	-
B40x40	40	40	-
C30x30-8φ14	30	30	8φ14
C30x30-8φ16	30	30	8φ16
C35x35-8φ16	35	35	8φ16
C35x35-8φ18	35	35	8φ18
C35x35-8φ20	35	35	8φ20
C40x40-8φ20	40	40	8φ20
C45x45-8φ20	45	45	8φ20
C45x45-12φ20	45	45	8φ20
C45x45-16φ20	45	45	16φ20
C50x50-16φ20	50	50	16φ20
C50x50-20φ20	50	50	20φ20
C55x55-20φ20	55	55	20φ20
C55x55-24φ20	55	55	24φ20
C60x60-24φ20	60	60	24φ20
C60x60-24φ22	60	60	24φ22
C65x65-24φ22	65	65	24φ22
C65x65-24φ25	65	65	24φ25

In this study, the extensive dead gravitational load (including the weight of the floor slab and its paving works plus partitioning) is 150 kilograms per every square meter with the live weight being 300kg/m². It was concluded herein that all of the beams and all of the columns can be controlled by bending.

The amounts needed for the determination of a, b and c modeling coefficients as well as the acceptance scales are all based on journal 360.

Cross-bracing systems wherein both of the braces intersect one another longitudinally meet each other in the middle feature an effective length equal to 0.5 m of the total length of the brace in the in-plane buckling state and an effective length equal to 0.67 m of the total length of the brace in the out-plane buckling state. As for the V-shaped, inverted V-shaped and diagonal (inclined) braces, these cross-bracing systems feature an effective length equal to 0.8 m of the total brace's length in the in-plane buckling state and an effective length equal to the brace's total

length in the out-plane buckling state for both of the braces. The total length of the brace also includes the sheets attached to the ending section, as well, for all the states.

Table 2

Acceptance amounts-scales in the beams

Positive and negative moment areas						
Joint type	Scales of accepting the amount of plastic rotation			Modeling parameters		
	IO	LS	CP	a	b	c
Moment-resisting (bending)	0.005	0.0	0.02	0.02	0.04	0.2

Table 3

Scales for columns' acceptance

Positive and negative moment areas						
Joint type	Scales of accepting the amount of plastic rotation			Modeling parameters		
	IO	LS	CP	a	b	c
Moment-resisting (bending)	0.003	0.01	0.012	0.012	0.02	0.2

Tabas and Manjil are the earthquakes selected for analyzing the seismic damages imposed onto the concrete frames. The following table shows the specifications of the two selected earthquakes.

Table 4

The characteristics of the applied

Accelerogram	Station recorded the earthquake	PGA (m/s ²)		Site class	Distance from the fault (km)
		x-direction	y-direction		
Manjil, Iran	BHRC 99999 Abbar	0.515 g	0.496 g	D	40.43
Tabas, DAY	Dayhook	0.328 g	0.406 g	D	27.0

Determination of the standard designs' spectrum in BSE-1 risk levels for Tehran:

The amounts of the standard designs' spectrum (S_a) are obtained through multiplying the building's reflection coefficient (B) by the design's base acceleration (A). Corresponding to the relations in Iran's 2800 earthquake guidelines, 4th edition, for type III lands, these amounts are obtained as explained below:

B is the variable defined as the structures' coefficient of reflection; it is the way a structure responses to the ground motions and it is specified according to the following relations in which $1B$ is the coefficient of the spectrum's shape and N is the spectrum's modification coefficient:

$$B1 = \begin{cases} S0 + (S - S0 + 1) \left(\frac{T}{T0} \right) & 0 < T < T0 \\ S + 1 & T0 < T < TS \\ (S + 1) \times \left(\frac{TS}{T} \right) & T > TS \end{cases}$$

$$N = \begin{cases} 1 & T > TS \\ \frac{0.7}{4 - TS} (T > TS) + 1 & TS < T < 4sec \\ 1.7 & T > 4sec \end{cases} \quad (1)$$

$$B = N \times B1$$

T is the structure's main period for the reinforced concrete moment-resisting frame retrofitted with convergent braces and it is computed based on the experimental relations in Iran's 2800 earthquake guidelines as given in relations (2) and (3). It should be noted that H is the structure's height calculated from the base level.

$$T = 0.05(H)^{0.9} \quad (2)$$

$$T = 0.05(H)^{0.75} \quad (3)$$

$$T_{12st-Original} = 0.05 \times (36)^{0.9} = 1.258$$

$$T_{12st-Rehabilitated} = 0.05 \times (36)^{0.75} = 0.735$$

$$T_{8st-Original} = 0.05 \times (24)^{0.9} = 0.873$$

$$T_{8st-Rehabilitated} = 0.05 \times (24)^{0.75} = 0.542$$

$$T_{5st-Original} = 0.05 \times (15)^{0.9} = 0.572$$

$$T_{5st-Rehabilitated} = 0.05 \times (15)^{0.75} = 0.381$$

Assuming type III as the land type on which the studied buildings are going to be built, seismic parameters denoted S, S0, T0 and TS are respectively equal to 1.75, 1.1, 150 and 0.7.

This way, the diagram of the standard designs' spectrum (Sa) would be as shown beneath for the designed base acceleration intensity (A=0.35) for BSE-1 risk level for Tehran.

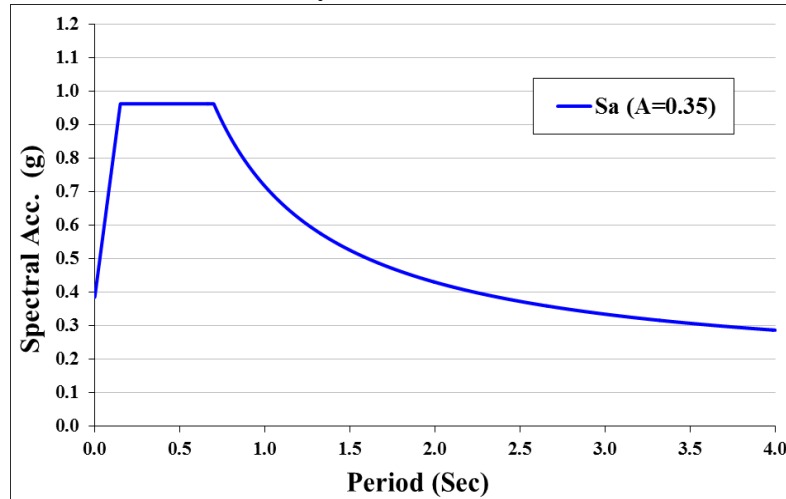


Figure 1 – Standard designs' spectrum for earthquakes' BSE-1 risk level

In this stage and in order to improve the status of the diagrams, the scale coefficients are changed through trial and error and, in the end, the final scale coefficients are attained. The following table presents the abovementioned earthquakes' scales for the frames' spectrum of standard designs.

Preliminary Nonlinear Analysis:

Using SAP2000 finite element software, the models' pushover analysis was conducted. The increase in the forces' amounts is conducted by the application itself and automatically. The

determinant scale for the analysis termination is the structure's roof displacement meaning that the target spot's change is determined initially for the roof and, then, it is with the increase in the forces' amounts that the structure's analysis is advanced to the ending stage.

Table 5

The accelerograms' scale coefficients in respect to the standard designs' spectrum for earthquakes in LS performance level

State	Frame	Manjil	Tabas DAY
Base	12-storey	2.30	2.00
	8-storey	2.25	1.25
	5-storey	1.025	1.15
Improvement	12-storey	1.75	1.20
	8-storey	1.02	1.15
	5-storey	1.00	0.77

Designing Convergent Braces for Improving the Concrete Frames' Seismic Resistance:

5-storey, 8-storey and 12-storey buildings' concrete frames have been designed for seismic improvement only for the gravitational loads. Now, selecting the steel convergent brace system for improving the concrete frames' seismic resistance, the distributed shear forces should be obtained in elevations. This shear force is going to be entirely tolerated by the steel braces. Next, the process of determining the designed shear force in regard of the steel braces would be explicated in accordance with Iran's 2800 earthquake guidelines, 4th edition.

Step One: Determining the Earthquake Coefficient (C):

In this section of the research, the static earthquake coefficient needed for the seismic loading of the convergent braced frames should be obtained in regard of the fourth edition of 2800 Standards (1):

III \rightarrow $T_0=0.15$; $T_S=0.7$; $S=1.5$; $S=1.1_0$ type soil

I = 1.0 importance factor

The design's base acceleration according to the construction place of Tehran:

$A=0.35$

The specific behavior coefficient of the convergent braced frame:

$R_u=5.5$

Magnification coefficient of the structure's lateral displacement:

$C_d=5.0$

Structure's over-resistance coefficient:

$\Omega_0=2.0$

Calculation of the structure's period:

$T_{5\text{ st}}=0.05 \times H^{(0.75)}=0.05 \times (15)^{(0.75)}=0.381 \text{ sec}$

$T_{8\text{ st}}=0.05 \times H^{(0.75)}=0.05 \times (24)^{(0.75)}=0.542 \text{ sec}$

$T_{12\text{ st}}=0.05 \times H^{(0.75)}=0.05 \times (36)^{(0.75)}=0.735 \text{ sec}$

Earthquake's Reflection Coefficient:

5-Storey Frame:

$B_1=1+S=1+1.75=2.75$

$N=1.0$

$$B_X = N \times B_I = 1.0 \times 2.75 = 2.75$$

8-Storey Frame:

$$B_I = 1 + S = 1 + 1.75 = 2.75$$

$$N = 1.0$$

$$B_X = N \times B_I = 1.0 \times 2.75 = 2.75$$

12-Storey Frame:

$$B_I = (S + 1) \times \left(\frac{T_s}{T}\right) = (1.75 + 1) \times \left(\frac{0.7}{0.735}\right) = 2.619$$

$$N = \frac{0.7}{4 - T_s} (T - T_s) + 1 = \frac{0.7}{4 - 0.7} (0.735 - 0.7) + 1 = 1.007$$

$$B_X = N \times B_I = 1.007 \times 2.619 = 2.637$$

Earthquake Coefficient:

$$\rho = 1.0$$

$$C_{5\text{ st}} = \rho \frac{ABI}{R_u} = \frac{0.35 \times 2.75 \times 1}{5.5} = 0.175$$

$$C_{8\text{ st}} = \rho \frac{ABI}{R_u} = \frac{0.35 \times 2.75 \times 1}{5.5} = 0.175$$

$$C_{12\text{ st}} = \rho \frac{ABI}{R_u} = \frac{0.35 \times 2.75 \times 1}{5.5} = 0.1678$$

Step Two: Determination of the Base Shear (V):

Seismic masses of the concrete frames as obtained from SAP2000 Software:

$$W_{5\text{ st}} = 7765 \text{ kg}$$

$$W_{8\text{ st}} = 21360 \text{ kg}$$

$$W_{12\text{ st}} = 37560 \text{ kg}$$

$$V_{5\text{ st}} = C_{5\text{ st}} \times W_{5\text{ st}} = 0.175 \times 7765 \text{ kg} = 1359 \text{ kg}$$

$$V_{8\text{ st}} = C_{8\text{ st}} \times W_{8\text{ st}} = 0.175 \times 21360 \text{ kg} = 3738 \text{ kg}$$

$$V_{12\text{ st}} = C_{12\text{ st}} \times W_{12\text{ st}} = 0.1678 \times 37560 \text{ kg} = 5967 \text{ kg}$$

Step Three: distribution of the base shear force in frames' elevations (V_i):

The lateral load patterns can be observed in the following table:

Table 6

Lateral load patterns

Storeys	$\frac{w_x h_x^k}{\sum_{i=1}^n w_i h_i^k}$		
	5-storey building's frame	8-storey building's frame	12-storey building's frame
ST-12			0.1621
ST-11			0.1471
ST-10			0.1322
ST-9			0.1175
ST-8		0.2242	0.1030
ST-7		0.1957	0.0887
ST-6		0.1672	0.0747
ST-5	0.3333	0.1388	0.0609
ST-4	0.2667	0.1105	0.0475
ST-3	0.2000	0.0824	0.0344
ST-2	0.1333	0.0545	0.0219
ST-1	0.0667	0.0268	0.0101

Now, the seismic force exerted onto every level is as shown in the table below:

Table 7

Seismic force exerted onto every level

Storeys	$F_x = \frac{w_x h_x^k}{\sum_{i=1}^n w_i h_i^k} \times V(kg)$		
	5-storey building's frame	8-storey building's frame	12-storey building's frame
ST-12			967.2
ST-11			877.5
ST-10			788.8
ST-9			701.2
ST-8		838.2	614.7
ST-7		731.4	529.4
ST-6		624.9	445.6
ST-5	453.0	518.7	363.4
ST-4	362.4	413.0	283.2
ST-3	271.8	307.9	205.3
ST-2	181.2	203.5	130.5
ST-1	90.6	100.3	60.1

In this section, the shear force of every storey obtained from cumulative summing of the seismic forces exerted onto the above floors (previous table) is obtained as given in the following table:

Table 8

Every storey's shear force

Storeys	$V_i = \sum_{j=i}^n F_j (kg)$		
	5-storey building's frame	8-storey building's frame	12-storey building's frame
ST-12			967.2
ST-11			1844.7
ST-10			2633.6
ST-9			3334.7
ST-8		838.2	3949.4
ST-7		1569.6	4478.8
ST-6		2194.5	4924.5
ST-5	453.0	2713.2	5287.9
ST-4	815.4	3126.2	5571.1
ST-3	1087.2	3434.2	5776.4
ST-2	1268.4	3637.7	5906.9
ST-1	1359.0	3738.0	5967.0

Step Four: Determination of Every Storey's Brace Cross-Section

The following table gives the least calculated buckling capacity (P_b) for the frames on various levels:

Table 9

The least calculated buckling capacity

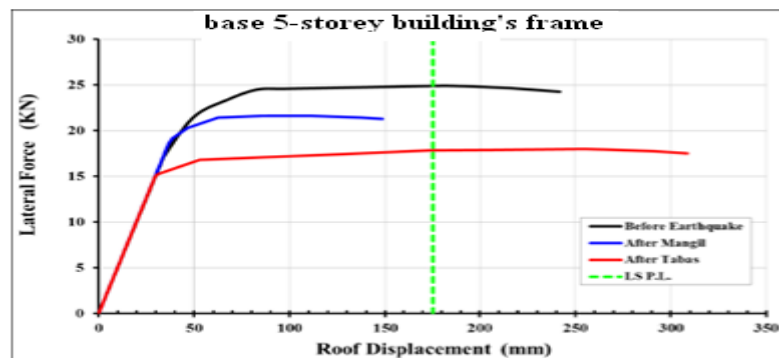
Storeys	$(P_{bi} = \frac{1.25R_y V_i}{\cos \alpha} (kg))$		
	5-storey building's frame	8-storey building's frame	12-storey building's frame
ST-12			1622.0
ST-11			3093.7
ST-10			4416.6
ST-9			5592.5
ST-8		1466.3	6623.4
ST-7		2745.7	7511.2
ST-6		3838.7	8258.6
ST-5	961.0	4746.1	8868.1
ST-4	1729.7	5468.7	9343.0
ST-3	2306.3	6007.3	9687.3
ST-2	2690.7	6363.4	9906.1
ST-1	2882.9	6538.8	10007.0

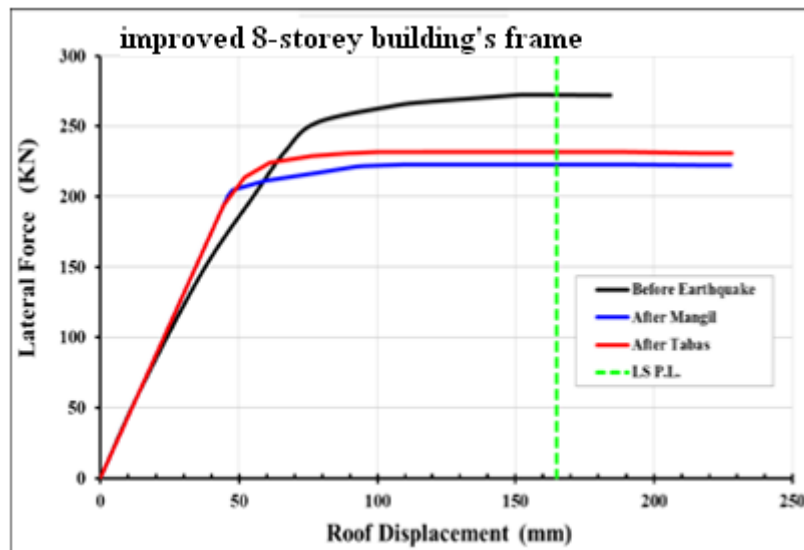
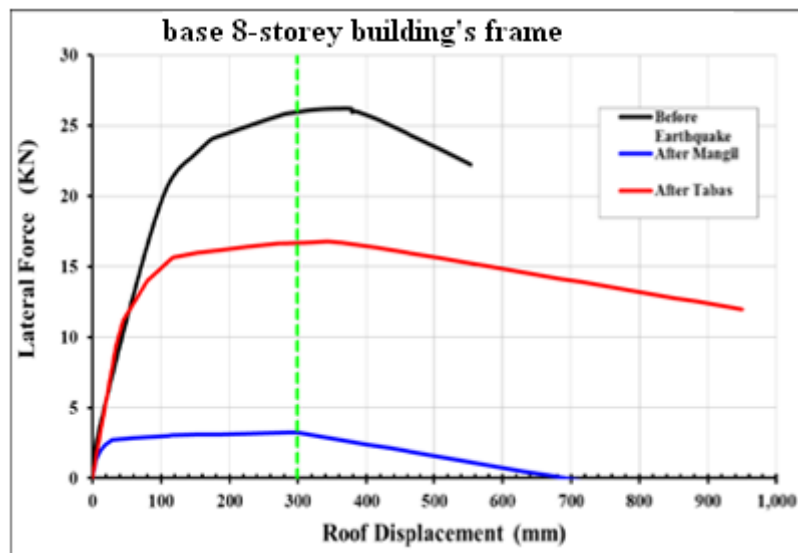
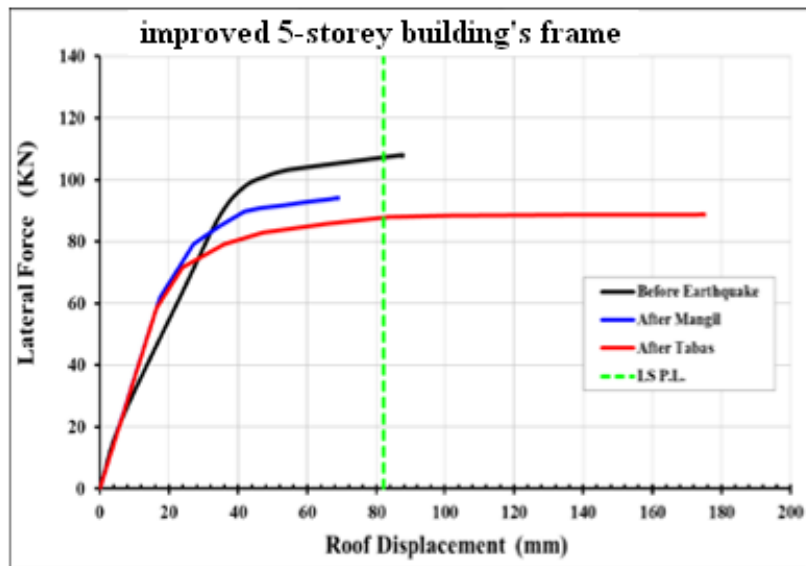
Now, the method existing in paragraph 4-4-2-10 in tenth chapter, page 48, is applied for calculating the nominal load-resisting rate of the singular braces with equal two-winged angle bar cross-section. Due to the fact that the lengths of the braces are different in 3-storey, 8-storey and 12-storey buildings' frames, the effective length of the equal two-winged angle bar cross-section can resist a given amount of nominal load in all the three frames of the 5-storey building subject to buckling.

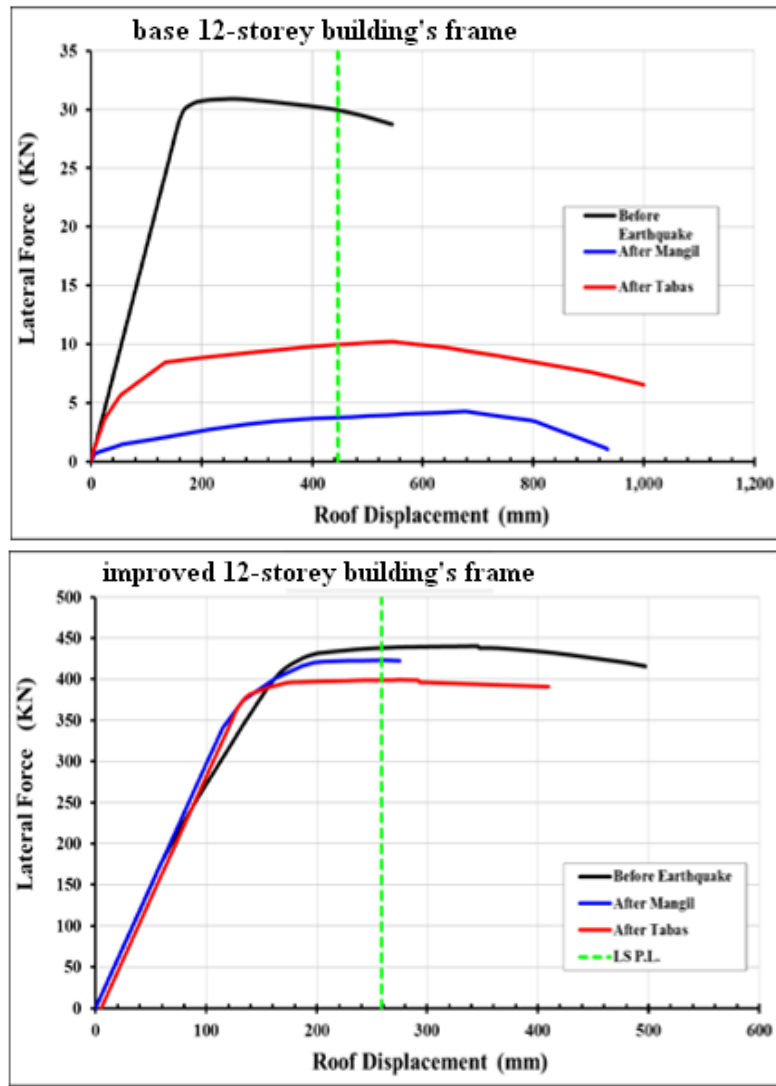
Findings:

Seismic Damage Evaluation:

In the following figures, the capacity curves have been displayed for the displacements of the roof under and after the exertion of Tabas and Manjil earthquakes' base shear forces on the frames applied in 5-, 8- and 12-storey buildings in both base and improved states. As expected, the frames' force-resisting capacity is gradually decreased following the exertion of the earthquakes' seismic forces onto them as compared to the state without the exertion of them.







The analytical results of the frames' seismic damages have been demonstrated in the following figure based on the $D \times g$ damage index. As it is clear, the amount of the damage index is close to unity for the base buildings in BSE-1 earthquake level and this is reflective of the overturn or collapse possibilities; but, the damage index is below unity and within an acceptable level for the buildings improved as proposed herein due to the increase in the stiffness, ductility and lateral load-bearing capacity of the base buildings.

Moreover, the following table presents the final resistance rates before and after the exertion of Tabas and Manjil earthquakes' seismic forces onto the frames in both base and improved states.

Table 10

The final resistance rates before and after the exertion of Manjil and Tabas seismic forces

5-storey building's frame									
Base					Improved				
F_0 (kN)	F_{final} (kN)		$D \times g$		F_{final} (kN)	F_{final} (kN)			$D \times g$
	Manjil	Tabas	Manjil	Tabas		Manjil	Tabas	Manjil	
24.901	21.619	17.366	0.132	0.303	107.656	93.95	88.553	0.127	0.177

Table 11

The final resistance rates before and after the exertion of Manjil and Tabas seismic forces

8-storey building's frame									
Base					Improved				
F ₀ (KN)	F _{final} (KN)		D×g F ₀ (KN)		F _{final} (KN)	F _{final} (KN)			D×g
	Manjil	Tabas	Manjil	Tabas		Manjil	Tabas	Manjil	Tabas
26.194	3.213	16.715	0.877	0.362	271.96	221.95	230.57	0.184	0.152

Table 12

The final resistance rates before and after the exertion of Manjil and Tabas seismic forces

12-storey building's frame									
Base					Improved				
F ₀ (KN)	F _{final} (KN)		D×g F ₀ (KN)		F _{final} (KN)	F _{final} (KN)			D×g
	Manjil	Tabas	Manjil	Tabas		Manjil	Tabas	Manjil	Tabas
30.774	4.192	10.299	0.864	0.665	438.062	422.663	384.47	0.035	0.122

Conclusion

Considering the models and their outputs as well as the modeling hypotheses for the models proposed herein, although the use of the analytical methods is a proper solution for the investigation of the structures' performances, it is by the calculation of the failure index that the structures' failures and statuses can be detected and identified. The results of the 5-storey building's frame indicated that the vulnerability index has been reduced about 58% for the improved buildings in contrast to the base ones. The results obtained for the 8-storey building's frame showed that the vulnerability index has been reduced for the improved building by about 80% in comparison to the base building. The results obtained for the 12-storey building's frame signified that the vulnerability index has been reduced by about 82% for the improved building as compared to the base one.

Considering the outputs and the diagrams for the 5-storey building, the structures have been transformed from DC State (limited failure) to IO state (limited usability). As for the 8-storey building, the results indicated that the structure has been transformed from CP state (collapse threshold) in the base form to IO state (incessant usability) in improved form. In the 12-storey building, as well, the structure has been found transformed from CP state (collapse threshold) in base form to IO state (incessant usability) in improved form.

It is suggested that further investigations should make use of improvement instruments like dampers and other kinds of bracing that have not been applied in this research paper.

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THE ROLE OF URBAN MANAGERS IN THE DEVELOPMENT OF THE BANDAR ABBAS COASTLINE

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ABSTRACT

The present study aims to explore coastal zones as one of the most important settlements for humans throughout history. In this study, the growth rate of coastal Strip development from 1991 to 2018 using aerial and GIS images and analyzing the issued licenses to evaluate the performance. We have addressed the city managers in this tape and then used a public questionnaire to assess the level of public satisfaction with the managers. Finally, we have described the issues and provided solutions on how to deal with urban management to improve the development of the coastal strip. Therefore, to solve these problems, urban management needs more accurate and comprehensive planning that includes all dimensions and aspects of the coastal area.

Keywords: Coastal Strip; urban management; growth and development pattern; Bandar Abbas; physical development.

1. Introduction

The coastal region is a common space of two independent geographical territories, namely land and sea [1]. Sectoral management in urban design and management believes that if a problem occurs in the coastal zone, it can be solved by transferring it to another zone [2]. According to the Intergovernmental Panel on Climate Change (IPCC), rising sea levels are the main challenge for urban coastal areas due to global warming [3].

Like many other countries, Iran is facing gradual degradation of coasts (physical development and increase of structures and reduction of coastal strip). This destruction has adverse effects on the environment, society and economy. If it continues, it will cause countless problems for human life and yard in the coastal strip in the not too distant future [4]. According to the contents of this study, the following questions were answered.

- What is the city manager's role in the physical growth and Bandar Abbas *beach* development?
- How has urban management performance been in the physical development of Bandar Abbas beach?
- What have been the most important factors for Bandar Abbas beaches development?
- How much has migration affected Bandar Abbas beaches development?

2. Methodology

The present research is descriptive and analytical, and tools such as Google Earth software, Gis software, and Spss software have been used. This research has used three types of infor-

mation: 1. Google Earth aerial photographs, 2. The popular questionnaire, 3. construction permits issued in the coastal strip.

For this purpose, aerial images (1991 and 2018) have been used. Also, 382 public questionnaires should be filled in using the Cochran's formula according to coastal strip population, in which 390 questionnaires were filled in for better results. First of all, the coastal strip *border* in 1991 and 2018 was determined using Google Earth Pro software to draw the range using the Add polygon command. The desired range is drawn and saved as a kml file and converted to Shipfile in the GIs environment. Then Google Earth maps are exported to the Arcmap environment in Gis using Arcbrutle software. Then parcels and blocks are drawn using the Editor command, and finally, the analysis was performed on the obtained maps. SPSS software was used for the survey questionnaire. Then, descriptive data analysis based on the Likert scale is performed using this software. The analysis of this research has also been done according to the number of *structural* licenses issued by the municipality.

3. Results

3.1. Study of the role of organizational factors affecting the process of coastal growth and development

Figure 1 shows the effective organizational factors in the physical growth pattern and the Bandar Abbas Coastal Strip development.

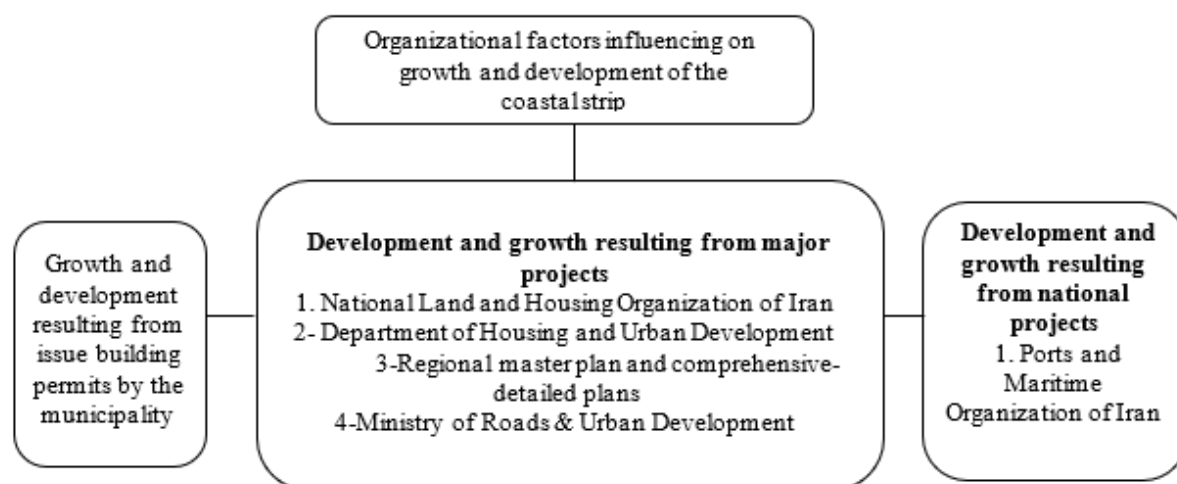


Figure 1 – Organizational factors affecting the growth and development pattern of Bandar Abbas coastal Strip

3.2 Investigate the growth and expansion of the coastal strip

According to the studies based on the classification of aerial images in Gis in 1991 and 2018, it was found that the coastal strip of Bandar Abbas has expanded greatly during these two decades, and this expansion has been towards the sea.

3.3 The growth pattern of the coastal strip using map analysis

According to the obtained maps and their analysis, it can be concluded that the coastal strip in 1991 had an area of about 657,7372 hectares, which in 2018 increased to 879,81920 hectares. According to the interviews and literature, Shahid Rajaee port has been a positive and effective land use in regional development. This high-capacity port and job creation are factors that have made people want to build housing on the coast.

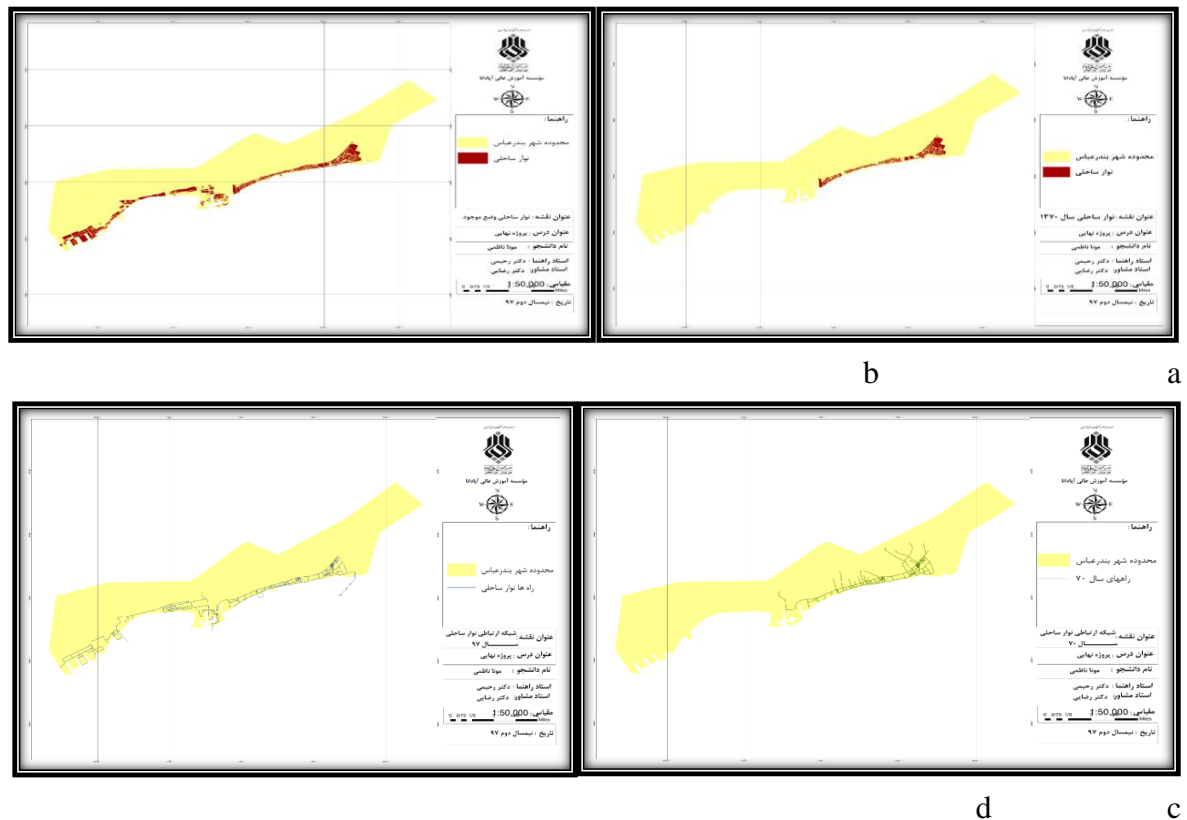


Figure 2 – a) Coastal strip map of 2001, b- Coastal strip map of 1397, c) Coastal strip communication network map of 1370, b) - Coastal strip communication network of 2018

In 1991, the coastal strip was limited to the city center, and there was no *sprawl* growth (Figure 2-a).

3.4 Growth and development pattern of the coastal strip with the analysis of issued licenses

The study of the number of permits issued from 1991 to 1397 showed that 6533 structural permits have been issued, which covers an area of about 196 hectares. These studies also show that the highest number of licenses were issued in the 80s.

3.5 Urban management performance in the coastal strip

3.5.1. Description and analysis of statistical community data

According to the coastal strip population size, 390 questionnaires were completed in holidays and non-holidays from people who lived, worked in the coastal strip or resided on the beach for fun. The selection of these people was random, but choosing people who like living and working in the coastal strip was due to more familiarity with the coastal strip and observing the performance of ruling bodies such as the municipality in coastal development.

3.5.2. Analysis of research variables

In this study, 390 people were selected based on Cochran's formula and the data obtained from the questionnaire. Considering the choice of a 5-point Likert scale for the questions that make up the questionnaire, the respondents' opinions resulting from the questionnaire should be examined to determine whether their average answers differ by a number 3 (the *middle* point on the Likert scale) or not?

3.5.2.1. Physical variable

In this study, the physical variable has an average below 3(2) (Table 2). This shows that the physical indicators in the coastal strip are not in good condition from a public perspective.

Table 1

Description and analysis of statistical sample characteristics

%	Frequency	Data	
3.1	12	Less than 15 years	Age
132	125	15-25 years	
4.3	170	25-36 years	
10	41	35-45 years	
8	32	45-60 years	
2	10	60 years and over	
63	244	woman	Gender
37	146	man	
3.6	12	Illiterate	Education
8	32	High school	
8	32	Diploma	
65	250	Bachelor	
15	59	master and doctorate	
36	143	Employee	Occupation
24	96	Free jobs	
18	73	Housekeeper	
17	70	Student	
2.1	8	Retired	
0	0	Unemployed	
88	346	Resident	Resident
5	21	Non-resident	
5	21	Non-resident citizen	
8	32	Less than 2 years	residence duration
2	10	3-5 years	
5	23	5-10 years	
12	50	10-15 years	
70	275	More than 15 years	
41	160	Tenant	Type of residence
57	224	Landlord	

Table 2

Analysis of physical variables

Median	Average	Percentages based on the Likert scale					Physical variable
		very much	much	medium	little	very little	
2	2	3	11	31	33	19	Suitable construction in coastal strip
3	2	5.10	4.08	56.10	5.10	29.59	Consider to the sea setback
3	2	0	2.04	52.04	14.29	31.63	Consider to the beach as a natural border
4	3	26.26	42.42	18.18	8.07	5.05	Preventing prevailing winds due to high-rise buildings
2	2	2.04	8.16	25.51	36.3	27.55	People comfort
2	2.07	0	0	32.65	41.84	22.51	Legality of licenses issued
2	2	0	5.10	29.59	48.98	16.33	Coastal identity
2	1	0	2.06	14.43	60.82	22.68	Consider public places
2							Total

3.5.2.2. Access variable

According to Table 2, the access variable number is below 3. In this study, the beach access index is very low from the public perspective and is not in good condition.

Table 3

Analysis of access variables

Median	Average	Percentages based on the Likert scale					Access variable
		very much	much	medium	little	very little	
1	1	2	13.21	21.15	10.10	53.54	Suitable access to the beach
1	1	3	7.14	10.27	24.49	55.10	Consider to pedestrians
2	2	2.13	5.10	29.5	41.84	21.43	Satisfaction about the streets of the coastal strip
1	1	1.05	2.04	18.37	26.50	52.04	Suitable access for all classes
1.25							Total

3.5.2.3. Visual variable

Table 3 shows that the visual variable is in better condition than other variables and the average of all visual indicators indicates that this indicator is in a normal condition.

3.5.2.4. Social variable

Social indicators in the coastal strip with an average of less than 3 are in poor condition (table 4). In this study, according to the Likert scale, about 59% of respondents said that little attention is paid to people's interests and tastes.

Table 3

Analysis of visual variables

Average	Median						
		very much	much	medium	little	very little	
5	4	63.92	2.06	26.80	2.06	5.15	Blocking the coastal view
3	3	2.10	2.04	59.12	8.16	28.57	Maintain a view of the beach
3	2	1.03	5.10	53.05	12.24	28.57	Security
3							Total

Table 4

Analysis of social variables

social variables	Median	Average	Percentages based on the Likert scale				
			very much	much	medium	little	very little
Consider people's interests and tastes	2	1	%1/10	%2/04	%6/12	%59/10	31.63
<i>Losing sense of belonging</i>	3	3/01	%1/06	%8/10	%4/08	%67/37	19.39
Consider to all age groups	2	1	%1/02	%2/04	%16/33	%52/04	28.57
Consider to all gender groups	2	1	%1/01	%1/5	%9/15	%55/11	%33/67
population density	3	2	%1/02	%11/20	%62/27	%20/41	%5/10
Total		1/6					

3.5.2.5. Economical variable

About 48% of people answered that investing in housing in the coastal strip is economically huge and about 40 percent of respondents said land prices have been low in recent constructions. This shows that the price of coastal land is not much different from other city areas.

Table 5

Analysis of economic variables

Economic variables	Median	Average	Percentages based on Likert scale				
			Very much	Much	Medium	Little	Very little
Cost-effectiveness of investing in beach housing	4	3	%20/41	%47/96	%2/04	%21/43	%8/16
Land price	3	3/02	%17/35	%13/27	%23/47	%40/50	%5/42
Investment in land	5	4	%69/70	%21/10	%6/05	%2/02	%1/13
The impact of migration on coastal development	4	3	%32/89	%33	%29/90	%2/06	%2/06
Employment effects	3	3	%14/43	%12/37	%65/98	%5/15	%2/06
Total		3/2					

3.5.2.6. Management index

About 65% of the people were dissatisfied with the implemented projects of the municipality and had little knowledge of the ongoing projects. About 70% of people are dissatisfied with the performance of city managers.

Table 6

Analysis of managerial variable

Median	Average	Percentages based on the Likert scale					Managerial variable
		Very much	Much	Medium	Little	Very little	
1	1	100%	100%	150%	170%	650%	Satisfaction about implemented municipal plans
1	1	0%	200%	240%	140%	580%	Awareness of ongoing projects implemented by the municipality
2	1	100%	200%	70%	700%	190%	Satisfaction about the performance management
2	2/04	100%	200%	380%	240%	330%	The success rate of managers in coastal strip development
2	1	100%	200%	300%	290%	360%	Managers' performance towards people's satisfaction
1	1	100%	200%	200%	200%	750%	Managers benefit from people's opinions
2	2	100%	200%	280%	500%	180%	Managers' success in developing public spaces of coastal strip

3.6. Investigating the problems of the urban management of the coastal strip of Bandar Abbas

Table 7

Problems of urban management coastal strip of Bandar Abbas from the perspective of urban managers

Incompatibility of registration laws with city laws	Legal problems in dealing with citizens' violations	Lack of computerization of different parts of the information related to the coastal strip	Lack of necessary rules for urban management	Lack of specialized management power	Insufficient financial credits	Inconsistencies between coastal bodies	Lack of integrated management	Problems Interviewees
-	+	-	+	+	+	+	+	Mayor
-	-	-	+	+	+	+	+	Deputy Mayor
+	+	+	+	+	+	+	+	city council
-	-	-	+	-	-	+	+	Deputy Minister of Ports
+	+	+	+	+	+	+	+	Technical office

According to the interview conducted (Table 7), all bodies and factors involved in urban management have considered the lack of integrated management one of the most important urban management problems.

4. Discussion and conclusion

This study aimed to investigate the role and position of urban management in the coastal strip's growth and development pattern.

In response to the first question, it can be concluded that city managers have the most important role in the growth and development of the coastal strip. In recent years, coastal strip growth has been largely due to mismanagement and the lack of integrated management.

In response to the second question, it can be concluded that the performance of urban management in the development of Bandar Abbas beaches has not been satisfactory, and the lack of proper urban management has led to the expansion of the coastal strip and public discontent in recent decades. Improper performance of the urban management has led to the destruction of part of the coastal lands, the consequences of which are irreparable or sometimes have exorbitant costs.

In response to the third question, the most important factors for the growth of Bandar Abbas coastal strip are as follows:

Inadequate urban management

Lack of integrated management in the zone of the coastal strip and also the lack of coordination between the relevant agencies

Shahid Rajaei and Bahonar port

Better employment opportunities, economy and migration

Finally, in response to how much migration has affected the expansion of the coastal strip, it should be noted that migration is one of the main reasons for the growth and development of the coastal strip.

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AN ADMINISTRATIVE COMPLEX DESIGN WITH THE APPROACH OF GREEN ARCHITECTURE IN ISFAHAN CITY EMPHASIZING ON PASSIVE HEATING SYSTEM & COOLING SYSTEM

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ABSTRACT

In modern urban area criteria, organizations change so rapidly compared to buildings and administrative organizations reform more frequently and immediately. So, in addition to standard and technical analysis and observance regarding important points to design and recognition of needs and goals of an administrative complex and struggling to fulfill them, as well as perception of factors in consumer psychology, effective cases to create an administrative relaxation space, interpersonal aspects, office space planning and etc. should be taken into consideration through design process so it would result in an efficient set in which spatial, functional and psychological needs and goals of the consumers are provided. In this research, we have dealt with an administrative complex design with the approach of green architecture in Isfahan city emphasizing on passive heating system and cooling system. Geometric development of an ancient index model like Qeysarie bazaar, Isfahan city that is one of the design models of Chamber of Commerce, Isfahan city in which the site, design and components of the building were integrated for unity of the whole area. Furthermore, consideration of an approach to sustainable and green architecture as a nature friendly and novel approach could be an advantage for construction of the above-mentioned building and thinking about a regional design approach and emphasizing on passive heating system and cooling system could be a characteristic of this administrative and grand building of the city.

Keywords: administrative complex; green architecture; chamber of commerce; sustainable architecture; Isfahan city; heating system & cooling system.

Introduction

Through technological advances and development of societies, daily demands for environmental survival and the shifts made by inhabitants' desires are increasing. Methods and arrangements made by governments for population planning for example, are not solely enough to diminish the environmental changes and we need to review all the environmental changes and the sources which spread toxins. Monuments can destroy the environment both during making profit of the building and construction level (Edwards 2003). Establishment of buildings which are constructed based on regionally and environmentally friendly behaviors are essential, since the number of buildings are increasing parallel to population growth and are centers for spreading toxins. To prevent these problems, sustainable architecture and its solutions attracts more and more attention of market and permanent orderers including official and administrative customers daily. However, marketing and cost of primary construction of a green administrative building put a tough path across green designers to encourage employers (Edwards 2003). Investigation of social and technical solutions that could solve problems regarding the sustainability path will support an eye-catching help in energy saving and the Earth would be a livable place for future generations.

According to statistics of 2013, two percent of global energy consumption was dedicated to Iran and the portion of energy consumption in residential sector is six times more than global average in Iran (Koma et al. 2020). Besides, locating Isfahan city in a dry and droughty climate and having high air pollution index, it necessitates us to pay much more attention to environmental and natural resources conservation. Therefore, analysis of the possibility of designing an ad-

ministrative complex by green architecture criteria in Isfahan city, emphasizing on reducing energy consumption seems essential, so in case of desirable results, it could affect improvement of power-consuming and polluting administrative sector more, today.

Research Methodology

The present study was performed through field study, descriptive, and analytic approach and it is Applied research.

Information and Analysis of Site of the Project

The present project was designed according to the climate of Isfahan city. The land dedicated to this design is located next to the Summit Conference Hall at eastern side of Isfahan city. The land, having northern side and southern side directions, has a direct view to the Summit Conference Hall at southern side and Keshvary township at northern side.

Foundation of the Summit Conference Hall: 85000-89000 m²

Five-star hotel: 20 Hectares

Administrative commercial center: 265000 m²

Land of project: 15748 m²

Project foundation: 35000 m²

Adjacencies:

Adjacent to building of the Summit Conference Hall

Adjacent to Zayandeh Rood river

Easy access to main centers of the city

Close to the airport

Close to the train station

The Summit Conference Hall of Isfahan City

Establishment of Isfahan International Conference Center project started in 2010 according to governmental approval and for holding Non-Aligned Movement (NAM) Summit Conference. Building of this complex was designed like that implies the statement “Isfahan nesfe Jahan” - “Isfahan is half of the world”, since its hemispherical shape symbolizes “half of the world”.

Suggested Spaces

The main saloon, multipurpose hall, welfare, administrative and service area, establishment of a five-star hotel with 200 rooms in an area of 20000 m², VIP villas in an area of 27500 m², administrative area, restaurant and greenbelt.

Objectives of the Project

Satisfying future needs of Chamber of Commerce, Isfahan city

Presenting identity of invaluable architecture of Isfahan city through novel explanation

Creating a magnificent space with the approach of fulfilling needs of audience of the building

Addressing social sustainability of economic, environmental and viability principles in designing the project

Satisfying needs of 21st century including tourism and regional and international communication

Suggested Structure

Cobiax roof was used as structure.

Suggested Facilities

Greywater is reused for the affairs like watering the greenbelt and to filling flush toilet in the building. Renewable energy and electricity generation through Solar panels is used in the building. Solar water heaters supply hot water and water reserves in pipes located in underground of the building.

Information of Selective Materials

All the materials we use are mostly recyclable and nature friendly. These materials need to be inexpensive, for example instead of using expensive wood, application of cheap products having wood patterns, lower weight and easy installation is preferable, like acrylic blocks which are both inexpensive and a good solution for division and separation of spaces. Although utilization of rocks, specially Granite rock, for their beauty and enduring have advantage to other materials, it is not recommended due to increase in dead load of the building. They need to have capacity to get mixed with natural materials like PVC sheets and Resin that are applicable for roof and partition. Usually, floorings like Vinyl Asbestos are suitable for facility rooms and circulation spaces and in some cases for administrative public places, since they are resistant to fire and erosion. The material need to get installed rapidly and have low maintenance expenses and regarding light transillumination, reflection and refraction they should meet conditions of the project.

Ideogram

Development of main form of the plan was an inspiration of Qeysarie bazaar which was gathering place of merchants of Isfahan city during Safavieh area and it represents optimal framework, functional and regional shape.

Throughout the design, below points were taken into consideration:

Curving sharp angles by considering soft lines of the site, the Summit Conference Hall and gentleness while confronting clientele.

Unloading the hemisphere from entrance door through inspiration of homes and houses in order to respect the clientele and invited people.

Angling mass for regional sustainability, preventing entrance of irritating summer light and dust on glass.

Observation of topography and consistency of the project with the site and completion of mass by unloading voids during three rotates of the building

The pattern used for facade was an inspiration of Sheikh Lotfollah dome modulus and it is an incomparable construction all over the world. The sharp form of modulus indicates a breathtaking beauty during nightlight. The symbol is known as symbol of Isfahan city throughout the world and the modulus provided a special nightlight with its specific repetition form that demonstrates gloriousness and magnificence of the building.

Some of unique characteristics of the modulus are as below:

Unique form for Isfahan city

Coordination with lines and form of the site

Complementary form

The possibility of specific nightlight

The possibility for change and variety

Advantages of choosing this pattern for facade are easy implementation without disposal, possibility of joining the pattern inside the panels, possibility to increase the mass, possibility of periodic coloring and different nightlights. Glancing the international style and vast glass implementation in administrative buildings, in this design we used glass in all directions of the building.

Investigation of Skin and Texture Relevant with the Region

Different skins and textures were investigated in this design to include four factors below:

Energy saving: During seasonal operation of the building, double-skin facades save natural energy resources by decreasing energy consumption.

Noise reduction: Second layer of facade plays an important role in environmental noise reduction. Of course, sound reflective glass and its right implementation reduce the noise much more.

Natural ventilation (DFS): In windy climate and regions it acts like a shelter across the building and as a factor helps night ventilation of the building.

Aesthetics: Double-skin facades provide more opportunities for designers compared to normal facades to create gorgeous designs by creating depth, stratification and movement.

Entrance Hemisphere

Entrance hemisphere which was inspired by a famous proverb “Isfahan nesfe Jahan” - “Isfahan is half of the world” is located exactly across the building which is covered by pattern of the Globe and the building is affected in a way as if the world opens its hug to Isfahan city. Following this, entrance stairs and fountain across the hemisphere depicts the glory and magnificence of department of commerce.

Through construction of a bridge in entrance hemisphere and linking it to main body of the building, message of “Isfahan city, a place to connect to and communicate with the world” is implied.

Retractable Roof Over the Glass Bridge

Through a mechanical glass roof, which is movable to cover the bridge in bad climate conditions, we can protect people from direct sunlight, severe wind and snow and rain.

Iranian Arch

Taq Kasra (Kasra Arch) as a symbol of noble Iranian architecture was constructed not only for geometric presentation, but to show gloriousness of the monument. By using this ancient pattern in main entrance door of Chamber of Commerce we represented both the glory of architecture and Iranian genuineness and architecture by a Holochain arch.

Conclusion

Green designing is based on the principle that any constructed building is a small part of the nature around it and it should perform as part of the ecosystem and place in life cycle. Green architecture is a design having relation with people, therefore, quality of interior space of the building is very important (Dura Kavich et al., 2020). Undoubtedly, desirable quality is required to pay attention to the nature, suitable lighting of spaces, and natural ventilation. Meanwhile, long time sustainability should be taken into account, reaching all these is possible using the latest technology. Reaching high quality standards, safety and comfort, that provide health for people, is one of the most important goals of green architecture. Future discussion around green architecture in detail would be: 1: Quality Orientation, 2: Consideration of future, 3: Caring about the environment. So, green architecture is not a formal style, resulting from ephemeral condition and immediate emotions, rather it embodied deep concepts which connect human beings, nature and architecture.

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DESIGN OF KINDERGARTEN INTERIOR SPACE WITH A SPECIAL FOCUS ON PLAYING AND ENTERTAINMENT AND THE EFFECT OF COLOR ON CHILDREN'S BEHAVIOR (CASE STUDY: ZENDEGI KINDERGARTEN)

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ABSTRACT

Nowadays, most of the urban spaces allocated to children and their educational uses are usually the same closed/interior spaces of residential uses, which become non-standard and low-efficiency spaces with little change. In most developed countries, open spaces and areas (sites), playgrounds, and natural stimulants, such as the color of spaces, have significantly impacted the flourishing and upbringing of children. Besides, kindergartens are the first educational spaces for children to play an effective role in developing appropriate behaviors and personalities. This research results from desk research and attempts to examine theories on children and their needs in educational environments and kindergartens using the descriptive-analytical method. Color and its effects on children's behavior, playing, and entertainment are also examined. Finally, kindergartens' criteria for and characteristics that help raise children through natural stimulants are explained.

Keywords: color; child; playing; entertainment; kindergarten; children's behavior.

Introduction

Nowadays, architects and designers pay special attention to the psychological understanding of children's behaviors because such behaviors are closely related to their environment and surroundings. Thanks to advanced technological facilities, children's physical and health condition has improved. In this regard, new solutions can be proposed for the architecture of educational spaces, especially kindergartens, where children's curiosity to explore the surrounding space reaches its peak. Research shows that children's abilities and creativity are established in childhood. The best time to develop creativity and imagination is between 2 and 10 years of age, or kindergarten and elementary school. Children have rapid mental development and gradually learn to read, write, and count (Tabatabaeian et al., 2015).

Colors significantly impact the formation of human personality, especially children, and cause emotional experiences, such as joy, laughter, sadness, calmness, excitability, stillness, and excitement (Savinainen, 2002). One of the first signs of a child's life is the recognition of colors, and this discriminating intellect (sanity) can be felt in all his physical/emotional reactions (Golestani, 2016).

On the other hand, children's learning spaces require influential physical factors that overshadow the child's sensory and psychological contexts. Among these, color is considered one of the most critical factors affecting the educational space/environment, whose psychological aspects can provide excitement, attention, and curiosity. Therefore, the research subject is innovative as it deals with kindergarten interior design and the physical dimension of the space and considers the colors and tones (color effects) in the design of the kindergarten in children's playing and entertainment.

Research Method

This is an applied research study to improve children's standard of living and mixed-research (a combination of qualitative and quantitative methods) in terms of type. By sampling and random, probabilistic, and systematic questionnaire distribution, this research seeks to achieve desirable results and newer perspectives on the challenges ahead. The required information was collected using desk research and field methods.

The purpose of this study was to determine children's color/color scheme preferences in different age groups in private urban kindergartens, in different spaces, such as classrooms, corridors, and gyms. To determine children's abstract color preferences, as the first step in this study, an observation was made in twenty private urban kindergartens and some public kindergartens in Mashhad city center to document colors in kindergarten environments as an overview.

Findings

To examine children's abstract single-color preferences, a color chart was shown to individuals, and they were asked to choose their favorite color chip. The data were analyzed to observe children's abstract color preferences in different age groups and genders.

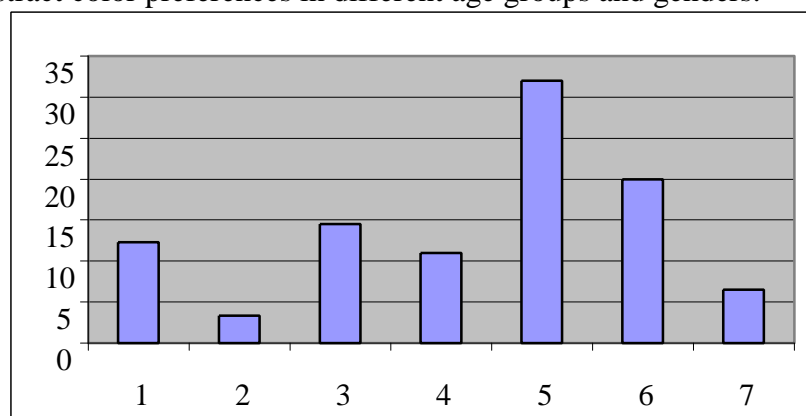


Figure 1 – Abstract single-color preference distribution of all individuals (in %). Colors in the order of preference (1: yellow, 2: orange, 3: red, 4: purple, 5: blue, 6: green, 7: color)

According to Fig. 1, the most preferred color among all people is blue (colors in the order of preference: (1) blue, (2) green, (3) red, (4) yellow, (5) purple, (6). It can be seen that people are more inclined to cool colors than warm colors. Warm, cool, and single colors are preferred by 30%, 63%, and 7% of the subjects, respectively.

Table 2 shows the results of the kindergarten survey for classroom preferences according to gender. At Zendegi Kindergarten, there is no evidence of a link between classroom preferences and gender. The results show that the blue-orange scheme in Zendegi Kindergarten is the most preferred scheme for both genders.

Table 2

Classroom preferences by gender

Gender Color scheme	Girls	Boys	Total
Existing	7%	5%	6%
Blue-Orange	70%	65%	67%
Red-Green	2%	4%	3%
Blue-Orange	8%	6%	7%
Red-Orange	9%	14%	12%
Black & White/Color	4%	5%	5%

Table 3 shows the results of the kindergarten survey for classroom preferences based on age group. Experimental results show no evidence of an association between children's age and their classroom color preferences. Also, the results of age groups' experiments on dream life

show no evidence of an association between classroom preferences and age.

Table 3

Classroom preferences by age group

Age group / Color scheme	4	5	6	Total
Existing	14.5%	0	3.5%	6%
Blue-Orange	65.5%	88.5%	48%	67%
Red-Green	5.5%	0	3.5%	3%
Blue-Orange	5.5%	4%	11%	7%
Red-Orange	9%	4%	23%	12%
Black & White/Color	0	4%	11%	5%

Table 4 shows how kindergartens are distributed for corridor preferences based on gender. In Zendegi Kindergarten, there is no evidence of a link between corridor preferences and gender. As can be seen, the most preferred scheme for girls and boys in Zendegi Kindergarten is the yellow-purple scheme, followed by the blue-green scheme.

Table 4

Corridor preferences by gender

Gender / Color scheme	Girls	Boys	Total
Existing	6%	7%	6.5%
Yellow-Purple	54%	40%	45%
Red-Green	1%	1%	1%
Blue-Green	34%	35%	35.5%
Red-Orange	4%	17%	11%
Black & White/Color	0	0	0

Table 5 shows the results of the kindergarten survey for corridor preferences based on age group. The results of the age groups test show no evidence for an association between corridor color scheme preferences and age, nor an association between corridor preferences and age. The Yellow-Purple Scheme is the most preferred scheme among all age groups in Zendegi Kindergarten.

Table 5

Corridor preferences by age group

Age group / Color scheme	4	5	6	Total
Existing	9%	0	11%	6.5%
Yellow-Purple	49%	38%	48%	45%
Red-Green	0	0	3.5%	1%
Blue-Green	34.5%	38.5%	32%	35.5%
Red-Orange	7%	23%	5%	11%
Black & White/Color	0	0	0	0

Table 6 shows the results of the kindergarten survey for gym preferences based on gender.

The results of the gender test at Zendegi Kindergarten show no evidence of a link between gym color scheme preferences and gender. Although the results are not remarkable, the most preferred schemes among girls and boys in Zendegi Kindergarten are green-blue and yellow-purple schemes.

Table 6

Gym preferences by gender

Gender Color scheme	Girls	Boys	Total
Existing	16%	10%	13%
Yellow-Purple	37%	46%	42%
Red-Green	0	5%	3%
Blue-Green	42%	21%	30%
Red-Orange	4%	16%	12%
Black & White/Color	0	0	0

Table 7 shows the age group preference distribution for Zendegi Kindergarten. The results of an age assessment at Zendegi Kindergarten show no evidence of a link between gym color scheme preferences and age. Favorite schemes are yellow-purple in age groups 4 and 6 years of age and blue-green in age group 5 years of age.

Table 7

Preference distribution by age group

Age group Color scheme	4	5	6	Total
Existing	14%	4%	19%	13%
Yellow-Purple	56%	30%	39%	42%
Red-Green	3%	4%	2%	3%
Blue-Green	18%	46%	27%	30%
Red-Orange	7%	15%	13%	12%
Black & White/Color	0	0	0	0

Table 8

Preference distribution based on performance

Performance	Zendegi Kindergarten		
Location Color scheme	Classroom	Corridor	Gym
Existing	6%	6.5%	13%
Yellow-Purple/Blue-Orange	67%	45%	42%
Red-Green	3%	1%	3%

Blue-Green	7%	35.5%	30%
Red-Orange	12%	11%	12%
Black & White/Color	5%	0	0

To observe the relationship between existing color scheme preferences and the color scheme used in kindergarten, a correlation was created between the variables listed in Table 8. The results indicate a significant correlation between colors used in the kindergarten environment and color scheme preferences (Corr: 0.925, sig = 0.009, significant at the 0.01 level). This means that when a particular color scheme is used in kindergarten environments, the existing color scheme preference is statistically significant. Existing color scheme preference in classrooms is higher among the studied spaces (Corr: 0.994, sig = 0.006, significant at the 0.01 level).

Conclusions

This study aimed to design a kindergarten interior space with a special focus on playing and entertainment and the effect of color on children's behavior. The results were categorized into two groups, including abstract single-color preferences and color preferences for kindergarten environments. Data were analyzed to understand children's color/lighting preferences. There was no evidence of an association between color preferences and gender, color, and age. Although the results were insignificant, preference distribution yielded a specific order for color preferences. The results showed that the most preferred color among all people was blue (colors in the order of preference: (1) blue, (2) green, (3) red, (4) yellow, (5) purple, (6) (Single colors and (7) orange). It was also observed that people tend to use cool colors rather than warm colors. With age, the preference for cool colors increases, and warm colors decreases. Preferences regarding changes in different age groups were shown for boys and girls, respectively.

As can be seen, in all age groups, blue and green are at the top, with single colors and orange at the bottom. Hans Eysenck's universal order of color preference is (1) blue, (2) red, (3) green, (4) purple, (5) orange, and (6) yellow. Although the order shown in this study and Hans Eysenck's universal order of color preference do not overlap much, most colors are the same in both orders: blue. Children's abstract single-color preferences tend to be light colors and half-tones. Children highly prefer the color blue for kindergarten environments. Children's preferred colors for kindergarten environments were blue, green, and purple. Blue-orange, similar blue-green, and yellow-purple schemes are highly preferred, all of which include cool colors in their shades. The results of this study were consistent with some expert views and inconsistent with others.

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СЕКЦИЯ
КУЛЬТУРОЛОГИЯ
CULTURAL SCIENCE

**ANALYZING THE FEMALE IDENTITY AND FEMININE FEATURES IN
PAINTING WORKS OF THE SECOND HALF OF THE QAJAR PERIOD
(IN THE WORKS OF KAMAL-OL-MOLK)**

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ABSTRACT

This study aims to analyze the female identity and feminine features in painting works of the second half of the Qajar period (in the works of Kamal ol-Molk). The research method is descriptive-analytical, and the research type is qualitative. The statistical population is the study of Kamal-ol-Molk school's works according to women's status, and the data collection instruments and data utilized are library resources. According to studies, Iranian society was confronted with a new experience during the reign of Nasser al-Din Shah and the increase of ties with European societies. The ubiquity of photography and printing allowed the painter to experiment with many topics. The entrance of European works gave artists from other nations a new perspective, as well as new styles, accessories, and methods. When we compare Falgir Baghdadi's painting to another work by Kamal-ol-Molk named Ramal, which was made before that of Falgir Baghdadi, we can see the contrast in perspective and attitude toward women. The way ladies dress in Ramal's picture is more traditional, and their veiling and manner of relationship with the male are distinct from Falgir Baghdadi's painting. The way women recline in front of Falgir, the less or more open covering of women by Falgir Baghdadi, and the freer interaction between men and women are notable. Falgir's artwork, which shares the same material and subject matter as the tablecloth, embodies the presence of a distinct sort of lady.

Keywords: Kamal ol-Molk School; Qajar period, Falgir Baghdadi painting, Ramal painting.

Introduction

Qajar art, like older art, is dependent on the assistance of monarchs and influential individuals. Since the Shah was the embodiment of the Qajar authoritarian authority, it is instructive to study the involvement of the monarchs in the sociopolitical and cultural events of their period. The most notable element of Qajar painting was that, like all socio-cultural expressions of the Nasserite era, it was a hybrid phenomenon that was neither entirely Iranian nor entirely European. The conflicting stylistic aspects of Qajar art, especially because they belong to two distinct and regular visual systems, come together to produce a cohesive hybrid school that separated itself from Iranian painting and concluded in absolute naturalism through three or four generations of painters (Amir Ebrahimi, 2005, p. 123).

The expansion of Western communications, urban renewal, the establishment of railways, electricity, telegraph, and telephone, familiarity with new arts and techniques such as photography and cinema, and the establishment of schools such as the Dar al-Fonun and the Mustazarfa Arts in Iran from before the reign of Nasser al-Din Shah and the good-natured and ill-fated min-

ister Amirkabir until the end of the Qajar dynasty. These technological and social advancements, together with the adoption of European culture, ushered in a new age in Iranian art and literature, which had hitherto served primarily to impress and entertain the monarchs. In quest of new forms that expressed the cultural and literary facts of the moment, literary language evolved. The development of new phenomena such as news reporting and printing, as well as the language and image of people in poetry and painting, directed to realism, and the magnificent style of court painting, which was marked by stereotypes and artificiality, gradually, and particularly under the impact of photography, aimed at observation and accuracy in natural and social phenomena. The development of trade and commerce led to the formation and consolidation of a new middle class, which later played an important role in the Constitutional Revolution. Modern architecture and urban planning, the construction of royal gardens and palaces, and the construction of streets and boulevards in the style of European cities gave a new face to the aristocratic part of the city.

As a result, Iran, which had not entirely emerged from the feudal age, needed to go forward as quickly as possible in conjunction with the world community. In such conditions, it is natural for new and old to collide, and possibly a form of schizophrenia or psychic division has persisted in all socio-cultural phenomena and patterns of life and thinking among Iranians since then (Afsarian, 2016, p. 70, 71).

The middle hundred years of the Qajar monarchy (1925-1785) corresponded with the nineteenth century, and the second half of that century coincided with Nasser al-Din Shah's reign (1848-1897). The profound and fundamental changes in the West that signified the start of a new age in nineteenth-century Europe and later across the world were, in reality, a feeble reflection of the tremendous and frightening transformations in Iranian society at the time. The pursuit of glory and the building of the central government's and power's foundations revealed an interest in the growth and flourishing of art. Most Qajar paintings are "statues of authority" of rulers and courtiers, according to this perspective. Other reasons that affected the establishment and evolution of the intriguing school of Qajar art and realistic painting of this period were the peculiarities of the age in which these monarchs lived, as well as their own personal motives - notably Nasser al-Din Shah's.

In the shadow of his autonomous personality, the painter of the second half of the Qajar era rose from the status of a mere artisan and became a creative artist with a more open hand in choosing the topics of his work. An artist who, in past eras, depicted the Shah's splendor and heroism using a set of preset conventional ideas and regulations, in keeping with the society that has been grappling with the conflict between tradition and modernization, he freed the painting from the monopoly of the court and drew it among the people by picking topics from the ordinary people and presenting scenes from their everyday life as well as a fresh reflection of the beauty of women in works of this time. The shift in Iranian painting that occurred during the Qajar period, particularly in the second half, lasted many years and formed a school whose practice and approach to Iranian painting and orienting the tastes of the audience of paintings is still effective now. Accordingly, the present research aims to analyze the female identity and feminine features in painting works of the second half of the Qajar period (in the works of Kamal ol-Molk).

Theoretical foundations

Kamal ol-Molk

The perspective mirror was unknown to Kamal ol-Molk before the image of the hall, and he learned its laws while working, and he learned and practiced what it needed to train for a long time. The Hall of Mirrors is a masterwork by Kamal ol-Molk, with chandeliers, crystal prisms, elegant tables and chairs, enormous patterned rugs, wavy and long lace curtains, and branches of

trees that hang on the window, and strangely whispers the wind in the hall's ear. In the painting of the Hall of Mirrors, Kamal-ol-Molk has crossed the line into poetry by including the theme of astounding quiet in the conflict of lights and shadows.

Kamal al-Molk became a painter in Nasser al-Din Shah's court ten years after his tutor. Muzaffar al-Din Shah dispatched Nasser al-Din Shah on tour to Europe as a reward for Kamal al-Molk's in 1275. He traveled to Paris, Rome, and Vienna when he was nearly fifty years old. Kamal al-Molk traveled to Europe and painted masterpieces by Rembrandt and Thyssen, as well as met German and French artists. He returned to Iran shortly after, on Muzaffar al-Din Shah's orders, and resumed his role as royal painter. He traveled to Iraq in 1280 after being unsatisfied with his position in the court and being separated from his wife. Some of his greatest works, such as the Falgir Baghdadi Jews, the Baghdadi jeweler and his apprentice, Karbala Square, and the sleeping Arab, were created there. In 1290, Kamal al-Molk took a significant stride forward with his wealth of expertise, and his name will long be associated with the art of teaching in our nation. He created a school (Mustazarfa Industries) on the south side of Bagh Negarestan this year at his recommendation and with the support of Ibrahim Hakimi (Hakim al-Molk, a member of parliament and one of the Qajar period's ministers). In 1306 Kamal al-Molk relocated to Hosseinabad, Neishabour, to get away from the court and everything else bothering him in the city. He continued to paint for a long time after that, dying in 1319 at the age of ninety-three, "as a national hero," according to Willem Flora (Afsarian, p. 87, 2016).

The second half of Qajar painting

The second phase of the Qajar painting occurs during and after Nasser al-Din Shah's reign. Iran's interaction with Europe was increasingly broad in the second part of the nineteenth century. Iran, on the other hand, is a part of international history because of the colonial practices of Maghreb powers, particularly Russia and Britain, and its fate is intermingled with that of other countries. In addition to internal processes, the confluence of these forces produces significant and deep societal changes, the consequences of which will explode in the Constitutional Revolution. Development of the printing industry, establishment of Dar al-Fonun (new education), creation of the modern army, the emergence of the newspaper, expansion of democratic ideas, contact with Western culture and translation of European literature and sciences, changes in Persian publishing and order, the emergence of photography, which more than painting represented the daily life of the people of the time, and especially the work of this industry in the art of painting all belongs to the same period and coincides with the long reign (fifty years), Nasser al-Din Shah. The formal and traditional painting did not suit the cultural and aesthetic demands of the time in such situations. The limits of court art become increasingly obvious.

Nasser al-Din Shah's reign (1264-1313AH) was a reasonably quiet and tranquil time, and courtiers, princes, nobles, and the wealthy were able to engage in artistic pursuits and luxury. The monarch had a taste or at least claimed to have it, as well as an interest in art. He still has a few plans and travelogues to complete. The blossoming of fine arts and crafts was produced by the progress of Iranian society in connection to the West, the Shah's relative but long-lasting serenity and art-friendliness, and the courtiers' and aristocracy's imitation of him to the art-friendliness of the combination of these causes.

Nasser al-Din Shah founded the "Assembly of Industries" in 1273 AH, where painters worked. These artists were Mirza Bozorg Shirazi and Haji Mirza Yahya Khan Taghavi. Mirza was a miniaturist, a florist and grower, a gilder, and a simulator. Sania al-Molk Ghaffari (Abul Hassan Thani) and his thirty-four pupils in the same assembly of industries drew the illustrations for "One Thousand and One Nights," the largest illustrated book of the Qajar era. During the

Qajar dynasty, he was the first Iranian artist to study in Europe. Sani al-Molk was a naturalist and naturalist artist who expressed all manifestations of nature in the shape and form he observed, according to the surviving works and instances of his work. (Zeka, 1987 '84). He was more interested in people, which is why he left a big number of single-faced people behind. Unlike past Iranian painters who had cerebral and interior vision, his worldview is Western.

The painting had become independent of the court at this point and was no longer as aristocratic as it had been. And, as the surviving instances demonstrate. There is a fresh sense of environmental awareness. Painters are more concerned with depicting common people and situations, and there is no news of wealthy people making dry and stiff motions and movements. In general, the painter departed from older painting traditions in a number of ways. The exact and careful confrontation with nature was Kamal ol-Molk (and his followers') most important creative function as a turning point in Iranian painting. Traditional Iranian painting has always existed in an anti-naturalist environment, owing to the mystical element of the work. However, after the efforts of previous painters in the direction of naturalism, Kamal ol-Molk entirely abandoned the tradition of the symbolic view of nature, and his work developed from a crude naturalism to a mature naturalism, occasionally turning to realism in the process.

One of the most prominent genres of Qajar era painting was court iconography or simulation, which contributed significantly to the development of the painting art from the beginning of the series' inception. Indeed, in court iconography, the major expression of Qajar era art was summed. The king's iconography served as a link between him and society. Fath Ali Shah's reign, which began in 1211 AH, ushered in a new era of Qajar face painting. Fath Ali Shah had an appealing face, lovely eyes, a thick and long beard, and the jewels he wore in his garments and headgear gave him a nice look, according to all reports. He commissioned a number of artists to represent his face and figure in various situations, indicating that he was aware of the attractions. Mirza Baba and Abdullah Khan were among the most prominent of these artists, while Mehr Ali, who produced at least 10 oil works by Fath Ali Shah and also painted portraits of court women, should not be neglected. However, such curtains lacked a signature and are still available today (Pakbaz, 2008, p. 153).

Femininity concept

Changes in the identity of Iranian women occurred throughout the Qajar period as a result of the development of Iranians' ties with European nations. From the middle of the Qajar century, waves of these social movements swept over Iran, affecting the identity of Iranian women to varying degrees. The first stream emerged from religious inclinations coming from Islam, clerics and imitators, and the second current arose from religious tendencies arising from Christianity, clerics and imitators. The second trend represented secular thought inspired by intellectuals, the upper classes, and the court, all of whom had connections to the outside world and were impacted by it. These two modes of thinking had differing effects on people's social lives (Zahed, 2005, p. 10).

The organization and institutions of Iranian society underwent significant changes throughout the Qajar era. One of the most significant events in Iranian history, culture, and society is the establishment of new intellectual advancements among a group of women in Iranian society, as well as some modifications in their conventional status and function in society. Many various causes and events contributed to the intellectual developments and revolutions in the position and function of Iranian women throughout the Qajar era. Far from any excesses or simplifications, it appears that, to varying degrees, a collection of reasons and elements emerging from religious, national, and Western views and currents prompted Iranian women to be distinct from women of their preceding generation among the different groups of women in the Iranian society

of the Qajar era and with different degrees. The notion of modernity, Islamic awakening, the formation of social movements, and other factors in a society with religious and national reasons led to certain changes in the system, structure, and political, social, and cultural interactions of Iranian society during the Qajar period. The progressive growth of the problem of women and the attention paid to their political and social rights in society has been one of the most significant developments in Iran's recent history (Abbasi, 2014, pp. 76-77). For the first time during the Qajar dynasty, women took part in regular and organized collective action in an attempt to affect society's broad socioeconomic strata. Women frequently used their intelligence with another talent to make their husbands appear enticing. In this aspect, Figueroa says that no woman in Iran today has any benefits or privileges. Due to their enormous numbers, even the Shah's official women are not accorded more credit than informal women and have frequently succumbed to the status quo.

Method

The research method is descriptive-analytical, and the research type is qualitative. Data collection tools and data used in this research method came from library resources and documents registered in universities, as well as articles registered, extracted, or a careful study of the first category of resources in this field, catching, summarizing, and comparing and analyzing data with one another. The approach to assessing qualitative data is based on research data and statistical samples. The statistical population is an examination of Kamal-ol-Molk school's works based on women's status.

Findings

Falgir Baghdadi's painting

During his tour to Mesopotamia in 1319 AH, Kamal-ol-Molk created a painting by Baghdadi, which is one of his most successful works. This period's works are more consistent and mature than the preceding one. The composition of works from this time shows more movement and attention to the links between levels and divisions of space. The trip's highlights are the unfinished Sleeping Arab, the Baghdadi goldsmith, Karbala Square, and the Jewish Falgir. The picture depicting Jewish fortune-telling is cheerful. At the same moment, the figures are all smiling and twirling. The primary space of the work has a proper movement that is the consequence of the visual structure of the work, and it has a particular place among Kamal-ol-compositions Molk's in this regard and is regarded as one of the painter's successful works (Image 1).

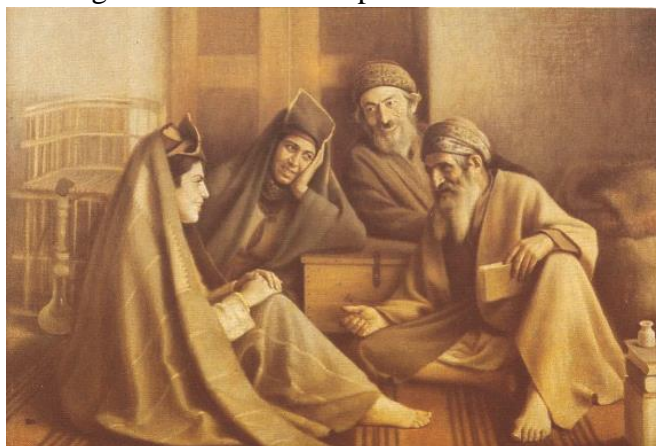


Figure 1 – Falgir Baghdadi by Kamal ol-Molk - oil painting technique - 1316 AH 1277 AH

When Kamal ol-Molk had the opportunity, he created important and moral paintings other than portraits of individuals; for example, on his journey to Saudi Arabia and Baghdad, he created a Baghdadi fortune-telling painting with the subject: Wajih's daughter and mother visited a Baghdad Jew to inquire about her inheritance. In their chamber, the fortune teller and his companion are seated on a kilim and sharing a box. Next to the horoscope book, the handkerchief is busy describing the girl's astrological. When she hears her good omen, the girl, who is also a bit ornamented, elevates her hair with a taffeta tent and places her two hands on each other on her knees, smiling. A hookah and a wooden chair are on one side of the room, and he is leaning on a napkin bed on the other: in fairness, this place is so warm and amusing, and the occupants are so cool that one can almost hear their voices. The spectator quickly becomes hooked to the malice of this form of deception because even though they are involved in the superstitions of their profession, they have employed this method of pickpocketing and desire. Although the goldsmith's workshop's luxurious, clean, and the radiant environment was its flaw, this flaw in the Jewish Falgir painting has become valid and original, and the characters' (mother and daughter) happy spirit and comfortable life in natural harmony with the affluent environment reflects what surrounds them.

This artwork has a strong sense of sensory expression. The smiles on the faces of the two men and two women in the photograph, as well as the mood that reflects the people's dialogue, are quite evident. The eye is drawn to the middle of the board and among the audience by the triangle composition, whose vertices are two old men and a young girl. The artist has created an acceptable vision of his work by considering the unique light source of lighting and three-dimensionality and the warm hue surrounding the painting area. There is no additional adornment in this work, and the subjects of the painting are the same individuals who live in the village, dressed in the same manner and engaging in the same everyday social interactions. He utilized a wicker chair, a hookah, a few books, a glass of medication, and a box to fill the area surrounding the painter, which at first look, did not catch much attention. The way men and women sit in the picture, as well as the subjects' eyes and gaze trajectory, well portray the emotion and atmosphere of interaction between them, and as can be observed, all of this points to a popular environment rather than a wonderful and ideal atmosphere.

2. The painting of a clergyman fortune teller

Mohammad Naghashbashi signed this artwork, which was most likely produced around 1309 AH. Like ancient Jewish art, this painting reflects a social and realistic viewpoint. The observer can obtain a better understanding of the topic of the painting by looking at the accessories of a fortune teller, who is his better depiction, in the area in front of the picture. The materials, especially the creases in the elderly man's cloak and garments, and the volumes on the table and the tiny book in the handkerchief are expressive lovely and convey the actual significance of these items. In a light design and shade, the old man's hands and face are precisely and forcefully produced. The painting is straightforward in terms of color, but because of its tiny size (about 55 x 45 cm), it necessitates a great deal of attention to detail in terms of engraving, color, and nature payment. The characters are well-developed and have a reasonable relationship with one another (Image 2).

As is clear, in past years, a huge exhibition in Rome was formed, in which famous painters' paintings were displayed. Sheikh Ramali, with two old women, one of Kamal al-outstanding Molk's paintings, has been consulted by the Iranian government. Sticks, corner boxes, rugs, miniature tables, pens and wallets, and other equipment are all beautifully illustrated. The fortune-teller and the other two persons, as well as the right side of the painting, which contains the napkin and its equipment, have a decent composition, but the painting, in particular, has a disorganized empty space that detracts from the overall composition. However, when compared to the

hunting board painting from the year 1302 AH, it is obvious how far the old-fashioned painting and the painting are in terms of art and identifying design, shape, light shadow, and color. The most recent picture signed by a painter by Kamal ol-Molk is "Ramal" (1309 AH), which is regarded as the strongest composition of Kamal-ol-Molk people until that point and demonstrates his command of color and perfect interpretation of nature.



Figure 2 – Fortune teller, by Kamal ol-Molk. Oil painting technique - 1309 AH 1270 AH.

When we compare the painting of the Baghdadi fortune teller to another work by Kamal al-Molk, Ramal, which was painted before the Baghdadi fortune teller, we can clearly see the difference in perspective and attitude toward women. The way ladies dress in Ramal's picture is more traditional, and their veiling and style of contact with the guy in Ramal's painting differ from the image of Falgir Baghdadi. The way women sit in front of the fortune teller, the less or more open coverage of women by Falgir Baghdadi, and the freer interaction between men and women are all remarkable. The presence of a distinct sort of lady is embodied in the fortune-telling picture, which shares substance and subject matter with the tablecloth. Two ladies are present in the piece, one of who is middle-aged and the other perhaps young. The middle-aged woman has abandoned her flash, but she still uses the corner of her tent to separate herself from the fortune-teller. The second young woman has taken off her earrings but is covering her face with a veil so that just her eyes are visible. She is separated from the fate teller by a tiny table placed between her and the guy.

Unlike the fortune-telling painting, the space of this piece is fairly hefty and dry. There is no hint of closeness between the individuals, and their gazes do not rotate, causing the elderly gentleman to stare at the ground. This appearance is similar to a colorful photograph. The intricacies are depicted with attention. The faces and bodies appear to be stuck in time.

However, when he compares this work to Kamal-ol-more Molk's recent work, we witness a metamorphosis, and in Kamal-ol-current Molk's work, life is flowing, and it cannot be understood only as a color image. The character placement is more mature and ingrained than in the previous work owing to the sort of lighting and light shadows. Placing a young woman's face in the light in front of a fortune teller's face in the dark with bright shadows might imply their character portrayal.

Conclusion

The Enlightenment and popular revolutions swept Europe in the 18th and 19th centuries, as well as economic advancement and scientific discoveries and the transition of Europe into a modern world. The Qajar dynasty ruled Iran at this time. In a few words, 19th century Iran can

be described as Iran at the turn of the century, economically poor, backward, sparsely populated, scattered and disconnected in terms of communication, and cut off from the rest of the world in terms of trade, politics, international relations, order and culture.

The social and economic status of Iranian society during the Qajar era, as well as the growing industrialization in the West, prompted certain government officials and educated individuals to consider changes in the country. Abbas Mirza, Crown Prince of Fath Ali Shah, led the initial reform initiatives inside the Qajar monarchy, followed by the Ghaem Magham family, and finally, the society's intellectuals.

Reforms in the country were initially limited to military affairs, and attempts were made to send representatives from such nations to Iran to achieve these advancements through the creation of diplomatic ties with the then industrialized countries. They provided training to Iranian soldiers so that they could withstand foreign attacks and keep their independence. Meanwhile, the ups and downs of European military delegations helped to lay the path for societal and political reform. Furthermore, the visit of Qajar monarchs and politicians to the West cleared the way for the influence of European ideas and thinking, as well as prepared the basis for Iranian society to adopt Western civilization. The early part of the Qajar period saw a trend of traditional Iranian society toward civilization and modernity as government officials and officials became more familiar with the new European mentality.

The establishment of new scientific and educational facilities prompted a desire to translate European publications, and so the translation of European books in numerous subjects began, hastening and facilitating the modernization process in this age. In addition, the transition of the home school system into schools based on the European model, as well as the substitution of new educational techniques for old ones, cleared the way for a shift in the cultural scope of education. Furthermore, there have been advancements in the sphere of women's rights.

With Nasser al-Din Shah's reign and the increase of links with European societies, Iranian society underwent a transformation. The ubiquity of photography and printing allowed the painter to experiment with many topics. The entrance of European works gave artists from other nations a fresh perspective, new styles, accessories, and methods, while painters' visits to the West gave rise to a new way of thinking in the area of painting. In the face of all these changes, the painter of this century, who has a conventional grounding in the art of painting, seeks to adapt to new trends in this field. The Iranian artist was first influenced by European art; yet, while employing European artists' styles, the spirit of Iranian painting was still obvious in the works, and the artist attempted to achieve a balance between traditional and modern techniques. However, the artist, as a member of society, was able to use his abilities and capacity to pick new ideas from the world and events around him as a result of societal developments that led to the blooming of unique human talents. The taboo of power was considerably undermined during this century, in the shadow of the shift from tradition to modernity, and owing to social, political, cultural, and other developments in numerous domains, the components of power were molded differently. As a result of the formation of these circumstances, the painter was able to develop an individual identity in which he might exercise initiative and creativity and become a simple artisan or a court artist.

A painter who has developed his personality and is in possession of his own identity was able to disregard the ancient tradition's frames and do's and don'ts and chose the topic imaginatively. It is no longer about the paintings of kings and princes in an idealistic and symbolic state; however, the moods and dwellings of the people in the streets and bazaars have been the attention of Iranian painters and artists and have been addressed as the topic of the work, rather than

idealistic and symbolic paintings of monarchs and princes. Such motifs may be seen in the works of artists from the Kamal-ol-Molk school.

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INVESTIGATING THE IMPACT OF IRANIAN POETRY AND LITERATURE ON CONTEMPORARY ARCHITECTURE

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ABSTRACT

Two artistic categories of literature and architecture are among the items that have been able to be combined well with each other in Iran. In various articles, the fields of origin and adaptation of poetry and architecture have been studied many times. Therefore, in this article, we have tried to examine the impact of important events in contemporary Iranian society in these two arts. If there are any similarities, in what areas are the similarities between the two arts? What are the turning points of common social, political, cultural, etc. issues affecting all kinds of arts? What proportions of time have contemporary demarcations in contemporary art been applied to contemporary authors and scholars? In the end and after this adaptation, it can be acknowledged that the events of contemporary Iranian society have a direct impact on both historical architecture and contemporary literature in a direct historical-temporal ratio and a sensitive demarcation between periodicities performed at all times. Time will be debatable and the spirit of the time will be extracted.

Keywords: poetry; literature; Iran; architecture.

Introduction

Despite the passage of a not-so-long period of contemporary Iranian history, many issues and ambiguities have not yet been explored and recognized. Regarding the types of arts, however, the discussion will be a little difficult, because the various consequences mentioned will have profound effects as a network and a subset of the types of arts and their appearance in society. The arts of choice for this writing are the art of literature and the art of architecture. Both of these arts in the contemporary era have faced a huge volume of events of imported modernity. This paradox is very visible when there is a great culture of Iranian-Islamic type, especially in classical Persian literature and traditional Iranian architecture-urban planning in the background

of these arts in this land. Facing a world away from Iranian classicism makes the way to modernization very difficult.

The emergence of important and effective social events in the contemporary period from the late thirteenth century AH to recent years is one of the cases that have affected both the art of architecture and literature. The influence of the Qajar dynasty in contemporary developments is not hidden from anyone, but we often know this period as dwarfism and failure. But this is not the case because the main foundation of the fundamental changes of thought and thinking has occurred in this period, as Dr. Sadegh Zibakalam writes in the introduction to the book of tradition and modernity: (... , our idea of Qajar Iran in a closed society, In short, the other part of our conception of society is the influence and domination of the colonial powers with all its harmful consequences, but contrary to the conception, Qajar Iran is as much a society as we think It has not been silent, constant and without change,, one of the most important currents that arose in the Qajar era was the idea of change and the idea of reform (Ziba Kalam, 2002, p. 16)

Theoretical foundations

What is and definitions of poetry

Poetry is a term for many literary genres through which man has rhythmically expressed their most imaginative and profound perceptions of himself and his world. In poetry, words are so chosen and adorned that it creates a passionate emotional reaction through the unity of the theme of language, face and weight (Ahmadi, 2004).

Poetry in Western languages has its roots in the Greek word (Poiein) meaning to make and is a writing that turns experience into words in the form of imaginary curves (Ahmadi, 2004). Poetics is derived from a Greek word that personally means to make; Making music, architecture - making poetry - because most people consider it only related to poetry, it involves only one of the forms of making, it is through words (Antoniados, 2002) Poetry or "chameh" in Persian culture Dr. Moin to The concept of rhythmic, often muffled, speech evokes emotion and imagination. The difference between poetry and order is known in the fact that poetry is a rhythmic and imaginative word, and therefore there is prose poetry, and the word order is rhythmic, and therefore there is a non-poetic order (Moein, 1985). Several attempts have been made to define poetry. Are collected in Table 1, which are as follows.

Research Methods

The present research is based on the purpose of basic research and based on the nature and method of historical research. The method of data collection has been done in a documentary (library) way. To achieve this purpose, poetry and architecture were first extracted from the Divan of Poets and these verses were interpreted using literary and stylistic analysis in a way that includes answers to research questions. In the meantime, an attempt has been made to use the frequency and diagram method in a theoretical and quantitative way, in order to conclude and the extent and antiquity of the use of the words in question, in the entire poetry collection.

Background research

To date, architects and literary researchers in order to link literature and poetry with architecture in the works of different poets in different centuries such as Ferdowsi, Rumi, Hafez and even contemporary poets of the present century on architectural methods in different centuries, even the architecture of buildings such as the tombs of research poets. Have been used in the present study. However, in the areas that are specifically related to the relationship between poetry and the composition and literary artistic impact of this art and architectural techniques in Persian poetry, it has not been addressed.

Historical adaptation of contemporary poetry and architecture

A) Contemporary poetry

According to the division of the book "Contemporary Persian Poetry Streams by Dr. Ali Hosseinpour", the beginning of contemporary poetry can be expressed with two main views:

The first view: the beginning of contemporary poetry from the Constitutional Revolution, ie from 1285 AH. And the beginning of the age of awakening.

Second view: Contemporary poetry from the first years of the present century and specifically from 1301 A.H. The year of publication of Nima Yoshij's poem (legend) begins. (Hosseinpour, 1390, p. 47)

B) Contemporary architecture

First view: The seeds of the beginning of contemporary Iranian architecture have been mentioned from the Qajar dynasty, that is, from the years of the reign of Nasser al-Din Shah. However, the architectural works of modernity can be searched only in special government-royal buildings and the works of classical Iranian architecture can be seen in other ordinary buildings in Tehran.

The first developments in the direction of urban modernization began in the north of Tehran during the reign of Nasser al-Din Shah. During this period, the city of Tehran expanded rapidly. The old fence of Tahmasebi was dismantled and the new Nasiri fence was built around the city and ... (Ghobadian, 2013)

Second view: From Mirmiran's point of view, the beginning of contemporary Iranian architecture can be imagined from around 1300 AD; Period that due to political and social changes, the course of social and economic life in Iran changed, the appearance of Iranian cities changed and new buildings tailored to the needs of modern life, such as new housing units and complexes, offices, factories, banks, stations Railways, universities, etc., were established in cities. Unlike prehistoric buildings designed and built by traditional architects, these buildings were gradually designed by educated architects, who at first were mostly non-Iranian and then gradually by Iranian architects who studied in architecture schools outside Iran. And after that, with the establishment of the first school of architecture in Iran around 1320 (Tehran Faculty of Fine Arts), educated architects inside Iran were added to them. As can be seen from the historical division of contemporary poetry and architecture, the beginnings of both contemporary arts can be considered almost simultaneously. Hence, both contemporary arts are historically compatible and the beginning of both contemporary arts is almost from the late Qajar dynasty and the early Pahlavi dynasty. A decade-long difference in such comparisons can be quite obvious. Because of the different nature of the art of both disciplines, social, economic and political influences could have penetrated the other with a little delay and reflection and changed the basic principles of that art.

Index of contemporary art

Characteristics of contemporary poetry

- The type of free lyric in which the poet achieves earthly mysticism
- The poet's attention to tangible social, political and ... realities and at the same time an emotional and poetic attitude
- The free journey of the poet's imagination
- Lack of adherence and imitation to the framework of traditional and classical poetry
- Telling the story of the poet's heartlessness and failures
- Not accepting the weight of poetry in the classical way
- -The function of rhyme in contemporary poetry, like classical poetry, is not a verse connection
- And ...(Hosseinpour, 1390, first season)

Characteristics of contemporary architecture

- Transformation of traditional textures of cities and traditional neighborhoods, removal of towers and fortifications of cities, the emergence of street phenomena and...
- The presence of western symbols, initially with effects on the facade of the building
- Remove traditional elements (in order of courses)
- Imitation of the columns of classical European and ancient Iran
- The importance of an element called stairs and terraces in the body of the plan
- Entering wet spaces such as kitchen and bathroom and later toilet into the plan
- And.... (Kiani, 1383, Chapter 6)

Necessity of studying the fusion of architecture and poetry during different centuries:

Iranian literature, especially Persian poetry, in addition to its narrative nature, has always been a means of expressing various concepts and themes, including theological, mystical, praise, praise and description. At the same time, in the architecture of Iranian buildings, the smallest components have special concepts and meanings that connect it with the society of its time. The placement of poems as inscriptions, appropriate to the specific space and place, conveys the concepts and ideas of the artist and architect to the viewer well and with fluent and smooth language. This distinctive feature can be clearly seen in the inscriptions used in the architecture of the Timurid and various periods, including wisdom and mysticism, praise and description of the building in terms of the name of the founder, architect and history; It has been in line with the kind of attitude of thoughts and beliefs in the society of the same day ... (Shayestehfar, 2009)

Contemporary Persian poetic currents

The division of this section is taken from the book "Contemporary Persian Poetic Currents" by Dr. Ali Hosseinpour Chafi. Based on this division, contemporary Iranian poetry streams are divided into 6 separate streams in the following order:

- Contemporary traditionalist poetry
- Romantic and individualistic romantic poetry
- Socialist and revolutionary romantic poetry
- Poetry of social symbolism
- New wave and volume-oriented poetry
- Resistance Poetry

Contemporary Iranian architectural styles

Despite the limited resources available to the architectural community regarding contemporary Iranian architecture, in the book "Heritage of Modern Architecture by Eskandar Mokhtari Taleghani", the different divisions made during the last 30 years are presented in different ways.

A) One of these divisions belongs to Nasser Pakdaman, which was published in 1994 in volumes 4, 5 and 6 of Tehran book. In these studies, Nasser Pakdaman divides contemporary Iranian architecture into four major historical periods. He has used the following divisions regarding contemporary Iranian architecture:

- 1- Qajar
- 2- The first side
 - 2-1-Continuation of late Qajar styles and European neoclassical architecture
 - 2-Early modern architecture and modern art
- 3-National style architecture
- 4- Modern architecture
 - 6-3.The second side
 - Continuation of modern architecture (1320s and 1330s)
 - International style architecture (1340s and 1350s_

- Architecture of the transformation stage (1350 to the Islamic Revolution)
 - Eclectic Western Architecture (Neo-Classical Style)
- After the revolution (Mokhtari Taleghani, 1390, p. 242)

B) In other studies prepared by ATEC Consulting Engineers in 1988 for the reorganization plan of Tehran, another type of division of architectural styles of contemporary buildings in Tehran has been done, which is as follows:

1. Original Iranian-Islamic architecture
 2. The era of mixing and inspiration from the West
 3. Architecture in classical European style
 4. National style
 5. The new style of European architecture
 6. Neoclassical academic style
 7. Modern style
 8. Continuation of modern European style
- (Ibid., P. 241)

C) As for Dr. Eskandar Mokhtari Taleghani, at the end of Chapter 4 of his book, he has considered four distinct periods for modern Iranian architecture, which are as follows:

1. Pre-modern era
2. The era of the modern beginning
3. Modern era
4. The late modern era

He also points out that most of the valuable architectural spaces built in the present century will fall into this category. (Ibid., 535)

However, it is impossible to draw a precise line between the styles in terms of time as well as in terms of location and architectural design. But researchers have always tried to make a relative demarcation of works of art and periods, including architecture. Because in terms of different conditions in each period, different works in the field of architecture have been created and executed. For this reason, all divisions and demarcations in all the works that have been available so far, as well as works from the future, are limited and absolute. Of course, this is true of all works of art around the world. The cultural transformation of societies, which ultimately leads to the change of works of art, has always followed such an absolute leap in change from one to another. The reason for this is the relative nature of works of art in different periods.

This relativity depends on time, the artist, the community, and other key factors that change the nature of the other options by changing one of these vital options. As a result, the demarcation of the fields of origin and characteristics of a period from the next or previous period may have inseparable similarities in one or more cases. Especially in architecture, other styles or schools cannot be denied in another. Even naming or selecting architectural works as a case study is always questionable. Relying on Mr. Pakdaman's demarcation, 4 major periods have been designed for contemporary Iranian architecture, which include "Qajar", "First Pahlavi", "Second Pahlavi" and "Post-Revolutionary Period", respectively. In this regard, the first and second Pahlavi periods are divided into 4 other sub-categories, which are: "Late Qajar styles and European neoclassical architecture", "Early modern architecture and modern art", "National style architecture" and "Modern architecture."

Adaptation of contemporary architecture and poetry

The first set

Architecture: Qajar and late Qajar + architecture

Neoclassical Europe

-Poetry: traditionalist

In the first collection, we see relatively acceptable proportions in both architecture and poetry. That in terms of time both architectural and poetic options are compatible with each other. Despite the relative influence of Western philosophy and thought in the country, we are still witnessing the strong tradition of the past in both the fields of architecture and poetry. Various measures have been taken for innovation, but the smell of tradition is still much stronger than modernity. Modernism in the field of poetry has led to the beginning of new poetry and in the field of architecture has created new western spaces within the plans. Creating new spaces such as offices, hospitals and railways is one of the new imported spaces. On the other hand, we are witnessing the emergence of the Constitutional Revolution, which in a way affected all aspects of life of all sections of society. According to Dr. Sadegh Ziba Kalam, in Qajar Iran, the main contradiction between feudalism (the aristocracy, the aristocracy, the big landowners and the court (and the bourgeoisie) was the merchants, petty landlords, guilds, clerics, intellectuals and lower-ranking government employees. It was a movement to resolve the class conflict between these two classes ... (Zibakalam, Sadegh; 312)

The second set**-Architecture: Early modern and modern art****-Poetry: romantic and individualistic romance**

In the second collection, despite the appropriate time matching, we see good similarities between the two arts. The most important element in common between the two arts is the European Romantic movement. Amir Bani Massoud in the book of architecture

The West (Roots and Concepts) writes about Romanticism as follows:] ..., Romanticism in its specific and historical sense is essentially a European phenomenon. European culture and civilization in its historical course goes through the Renaissance and Enlightenment period, and reaches a special cultural and social status, ..., Romanticism is a term that refers to any interesting and original subject that either expresses rural purity and simplicity or On the contrary, it refers to the wild and chaotic nature, it implies, ..., from the historical course of Romanticism, it is inferred that this movement first appeared in England not in the field of literature, but in the art of gardening and architecture. This new tendency is the beginning of paying attention to nature and rediscovering it, which enters the field of literature shortly after art and architecture, ... [Early modern Iran, known as modern art, as well as individualistic romantic poetry, were clearly understood in the works created by each.

Third set**-Architecture: Early modern and modern art****-Poetry: romantic and individualistic romance**

The only collection that does not have the right temporal proportions between these six collections is this collection, which may be able to adapt the arts of this period with a little intrusion and careful scrutiny. Another thing that is mentioned that is very important is the occurrence of a kind of architecture called national architecture. With Reza Shah's anti-religious policy, attention was paid to faint Islamic elements and traditions, and instead to the use of Persian and Parthian proportions and motifs that belonged to pre-Islamic times. This approach was called national style architecture and important buildings in the middle of Reza Shah Pahlavi's reign were designed and executed in this style, including the police building, the Museum of Ancient Iran, etc.

The fourth set**Architecture: Modern (1330-1320 AH)****Poetry: Social Symbolism**

This set has a good time matching. Also an institution called the University which in 1313 A.H. Founded by Reza Shah, it has been able to nurture graduates and local intellectuals in both literature and architecture, respectively. It is interesting to note that the early professors employed at the University of Tehran were mainly French, British and Russian nationals, who were certainly influenced by the culture and socio-political customs of their country.

Therefore, we can expect the first generation educated at the University of Tehran to enter the society under the banner of the West and with Western ideas. With the emergence of modernism and its intensification, tradition plays a lesser role in literature and architecture. Attention to the material contents of art became so important that in most works no trace of the Iranian tradition can be found in the arts.

Fifth set

Architecture: International style (1350-1340 AH)

Poetry: New and volume-oriented wave

Due to the appropriate temporal adaptation in this collection, as well as the 100% dominance of fundamental Western concepts in the heart of society, we can see the removal of meaning and thought from the poetry of Persian literature. The similarity of this phenomenon can be clearly seen in the complete removal of decorations in accordance with the international style of the West from Iranian architecture and the remaining works. Also, following the presence of Dadaism and Surrealism movements in Iranian literature, we can express the style of brutalism in Iranian architecture as a similar and equal example. The sum of the above movements can be clearly seen in the works of the famous modern architect, Le Corbusier. As reflected in the works

The poetry of this period can be seen, the imaginative modern architecture of this period such as Freedom Tower, Radio City Cinema, City Theater and other landmark works can be mentioned.

Sixth set

Architecture: the stage of transformation (1350 to the revolution) and eclectic western

Poetry: Resistance

We encounter a suitable adaptation in this collection. Therefore, considering the flourishing of modernism in contemporary arts in the last decade of the Pahlavi dynasty, we see a kind of symbolic currents in this collection. These symbols in the art of literature include a kind of political poetry opposed to the regime of the time, which tries to enlighten the society with all its might. On the other hand, due to the influence of the Pahlavi dynasty in the construction of flagship collections, the art of architecture has been able to record symbolic works such as the Museum of Contemporary Art in Tehran or the prayer hall of the Carpet Museum in the record of this period. Therefore, this period belongs to symbolic architecture. On the other hand, the poem of resistance is also symbolic and is a kind of symbol and symbol of resistance against the prevailing conditions. This sharing of content can be considered as a feature of the sixth set.

Conclusion

Although such a comparison cannot pave the way for further studies in the parallel movement of one or more arts over a given time, but this superficial analogy at the end of the article indicates the remarkable similarities between the two arts. After examining and temporally matching the two arts of poetry and architecture and finding common ground between the two arts, the following results can be mentioned: With the influence of Western culture in the late Qajar period, all arts, including architecture and poetry, underwent many changes almost simultaneously. O in form and content. With a little involvement, a common time frame can be expressed for two or more arts. Other commonalities can be found among contemporary arts. There is no direct confrontation between the two arts of architecture and contemporary poetry. Both

have been created parallel to each other and without affecting each other and have found a yard. The social, political and economic changes of the society have had a direct and indirect impact on all the arts, including the art of poetry and architecture, and have transformed them in a way. There can definitely be no boundary between the tendencies and currents and schools of poetry and architecture in the contemporary period of Iran. There is a slight time lag in the impact of community events on the art of architecture relative to the art of poetry and literature. It can be argued that the closer we get to recent years, the closer we can see in the body and soul of the arts to each other.

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COMPARING THE THEOSOPHISTS' INTERPRETATIONS OF THE STORY OF HIS HIGHNESS SOLOMON (PBUH) WITH THE HOLY QURAN'S INTERPRETATIONS WITH AN EMPHASIS ON THE PROSE TEXTS TILL THE END OF THE NINTH CENTURY

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ABSTRACT

His Highness Solomon (may Allah hail on him) is one of the greatest divine prophets with a lot of magnificent miracles as ordered in the praised words of the God. The Muslim interpreters and theosophists have engaged in interpretations and rendering due to his highness's being both a prophet and a king and the miraculous events of his life. His name has been mentioned a lot in the literary, ethical and theosophical works and the intellect and soul governing the world is intended in theosophical literature by his highness Solomon. The present study approaches the theosophical texts from the lens of interpretation and rendering meaning that the perception of the theosophical discourse as well as the cognizance-bestowing, ethical, literary, interpretational, allegorical and hermeneutic aspects for understanding the texts is amongst the present study's applications and there was found a significant relationship of the literary allegories type between the theosophical reading and the literary traditions and allusions.

Keywords: Solomon; holy Quran's interpretations; theosophical texts; interpretations and renderings.

Introduction

His Highness Solomon is one of the great divine prophets and he has had a lot of great miracles, including the ability to talk with the birds, as ordered in the words of God. He had gained domination over the wind and he could go everywhere by it and the ogres and fairies and supernatural creatures were all at his highness's service. The senior name of the eminent God (His greatest name) had been written on the bezel of a ring he used to wear on his finger and it was by its assistance that he ruled a vast territory. This issue has caused various kinds of interpretations and allusions and mysterious codifications about his personality.

Books like the A'alām-Quran [declarations of the holy Quran] by Dr. Muhammad Khazā'eli, the dictionary of myths by Dr. Muhammad Ja'afar Yahaqqi and Allameh Dr. Muhammad Sarvar Mowla'ei and some others are amongst the works that though including things about the personality of his highness Solomon (PBUH) have not compared the theosophists and interpreters' approaches towards his highness Solomon thus the necessity of the present research for comparing the two approaches is comprehended.

The present study seeks searching and comparing the abovementioned materials in the interpretations of the holy Quran and those of the prose theosophical books. The philological investigation, the perception of the theosophical discourse and the evaluation of the cognizance-bestowing, ethical, literary, interpretational, allegorical and hermeneutic aspects are amongst the applications of the present research in line with the conception of the texts. In order to deal with this subject, the following questions are explored:

- What aspect of his highness Solomon has been mostly considered in the theosophists' renderings of the story of his highness Solomon, the prophet?
- Are the theosophists' perceptions of Solomon's life and moods consistent or are there inconsistencies between them?

Study Method:

The present study is a descriptive-analytical research. The study uses library search such as the study of the important theosophical books and holy Quran's interpretations, including Tabari Interpretation, Gazer Interpretation, Tāj Al-Tarājom Interpretation, Abu Al-Fat-h Razi's interpretation, Majma'a Al-Bayān Interpretation, Surabadi's interpretation, Kashf Al-Asrār interpretation and takes notes from the interpretations of the holy Quran and important theosophical prose texts and resources till the end of the ninth century and classifies the obtained notes thereby to analyze the gathered materials.

Introducing His Highness Solomon (PBUH)

Solomon in the Holy Quran

The story of His Highness Solomon (PBUH) has been scattered in the following SŪRAHs. Like the other prophets' stories, this story has been mentioned in the text of the holy Quran wherever it has been deemed appropriate. The name "Solomon" has been mentioned in the holy Quran for 17 times.

The story of His Highness Solomon (PBUH) has been narrated in the following SŪRAHs:

- SŪRAH AL-ANBIĀ'A (SŪRAH no.21): ĀYĀT 79-81-82
- SŪRAH AL-NAML (SŪRAH no.27): from the beginning of ĀYA 15 to the end of the ĀYA 44
- SŪRAH SABA'A (SŪRAH no.34): from the beginning of ĀYA 12 to the end of the ĀYA 14
- SŪRAH SĀD (SŪRAH no.38): from the beginning of ĀYA 30 to the end of the ĀYA 38 (Eytani, 2000, under the term Solomon).

Solomon in the myths: according to the researchers and Muhammad Khazā'eli, the answer is that the stories of the prophets have been written in Torah; the story of the prophet's marriage with the daughter of Pharaoh has also been stated. There are also narrations about "Solomon's wisdom" in the first book of the kings. The story of the losing of the ring can be also found in the book "the Babylonian Talmud" which has actually been drawn on Isra'eiliyyat and it is neither consistent with the wisdom nor with the lofty chastity of the prophetic mission in such a way that the personality and character of his highness Solomon (PBUH) has been wrongly changed and he has been introduced as a myth. (Khazā'eli, 1976, p.395).

His Highness Solomon (PBUH) from the Perspective of the Theosophists

Interpretation of SŪRAH AL-ANBIĀ'A

The ideas of the theosophists about the judgment and arbitration of His Highnesses David and Solomon (peace be upon them):

"Qawlohū Ta'ālā: Wa Dāvūd Wa Solaymān Ez Yahkomān Fi Al-Harth".

In Kashf Al-Asrār, the knowledge of understanding (the internal knowledge) has been elucidated in the following words: "David and Solomon share prophecy but they are different in degree and virtue; one should not think that the God enhanced Solomon in just one aspect of knowledge rather He specialized his understanding and stated that 'Wa Fahhamnāhā Solaymān'; the God granted a vast territory to him and, doing so, the God did not just want to show him His grace but also He wanted to show the inferiority of the kingship and kingdom to him for it has been ordered by the God that 'Hāzā Atā'onā Fa'āman-na' or 'E'tā'a Min She'et Li Heqāratehi Wa Khessatehi"; upon gaining knowledge and understanding, the God treated him gracefully and honorably and ordered that 'Fa Fahhamnāhā Solaymān'; the knowledge and understanding go beyond the knowledge of the interpretation and rendering; interpretation can be done through education and induction but rendering is through guidance and assistance; understanding takes place in a non-intermediated manner by the divine inspiration and interpretation cannot be done without first being taught by a master; rendering is not right without exegesis and the possessor of the understanding has no teacher except the God; the interpretation and rendering can be done through first acquiring knowledge and making efforts but understanding is discovery and intuition. (Ya'aghoubi 1995).

Elaboration of the Judgment by David and Solomon (peace be upon them)

Ibn Arabi states that "'Fa Fahhamnāhā Solaymān'; amongst the special gifts granted by the God to Solomon is the knowledge and judgment but this knowledge is of a special type different from that of his father and God has granted him such a gift to show him His grace as ordered in the ĀYA 'Wa Kollan Ataynā Hokman Wa Elmā'" (ANBIĀ'A, 79).

The interpreters and theosophists' notions: in a general evaluation, Solomon's judgment has been his equalizing the garden's damage to the one-year interests of the sheep. Of course, both of the judgments have been right and just and by the divine revelations for the holy Quran states that "we have granted knowledge and wisdom to both of them" but a new revelation was made to Solomon (PBUH) and, simultaneously, the theosophical books also emphasize on the special knowledge of Solomon; both of the prophets' capability of judgment has been mentioned in the theosophical books. In the book "Solomon's wisdom" which is based on the holy book of Jerusalem, it has been stated that "wisdom is a soul assisting the mankind" (Sayyar, 2005, p.19).

Interpretation of SŪRAH AL-NAML

Governance of David and Solomon (peace be upon them)

The holy Quran orders that "verily, we have granted knowledge and science to David and Solomon"; "Qawlohū: Wa Laqad Ātaynā Dāvūd Wa Solaymān Elmā".

The investigation and analysis about Solomon and the ant: his highness Solomon (PBUH) used to talk with the ants. According to Khazā'eli's writings in the book "the declarations of the holy Quran", this perception has been imaginatively interpreted as the ability of speaking [388]. From the perspective of the interpreters and theosophists, the general result signifies that all the investigated interpretations and the theosophical books have reached a consensus about Solomon and the ant and the Solomon's government and his miraculous actions and state that this power and these miracles have been granted to him by the God. Amongst these, the perception of the ants' words and secret of the nature and the wonders of the creation that are hidden from us can be pointed out. In fact, the God manifests His power in the miracles of His Highness Solomon (PBUH) and it has been accepted by and well-proved to the theosophists and interpreters and the individuals exercising Unitarianism.

Rendering of SŪRAH AL-SĀD

A beam of his highness Solomon (PBUH)'s adventures and destiny was learnt in the interpretation section. The holy Quran orders that "Qawlohu: Wa Wahabnā Le Dāwūd Solaymān Ne'em Al-Abd Ennahū Awwāb" meaning "we granted Solomon to David and he was the best of the servants and he verily resorted to the divine court of the God". This ĀYA points to one of the best moral characteristics of his highness Solomon (PBUH).

In the theosophical concepts, this rule has been accepted that His Highness Solomon (PBUH) used to live a poor life despite his possession of such a splendid sultanate and he was very pious. From the perspective of the interpreters, the God introduces Solomon, as ordered in the holy Quran, by the use of such renderings as "Wahabnā" [granted] and "Ne'em Al-Abd" [the best of the servants] and "Awwāb" [the person who continuously refers and resorts to the divine court of the God]. It means that His Highness the God praises Solomon for his servitude and subjection. So, meanwhile having glory and magnificence of the kingship and prophecy ranks, His Highness Solomon (PBUH) has accepted the real position of the God in the world of existence and knows for sure that one has to exercise servitude. Therefore, the Quranic interpretations and Islamic theosophy's renderings introduce His Highness Solomon (PBUH) as "resorting to the divine court of God", "servant", "thankful" and "pious" because the kingdom of Solomon belongs to the God and it has to be spent for the otherworldly matters not this-worldly ones.

Theosophists' ideas about the rank of His Highness Solomon (PBUH): the holy Quran orders that "Hāzā Atā'onā" meaning "this is unlimited bestowal from us" (p.40) and "Fa Emnon Aw Amsek Bi Qaire Hisāb" meaning "so, endow or keep without calculation and unlimitedly" (p.40). Ibn Arabi states that "so, we figured it out from the zeal of conduct that his request has been made to his God and an individual's request for a divine matter shall be granted with perfect reward and the Eminent God grants the request and what He has been asked if He wants so and He may withdraw it in case of willing so ... in such a way that He ordered his prophet Muhammad (PBUH) that "Qol Rabbe Zedni Elmā" meaning "O God increase my knowledge" (TĀHĀ, 114) (Afifi, 2001, p.269).

Conclusion

It can be understood through a little precision and scrutiny that the issue of rendering begins exactly from where the issue of interpretation ends. The reason is that the interpretation relies on the text and intellect meaning that the interpretation should necessarily remain bound to the text and stick to the intellect and wisdom, i.e. the genie and jinn and fairy and ability of speaking to the birds and animals should be necessarily translated literally in the interpretation of the ĀYĀT related to Solomon.

Rendering is unlike interpretation. Although rendering seeks finding the concepts and significations in the first glance, it never searches for them vividly through the words and the appar-

ent language of the text rather it tries constructing an artificial and similar model of the text in such a way that its components can be in proportion to the components of the text and matching every element with an element of the text thereby to offer the thing intended by the text through figuring out the interrelations. So, although we may think in the first glance and in the beginning that the relationships between translation, interpretation and rendering with a text are identical, it can be understood by drawing a continuum for each of the three aforesaid topics in respect to a text that the relationships are completely different meaning that translation is in a completely exact relationship with the text but in the surface and appearances thereof; better said, translation of a text is the exact copy thereof with their only difference being in the language and words but with completely identical contents.

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DESCRIPTION OF THE HEAVEN IN QURANIC VERSES AND NARRATIONS

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ABSTRACT

Man has always been concerned with what befalls him after death. This concern has been largely alleviated by the messages brought by the apostles who came with divine books to guide people and to give them the insight as to what shall happen for them after death; in the meantime, the messengers have lessened our worries and planted the seed of hope in the hearts of people who have had faith in them. Apostles have promised a world after death where it'll be utmost decency and enjoyment for the ones who complied with divine principles. These good tidings helped man aspire for arriving at such a world to feel peace for good. This writing aimed to describe the beauties of the world-to-come after the physical death in order to alleviate the fears and preoccupations which disturb the human psyche, seeking to describe heavenly characteristics and blessings awaiting the faithful.

Keywords: description; heaven; heavenly blessings; the Quran; narrations.

Introduction

Questions have always crossed the mind concerning the heaven and its features. Numerous verses and narrations have given the news of soul immortality and the eternal life. Because the desire for living is intrinsic in the human nature, its insatiable soul looks for the best and perfection. No doubt the human nature has always enjoyed something every time he has had a chance to grab; something being more compatible with his temper. For example, he is certain to choose a safe and a pleasant environment rather than a warm and unsafe place, or to long for the most tasteful instead of the most distasteful. Therefore, it is evident if all humans were free to decide over choosing the heaven, they would without any doubt ask for that special place, also called Eden. The Quran has described various types of the heaven of various degrees, with their difference being the deeds of the people there, as we read in the book *"No one knows what delights have been kept hidden for them [in the Hereafter] as a reward for what they used to do"*.

The issue of the Hereafter and the eternal life are considered to be among the major human issues constituting the main pillars of all religions. Muslim philosophers view death as a transition and a kind of birth; they believe it is a window through which man can enter a more developed and transcendental world to enjoy a superior level of knowledge and wisdom (Najafi Afra, 2013). It is well established that heavenly characteristics do differ from those of this mundane world, both in terms of peace and of welfare, not to mention heavenly gardens, shades, palaces, carpets, thrones, colors, dishes and drinks, wines, cloths, decorations and embellishments never to be comparable with those of the earth. This study thus aimed to discuss the heaven in terms of heavenly characteristics and its descriptions from the view of the Quran and narrations.

Characteristics of heavenly people

Heaven as a place for the pious and Godfearing

The heaven is a place of purity and decency. Thus, the heaven itself, its doors and levels as well as those who live there and its guardians are all pure and decent in terms of speech, conducts and attributes. There is nothing like ugliness, ugly deed, indecent speech, dirty intention, deceit, greed, envy, jealousy, flattery and selfishness there. There are always praise, peace, reverence, honor, glorification, sanctification, exaltation, remembrance, meeting with God, and enjoyment, followed by cheerfulness, happiness, prosperity, blessing, benediction, goodness and blessings, comfort, mercy, compassion, affection, love, passion, intimacy, and enthusiasm (Hussein Tehrani, 1980-1986; 118).

Characteristics of the heaven

Heaven or the heavens, is a common religious cosmological or transcendent supernatural place where beings such as angels, souls, saints, or venerated ancestors are said to originate, be enthroned, or reside. Heaven is a transcendent supernatural place rich in blessings which home the good-doers after death (Moein, 1981; vol. 1, p. 613). General characteristics such as place of comfort and happiness, the best life and immortal life have been said of the heaven. The Quran has described the heaven more meticulously and inclusively than other religions, including Zoroastrianism, Judaism and Christianity, indicating that Islam is a more developed and perfect religion (Gholami-Hanaei, 2009).

The Heaven; a place to meet God, the Almighty

Contemplating in the Quran, it is realized that every being reaching consummation with God will attain the ultimate end, nothing is superior to it. Every being has his prosperity and happiness the size of his perfection towards God, to whom everyone shall return as the main destination and the ultimate Truth. Thus, heaven is actually meeting with God, divine consummation and beholding the Beautiful Face. The descriptions of the heavens including the blessings, Houris and palaces, etc. are just components of the heaven (Shojaei, 2015; 108-109).

Unimaginable blessings

It is clear that the nature of this world does not give us the opportunity to perceive the material and spiritual blessings of another world; on the other hand, the human's diversity-seeking nature longs for all sorts of blessings. Thus, the Quran explicitly reveals that whatever blessings of various colors and types shall be served to the followers (Heidari Narraghi, 2008). God, the Almighty always states in the Quran that the heaven is immense and glorious (Mohamadi Reshahri, 2014; 814/2). Imam Sadegh is quoted: The least heavenly blessing is its odor one can feel from a thousand kilometers away (Zaki Zade-Renani, 2007; 15-17).

Verse 32, Surah Zokhrof reads: *"Is it they who dispense the mercy of your Lord? It is We who have dispensed among them their livelihood in the present life, and raised some of them above others in rank, so that some may take others into service, and your Lord's mercy is better than what they amass"*. Abu Basir says: "I asked Imam Sadegh if two good-doers, upon residing in the heaven, can meet each other, with one being superior to the other in terms of good deeds and good-doing? He said, whoever of higher rank abiding in a more glorious place can come down and meet his friend and return to his own place; however, the one in a lower paradisaal rank cannot ascend to a higher rank, because positions are bestowed upon one's decent deeds, adding: heavenly friends can easily each other" (Tabrasi, 2001: 362-364). Imam Sadegh says: The heaven earth is silver, its soil saffron, its pebbles made of white camphor and its grooves rubies and pearls, adding "eyes gaze at the paradisaal silver as if it is as transparent as glass, while spending one night in the heaven is better than the whole earth and what exists in it" (Moghaddam, 2005; 11/5).

Heavenly clothes

The term clothes is a general concept which covers various types of clothes, as the Quran describes it: *"For such there will be the gardens of Eden with streams running in them. They will be adorned therein with bracelets of gold and wear green garments of silk and brocade, reclining therein on couches. How excellent a reward, and how good a resting place!"* (Arjomand Far, 2007, 16).

Narrative beauties of the heaven

Elaborating on the verse *"The People of the Right Hand—and what are the People of the Right Hand?!"* the late Ghomi has remarked: they are faithful prophet companions to be judged; also explaining the verse *"And the Foremost Ones are the foremost ones"*, he refers to the foremost as those who hasten towards the paradise not to be judged, as they are *"the ones brought*

near [to Allah]”, “residing in the blessing-rich Eden” (Ghomi, 1998:346/2). Imam Bagher is quoted as saying: We, the members of the Household, are the Foremost (Feiz Kashani, 2007:235/6). The foremost are four people: Abel, the son of Adam in the community of Moses, who was a believer in the family of Pharaoh, Habib the carpenter in the community of Jesus Christ and Imam Ali ibn Abi Talib in the community of Mohammad (Tabarsi, 2001: 10- 9/215).

Paradisal wine has been also described in various Quranic verses as a divine blessing. The drinkers of the wine consist of two groups of the faithful: specific faithful including the ones brought near to God, the foremost and the pure servants, while the other group is those who are righteous servants called by the Quran as the Right-hand people and the Godfearing (Rouhi Barandagh, Haji Khani and Sarmadi, 2006: 59-60).

Conclusion

The best, most beautiful, and maybe most valuable thing God has ever created is the Heaven which is an abode of the righteous and faithful servants. If man behaves according to his own divine nature, as every human's intrinsic nature aspires for it, he can be brought close to God and placed in the heaven. The heaven is an eternal place which is for all humans, as the Quran and narrations have suggested a large part of humans will reside therein. Man will also have physical and psychological needs even after dwelling in the heaven, and it is only in the heaven where he finds his needs met. For example, there are so glorious palaces which if all mundane architects are gathered to construct them, they shall fail. It is also imaginable for the paradisal people of higher ranks to meet those of lower ranks, while the ones of lower ranks cannot meet the higher-rank ones. This is a blessing from God as He wants his servants to experience the utmost happiness, lest they feel saddened and taste grievances. One would say that the real sense of paradise is divine consummation; divine power we are a tiny particle of, as we are always seeking to find it in our minds. Man will find himself happy in the Eden for he has reached perfection. It is the original place and haven where man feels full satisfaction with life. It is where he feels he is at the best point of the universe and can perceive all this divine blessing through his heightened power. This is God's reward for the good-doing servants.

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A LIGHT OF LINGUISTICS ON PERSIAN POETIC LITERATURE

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ABSTRACT

The most all-inclusive definition of poetry is that poetry is the entanglement of emotion and imagination in a rhythmic language. Though emotion is the most important element of poetry, emotion and imagination are demonstrated in a rhythmic form in language. Thus, language is one of the most important elements in poetry. Poetry's layout in the primary and most basic type of contact, that is, visual contact reveals to us that we are dealing with poetry. Classic poetry's lines are either placed against each other in pairs, based on the line's form, or in the form of columns and continuous lines below each other. But the form of poetic lines in modern poetry is not based on any precise and predetermined format. Deviation, one of the most important devices for language foregrounding and defamiliarization in poetry, is used by a large number of poets. This subject of insertion and deletion is in the field of linguistics. It is one of the most important factors in the rise of literary style that its amount can be specified based on the frequency of its occurrence in each work. Phonetic and morphological levels of language are of the fields that, based on the deviation theory, needed to be studied. In doing this research, firstly, books and various sources in the field of phonetic-phonological, linear and lexical deviations in Persian poetry were studied. Then data were collected from different sources and finally analyzed. The results of this research can be the starting point for the discussed topic. Normally, it can be used as a source and reference in studies for students, researchers, and enthusiasts in the fields of linguistics literature and also language teaching.

Keywords: Persian poems; deviation; phonetic-phonological; linear; lexical.

Introduction

The most all-inclusive definition of poetry is that poetry is the entanglement of emotion and imagination in a rhythmic language (Kadkani, 2008). Though emotion is the most important element of poetry, emotion and imagination are demonstrated in a rhythmic form in language. Thus, language is one of the most important elements in poetry. Poetry's language is a metalanguage, which means that one thing is said by language, but something else is wanted by it. Sartre regards the language of poetry itself as the purpose and the goal and not as a means of expressing the purpose (Jean-Paul Sartre, translated by Najafi and Rahimi, 1991).

Deviation, one of the most important devices for language foregrounding and defamiliarization in poetry, is used by a large number of poets. This subject of insertion and deletion is in the field of linguistics. From the viewpoint of linguists, we should examine language with an objective aspect and a scientific point of view; Because language is one of the most important necessities of human being in communicating with people and is one of the best tools for this communication. Jacobsen believes that the process of communication has six components; addresser, addressee, contact, common code, message, and context (Safavi, 1373: 34).

The deviation is of the most important findings of formalists and makes the basis of stylistic discussions today. They introduced the language of art as a deviation from the norm and studied the style based on this opinion. The emphasis on deviation was to some extent that Jacobsen considered literature as the organized disintegration of common speech (Eagleton, 2004: 4), and Mukařovský believed that in contrast to moral, legal, linguistic, and scientific norms that request conformity and compliance, aesthetic norm presupposes rebellion and disobedience. So, in his opinion, the most important function of poetic language is to destroy the standard language, and

without disobeying the rules of language, no poetry exists. (Ahmadi, 2008: 124-125). Leech has divided deviation into eight parts: lexical, syntactic, phonological, graphological, semantic, dialectal, deviation of register types, and deviation of the historical period (Safavi, 1994: 45).

Literature review

The study has been done by some linguists on the investigation of phonetic-phonological, linear and lexical deviation in Persian poems from a linguistic point of view. Therefore, the research that has been done in this field is diminutive. Regarding the fact that dealing with deviations in Persian poetry is so required, it seems that research in this field is very necessary and important. Nasrin Razaghi (2012) has studied the deviations and deconstructions of Ahmad Azizi's "Shoes of Unveiling" Masnavi.

Maryam Sivandipour (2011) has analyzed the deviation in Nima Yooshij's poetry.

Theoretical foundations of research

Persian poem

Poetry is an abrupt occurrence; it comes out of silence and returns to it. Poetry is a dreamy word that is made up of rhythmic and congruent speeches. Since the day that human has known poetry, he found it in need of metre, and the rhythm and metre of poetry have fascinated him. Poetry in word means knowledge, understanding, and perception, which is also called verse, lyric, speech, and song, and it is said in the definition of poetry that: It is a rhythmic and rhymed speech that has meaning, and this is the definition of poetry.

Deviation

The deviation is one of the methods of foregrounding and defamiliarization, which was first highlighted by Russian formalists. This word was first noticed by Shklovsky. Formalists differentiated the language of poetry from the language of prose and believed that the poet, in order to attract the audience's attention, needs to use language in an innovative way.

Phonetic-phonological

In linguistics, a phoneme is the smallest definite unit of speech, and substituting it with another phoneme makes a semantic change. Phonemes are the smallest independent phonetic units that morphemes are formed with their help (one or more morphemes form a word).

Research Method

This thesis' research method is qualitative, and the analysis is of content analysis type. Also, the survey population is words with phonetic-phonological, linear and lexical deviation in Persian poems, and the sample size is 100 and sampling was operated to gather the required data about population and to estimate the amounts of the population with the help of sample amounts. Sampling causes saving of time and money and makes the research process simple and possible. The sampling method in this study was the available sampling method, and the data collection tool was a checklist.

Data analysis

Assimilation

Assimilation has two types: complete and partial. If a consonant takes some of the phonetic characters of its adjacent consonant, the assimilation is partial. But, if a consonant in adjacency to another consonant takes all its phonetic characters, this process is called complete assimilation. Assimilation based on its direction is divided into the following two types:

Progressive Assimilation

In progressive assimilation, from two juxtaposed consonants, the one that occupies the first position remains changeless, and the one in the second position undertakes assimilation. For example; /dastak/¹ as [dassak].

Regressive Assimilation

In regressive assimilation of two juxtaposed consonants, the one that occupies the first position undertakes assimilation and the second one remains unchanged. For example; / badtar / which means worse in Persian, has been used as [battar] in this line from Nasir Khosrow, which is an example of progressive assimilation;

Nor these four will get less or more / nor they distinguish better off worse²

Assimilation is divided into three groups based on the method of production, the place of production, and the vocalic/consonantal aspect.

A. Production method

B. Place of production

C. Vocalic/Consonantal

Vowelization: a process in which two consonants are assimilated in terms of vocalization; it means that the consonant is affected by the vowel and gets the features of a vowel.

Insertion

Sometimes, under certain circumstances, a consonant or vowel is inserted into the word, that this process is called insertion.

/ Šotor /³ → [oštör]

Deletion

Deletion is a process in which a phoneme is deleted.

A) Deletion of vowel: In this process, under certain conditions, a vowel is deleted from a word.

/ beboridam /⁴ → [bebridam]

B) Deletion of consonant: In this process, under certain conditions, a consonant is deleted from a word.

Deletion of the final consonant of [d] that comes after / n /:

/qand/⁵ → [qan]

/Padzahr/⁶ → [Pazahr]

D → Ø

Metathesis

Sometimes two consonants in a word are replaced due to juxtaposition so that the first consonant takes the place of the second one and the second consonant takes the place of the first one. This process is called metathesis. For example;

/ barf /⁷ → [bafr]

Deletion and Combination

The deletion principle is exactly the opposite of the insertion. That is, a phoneme or phonemes are deleted from the common written form.

He gave to Mis'ry all he had, a tear,

He gain'd from Heav'n ('twas all he wish'd) a friend.

¹ Little hand or handle

² In Persian worse means /badtar/. This phonological deviation has got lost in the process of translation.

³ horse

⁴ To cut

⁵ sugar

⁶ antidote

⁷ snow

Vowel shift

Vowel shift: Conversion of a vowel root in a way that the syntactic role of the word changes. Based on this, the compound vowel [aI] to [əU] converts the simple present tense of the ride [RaId] to the simple past [rəud].

Vowel Raising: In language phonology, whenever, as a result of the elevation of the tongue's position in the mouth within the pronunciation, a vowel elevates from a low position to a middle or high one, this process is called vowel raising.

Vowel Falling: In language phonology, whenever, as a result of the elevation of the tongue's position in the mouth within the pronunciation, a vowel falls from a high position to a middle or low one, this process is called vowel falling that in literature is famous as "reduction."

Fronting: In this process, the vowel or vowels that are produced with the back of the tongue) in terms of the place of production (may be transformed, as a result of the lexical context process, into vowel or vowels that have the characteristics to be produced with the front part of the tongue. In fact, the conversion of the back vowel to the front vowel is influenced by its later front vowel. This meant that the next syllable contains a vowel.

Backing: The conversion of the front vowel to the back vowel is influenced by its subsequent back vowel. In this process, the vowel or vowels that, in terms of their place of production, are produced with front or middle part of the tongue, as a result of the lexical context process, may be transformed into vowel or vowels that have such characteristics to be produced with the back part of the tongue.

Lenition

The process of phonetic lenition is a reduction in energy during the production of sounds, which often happens in the consonantal cases and in the inter-vowel or post-vowel situations, or in the ending of spelling and wording situations. This means that sounds that are produced with less muscular pressure are called 'soft' ones in comparison to other sounds. In this type of process, muscular pressure and airflow are weakened.

Fortition

Sounds that are produced with more muscular pressure are called 'hard' compared to other sounds. In this type of process, muscular pressure and airflow pressure are associated with each other in the production of sounds and occur at the beginning of spelling or the beginning of a word.

Reduplication

Reduplication means repeating a phoneme or a letter twice. In fact, reduplication or duplication is the repetition and accentuation of non-accented letters to preserve the verse system of poetry. This change is of phonological deviation cases, which is known as an accent in literature.

Lexical deviation (lexical innovation)

Great poets always with a combination of words and forming various compositions develop time and create new meanings. The creation of new compositions helps the language of poetry to be renewed and is often useful in the brevity of speech.

Linear deviation (written)

Sometimes, in writing the poem, the poet uses a method that does not alter the pronunciation of the word but adds a secondary connotation to the main meaning of the word. A proper reading of poetry, transmission of feelings and conceptions, visualizing poetry, displaying temporal and spatial intervals, and foregrounding images are the most important functions of this type of deviation.

Discussion and Conclusion

The results of this study show; There are thirty cases of phonetic-phonological, linear and lexical deviations in Persian poems from a linguistic aspect. In addition, the "originality of emotion" subject can be another reason for the abundant use of many types of phonological deviation by a poet. Based on this, we can claim that the relatively high frequency of Nasir Khosrow's different types of phonological deviations leads to the foundation of some unique stylistic privileges in the musical part of his poem, of which we can point out to "strength and solidity" of most of his odes. He has also tried to foreground the language of his poetry through the archaism of words and composition. Based on the comparison between Nasir Khosrow, Onsori, and Farrokhi's poetry, insertion, intensification, and relief are the most frequent, and change and metathesis are the least used phonological deviations in Nasir Khosrow's poetry, respectively. Also, the use of archaic verbs and nouns is the most common method of deviation and the most important factor in the stylistic distinction of his poetry in the field of language words.

In assimilation, characters of a phonetic unit change and assimilate with characters of an adjacent phonetic unit. There are two types of assimilation; progressive assimilation and regressive assimilation. Sometimes two consonants in a word replace due to adjacency. So that the first consonant takes the second place and the second consonant takes the place of the first one. This is called metathesis. Deletion is a process in which a phoneme is deleted. That is, a phoneme or phonemes are deleted from the common written form of the word. We have two types of deletions;

- Vowel deletion; In this process, under certain conditions, a vowel is removed from a word.
- Consonant deletion; In this process, under certain conditions, a consonant is removed from a word.

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A STUDY ON THE MOST PROMINENT ATTRIBUTES OF THE PIOUS ACCORDING TO THE INITIAL VERSES OF SURAH AL-BAQARAH (FROM THE PERSPECTIVE OF TAFSIR AL-MIZAN AND TAFISR MOASERANEH)

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ABSTRACT

One of the ways that the Muslims find salvation is preservation and deliverance from evil and wrongdoing. In Islam, this state of preservation of the soul from evil is known as piety, and those having this

attribute are 'the pious.' This group is the believers that, by the help of their benevolent and God-seeking nature and attaining specific positions, reach a pure life in this world and finally the pleasure of God and the enjoyment of divine blessings in the Hereafter. Meanwhile, the Almighty God has introduced the Holy Quran as a way for the guidance of the pious that lead them to deliverance and salvation. The Holy Quran has introduced the pious as the pragmatic believers and has mentioned some attributes. The pious believe in the unseen, the prophets, the afterlife, and the hereafter and are committed to prayer and Infaq as the right deeds in their life. The pious will ultimately enjoy God's blessing and thus, reach the objective of creation. In the initial verses of Surah Al-Baqarah, the pious group has been introduced with their true attributes as those who have found salvation and deliverance.

Keywords: The pious; faith; Tafsir Al-Mizan; Tafsir Moaseraneh.

1- Introduction:

Scholars have written many tafsirs during history contemplating the divine verses, and each has managed to enlighten the human being with an area of the Quranic meanings and teachings. When talking about the pious attributes, some attributes in the initial verses of Surah Al-Baqarah have always been highlighted unconsciously. As all Muslims believe, there is no book more valuable than the Holy Quran during human life history. Thus, from the beginning of its revelation until today, a wide group of scholars and knowledgeable people have wisely sought to take steps to make the Holy Quran's verses clearer and make the divine principles more understandable. Each of these Tafsirs is especially valuable. However, the contradictions that have sometimes been explicit can be seen. However, due to the excellent objective of this task, it has never been boring and burdensome, and rather, it is continuously added to the number of people researching in this regard.

The current study aimed to evaluate the pious attributes based on verses two to five of Surah Al-Baqarah and review the valuable tafsirs Al-Mizan, and Moaseraneh attributes are so extensive that is out of the scope of this writing.

In this study, the pious attributes can be evaluated in two axes: the first axis includes the attributes indicative of the faith and practice, and the second includes the attributes based on ethics and practice.

2- The Attributes of the Pious in the Holy Quran:

The Almighty God introduces the Holy Quran as a guide for the people of piety. Now, it should be said who the people of piety are. They are pious who behave according to the divine verses orders. In one attitude towards the attributes of the pious, they can be divided into two types:

2-1- The Attributes Indicating the Faith and Practice:

2-1-1- Belief in the Unseen:

(The believers): Faith is the placement of belief inside the heart. This word secures the one who has belief in righteousness and purity, i.e., it gives such encouragement and reassurance to the believer that he will never doubt his belief since the doubt and suspicion is the blight of belief and its opposite. Faith is a concept with many ranks. Thus, we would conclude that the pious also are not in the same rank in their belief in the unseen and the present God and his day of resurrection. Indeed, they are placed in different ranks.

(The Unseen): The word 'unseen,' opposite to the 'seen,' is what cannot be perceived by human senses, and that is the Almighty God and his major signs which are invisible to our senses, and one of them is the revelation which is noted in the verse (who have faith in what has been revealed to you and others before you and have strong faith in the life hereafter). Thus, the faith in the unseen, versus the faith in the revelation and the life hereafter, the faith in the Almighty God is intended. As a result, in these few verses, the faith in the three pillars of religion has been noted, and the Holy Quran has always emphasized that the servants of God should not confine

themselves to the material world and what can be sensed and encourages them to follow the common sense and the pure essence (Al-Mizan translation, Vol.1, 73).

2-1-2- The Intellectual Possibility of Communication with the Unseen:

Mollasadra states the possibility of human communication with The Unseen as The human being has different ranks and positions, some sensory and related to the world that can be sensed, and some imaginative. Some are intellectual and rational, related to the world of thinking and intellectual perceptions, and some are intuitive, related to intuition and faith. These ranks and positions are related to the worlds arranged based on the other of the world (Sadreddin Shirazi, 1968, 337).

In religious thinking, the universe is divided into The Seen and The Unseen, and one of the ways to connect these two is to communicate with the world of the unseen, an example of which being the angles.

2-1-3- Establishment of Prayer:

Namaz (prayer) lexically means the joint, connection, prayer, and request. The effects of prayer can be seen in the behavior and life of he who says his prayer, e.g., in bowing before God Almighty and humiliating all worldly powers, self-construction, self-restraint, remission of sins, observance of rights, peace and peacefulness, punctuality, orientation, self-assessment, preservation and purity, and many other things (Ahmadi Taheri, 2010).

The Almighty God, in the verse (Those who believe in the unseen and keep up prayer and spend out of what We have given them), states that the word “يَقِيمُونَ” in the phrase “وَيَقِيمُونَ الصَّلَاةَ” can be translated as ‘establishment,’ ‘keeping up,’ and ‘attend.’ In the Holy Quran, the word ‘Salat’ (Namaz) has been used in at least two manners. One is about what the Muslims do for God, and the other is saluting, such as the case in the verse (Surely Allah and His angels bless the Prophet; O you who believe! call for (Divine) blessings on him and salute him with a (becoming) salutation) (Al-Ahzab, 56), in which God orders the believers to salute the Holy Prophet (PBUH) (salute him). Salat has an idiomatic meaning when it is used for the prayers and gestures in five obligatory daily Namaz, but it can denote Namaz in a more general sense, as the Almighty God states that: (He has blessed me no matter where I dwell, commanded me to worship Him and pay the religious tax for as long as I live) (Maryam, 31). Jesus states that God has commanded me to say the prayer. Alternatively, in Surah Taha, we have (Surely I am Allah, there is no god but I, therefore serve Me and keep up prayer for My remembrance) (Surah Taha, 14) (Nasr, 2020, Vol.1, 130).

2-1-4- Faith in the Prophets and Resurrection:

(And who believe in that which has been revealed to you and that which was revealed before you and they are sure of the hereafter) (Verse 4, Surah Baqarah): in this verse, the Holy Prophet (PBUH) is addressed by the second-person singular, and all over this translation, the pronoun “you” is used on the contrary. Here, this question arises that whether the letter “و” at the beginning of the verse is a conjunction following the description of the attributes of the pious or it is about another group of people, in which case it should be translated as “those who believe in what ...”. And thus, Verse 5 is the description of the position of the pious ones described in Verse 4 and not those pious ones intended by Verse 3. According to one perception, Verse 3 is about the pious ones among the Arabs (most probably those Muslims who are neither Christians nor Jews), while Verse 4 is about the pious ones among the *Ahlul Kitab* (People of the Book)) who have already had faith in other religions (Jews, Christians, and Zoroastrians) and now they have faith in the Holy Prophet (PBUH) (Tabari, also refer to Verses 1 to 8 of Surah Al-Bayyina) (Those who disbelieved from among the followers of the Book and the polytheists could not have separated (from the faithful) until there had come to them the clear evidence (1), An messenger from Allah, reciting pure pages (2), Wherein are all the right ordinances (3), And those

who were given the Book did not become divided except after clear evidence had come to them (4), And they were not enjoined anything except that they should serve Allah, being sincere to Him in obedience, upright, and keep up prayer and pay the poor-rate, and that is the right religion (5), Surely those who disbelieve from among the followers of the Book and the polytheists shall be in the fire of hell, abiding therein; they are the worst of men (6), (As for) those who believe and do good, surely they are the -best of men (7), Their reward with their Lord is gardens of perpetuity beneath which rivers flow, abiding therein forever; Allah is well pleased with them and they are well pleased with Him; that is for him who fears his Lord (8)).

2-2- Attributes based on the Ethics and Practice:

2-2-1- Infaq for God:

Infaq (spending to please God) from what God has granted to them. The term 'Infaq' in the Quran and the Islamic books means giving property to the poor to please God, and for the mystics, it is the perfection of generosity (Sajjadi, 2012). According to Ragheb, it means 'reduction' (Ragheb Isfahani).

Infaq means 'spending', but in addition to it, it also means giving out of kindness and it has been used all over the Holy Quran for those who grant in the path of God, such as the verses (Those who keep up prayer and spend (benevolently) out of what We have given them) (Al-Anfal, 3), (Say to My servants who believe that they should keep up prayer and spend out of what We have given them secretly and openly before the coming of the day in which there shall be no bartering nor mutual befriending) (Ibrahim, 31), ((To) those whose hearts tremble when Allah is mentioned, and those who are patient under that which afflicts them, and those who keep up prayer, and spend (benevolently) out of what We have given them) (Al-Hadj, 35), (These shall be granted their reward twice, because they are steadfast and they repel evil with good and spend out of what We have given them) (Al-Qasas, 54), (Their sides draw away from (their) beds, they call upon their Lord in fear and in hope, and they spend (benevolently) out of what We have given them) (Al-Sajda, 16).

2-2-2- Interpretation of Conviction in "They are Sure of the Hereafter":

(They are Sure of the Hereafter): Previously, the firm belief in monotheism and prophecy was referred to as 'faith.' In this phrase, the firm belief is specially interpreted as "ايقان" (conviction), and that is because the requirement for faith is not forgetting the day hereafter, since in many cases, the man has belief in something and has no doubt about it, but forgets some requisites, and as a result, does something to the contrary of his belief, just unlike the faith that has nothing to do with forgetfulness. It is impossible that a man who has faith in the day if the resurrection and always remembers this day, a day in which his tiniest and largest acts are assessed, and at the same time, commit sins. Such a person does not commit sins and never gets even close to doing so due to the fear of Almighty God. As God has stated about them: Do not follow the low desire of soul since it deviates you from the path of God, and those who deviated from this path would bear a severe punishment because they forgot the day of resurrection and it is only due to ignoring the day of resurrection. In this regard, God has stated, "They are Sure of the Hereafter," since remembrance of the resurrection and having faith in it would result in piety (These are guided by their Lord; these surely are prosperous). The guidance all belongs to the Almighty God, and it cannot be attributed to anybody else in any other ways, except metaphorically that in this phrase, he has described the pious as those who are guided.

Furthermore, in another case, he has described the guidance as: (Whomsoever Allah desires to guide, He expands his chest to Islam (submission)), i.e., Whomever God intends to guide, he will expand his chest, and this expansion is what eliminates the wickedness and mean-

ness. In another verse, God has stated: (And whosoever is saved from the greed of his soul; those are the winners).

3- Conclusion:

Regarding the initial verses of the Surah Al-Baqarah, the pious are the same believers who are granted God's blessing due to their nature, belief, and actions and have reached the supreme position of prosperity. They commit themselves to preserve their souls and the society from wrongdoing and evil and believe that this preservation cannot be realized except by the faith in the unseen and belief in the mission of the prophets and the day of resurrection. Meanwhile, with the establishment of Infaq and keeping up the prayer, they have approached the proximity of God.

All these descriptions result from belief in the fact that the Almighty God is watching them, which is why they will not commit sins and wrongdoings. In this regard, they direct themselves and others towards spiritual ascendance and growth and grab the satisfaction of God in both the mundane world and the hereafter.

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THE INFLUENCE OF POSTMODERNISM ON SAM SHEPARD'S DRAMS

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ABSTRACT

The fundamental question arises as to "why" and "how" and with what qualities the poetry plays in the face of postmodernism and its basic components having semantic and formal qualities. These plays usually occur either in the family or about the family and collapse of this family system. In some cases, it represents the human condition of postmodernism and the present world. Shepard challenges and criticizes the family and context of this family system which gives rise to a new look at the realism and the field of dramatic literature at the end.

Keywords: postmodernism; influence; playwriting; Sam Shepard; Shaped components; Semantic Components.

Introduction

Shepard's plays have reached two main attributes with collision and overlapping with these elements: Shaped components and Semantic components. Larry Maccaffe says in postmodern literature: "What seems happened in the post-modernist upheavals of the United States in the 1960s was to some extent radical developments" (Yazdanjou, 2008: 18). Shepard has also used unique features to create characters in his plays, and in fact the characters of Shepard's plays are symbolically portrayed in plays. Postmodernism and its main components in dealing with Shepard's plays have created a certain kind of characterization in these works. "Post-modern cultural artifacts are extremely different from their eclecticism of the concepts, and their content works." (Harvey, 1993: 401). As you can see, Harvey's words are that the eclecticism, which is itself a component of postmodernism, affects cultural works and has caused some kind of features and differences in these works. In Shepard plays, we also deal with quite different complex characters, and in fact most characters of Shepard's plays are formed by the same complex characters. «Simple or one-dimensional play individuals created on the basis of superficial logic and stereotypical features, Macy says in explanation of simple or one-dimensional play individuals. "It seems that in a number of Shepard's plays, there are also simple characters, and they also have the same cliché attribute. Of course, Shepard, with his skill in play writing, does his best to turn them into familiar, lovely, acceptable, and somewhat familiar individuals to us. «Marjorie Bolton, in the drama's anatomy, points out interesting things about the characters in the plays:" The principle of condensation in a play makes us portray images of characters in a sharp rhythm. The fast density and rhythm of images must be accompanied by clarity, although some dramatic characters can be analyzed from several angles." (Bolton, 2003: 89).

1. Fading the storyboard

One of the fundamental components of postmodernism, which has greatly influenced the American contemporary literary-dramatic currents, is fading the storyline or, in fact, neglecting the plot, which is also seen in many Sheppard's works. So this is storyline that drives the dynamics of characters and the advancement of the play, but some playwrights neglect whole storyline and reduce its significance and credibility. Shepard believes that in a number of his plays influenced by the discourse of postmodernism and its basic components, has deliberately and cleverly reduced the narrative and story of the play in favor of other factors that he liked, which we can also pay attention to these factors from the viewpoint of the postmodernism. Of course, it should be noted that in some plays sometimes there are several components, and in some plays one or two components, but all of them are faced with fading phenomena of story course. It should be noted that fading the story course, which has been mentioned as one of the shaped components of Shepard's works, has been characterized by the severity and weakness of each play and a group of types of Shepard's plays. Single-screen plays and Shepard's monologues are typical examples of these features, although in some of the long and multi-screen plays, this feature can be seen to some extent. In this group, following plays can be mentioned: *When the world was green*, *savage / love*, *Tongues*. Although, for example, single-screen plays such as *the Red Cross*, *the mother of Icarus* and *the game* could be included among them. "In the post-dramatic theater, breathing, beatings, the actuality of the physical presence of the bodies overlies the word.

2. Dialogues and talking

Dialogue writing is one of the methods and techniques of every professional play writer who has entered this field seriously. A number of contemporary play writers have been able to boast their name more because of the proper use of dialogue and the creation of particular aesthetics by this element. Meanwhile, Shepard by using several techniques in talking dialogue and use of interrupted and concise dialogues in a number of plays such as *the buried child* and the

true West, and also the use of long dialogues, monologue, and using "Dialogue Synthesis" has managed to achieve a unique perspective. Dialogue and talking dialogue in the play can be studied with different characteristics, and how Shepard writes dialogues is no exception. How to write dialogues is chosen for every character by the playwright, and each character of the play speaks in a different way according to their characteristics. In a number of plays, Shepard selects this discrepancy and method especially talking dialogue for his characters, and with method makes his characters more profound and more credible.

3. Time and space compression

Since one of the achievements of postmodernism in the drama and playwrighting world is playing with time and space, and in the previous chapter, the components of postmodernism and uncertainty were referred, it is necessary to pay attention to this characteristic of Shepard's plays. "Space and time are the basic categories of human being," says David Harvey on space and time. However, we discuss their meanings less, and we tend to regard them as a certain categories, and give them obvious and conventional qualities. We record the time message in seconds, minutes, hours, days, months, decades, centuries, and periods, so that everything seems to have a single objective time scale. "(Harvey, 2014: 263 and 264). Yes, of course, the deep effects of time and space on human beings have left their footsteps in plays, especially contemporary plays, and Sam Shepard has used all of these elements for displaying and uniqueness of his plays. If we put these two categories together, it is because they have very close ties to each other. Because no place can be imagined without time and time without space. Of course, every phenomenon becomes tangible with reaching in a particular time and place form, and becomes physical. "(Bagheri, 2013: 114). Shepard in the play "When the world was green, or the memories of a chef," without pointing to a particular time and space, forms just all the events in a prison cell, and this reflects that Shepard is influenced by other theatrical currents, and especially postmodernism. Harvey, in a postmodernist state, says: "The experience of space and time compaction is challenging, exciting, stressful, and at times problematic and includes the and therefore diverse social, cultural, and political responses" (Harvey, 2014: 313).

4. the issue of identity

The identity, either individual or collective has different characteristics and definitions, and in American society, the issue of identity has become one of the particular phenomena, and sometimes multilateral phenomenon. The issue of meaning for identity is also one of the semantic levels in some of Sam Sheppard's plays, in which we also face two types of identity issues, namely individual and collective identities. Shepard is one of those playwrights who influenced by these currents, has written plays in which we are faced with characters who either have an identity crisis or are trying to recover their lost or forgotten identity. The identity crisis and conflict of characters and the controversy between the characters of the family and its effects on the society, and in particular the focus on American contemporary characters is obvious in his works. His characters, although still influenced by the effects of the Observed, have obvious signs for him, from every angle that can be approached to his works, it is easy to find repetitive motifs and themes that have nothing except anxiety and frivolity. Shepard's characters have anxiety about themselves, society, time and place. Many critics have explored the identity and its concept in his plays and all of them know this factor very important and motivating in his plays. Shepard's powerful works mean with exploring in the genuine American identity and American myths, especially the ancient west. His plays' characters, as if are himself suffering from moral and social instability and lack of spirituality and are forced to seek to find their identity. In the end, it should be acknowledged that many characters in Shepard's plays have an inextricable conflict with identity issues and meanwhile, a number of people are trying to gain their identity.

Characters such as Vince in "Buried Child", Lee in "Real West", Heinz in "God of Hell", Ella and Ema in "Nephritis of the Hungry Category", May and Radi in "Crazy of Love", Sto and Chat in "Cowboys 2", Carroll and Jim in "Red Cross" and Many other characters of the plays that can be considered this issue in them with careful convey. The American dream and its death as a major feature in Shepard's plays have linked these plays semantically with one of the fundamental components of postmodernism. Yes, the American dream is the same feature that can be considered it as a myth-elimination component in postmodernism. In Sheppard's family plays or family tragedy, this issue is illustrated beautifully and is included aesthetically of this category of plays. Although American dream in sovereignty, always used as a deterrent leverage and sometimes a kind of social and cultural pressure, it seems to play a fundamental and undeniable role in political, social and cultural functions. "Yuri Kovalov" and et al, in the American Literature Book and two revolutions on the rise of decadence in American literature, say: American degenerate works despise human beings, and illustrate him naturally, as an inferior, ghoulish and immutable entity. Degenerate literatures say that human struggle to reach for a better future will be fruitless. This style of writing is a combination of naturalism, figurative and mysticism, and the aristocratic humiliation of ordinary people. "(Kovalf and et al, 1978: 90).

5. Feminism and female characters

The female characters of Shepard's plays have a special role, and these characters seem to have an important share in becoming more visible and relation to women-centered views and challenges related to women and girls. The post-modern American society is focusing on these issues and is considering the feminism. The question that comes to mind in this regard is what is postmodern feminism? And what features does it have? Liberal feminism has a profound root in modernity and, in fact, is a rational plan for liberation. Although Shepard is not a feminist play writer, and according to somebody can be considered him in the current of opposition to feminism, it seems that the intersection and proximity of postmodernist components with his plays influences this current as well as influence of female characters his plays.

6. War and its reflection

The United States, as one of the countries that participated in several wars in the last few decades and its warmonger and power-hungry policies has been consistently criticized by the factions and intellectual, political, literary, and artistic currents. Maybe, the literature from the Second World War until now, has been more similar to the literature after the break-up wars, so that the literature between the two world wars, and the logical relationship that exists between these three periods, can be put together" (Waker, 1372: 358). One of the late plays that Shepard has tried to reflect properly the image of the war and political affairs is the play of "Hell God", although Shepard, in another work called "Shock Stages," in the form of a tragedy, protested against the war, and especially the recent wars of the United States with Iraq and Afghanistan. In the play of "Hell God", he tries to show a relatively calm life of a couple called "Frank and Ema" by designing and exhibiting a landed property but eventually the Shepard's protest is crystallized in various forms at the end of the play, where Frank sells all the calves to "Wolch" so that he does not have to feed them every day. Two other characters, each of which can be the representative of the government of the United States or government officials are present in a cartoon-caricature manner in the play. Wolch is a cheerful and cheater businessman, and "Hinz" is also an unknown scientist who appears to be the machine human that anyone touches him electricity takes him. Although Shepard, in a humorous way, attempts to diminish the impact of serious issues in the play, but the peak of darkness and strangeness and turning to political issues can be seen in it. In fact, Shepard, by showing a couple and a stranger among them, intended to metaphorically and implicitly attack the Republican Party, and the stranger's character could be con-

sidered a symbol of this party. The play, "The Mother of Icarus, is a play that can clearly reflect the war and its related issues". Referring to the mythical background of Icarus and showing a bomber airplane in the sky, Shepard tries by using the familiar story myths to present among the unknown characters, but this play, in turn, reflects the problems and issues being come out of war.

Conclusion

In the end, after reviewing, introducing and recognizing the semantic and shaped components of postmodernism in the Sam Shepard' plays, we will tell our findings and achievements in this study, and by this approach, we collect the main approaches of this research. Setting them together. The influence of postmodernism in Shepard's plays is very visible and tangible, and many readers and those directly or indirectly associated with Shepard's dramatic works, and have a relative familiarity with postmodernism and its components, understand it well. What can be seen in this research and in assembling the shaped and semantic components of postmodernism in Shepard's plays can be divided into three general categories. Recognizing and paying for these components can give a deeper and more general insight to the audience of these works and all those who intend to read or direct these works. More familiarity with other plays of this author and the plays that remain confused. Comparison and adaptation of plays and their case study according to the form and content of the works.

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СЕКЦИЯ
ПЕДАГОГИЧЕСКИЕ И ПСИХОЛОГИЧЕСКИЕ
НАУКИ
PEDAGOGICAL AND PSYCHOLOGICAL SCIENCES

**COMPARISON OF THE EFFECTIVENESS OF TWO METHODS OF
BEHAVIORAL COGNITION AND NEURO-LINGUISTIC
PROGRAMMING**

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ABSTRACT

The purpose of this study was to determine the difference between the effect of cognitive behavioral methods and verbal neurological planning on decreasing symptoms of depression, anxiety and aggression. For this purpose, the statistical population of this study, which includes all female high school students of Shahid Chamran Shahrekord, was selected by simple random sampling method and then randomly assigned into two groups of experimental and control group. Beck's anxiety inventory, aggression questionnaire, and Beck anxiety questionnaire were administered to each of the three groups. Then a group of experimental subjects underwent cognitive-behavioral training and another group underwent neuro-neurological training. The number of sessions for the treatment of these individuals was set at 10 sessions of 90 minutes. After the end of the training, both the experimental and control groups performed the questionnaires again. Finally, the data was analyzed by SPSS software using multivariate covariance test, one way analysis of couples and couples as well as Beneficent Benchmarking tests. The results of data analysis showed that there was a significant difference between the 3 groups (cognitive-behavioral therapy group, verbal neurological therapy and control group) in posttest scores after modifying the pre-test scores. Benfar test showed that two cognitive educational methods Behavioral and verbal neurosis in aggression, anxiety, aggression and malignancy are not significantly different in post-test scores. But in the variable of depression and anger, cognitive-behavioral cognitive behavioral method led to a significant decrease in grades, but did not significantly decrease the verbal neural training compared with the control group. Other results showed that cognitive-behavioral therapy was used to reduce depression ($F = 10.64$, $p = 0.001$), anxiety ($F = 6.93$, $p = 0.004$), aggression ($F = 0.007$, 27.28) ($P = 0.001$, $P = 0.001$), invasion ($P = 0.015$, $P = 0.003$) and maladaptation ($F = 5.25$, $P = 0.001$)) Is effective. Also, the effect of neurological and verbal planning on anxiety variables ($F = 5.89$, $p = 0.004$), aggression ($F = 12.12$, $p = 0.001$), invasion ($F = 0.0093$, 93.0) ($P = 0/0$) and malnutrition ($F = 36.18$, $p = 0.001$), and on depression variables ($F = 1.811 = 0.811$) and anger ($F = 2.85$, $104 / 0 = p$) is rejected.

Keywords: cognitive-behavioral education; neurological and verbal planning training; anxiety; depression; aggression.

Introduction

Numerous unknown elements and complex mechanisms have a role in developing mental disease. Among these, psychologists believe that various psychological, social, and biological factors help treat different types of depression. From this perspective, some people's genetic or biological constitution predisposes them to depression when exposed to disease-stimulating surroundings and high levels of social and environmental pathogenic variables. There is no significant difference in the incidence of depression between girls and boys before puberty. However, between the ages of 11 and 13, the risk of depression in females rises and doubles by 15. To the degree that girls grow more susceptible to depression due to their unique social status. For ex-

ample, although many boys are content with their physical changes throughout adolescence, girls are often troubled by the new alterations (Hayes et al., 2008).

As their time in the workforce approaches, high school students realize that their graduation moves with remarkable speed and success. External reasons and variables contribute to their anxiety and distress during this time. Every adolescent exhibits anxiety and concern differently. These troubles, which wear out teenagers, also cast a pall over their everyday lives, making them monotonous and ruinous for their parents. However, its symptoms range from physical discomfort (abdominal pain and headaches) to mental diseases and disorders (insomnia, anxiety, disorientation, and self-twisting), as well as household difficulties and problems (anger, aggression, and criminal activities) (Rowland, 2010).

From a scientific standpoint, aggression is a disposition or trait in a person that displays itself via beating, murdering, and destroying. What a person communicates as a response is inappropriate for the other party's conduct or behavior. It suggests a rebellion and revolution inside the individual and the presence of sentiments that the individual seems to be scared to express. There is anguish inside a person that he cannot ease and eventually inflicts on others, although the agony may be self-inflicted in certain situations. According to Freud, violence is instinctual and inherent, and that man is born with it (Ostuki, 2010, p. 56). While the aggressive kid may seem like the rest of the pupils, threatening, shoving, kicking, and hitting their peers will compel their parents to visit the school at least once a week to hear the teachers' concerns. Student aggressiveness and aggressive behaviors, which may result in physical injury to other students, are seen in boys and girls; however, it is less physical in females and is related to less physical harm (Wills et al., 2008).

Numerous therapies for depression, anxiety, and violence have been attempted. However, the issue of which of these strategies is more efficient and effective emerges. NLP is the process of eradicating patterns, mindsets, habits, and misbehaviors and substituting for them by transcending patterns, mindsets, and behaviors. NLP teaches how to establish effective habits by reinforcing positive behaviors and decreasing negative ones. It does so by using the skills of the neurological system (conscious and subconscious mind), presentation and perception systems (the five senses), language talents, and correct preparation. Positive transformation comes when an individual carefully observes and models successful people's behavior and ideas. Additionally, NLP asserts that every human being has the resources essential for success (Halperin et al., 2005).

Another therapeutic option is cognitive-behavioral therapy (CBT), which involves conversing with the patient. The psychotherapist attempts to induce the patient to think about himself, those around him, and others in the first stage. In the second step, he attempts to ascertain the challenges and problems that contribute to the development of mental diseases in the individual. "Cognitive-behavioral therapy" teaches you to think differently, and as a consequence of this new way of thinking, you may respond to undesirable and harmful occurrences in your environment with healthier and more appropriate responses (Fletcher et al., 2005).

However, whether these strategies are more effective in influencing female teens is debatable. As a result of the subject's relevance, the current research will address the following question: Is there a difference between CBT and NLP therapies to lower depression, anxiety, and aggressiveness among students at Shahid Chamran Girls' Academy in Shahrekord?

Darvishi (2015) conducted research in which she examined the impact of two cognitive-behavioral approaches (relaxation and mental imagery) on anxiety, depression, and hope. The findings indicated that the techniques significantly reduced anxiety and depression and increased hope. Torabi also performed a 2015 research on the usefulness of verbal neural programming

methodologies for aggressiveness management, which showed that this training had a significant impact on aggression control.

Algaz researched the impact of cognitive therapy, desensitization, and reading skills training on students in 2015 and discovered that test anxiety was significantly reduced in the three treatment groups compared to the control group. McFallo also tested ACT and CBT therapies for depression in 2014 and found that both experimental groups saw a decrease in depression symptoms. However, after the two-month follow-up, the group receiving ACT saw a greater decrease in depression symptoms than CBT therapy.

Research Methods

This study used a quasi-experimental methodology. This is accomplished by using a pre-test-post-test protocol with a control group. Students were first assessed for Beck Depression, Anxiety, and Aggression in this research. Simple random selection was used to pick 45 students who performed highly on these three exams in the categories above. They were then randomly assigned to one of three groups: cognitive-behavioral therapy, neurolinguistic programming, or the control group. Group therapy with cognitive-behavioral sessions (adapted from Khodayari Fard and Abedini's 2010 book Cognitive Behavioral Therapy Group) is held in ten one-and-a-half-hour sessions, as is group therapy with neuro-linguistic programming (adapted from Davis (1991), Forman (1988), and Walker (2004)). The control group received no training. After the sessions, all three groups completed pre-and post-test questionnaires.

Statistical population and sample group

Statistical population: The statistical population for this research comprises all 267 students of Shahid Chamran Girls' Academy in Shahrekord.

Sample group: Because this research included a list of the whole community's names, 150 simple random persons were chosen. They were then provided sadness, anxiety, and aggressiveness questionnaires. Next, using simple random selection, 42 students with high scores on sadness, anxiety, and aggressiveness were randomly assigned to the experimental and control groups.

Data collection method: To gather basic research information, library techniques, psychological resources, and books, as well as Internet sites, were employed. The primary research information was collected via field investigations using a sampling strategy. The statistical population for this research is high school pupils, from whom a sample group was randomly chosen, and the study was conducted.

Beck Aggression and Depression and Beck Anxiety Questionnaires were used to gather data.

Data collection instruments: Beck Anxiety and Beck Depression and Aggression Questionnaires

Cognitive-behavioral therapy protocol and Neuro-linguistic programming

Cognitive-behavioral therapy protocol

Session 1: Introduction, discussion about the importance of lifestyle, a review of the structure of meetings, and the treatment program's rules and regulations

Sessions 2 and 3: Discuss the relationship between thought, emotion, and behavior, as well as how they interact; Strategies for recognizing irrational thoughts and explaining the errors of training thoughts, re-evaluating beliefs, and challenging them as strategies for changing irrational thoughts

Session 4: Training in anger control, guided visual relaxation to alleviate anxiety and tension, and weekly assignments

Session 5: Reviewing the prior session's assignment. Distinguish between the theory of emotional disorder (or the cognitive theory of depression) and the practice of categorizing beliefs

Session 6: Reviewing and completion of prior session's assignment. Down Arrow review and exercise, discussion of beliefs, classification of their education, exercise on managing stress, confusion, concerns about illness, and next week's homework. Conducting practice sessions with automatic thoughts connected to the treatment group and assigning homework for the next session

Session 7: Reviewing the prior session's assignment. Compilation of the primary list of beliefs; practice compiling the preliminary list of beliefs. Cognitive map training, development of grading units for mental diseases, practice and discussion of patient social assistance, and next week's assignment

Session 8: Reviewing the previous session's homework, discussing the evolution of beliefs (beliefs that have changed throughout human history and during the participants' lives), and testing the participants' beliefs (judgment), as well as assigning homework for the following week

Sessions 9 and 10: Recommending techniques for a healthy lifestyle, providing an overview, and putting the skills learned in prior sessions into practice

Neuro-linguistic programming treatment protocol

In the first session, familiarity with an individual's qualities, ambitions, and values and relevant feedback on those attributes. Additionally, this seminar explored the concept of neuro-linguistic programming and its practical applications.

The second session focused on goal setting; after explaining the need and value of "goal-setting," participants were invited to share their perspectives on goal setting. This phase started with a series of challenging questions designed to stimulate participants. Individuals were then prompted to consider their objectives and jot them down on a sheet of paper. Participants were given forms on which they may list and rank their objectives according to the date they were achieved. Another section of this stage discussed the smart model and the processes involved in reaching the objectives. By analyzing the goals, participants learned how to pick their own objectives based on this pattern. Finally, participants were assigned homework.

After reviewing the prior session's tasks, the fourth session introduced participants to time management. After presenting the timeframes, the teacher attempted to instill a sense of urgency among the participants by posing intellectual tasks. Individuals have been trained to prioritize their plans. Participants were presented with a daily out-of-work planning sheet. Following a daily schedule review, participants were instructed to determine what they needed to do in a week and write it on the form.

In the fifth session, solutions to the disruptive elements impeding the programs' growth were offered. Participants were then given homework forms to complete for more practice.

After reviewing assignments, the sixth session will focus on assertiveness skills. The lecturer educated the participants on the need to develop assertiveness skills via questions and demonstrated how to ask "say yes" and "say no" questions. Additionally, participants were informed about the barriers that prohibit them from expressing themselves and seeking, and they responded to the relevant forms' questions. Additionally, individuals were put in various situations to develop assertiveness skills in the workplace. At the end of each session, learners were given field-based homework forms.

The sixth through eighth sessions were designed to familiarize participants with representational systems and verbal and non-verbal communication. Following a review of the tasks, the importance of familiarity with mental experience's representation systems and how to see the world via the five senses was discussed. Following that, participants were taught to use forms for eye movements and verbal signals. The top representation systems of the participants were discovered after they completed the form and answered the questions. Participants were separated into pairs and practiced representation systems as a result. Then, relevant learning tactics were

assigned to individuals based on their sensory preferences. Participants were able to identify their own and others' representation systems after this segment and then practiced successful communication.

Individual changes and coordination between multiple levels of neurology (environment, behavior, ability, belief, identity, and spirituality) were covered in the ninth and tenth sessions, and the teacher described how these levels interact. The instructor questioned the participants and provided examples for them to understand the levels better, and identify their status at each level. Individuals were then presented with a form including the pertinent questions to complete before the following session. In the subsequent sessions, participants learned how to identify an issue and then solve it by establishing coordination across levels via practical activities in the classroom (6).

Data analysis method

The data analysis in this research is both descriptive and inferential in nature. Percentage, frequency, mean, and standard deviation were presented at the descriptive level. Multivariate covariance statistical procedures, one-way analysis of variance, and couples and Bonferroni post hoc tests were employed to test the hypotheses at the inferential level using SPSS software version 23.

Research results

The efficacy of two cognitive-behavioral therapy and neuro-linguistic programming approaches in treating symptoms of depression, anxiety, and aggressiveness in high school females is studied in this research. Due to the usage of pre-and post-tests and the quantitative study variables, multivariate analysis of covariance and the Bonferroni post hoc test is utilized.

Hypothesis: There is a significant difference in the efficacy of cognitive-behavioral therapy and neuro-linguistic programming for depression, anxiety, and aggressive symptoms.

Table 4-13

Results of analysis of covariance Comparison of post-test scores after adjusting pre-test scores in cognitive-behavioral and neuro-linguistic programming groups

Variable		The total sum of squares	Degrees of freedom	Mean square	F	Significance level
Depression	Between-group	40.350	2	175.20	1.410	0.001
	Within-groups	40.706	42			
	Total	80.1056	44			
Anxiety	Between-group	13.628	2	314.06	1.590	0.001
	Within-groups	06.1245	42	29.64		
	Total	20.1873	44			
Aggression	Between-group	53.294	2	147.26	3.81	0.030
	Within-groups	26.1622	42	38.62		
	Total	80.1916	44			

As shown in Table 4-13, the impact of groups on the variables of depression, anxiety, and aggression is significant at the 0.01 level. Therefore, after controlling for pre-test results, the co-

variance analysis suggests a significant difference in post-test scores across the three groups (cognitive-behavioral therapy, neuro-linguistic treatment, and control). A post hoc test with Bonferroni correction was employed to evaluate the difference between the groups.

Table 4-14

Bonferroni correction post hoc test for pairwise comparisons

Group	Group	Mean difference	Standard deviation	Significance level
Aggression	CBT group and NLP group	-2.06	1.36	0.41
	CBT group and control	5.20	1.36	0.001
	NLP and control group	4.32	1.36	0.001
Anxiety	CBT group and NLP group	5.06	1.98	0.21
	CBT group and control	9.11	1.98	0.001
	NLP and control group	8.84	1.98	0.001
Depression	CBT group and NLP group	4.86	1.47	0.006
	CBT group and control	7.66	1.47	0.001
	NLP and control group	2.80	1.47	0.19

Table 4-14 shows no significant difference in post-test scores between the two ways of teaching cognitive-behavioral and neuro-linguistic in the variables of aggression and anxiety. However, as compared to the control group, both educational methods resulted in statistically significant reductions in aggression and anxiety variables in post-test scores. In other words, as compared to the control group, the cognitive-behavioral and neurolinguistic training approach significantly reduced anxiety and aggression ratings. However, there is no statistically significant difference between these two strategies in lowering anxiety and aggression levels.

However, there is a substantial difference in post-test scores between the two techniques of cognitive-behavioral education and neuro-linguistic education in the variable of depression. The cognitive-behavioral training strategy resulted in a statistically significant decline in post-test results compared to the control group, although the neuro-linguistic training method did not. In other words, as compared to the control group, cognitive-behavioral training resulted in a significant reduction in depression levels, while neuro-verbal training did not.

The findings of this study corroborate Bridge et al. (2011), McFallo (2014), Omidid et al. (2013), and Abdolqaderi et al. (2013) studies on the efficacy of cognitive and behavioral training approaches, as well as neuro-linguistic programming. Cognitive-behavioral therapy is a sort of psychotherapy in which patients are assisted in identifying the ideas and emotions that influence their behavior. Today, this therapy is utilized to treat a wide variety of conditions. Addiction, phobias, depression, and anxiety are examples of these disorders. Furthermore, cognitive-behavioral therapy is generally short-term and focuses on the patient's unique condition. Individ-

uals are trained during therapy to recognize harmful and unsettling thinking patterns that negatively influence behavior and be able to modify these ideas using the tools they gain. Cognitive-behavioral therapy's impact on lowering depression, anxiety, and aggression in students may be summarized as an increase in positive thinking and students' flexibility. Students develop a sense of anxiety and aggression. Consequently, cognitive-behavioral therapy alleviates depression, anxiety, and aggression by reconstructing and correcting incorrect thinking.

Neuro-linguistic programming is the study of the structure of mental experience and hence reasoning, and it is difficult to realize that we employed those ideas years ago. Individuals will act differently due to divergent thinking and attain divergent outcomes. They like to accomplish something that requires thought more than anything else. Neuro-linguistic programming enables people to alter their thinking via basic strategies, resulting in a change in their behavior. In summary, NLP teaches a person to recognize their present condition, analyze their ideal state, and learn how to transition between them.

Lewis Walker, author of *Changing with NLP*, explains that there is no difference between the two teaching methods: "These two methods (neuro-linguistic programming and cognitive-behavioral therapy) are equivalent and parallel to one another, have been developed over several years, and their fundamental assumptions about sick humans are very similar." Indeed, he recognizes that the parallels in their ideas and procedures are very comparable to those of other treatments. Both therapies are predicated on the concept that human actions and behaviors are determined by their perception or mental map of the actual world around them and involve the brain processing information. Both seek identity and aim to alter the individual's faulty ways of thinking. However, both approaches use distinct concepts of unconscious processes, cognitive-behavioral therapy is less successful at modifying behavior than neuro-linguistic programming, and neuro-linguistic programming has less empirical support.

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IMPACT OF HIGH INTELLIGENCE (INTELLIGENCE QUOTIENT) ON TRANSLATION SKILLS

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ABSTRACT

This study aims to find the relationship between intelligence and translation skills in Iranian translators. For this purpose, translators were randomly selected from 20 translators in the ninth workshop in different age groups and adults. Adult crow. IQ test was taken. Then, their translation scores were given based on the Waddington scoring model, and finally, their IQ test scores were analyzed based on SPSS software. The translation workshops that were selected and the scores of their translated texts were analyzed based on the Waddington scoring table based on SPSS software and it was found that there is no relationship between translation skills among the cognitive intelligence of patients. It is recommended to use this model for evaluation and grading in translation.

Keywords: intelligence quotient; Waddington model; quality assessment; IQ test.

Introduction

According to studies, IQ is higher in some parts of the world than in other parts of the world. IQ is very diverse around the world and varies between different countries or citizens of one country. The reason for this difference has long been considered by scientists, and the main question is whether the reason for this difference is in the genetic roots of humans or environmental conditions? According to research, variation in IQ is evolutionary, not genetic. So far, many scientists have cited several reasons for explaining the global IQ pattern, some of which have been attributed to differences in education, cold weather, and the difficulty of living in these climatic conditions. High IQ has many symptoms, high scores, high level of education, health, high job performance, and other important factors.

Intelligence is a mental ability and includes a variety of abilities such as reasoning, planning, problem-solving, abstract thinking, language use, and learning. Theories of intelligence have evolved throughout history. For many years, this has been the concern of many people, how much is their intelligence, and is there a measure to measure intelligence? Or is it possible to increase IQ and what reduces IQ? Or what exactly does intelligence mean? Many people are also looking for tests that can be used to measure their intelligence. In this article, we want to examine and answer all these questions in detail in the relationship between high intelligence and translation skills, and also to accurately measure the intelligence of a group of translators with the adult Raven test.

English, like other languages, has four skills: listening, speaking, writing, and reading. Like oral communication, writing activities can be divided into two categories: skills training or skill utilization. Interaction through text message is the goal: what is written should be purposeful communication on a practical or imaginative level and expressed in a way that is understandable to another person. Acquiring skills for oral or written communication is based on knowledge of how language works. It must be understood that writing a language is much more difficult to understand than speaking it.

As mentioned earlier, there is a strong link between intelligence and language learning. Writing as part of language learning seems to be positively correlated with intelligence. Vocabulary is one of the best criteria of general intelligence that is measured by intelligence tests. The

ability to use practical words, such as cohesive devices or conveying words, is said to be directly intertwined with people's intelligence. This study was conducted to determine whether there is a positive relationship between intelligence and translation skills. Therefore, this study is an attempt to compare the intelligence of English translators and their ability to use words correctly and translate the source text correctly in translating it into the target language. In line with the purpose of the research, the following questions were asked:

Q1: Is there a relationship between having a high IQ and translation skills?

Q2: What if there is a relationship between high intelligence and translation skills?

To answer the above questions while maintaining a safe position, the following zero hypotheses were proposed:

H1: There is a significant relationship between having a high IQ and their ability to use transfer words correctly and translation skills.

H2: There is a relative relationship between having high intelligence and translation skills.

Method

In this paper, 20 translators were randomly selected from a literary translation workshop and given two paragraphs from Virginia Woolf's novel by Ms. Dalloway, who were given points based on Waddington's scoring model, followed by 20 in Raven adult intelligence tests were also evaluated. This research is designed to answer the following questions:

Q1: Is there a significant relationship between translators' IQ? And their ability to use transliterated words and phrases in writing as translations?

Q 2: What if there is a relationship between high intelligence and translation skills?

Results

In this study, 20 English translators were randomly selected and participated in the age range (20-42) to translate two paragraphs from Mrs. Dalloway's novel by **Virginia Woolf** And their translations were evaluated and graded based on the Waddington scoring model.

Then, the Raven adult intelligence test was taken from the same 20 people, and according to the Pearson correlation coefficient formula, the degree of correlation between high intelligence and translation skills was analyzed. (Table 1) shows the intelligence test scores of the subjects:

Table 1

Raven IQ test scores of the subjects

SUBJECTS	SCORE	IQ	SUBJECTS	SCORE	IQ
1	15	70	11	25	89
2	16	73	12	26	90
3	17	75	13	27	93
4	18	77	14	28	95
5	19	79	15	29	96
6	20	80	16	30	97
7	21	82	17	31	101
8	22	83	18	32	103
9	23	85	19	33	105
10	24	86	20	34	109

Table 2

Description of Five Levels of Holistic Evaluation (adopted from Waddington, 2001, p.22).

Levels	Accuracy of transfer of Source content	Quality of expression of Target Text	Degree of task improvement	Mark
Level 1	Complete transfer of Source information; only minor revision is needed to reach a professional standard	Almost all the translation reads like a piece originally written in Target Text. There may be minor lexical, grammatical, and spelling errors	successful	24-30
Level 2	Almost complete transfer; there may be one or two insignificant inaccuracies; require a certain amount of revision to reach a professional standard	Large sections read like a piece originally written in Target Language, but others read like a translation. There are a considerable number of lexical, grammatical, or spelling errors	almost completely successful	21-24
Level 3	Transfer of general idea(s), but with several lapses in accuracy; needs considerable revision to reach professional standards	Certain parts read like a piece originally written in Target, but others read like a translation. There are a considerable number of lexical, grammatical, or spelling errors	adequate	15-18
Level 4	Transfer undermined by serious inaccuracies; through revision required to reach a professional standard.	Almost the entire text reads like a translation; there are continual lexical, grammatical, or spelling errors.	inadequate	9-12
Level 5	Inadequate transfer of Source text content; the translation is not worth revising.	The candidates reveal a total lack of ability to express themselves adequately in Target	inadequate	3-6

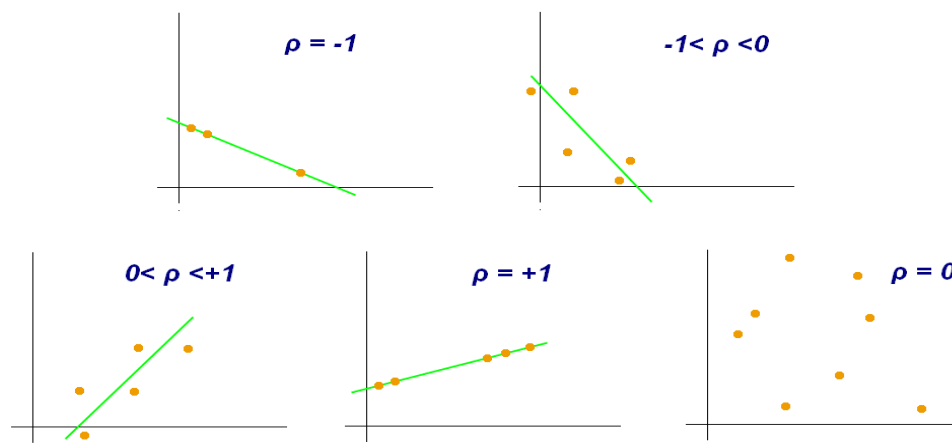


Figure 3 – Scatter Diagram of Correlation Coefficient

Karl Pearson's product-moment correlation coefficient (or simply, Pearson's correlation coefficient) is a measure of the strength of a linear association between two variables and is denoted by **r** or **rx_y** (x and y being the two variables involved).

Karl Pearson Formula:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Discussion and analysis

Discussion and analysis According to the Waddington model, translators who score at least 50 out of 100 have an average score, and scores above 80 are considered excellent, 60 to 80 are considered good, and translators above 50 are considered acceptable: Individuals A sub-score of 50 is marked as a poor score. The scores of the subjects in this article are between 15-18 points in level 3. According to the formula of correlation coefficient of Carl Pearson (1844) which is divided between two variables and equal to their covariance and their standard deviation is defined and shown in the diagram until the two variables of their correlation coefficient are (positive or negative or zero) to be specified. Or the scatter plot shows the direction and degree of correlation of the two variables (X and Y), one showing the scores of the adult Raven IQ test and the other the scores of the text translated by the Waddington model. Then the data are shown according to the Pearson formula ($p = +1$). So this means that there is a positive correlation between the two variables X and Y. If ($r = 1$) indicates a complete direct relationship between two variables, a direct or positive relationship means that if one of the variables increases (or decreases), the other increases (or decreases). Such as the relationship between the number of study hours per day and students' GPA.

Analysis for Hypothesis I

The first hypothesis in this study: There is a significant relationship between translators' IQ and their ability to use words correctly and translation skills. The results of the study showed that both IQ and the ability to use words of translation and translation are highly correlated.

The correlation study between IQ scores and transition words and terms was performed using the Pearson product instant correlation formula. As shown in Figure 3, the correlation coefficient between IQ and translation skills was positive.

Analysis for Hypothesis II

The second hypothesis in this article was the question: if there is a significant relationship between the high intelligence of translators and their translation skills, how is this relationship defined? To address the second hypothesis in this study, using Pearson's formula to determine whether there is a significant difference between the two variables in terms of IQ, we found that each degree and level of translation skills have a significant relationship with high intelligence. If $r = 1$. Represents the complete direct relationship between the two variables. A direct or positive relationship means that if one of the variables increases (or decreases), the other increases (or decreases). Figure 3 shows the correlation diagrams.

Conclusion

In this study, the relationship between high intelligence (IQ) and translation skills was assessed using two variables, one was to score the subjects' intelligence test and the other was to translate two paragraphs from Virginia Woolf's novel by Ms. Dalloway. Pearson was used to examining the correlation between these two variables. This research proposes a model that includes five types of equivalents at different language levels as a guide for a correction scale and five corresponding gravity errors on a grading scale for quantitative judgments about the quality of student translations. As some scholars have rightly argued (e.g., House, 2001; Waddington, 2001; and Pim, 1993), the sum of all linguistic errors cannot directly reflect translation quality. Thus, 70% of the total scores are determined by error analysis (followed by Cooler, 1979) and the remaining 30 points are determined by the evaluator's holistic understanding of translation quality (Waddington, 2001). The main rationale for choosing this combination was to arrive at a manageable model for evaluating student translation in educational settings. In addition to using the collective evaluation model, this model can also be used for formative evaluation of student translation to understand the strengths and weaknesses of student translators during the translation period, and it should be remembered that for purposes other than evaluating student translations, other highly reliable and objective models in the literature can be used to evaluate literary and professional translations. The use of this model is recommended for all types of text. It is believed that this model can be used to evaluate the translation of various texts in educational settings.

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IDENTIFICATION OF THE ADVANTAGES OF ACADEMIC ACHIEVEMENT TESTS FOR NINTH GRADE STUDENTS IN DISTRICT 9 OF TEHRAN

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ABSTRACT

This study aimed to identify the advantages of achievement tests for ninth-grade students in District 9 of Tehran. A descriptive survey method was used for the study. The study's statistical population included all ninth-grade male and female students studying in district 9 of Tehran (2016-2017). According to the inquiry received from the district's Education Department, it included 3620 students. The statistical sample size of 360 people, with an approximate volume of 10% of the population, was selected by random cluster sampling. The main data collection tool was a researcher-made questionnaire and interview used as a complementary tool. Descriptive statistics, statistical index of central tendency, dispersion index, and Friedman ranking test were used for data analysis. The results showed the strength points of academic achievement tests such as creating coordination in teaching budgeting, students' familiarity with four-choice questions, strengthening students' scientific strength, the possibility of comparing students with their situation, and healthy competition among students.

Keywords: Academic achievement; achievement tests; educational system.

Introduction:

One of the main tasks of education in any country is transferring the cultural heritage of society, developing students' talents, and preparing them for active participation in society. Therefore, it is necessary to educate people to take charge of various affairs and, consequently, the issue of success or failure in education is one of the most important concerns of any educational system in all societies. The success and academic achievement of students in any society indicates the educational system's success in goal targeting and paying attention to meet individual needs. Therefore, the educational system can be considered efficient and successful when it has the highest figures in the academic achievement of its students at different stages. Education is one of the main pillars of the country's economic, social, cultural, and political growth and development, and today its role in improving the living conditions of individuals and society is obvious to everyone (Tabatabaee and Ghadimi Moghadam, 2007).

Kozma examined the effect of the educational system on students' academic achievement and concluded that a dynamic education system prevents a decline in student morale (Kozma, 2005). Academic achievement is considered as one of the dimensions of the education system development. This means the success of students in passing the courses of a certain educational level or the success in learning the curriculum. On the contrary, academic failure is one of the problems of the educational system and shows itself in different ways, such as students failing to achieve the goals of the relevant educational levels or failing the course or repeating the relevant courses, and early dropout and uncertainty (Heidari, 2011).

Teacher and student awareness of the effectiveness of educational and learning activities and measures will be an incentive to continue their learning-teaching activities. Furthermore, recognition of shortcomings of the learning-teaching process helps them to take conscious actions to correct their learning disabilities and misunderstandings. In fact, the results of assessment and evaluation of academic achievement should be used to improve students' learning (Ahmadipour, 2012).

Over the last few years, the General Department of Education of the provinces, and consequently, the General Department of Education of Tehran and District 9 of Tehran, held an exam

every year in two stages called the Academic Achievement Test. This test, along with its positive aspects such as reviewing lessons, practicing speed tests, the possibility of comparing students, etc., has vague and negative points. In the case of reviewing and eliminating the shortcomings and defects, it can have more positive effects. Since these tests are costly and at the same time disrupt the normal flow of daily school activities and different points of view are raised about their effectiveness, they should be evaluated and reviewed, their strengths are identified and to be continued if their strengths outweigh their weaknesses. These exams were held in the education department of district 9 in line with other departments in the country, but in 2014, new management was introduced, and it was no longer held. Therefore, the evaluation of these tests by teachers and executives is of great importance and can provide a somewhat realistic understanding of the efficiency and effectiveness of these tests. Accordingly, the purpose of this study is to identify the benefits of academic achievement tests for ninth-grade students of district 9 of Tehran.

Theoretical Foundations of Study

Academic achievement

Academic achievement indicates the achievement of educational standards and goals (Reber, A. S., 1985). In other words, it means success which is used to determine progress in education. Academic achievement is defined as a measurement through testing, while in general concept it is distinct from the tests of aptitude and intelligence. Crow, D. L., & Crow (1956) argue that progress means the extent to which learners benefit from learning in specific areas of learning. According to Erfani (2010), academic achievement is the acquisition of knowledge or skills in school subjects usually determined by the test scores or the scores given by the teacher. According to Stephens, J. W. (1960), the problem is not that other aspects of educational goals are ignored, but the fact is that academic achievement is the sole responsibility of all educational institutions established by the community to promote the beneficial academic achievement of students, and this is an abstraction of children's specific behaviors related to mastering or learning words related to studying of lessons, solving math puzzles, drawing, etc. Trow, W. C. (1970) believed that academic or educational achievement is an actualized ability or level of ability in school assignments usually measured by standardized tests, expressed in "age or grade" units, and are based on the norms of an extensive sampling of student performance (Trow, 1970).

Steinberg, L., (1993) also believed that it includes student achievement, ability, and performance related to a person's cognitive, emotional, and social development. Academic achievement is related to learning the principles and the ability to act effectively on goals and related issues (Steinberg, 1993).

Academic achievement is one of the most important factors that affect the opportunities and development of a person's life. Finishing high school, which is largely related to academic achievement, is of particular importance. A high school dropout, which severely limits subsequent opportunities, is associated with socially destructive and self-destructive behaviors that include substance abuse, unemployment, low income, welfare dependency, and delinquency and crime (Rutter, M & Giller, 1983; Haveman, R & Wolf, 1984; Steinberg, L, Blinde, p., & Chen, 1984; Hawkins, J. et al., 1986; Loeber, R., & Stutmer, 1987; Hinshaw, S. 1992, 123; Hawkins and Lishner, D. 1980; Erfani, 2010).

Studies have shown that people with motivation to make great progress in doing things, including learning, surpass those who lack this motivation. For example, in McClelland's (1961) study, two groups of subjects who differed in their motivation for progress performed a single assignment. In this single assignment, subjects changed the mixed letters given to them into meaningful words. In the beginning, both groups had similar performance, but as the assignment

progressed, the group with high progress motivation came ahead of the group with low progress motivation. However, conclusive results of the above research have not been obtained in the studies conducted in this regard. In some cases, the performance of people with high motivation for progress has been equal to that of people with low motivation for progress and even lower than them. Revisions of McClelland's original theory (Atkinson, R. C., 1963, 32) have justified the above inconsistencies as follows: people with high motivation for progress are not very interested in doing simple and ordinary tasks, and therefore their performance in such tasks, despite the high level of motivation for his progress, will generally be at a low level.

Also, people with high motivation are not interested in doing very difficult tasks because there are no honors in doing very simple tasks. According to Atkinson's theory, highly motivated individuals with moderately difficult tasks (neither too difficult nor too easy) achieve great success. Sears studies showed that those who tend to choose goals that are moderately difficult, while people who are very worried about failure often have very large or very small goals (Kharazi and Alinaghi, 2004).

Teaching, Learning, and Assessment Objectives

Learning is a process that makes education possible. Education is used when learning needs to move in a certain direction to support students in a specific knowledge with a specific skill, level, time, and method. In other words, learning is a cumulative phenomenon. It is created under the influence of previous supported learning and training in the past and shows itself as a performance in the present.

Confirming this issue, it is necessary to create ongoing learning opportunities to link previously-stored items to newly learned ones in order to build foundations for improving and changing the quality of human perfectionist behaviors. A new perspective of psychology on learning in terms of the balance between teaching and learning has turned this process into a continuous information processing activity. A process that has provided a common ground between the theories of behaviorism, cognitivism, metacognition, and constructivism in recent decades thanks to new electronic technology. According to the information processing theory of Glaser, Mills, Pribram, and Moore, behaviorist strategies can be used for learning what questions (facts), cognitive strategies for learning processes and principles (how), and constructivist strategies for learning why questions (high-level thinking and situational and contextual learning) in e-learning (Ebrahimzadeh, 2007).

P Parry, S.B (1999) considered that the advent of digital technology requires new educational theories along with old theories (Zarei Zavaraki, 2005). However, Eikenberry (1999) believed that the electronic revolution in learning continues without any specific perspective (Zarei Zavaraki, 2005). Because the efficiency of learning is in line with critical and creative thinking in higher education and critical thinking is a kind of holistic (gestalt) activity, it needs a cognitive model that originates from within and exudes from the outside.

A process that can measure these behavioral changes requires tools that gather information about changes in learning behavior. Behavioral changes do not happen all at once; therefore, the result of the change in behavior is also measurable. In other words, clinical observation should be performed to properly measure learning behaviors (Haghighi et al., 2013).

In the environment of distance learning and online learning, assessment outcomes are sometimes used to compare academic performance and determine the academic achievement of the distance learner in order to highlight the difference between traditional and distance education methods. In this process, the learner knows what is being assessed and what its purpose is. Therefore, he uses feedback to correct his learning. The learner can better use the results if the assessment criteria for the distance learner are specified. The unofficial repeated assessment de-

termines these criteria. When the learner is confronted with activities such as assessment, he/she not only call for concepts and skills but also reinforces them in the process. This reinforcement is seen more in matters of a hierarchical and sequential nature. Repeated assessment helps the learner to understand the important points and key messages and to acquire the skills to do the task. It also helps the teacher and the instructor to provide the necessary content to reduce the shortcomings. Assessment activities correct the learner's misunderstandings

Academic Achievement Assessment

Academic achievement assessment is a regular process to determine the extent of students' progress in achieving educational goals. Therefore, evaluation is not a series of irregular measurements and does not make sense without considering educational goals. Evaluation is more comprehensive than measurement. Measurement is a quantitative description of a student's behavior, but evaluation of an individual's behavior provides a quantitative and qualitative description. Valuation is a value judgment about the presence or absence of traits that have been measured.

The first step in evaluating academic achievement is to determine and identify academic goals, so that teacher and student educational activities become oriented and purposeful. Evaluation should be in line with educational goals and have the necessary coherence to measure the degree of success, its achievement, and determined goals (Fallahi and Abdollahi, 2017). According to this assumption, valuation is of three types:

1. Initial evaluation: The purpose of this type of evaluation is to be aware of the level of abilities and previous preparations of the student, to recognize the learning problems in previous lessons, and to compensate for the probability deficiencies in previous learning. In other words, "It is a measurement of the extent to which a learner is comforted by the prerequisites of a new lesson." This type of evaluation is performed at the beginning of the school year or at the beginning of each course session. The questions of this assessment for students are related to what they have learned in the previous year or the previous lesson. The type of test used is usually teacher-made and the criterion-referenced because the main purpose of this type of evaluation is to be aware of learners' problems in learning precise educational goals.

2. Formative Evaluation

This assessment is done during the education process when learning is taking form and is developing that is why it is called formative evaluation. The purpose of this type of evaluation is to be aware of the strengths and weaknesses of students' learning and to correct the teaching method by the teacher. Other benefits of formative evaluation include the ability to pay attention to individual differences, peer evaluation, and the possibility of evaluating group activities. Formative evaluation questions are asked from the learned lessons and are presented with regard to knowledge, attitude, and skill goals (Sharifan, 2012). The type of tests used in the formative evaluation is in the form of a written test, a self-evaluation checklist, a group activity observation checklist, or a functional observation checklist. The purpose of self-evaluation is to involve the student in the process of evaluating individual performance and to give students the opportunity to make fair judgments in the evaluation of personal activities. The group effort of the student, the degree of cooperation of the group members, the type of responsibility of the individuals, and the skills of the thinking process are evaluated through a group checklist. A functional observation checklist can be used for qualitative judgment of learning processes and practical portfolios of students (Ramezani, 2016). Informative evaluation, the personal judgments of the teacher, as well as the opinion of the parents, are sometimes taken into account. Formative tests are taken during the course period (end of the learning phase of a chapter or lesson) or at certain times (Shahabadi, 2013).

3. Final Evaluation: It is called the final evaluation because it is taken at the end of the course (semester or academic year), and it is compact because it can measure students' intensive learning over the length of a course. The final evaluation evaluates all that students have learned or examples of all they have learned. In these evaluations, two types of criterion-referenced tests (with the aim of determining the total amount of learners' learning) and norm-referenced tests (with the aim of determining the total amount of learners' learning), as well as normative tests (with the aim of comparing the performance of individuals with each other), are used. Normative tests depend on a relative criterion. For example, we compare and rank students' progress. The entrance exam is a clear example of this type of evaluation, i.e., those who have obtained the highest score in the exam enter the university according to the capacity of the universities. The system and measurement can be quantitative or qualitative (descriptive) in each of the mentioned evaluations.

Concept: It is the purpose of the general topics of learning. The concept may cover many examples that have something in common. The text of a lesson is usually organized around one or more large concepts and a number of small concepts. A concept may be a fact, an event, a definition, a principle, a theory, a skill, an attitude, and so on. In other words, the type of concept may be a cognitive, skill, or attitudinal.

Educational goals: Goals refer to the educational expectations that learners are expected to achieve after teaching a lesson. Tyler, Levy, and Greenland consider the educational goal as expressing desirable changes in learners' behavior in terms of knowledge, practice, and attitude; For example, students will:

- Explain the causes of the Iran-Iraq war.
- Explain how complementary proteins act.
- Be able to build a closed electrical circuit.
- Be interested in God, Prophet, and Imams (Mir Arabshahi, 2008).

Levels of goals: Educational goals are usually classified into three groups: cognitive, skill (psychomotor), and attitudinal (emotional). Each of these goals also has different levels, from simple to difficult. Cognitive goals: they include goals that deal with remembering, recognizing, understanding, and developing mental abilities and skills such as application, composition, and evaluation. This is the most important area of work for evaluators and teachers in evaluation. Most tests are currently used to measure learners' performance in cognitive behaviors. The most appropriate means of measuring cognitive goals are written and oral tests. Assessment involves the use of different techniques and puts a great emphasis on performance observation. Assessment is a type of clinical analysis and performance prediction, while the test is a tool and a means of measurement (Fallahi & Abdollahi, 2017).

Methodology

The present study is applied and mixed research (quantitative and qualitative) in terms of purpose and research method, respectively. The quantitative method is of descriptive survey type. The statistical population of this study includes all male and female high school teachers in District 9 of Tehran. The research population is 594 students, according to the inquiry obtained from the education department of the region. The statistical sample size of 360 people was selected through a simple random sampling method according to the estimation Krejcie & Morgan table. Two library and field methods were used for data collection. Interviews with 10 professors of educational sciences were used to evaluate the benefits of the ninth-grade academic achievement test. The main tool in this study was a researcher-made questionnaire to evaluate the strengths of coordinated tests of academic achievement of schools. This questionnaire had 28 closed questions. The opinions of several experts in the fields of psychology and educational sciences were used to assess the content validity of the questionnaire, while an experimental test on 30 people and the calculation of

Cronbach's alpha coefficient were used to assess the reliability of the questionnaire. The obtained coefficient value was 0.87 is considered acceptable. Descriptive frequency statistics and Friedman inferential statistics tests were used to analyze the data.

Findings

The results showed that 47% of the statistical sample was male, and 53% was female. 11% of the statistical sample was single, and 89% were married. 6% of the statistical sample had work experience between 1-10 years, 23% between 11-20 years, and 72% between 21-30 years. 17% of the statistical sample studied in the fields of basic sciences, 79% in humanities, and 4% in arts. 4% of the statistical sample had postgraduate education, 75% had a bachelor's degree, and 21% had a master's degree. To rank the strength points, the Friedman test was used first, followed by the importance of the listed strengths. Tables (1) and (2) show the results of the analysis.

Table 1

Rankings of each of the strong points of the ninth-grade academic achievement tests based on opinions of teachers

Strength Points	Ranking Averages
Coordination in observing teaching budgeting	9.83
Healthy competition between students H	8.17
Strengthening students' scientific strength	9.35
Creating healthy competition between teachers in a school	6.46
Identification of successful teachers of each region and their encouragement	6.3
Identification of inefficient teachers and corrective measures	5.18
Giving appropriate feedback to parents on assessment results	8.05
Possibility of evaluating school principals according to academic achievement tests	6.03
Familiarity of students with four-choice questions	9.51
Familiarity of students and parents with concepts such as rank, percentage, and level	7.74
Providing the possibility of comparing the student achievement with her own situation	8.43
Helping to improve the teaching-learning process	6.96
Providing counseling services to parents according to the test results	6.17
Preventing academic failure and helping students' academic growth	6.82

Table 2

Friedman test

Variables	Current situation
Chi-square	692.85
Degrees of freedom	13
sig	0.0001

Considering Chi-square values and significance levels (692.85 and 0.0001), there is a difference between the ranks of each of the strongest points of the ninth-grade academic achieve-

ment tests from the teachers' point of view. The importance of each of the strengths is shown in Table (3).

Table 3

The significance level of each of the strengths

Strength	Average	Standard deviation
Coordination in observing teaching budgeting	4.15	0.89 0.83
Familiarity of students with four-choice questions	4.08	0.88
Strengthening students' scientific strength	3.97	0.91
Providing the possibility of comparing the student achievement with her own situation	3.67	1.2
Familiarity of students and parents with concepts such as rank, and level ,percentage	3.63	0.96
Helping to improve the teaching-learning process	3.5	0.97
Preventing academic failure and helping students' academic growth	3.41	0.89
Identification of successful teachers of each region and their encouragement	3.33	1.2
Providing counseling services to parents according to the test results	3.26	1.22
Possibility of evaluating school principals according to academic achievement tests	3.23	1.1
Identification of Inefficient secretaries and corrective actions	3.17 3.01	1.22

According to the data of Table (3), among the mentioned strengths, the following were of great importance: 1-Coordination in observing teaching budgeting 2. Familiarity of students with four-choice questions 3-Strengthening students' scientific strength 4-Providing the possibility of comparing the student achievement with his/her own situation 5- Healthy competition between students 6- ents with concepts such as rank, Familiarity of students and par and level ,percentage 7. Giving appropriate feedback to parents on assessment results 8- Preventing academic failure and helping students' academic growth 9- Helping to improve the teaching-learning process.

Conclusion

The purpose of this study was to identify the advantages of achievement tests for ninth-grade students in District 9 of Tehran. According to the data analysis of this question, the most important strengths of the coordinated academic achievement tests are coordination in observing teaching budgeting, the familiarity of students with four-choice questions, strengthening

students' scientific strength, providing the possibility of comparing the student achievement with his/her own situation, healthy competition between students, the familiarity of students and parents with concepts such as rank, percentage and level, giving appropriate feedback to parents on assessment results, preventing academic failure and helping students' academic growth and helping to improve the teaching-learning process. These findings are consistent with the results of studies of Moradi et al. (2014), Keramati et al. (2012), Mirafshar et al. (2012), Ganji et al. (2012), Sarmadi et al. (2010), and Payana Stasio (2006). An explanation of these results, it can be said that the implementation of academic achievement tests is held simultaneously and in a coordinated manner in all schools in the region. Therefore, teachers inevitably have to teach according to the schedule, and if some of the lessons are not taught, there will be a problem for the students, and the teacher will be responsible for this problem. Common school exams are held in written and descriptive form, and students are not very familiar with the test questions if they do not participate in the exams of private, scientific institutions. Academic achievement tests provide students with the experience of test questions and test scheduling, they gradually become prepared for successful participation in the entrance exam and employment tests, and they also get acquainted with concepts such as rank, percentage, and balanced score. Feedback on student performance at the class, school, and district levels can provide a relatively comprehensive understanding of his or her educational background, prompting teachers and parents to seek appropriate remedial action. Evaluation of the class status compared to other classes and comparison of the performance of teachers with other teachers causes the teachers to improve the quality of their education, and as a result, the possible shortcomings of some teachers and specific schools will be eliminated.

A-Solutions of the improvement of academic achievement tests in four parts are as follows: Encouraging active principals and teachers to perform the test accurately, using experienced teachers in making questions, careful supervision of the department of education on the optimal performance of tests, comparing the performance of schools and teachers in the region, preparing an appropriate report on the performance of the school and teachers in the exams and put it on the bulletin board, explaining the philosophy and necessity of conducting academic achievement tests for principals and teachers, providing appropriate feedback to principals and teachers and determining the test schedule and the test level from the beginning of the year.

B- Strategies for standardizing the questions of academic achievement tests between schools are: Observing test budgeting with the teaching content, using of standard question bank, group designing of questions by experienced teachers and secretaries, evaluation of questions before implementation, and reviewing the text of the questions and options, combination of different questions (test, correct-incorrect, and short answer), asking questions from all levels of learning and limiting the number of test stages to three.

C- Strategies for increasing students' attention to academic achievement tests include: encouraging top students in exams, the inclusion of academic achievement test results into classroom assessments, encouraging students who have progress in exam results compared to the previous ones, providing appropriate test feedback to parents, providing appropriate advice to parents about tests and encouraging students to study to improve in tests results.

D- Strategies for increasing the effectiveness of academic achievement tests are: reviewing of questions after the test in the classroom by teachers, paying more attention to parts of the test where students' performance has not been appropriate; explaining the importance and necessity of conducting academic achievement tests for parents and students, assessment of student's individual performance and feedback to parents, timely notification of exams and test level, more attention of principals and teachers to tests in implementation and evaluation, introducing top

students at the district level, performing a survey of students and parents in the quality of exams, performing lesson-by-lesson exams and teaching the correct methods of answering the relative tests. These findings are consistent with the results of studies of Salehi Najafabadi (2014), Niaz Azari (2012), Gholam Ali Lavasani & Amani (2012), Kalantar Ghoreishi et al. (2012), Moshtaghi (2012), Ziser (2011), and Rich Jan (2006). An explanation of these results, it can be said that various elements play a role in the improvement of the quality of academic achievement tests, including the role of principal, teachers, parents, and students. Lack of sense of responsibility and lack of cooperation between principals and teachers in the proper implementation of academic achievement tests causes other factors to not function properly and, consequently, not to play their role properly. Encouraging principals and teachers, attracting their cooperation, using the experiences of experienced principals and teachers, monitoring and explaining test objectives, and clarifying financial issues can increase the cooperation of principals and teachers. Standardization of questions with a purposeful design according to the table of contents, purpose, reviewing, experimental implementation, and analysis of results using evaluation and assessment indicators can play an important role in standardizing of questions.

Students will show more interest in these tests depending on the attitude of the principal and teachers, parents' encouragement, and involvement of the results in the evaluation and reflection of the results at the school and district level. In general, the effectiveness of tests can be increased by proper performance, timely analysis, monitoring student performance, providing advice to parents, etc. According to the study results and based on the design of many strong points of academic achievement tests, it is suggested to continue the implementation of academic achievement tests in schools. It is suggested to study the effect of conducting coordinated academic achievement tests on students' academic achievement on a lesson-by-lesson basis. It is also recommended that the level of teachers 'and students' satisfaction with the performance of academic achievement tests on holidays along with the payment of fees to teachers and principals be investigated.

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THE RELATIONSHIP BETWEEN PERSONALITY AND COMPUTER SELF-EFFICACY WITH COMPUTER ANXIETY

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ABSTRACT

The main purpose of this study was to evaluate the personality and self-efficacy of a computer with computer anxiety. The present research community included all undergraduate law students in Tehran who studied in public and Azad universities in the 2014-2015 academic year. The sample included 200 male and female students who were selected by stratified random sampling. Revised Neo Personality Inventory, Bandalus Benson Computer Anxiety questionnaire, Murphy Computer Self-Efficacy questionnaire, and Kover and Owen questionnaire were used to collecting data.

The present study was a correlational and data analysis study performed by Pearson correlation coefficient and multivariate regression analysis. The results showed that there is a significant relationship between personality (being conscientious and open to experience and agreement) with computer anxiety at the level of $p < 0.05$. There is also a significant relationship between neuroticism, conscience, agreement, openness to experience and computer self-efficacy at the level of $p < 0.05$. The results also showed that there is a significant relationship between computer anxiety and computer self-efficacy. But no significant relationship was observed between extraversion and computer self-efficacy. Ultimately, computer self-efficacy and being conscientious, open to experience, and agreement reduce computer anxiety.

Keywords: character; computer self-efficacy; computer anxiety.

Introduction

It is difficult to even imagine completing a job or a task without using a computer (Simsek¹, 2011).

Computers and e-learning have emerged as a new paradigm for higher education and have been a constant source of support for the past few years. Its stakeholders at various levels include researchers, physicians and various institutions, etc., and the perception of its importance even for our current problems and economic instability is strengthening and empowering, and its presence is widespread in all areas of life (Saade and Kira², 2007).

In the meantime, the widespread presence of computers in the field of education is undeniable and is increasingly used in teaching-learning processes in all subjects and levels and bases in schools and higher education centers (Arani³, Doyle and Stumly Quoted from Simsek, 2011).

Teaching technology in the classroom is very important in preparing students for senior classes as well as professional careers, especially in areas such as technology (Downey and Kher⁴, 2015). Anxiety is a natural and inevitable reaction to perceived danger or risk (Mathew⁵, 2012, Quoted from Achim⁶ and Kassim, 2014).

Computer anxiety is defined as the fear of computer interaction and the actual threat posed by the computer, which includes feelings of danger and fear of failure (Hassanzadeh and col-

leagues, 2009). Computer anxiety is a serious barrier to how to learn to use a computer effectively (Simsek, 2011). Computer anxiety affects other behaviors and features of information or technology, and many people have a negative view of the computer (Todman⁷, 2000 Quoted from Askari and Marashian, 2012).

- 1- Simsek
- 2- Saade and Kira
- 3- Arani, Doyle and Stumly
- 4- Downy and Kher
- 5- Mathew
- 6- Achim and Kassim
- 7- Todman

Self-efficacy refers to an individual's evaluations of performance capabilities on a particular task, that is, whether or not people are capable of succeeding in that task (Bandura¹, 1977, 1982a, 1982b).

Past research has shown that although computer users have realized the benefits and ease of using a computer, they still have concerns and anxieties about using a computer. A number of self-efficacy studies have reported the computer as a mediator or facilitator for ease of use of the computer (Saade and Kira, 2007).

One of the key points in the field of computer technology is the process of computer self-efficacy, which has a wide stream of empirical research in this field, and many of these studies answer the question that self-efficacy really changes during training and how the change is related to the individual's background, and ultimately the individual's performance grows during the training (Downey and Kher⁴, 2015).

According to studies, computer self-efficacy and computer anxiety are the determining factors in understanding the ease of use of the educational management system (Saade and Kira, 2007).

As the computer experience increases, the computer anxiety decreases, which only facilitates indirect performance by increasing levels of self-efficacy, which in turn improves computer performance (Saade and Kira, 2009).

Due to the fact that personality is composed of traits and tendencies that lead to individual differences in behavior, stability in behavior over time, and the continuation of behavior in different situations, the patterns of these traits are different in each individual. So, everyone has a unique personality, even though they are similar in some ways (Feist and Feist², 2002).

A study by Vella³ and Caputi and Java Suriva (2003), Examined the role of personality in deciding and determining the events of the variables of computer anxiety and self-efficacy, which affected the performance of tasks. In this study, preliminary results have been obtained on the model of computer dynamics events related to fixed individual differences, individual traits, preparations and tendencies, which require more extensive research on the effect of these dynamic structures, computer anxiety, and computer self-efficacy examine different individual profiles.

- 1- Bandura
- 2- Feist and Feist
- 3- Vella and Caputi and Java Suriva

Costa and McCray¹ (1992), In their proposed theoretical model, say that in addition to believing in a biological basis, the five main factors (the behavioral differences in the five factors are related to factors such as genes and brain structure), Throughout life, these factors affect various structures such as self-concept, self-efficacy beliefs, and adaptability-related characteristics

such as personal attitudes and goals, and influence individual decisions (Hassanzadeh and Najafi, 2010).

Asgari and Marashian(2009), in a study entitled "The relationship between personality traits and computer anxiety with Internet addiction," by studying 300 students of Ahvaz Azad University, showed that there is a significant relationship between personality traits such as neuroticism, extraversion, conscientiousness, agreeableness and openness to experience and Internet addiction, as well as a relationship between computer anxiety and Internet addiction.

Downey and Kher (2015), in a study entitled "Longitudinal study of the effects of the growth of computer self-efficacy on performance during technology education" by studying 230 students in a major university in South America, showed that the correlation between computer anxiety and computer self-efficacy decreases with the duration of training.

From an industrial perspective, knowledge about the interaction between computer anxiety and computer self-efficacy should create the necessary understanding and interest in communication technology. We should provide a space to create different levels of efficacy in students to maximize help. Provide applied education and research that reduces anxiety and increases learning (Saadeh and Kyra, 2009). Therefore, the main issue in the present study is whether there is a relationship between personality and computer self-efficacy with students' computer anxiety.

From an industrial perspective, knowledge should also establish the necessary connection and interest in the interaction between computer anxiety and computer self-efficacy and understanding of the use of technology, and we need to provide a space to create different levels of efficiency in students to maximize support for education and applied research that reduces anxiety and increases learning (Saade and Kira 2009).

Therefore, the main issue in the present study is whether there is a relationship between computer personality and self-efficacy with computer anxiety in students?

Method

The design of the present study is a correlational design. This research studies the relationship between computer personality and self-efficacy with students' computer anxiety.

The statistical population in this study was all undergraduate law students who were studying in public and Azad universities in Tehran in the 2014-2015 academic year.

According to statistics, in the 2014-2015 academic year, a total of 4700 undergraduate law students were studying in these universities; this number formed the statistical population of this study.

1- Costa and McCray

According to the statistical method of the study, which is regression, in regression groups, the sample size should be 20-25 times the prediction variables (Hooman, 2007); therefore, in this study, the sample size should be at least 150 people, so the sample size was selected including 200 and 100 male students, taking into account the drop in some questionnaires. In this study, the sample was selected by stratified random sampling method between law students of Tehran University and the Azad University of Tehran.

The sampling method was as follows: In the first part, two universities were randomly selected among the universities of Tehran. In the second part, from each university, 100 law students were randomly selected. Finally, 200 students participated in this study.

Research tools

Computer Anxiety Scale: The Bandalos and Benson1 (1990) scales were used to measure computer anxiety.

This scale consists of 20 items based on the Likert scale with six options from strongly disagree to strongly agree with them designed by Bandalos and Benson.

The minimum and maximum scores of the questionnaire are considered to be 20 and 012, respectively. The whole scale was calculated based on Cronbach's alpha test statistic of 0.96 with 375 subjects (Bandalos and Benson, 1990). Cronbach's alpha for the Computer Anxiety Inventory was 0.81, indicating good reliability of the tool.

In the present study, in order to calculate the validity of the computer anxiety questionnaire, Cronbach's alpha coefficient was calculated to assess the internal consistency of the anxiety questionnaire questions. The obtained Cronbach's alpha coefficient is 0.91, which indicates the very good validity of the computer anxiety questionnaire questions.

The computer self-efficacy scale: To measure computer self-efficacy, Murphy2, Coover and Owen computer self-efficacy scale was used, which was designed and validated by Murphy, Coover and Owen. This scale has 32 questions or items that are based on the Likert scale and five options (from very low self-esteem to very high self-esteem). The minimum and maximum scores of the questionnaire are between 32 and 160 hours.

1- Bandalos and Benson

2- Murphy and Coover and Owen

Harrison and Rainer1 (1992) reported an overall confidence interval of 0.95. In the present study, in order to calculate the validity of the computer self-efficacy questionnaire, Cronbach's alpha coefficient was calculated to examine the internal consistency of the computer self-efficacy questionnaire.

The Cronbach's alpha coefficient is 0.985, which indicates the acceptable and meaningful validity of the computer self-efficacy questionnaire questions.

Neo Short Form Personality Scale: A five personality factor or neo questionnaire was used to measure five personality factors. This test was developed and revised by Costa and McCray in three stages (1985, 1989, 1992).

The NEO-FFI consists of 60 sentences designed to briefly and quickly assess the five factors of neurotic personality, extroversion, openness to experience, agreement, and conscience. This test consists of five sets of 12 sentences related to each index (Haghshenas, 2009).

The Likert scale sampling method is five options from strongly disagree to strongly agree. Some questions are scored in reverse.

The questionnaire is used as a self-measure. Costa and McCray (1992) reported an alpha coefficient between 0.68 (for agreement) to 0.86 (for neuroticism). In the present study, calculating the validity of the Neo questionnaire, Cronbach's alpha coefficient calculated for each of the factors of neuroticism, extraversion, openness to experience, agreement, and conscientiousness are 0.859, 0.862, 0.858, 0.871 and 0.852 respectively, which are all acceptable and significant coefficients and values, which indicates the acceptable validity of the questionnaire questions.

In this study, Pearson correlation coefficient and stepwise multivariate regression were used to analyze the data and answer the hypotheses and research questions.

1- Harrison and Rainer

Results

The students participating in this study were 200 people (100 males and 100 females), which are shown in Table 1 as descriptive indicators related to the research variables. Based on the data in Table 1, the results of the Kolmogorov-Smirnov normality test showed that the distribution of students' scores in the research variables is close to the normal distribution. The average student personality was from 22/75 to 30/75.

Table 1

Descriptive indexes of research variables

Variables	Average	Standard	(kssig)
Computer Anxiety	75.73	13/011	1/213
Computer self-efficacy	106/30	28/187	0/930
Neurosis	26/18	7/471	0/809
Extraversion	28/24	6/059	0/791
Openness to experience	22/75	4/484	0/781
Agreement	28/04	6/064	1/155
Consciousness	30/75	7/003	1/165

The mean of openness to experience was lower, and the mean of conscientiousness was higher in students than in other cases.

Hypothesis 1: There is a relationship between personality (conscience, extraversion, openness to experience, neuroticism and agreement) with computer anxiety in students.

To test this hypothesis, the Pearson correlation coefficient between the scores of each of the personality subscales with computer anxiety was calculated, and the results are presented in Table 2.

Table 2

Correlation coefficient results for personality with computer anxiety

Variables	Pearson correlation coefficient	Significance
Neuroticism-Computer Anxiety	0/900	0/206
Extraversion-Computer Anxiety	0/011	0/988
Openness to experience- Computer Anxiety	0/205	0/004
Agreement-Computer Anxiety	-0/207	0/003
Conscience-Computer Anxiety	-0/219	0/002
n=200		

The results of Table 2 show that the relationship between neuroticism and extraversion with computer anxiety was not significant ($p > 0.05$), But the relationship between conscientiousness, openness to experience and agreement with computer anxiety was negative and significant ($p < 0.05$).

This result indicates that the relationship between conscience, openness to experience, and agreement with computer anxiety was significant, but neuroticism and extraversion were not significantly related to computer anxiety.

Hypothesis 2: There is a relationship between personality (conscience, extraversion, openness to experience, neuroticism and agreement) and computer self-efficacy in students.

To test this hypothesis, the Pearson correlation coefficient between the scores of each of the personality subscales with computer efficacy was calculated, and the results are presented in Table 3.

Table 3

Correlation coefficient results for personality with computer self-efficacy

Variables	Pearson correlation coefficient	Significance
Neuroticism-Computer Self-Efficacy	0/229	0/001
Extraversion-Computer Self-Efficacy	0/024	0/738
Openness to experience-Computer Self-Efficacy	0/208	0/003
Agreement-Computer Self-Efficacy	0/169	0/017
Conscience-Computer Self-Efficacy	0/181	0/010
n=200		

The results of Table 3 show that the relationship between neuroticism with computer self-efficacy was negative and significant ($p < 0.05$), The relationship between conscience and openness to experience computer self-efficacy was positive and significant ($p < 0.05$), But the relationship between extraversion with computer self-efficacy was not significant ($p > 0.05$).

This result indicates that the relationship between neuroticism, conscience, openness to experience and agreement with computer self-efficacy was significant, but extraversion was not significantly related to computer self-efficacy.

Hypothesis 3: There is a relationship between Computer Self-Efficacy and Computer Anxiety.

To test this hypothesis, the Pearson correlation coefficient between the scores of each of the computer self-efficacy with computer anxiety was calculated, and the results are presented in Table 4.

Table 4

Correlation coefficient results for computer self-efficacy with computer anxiety

Variables	Pearson correlation coefficient	Significance
Computer self-efficacy-computer anxiety	-0/302	0/001
n=200		

The results of Table 4 show that the relationship between computer self-efficacy with computer anxiety was negative and significant ($p < 0/05$, $r = -0/302$).

This result indicates that as computer self-efficacy increases, computer anxiety decreases.

Question - What is the role of computer personality and self-efficacy in predicting computer anxiety?

The stepwise multivariate regression analysis method was used to answer this question. The results are presented in Table 5.

Table 5

The results of regression analysis to predict computer anxiety

Variables	B	Std.Error	Beta	t	pR2F
Constant	121/87	7/544	16/155		0/001
Computer self-efficacy	-0/12	0/032	-0/262	-3/752	0/001
Conscience	-0/25	0/125	-0/133	-1/976	0/050
Openness to experience	-0/43	0/194	-0/149	-2/234	0/027
Neuroticism	0/29	0/117	-0/168	-2/488	0/014
Agreement	-0/29	0/144	-0/137	-2/036	0/043

Among the factors of personality and self-efficacy, only extraversion, along with other variables, had no significant relationship with computer anxiety and did not enter the equation. According to the obtained R² values, the multivariate correlation between other factors, personality and computer self-efficacy with computer anxiety in students was 0/182. In fact, the effect of computer self-efficacy, conscientiousness, openness to experience, neuroticism and agreement on computer anxiety is 18.2, while the effect of computer self-efficacy on computer anxiety in most students is 9.1 and agreement is 1.7%, the lowest. It had an effect on computer anxiety and these correlation values were significant.

Since F is significant at the level of $p < 0.001$, the relationship between computer personality and self-efficacy with computer anxiety is significant, the results in Table 5 show that computer self-efficacy, conscientiousness, openness to experience and agreement had a negative and significant effect on computer anxiety and reduced computer anxiety, but neurosis increased computer anxiety.

The regression equation for predicting computer anxiety in the study group using two variables of personality and computer self-efficacy are:

Computer Anxiety = (Agreement) -0/29 (neuroticism) + 0/29 (Openness to experience) - 0/43 (conscientiousness) -0/25 (Computer self-efficacy) -0/12 + 121/87

Discussion

The findings of the present study showed that there was a significant negative relationship between conscience, openness to experience and agreement with computer anxiety in students. ($p < 0/05$) In other words, by increasing the score of these factors (conscientiousness, Openness to experience and Agreement) in students, their computer anxiety decreases. But the relationship between neuroticism and extraversion with computer anxiety was not significant in students ($p > 0/05$).

Bandura (1985) Students who believe in their worthiness can focus on problem-solving strategies, so these students have a tendency to engage in tasks and assignments. In this regard, it can be said that the higher the score of conscientiousness, openness to experience and agreement in students, the less fear and anxiety students have when working with computers and the easier it can be to work with computers.

Will Fong (2006) emphasized the variables of work and experience with the computer and the variables of personality and self-efficacy, and the beliefs and opinions of users as the determinants and influential variables of computer anxiety. The findings of the present study are in line with the research of Will Fong¹ (2006), Warren² (2011), and Vela (2003).

The results also showed that there is a significant positive relationship between personality (conscientiousness, openness to experience, neuroticism and agreeableness) and computer self-efficacy in students ($p < 0/05$).

The relationship between neurosis and computer self-efficacy is a negative one. In other words, the higher a person's neurosis, the lower the computer's self-efficacy. The neurotic person does not have coping or emotional stability and is prone to irrational beliefs, is less able to control his or her impulses, and copes with stress weaker than others (McCray and Costa, 1992).

Therefore, according to his beliefs in the ability to work, this person works with less confidence and is weaker in computer-based work (Compeau³ and Higgins, 1995). Abstrup and Apollo (2011) consider self-efficacy to be the most important factor in linking personality and perception or perception of stress.

1-Wilfong

2-Warren

3- Compeau and Higgins

People with an open personality to experience have the characteristics of diversity, mental curiosity and independence in judgment (McCray and Costa, 1985). They tend to embrace new ideas and unconventional values and experience more and deeper positive and negative emotions than inflexible people (McCray, 1987).

These people are action-oriented (Fathi Ashtiani, 2010). People with agreeableness traits are adaptable (Fathi Ashtiani, 2010). People are conscientious, responsible, accurate, task-oriented and goal-oriented (McCray, 1987).

Computer self-efficacy is defined as a person's judgment of his or her ability to use a computer for specific computer tasks (Stephens and Shotick¹, 2002). Therefore, people with the characteristics of being conscientious, open to experience, and agreeing to perform computer-related tasks can overcome their anxiety because they have a positive cognitive self-assessment. Thus, their ability to use computers as learning tools increases (Pheps and Eliss², 2002). Computer self-efficacy has a significant impact on decisions regarding the use and acceptance of the computer (Davis³, 1989).

Gang (2004) argues that computer self-efficacy reflects users' assessments of their ability to use computers and affects people's perceptions of ease of use of technology and decision-making (Jafari Trojani, 2011). In this regard, it can be stated that the findings of the present study with the research (2013), Moradiani (2012), Ahmadi deh Qutbaldini (2009), Sobhani Nezhad (2009), Orang (2003), Abstrup and Apollo (2011), Saade and Kira (2009), Sam (2000), Will Fong and Hasan (2003), Rosen and Will (1995), Christopherson and Wheatherly⁴ (1997) and Will Fong (2006) is aligned. The findings of this study are not in line with the findings of Jafari Trojani (2010) and Fararo (2008).

The results also showed that there is a negative and significant relationship between computer self-efficacy and computer anxiety in students. In other words, the more students' computer self-efficacy increases, the less computer anxiety they have.

1- Stephens and Shotick

2- Pheps and Eliss

3- Davis

4- Christopherson and Wheatherly

Reducing anxiety and increasing experience facilitates the performance of indirect tasks by increasing self-efficacy levels, which in turn improves performance (Bendura, 1986; Schuk¹, 2000). Will Fong (2006)'s research find that self-efficacy beliefs have the greatest significant association with computer anxiety and anger? Previous research has shown that high levels of computer anxiety reduce levels of self-efficacy, which in turn reduces computer-based performance. Similarly, computer experience improves performance and consequently increases levels of self-efficacy (McLerney and Sicnlair², 1994). In this regard, it can be stated that the findings of the present study with Moradiani findings (2012), Sobhani Nezhad (2008), Ahmadi deh Qutbaldini (2009), Saade and Kira (2009), Pauli and Gilson³ (2007), Bharatacharjee⁴ (2008), Schmit⁵ (2007), Stamouli⁶ (2005), Sam and Othman and Nordin⁷(2005), Gaudron and Vignolib⁸ (2002), Durandel and Hodge (2002), Rosen and Mesirs and Will (1996) is aligned.

Regarding the contribution of each of the personality traits and computer self-efficacy in predicting computer anxiety, the results showed that the best predictors are the priority of the effect of computer self-efficacy and conscience, openness to experience, neuroticism and final agreement, respectively, and the extraversion variable along with other variables had no significant relationship with computer anxiety.

The results of regression analysis show that this correlation is significant. And the relationship between personality traits and computer self-efficacy with computer anxiety is significant in students. This study also showed that computer self-efficacy, conscientiousness, openness to experience and agreement have a negative and significant effect on computer anxiety and reduce computer anxiety, but neuroticism increases computer anxiety. Changing the character in the virtual world, if it is an exaggeration, is a way to escape from the realities, and instead of reconstructing one's character in the real world, one only dreams in the virtual world and is psychologically emptied of a limited time.

Due to the special circumstances of the virtual world of the Internet, people undergo changes in their body and mind that affect their mood and the whole process of their life and personality, and the existence of multiple overlaps and relationships between variables becomes clear (Asgari, 2008).

- 1- Schuk
- 2- McLerney and Sicnlair
- 3- Pauli and Gilson
- 4- Bharatacharjee
- 5- Schmit
- 6- Stamouli
- 7- Sam and Othman and Nordin
- 8- Gaudron and Vignolib

In terms of individual factors, people who are psychologically introverted and have low communication skills and personality problems are usually more attracted to the Internet and computers and from the community point of view, these factors originate from the weak relations between the family and also indicate a series of psychological factors and social anomalies that cause these people to turn to computers and the Internet and use it extensively (Dargahi, 2003).

The main assumption of the trait view is that human beings are extensively prepared and respond to stimuli in a specific way (Parvin and John, 2005).

Costa and McCray (1992) stated that five personality factors throughout life affect various structures such as self-concept, self-efficacy beliefs, and adaptive traits such as personal attitudes and goals, and influence one's choices and decisions. In their proposed theoretical model for the five main factors, in addition to believing in a biological basis, Costa and McCray's behavioral

differences related to the five personality factors are related to factors such as genes and brain structure (Javadi and Kadivar, 2002).

Therefore, it can be said that the findings of this study are in line with the previous findings of the research journal of Kharazmi University (2013), Warren (2011), Asgari and Marashian Research (2008) and Pretan Anand (2003) and Armstrong (2001).

Research Limitations

In the present study, due to the impossibility of controlling all the influential variables in the study, such as unexplained fatigue, long number of questions and impatience of the participants in answering the questionnaires, as well as the limited research background and considering that in conducting this research, the sample under study is limited to law students, so this has reduced the possibility of generalization of the obtained results, so this is one of the limitations of this research.

Research proposals

Due to the limitations of the sample and the results of the present study, and various studies that confirm the effect of computer anxiety on computer personality and self-efficacy, if we do not deal with computer anxiety, it will become a permanent obstacle in teaching and learning; therefore, it is suggested that research be conducted on similar topics in society, social and occupational groups, educational, service and economic organizations, and social classes, with samples of different ages in urban and rural areas, also other personality variables should also be used in future research.

Due to the fact that in the present study, a significant relationship has been found between personality and computer self-efficacy, so wider and wider results can be obtained by using other personality variables. In later research, individual differences in anxiety and beliefs can be emphasized. Also, considering that computer anxiety has a significant relationship with computer self-efficacy, it is suggested that organizations and agencies pay due attention to the formation of computer training workshops at the community level, also, equipping schools and universities with computer facilities and including serious and basic education of computer courses in schools and universities can help increase self-efficacy and reduce anxiety, It can also be helpful to set up training workshops to overcome anxiety and stress at the university and school level. On the other hand, according to the obtained results, the relationship between personality and computer self-efficacy was significant. It is recommended to implement and consider it in the e-learning stages for students.

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THE RELATIONSHIP BETWEEN CURRICULUM DESIGN AND PUPIL'S ABILITY TO CHOOSE CONTENT FREELY

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ABSTRACT

In recent years, the commercialization of instruction has become more definite and the demand for using marketing tools is greater than before. This study aims to identify the relationship between pupil's ability to choose content freely and their cognition about curriculum design. A sample of 108 pupils was selected from five institutes in Mashhad to evaluate their cognition toward dimensions of curriculum design. Multinomial regression analysis was conducted to identify the characteristics of pupils which make their cognition about curriculum design difficulties. The discoveries show that status of pupils for scholarship, extracurricular activities, parents' instruction; age, previous result, and institute they study in have a significant influence on cognition about curriculum design and their ability to choose content freely. Part-time job status has moderate influence on the pupils' ability. Policy-makers and university authorities can use these discoveries to formulate regulations, and target specific groups of pupils to ensure favorable academic environment.

Keywords: curriculum design; pupil's ability; Instruction quality; target marketing; instruction policy; instruction management.

1. Introduction

According to Rahman and Uddin (2019) instruction is the responsibility of the state and should be operated through national resources. Furthermore, curriculum design is important for social and economic impacts in society (Brennan & Teichler, 2018). Curriculum design officials and the relevant authorities demand to understand the importance of creating an attractive image of quality instruction in order to form a body of loyal customers (Briukhanov, Kiselev, Timchenko, & Vdovin, 2015). The driving forces of AUN quality warranty activities are (1) taking policies to reduce economic gap within the region; (2) making policies of the more developed countries to internationalize curriculum design officers; (3) exchanging staff and transferring credits, and (4) making policies to create a single market. Umemiya (2018) suggested that these activities are designed not only to increase cooperation among institutions, but also to establish regional economy and improve the productivity and efficiency.

A recent study defined curriculum design subjectively, which is determined by status of peer groups (usually where the elites are found) rather than the status determined by quality (Bertolin, 2015). This study argues that previous studies failed to bring a holistic view of curriculum design quality and highlights the competition-based view of curriculum design (Akareem & Hossain, 2016; Ashraf et al., 2019) for the purpose of better segmentation and target marketing.

Following the competition-based view, dimensions of curriculum design quality are expressed by quality of pupils, faculty credentials, academic features, and administrative supports (Akareem & Hossain, 2016; Ashraf et al., 2019).

All of these four dimensions determine the curriculum design (Akareem & Hossain, 2016; Ashraf et al., 2019). However, extant literature does not clearly identify which characteristics make the pupils perceive these dimensions differently. Therefore, this study takes a quantitative study approach to identify this study gap.

2. Objectives and study questions

The following study questions will be answered by this study:

- To what extent do demographic characteristics of pupils influence cognitions of curriculum design quality?
- To what extent do current and background status of pupils influence cognitions of curriculum design quality?

3. Methodology

A traditional survey was conducted from the existing pupils of five top ranking private institutions in Mashhad (Iran). The questionnaire was divided into two parts containing closed-ended questions. The first part contained questions regarding the extents of curriculum design quality, which are dependent variables. The second part of the questionnaire contained questions regarding pupils' socio-economic and background-related questions, which are the independent variables. A total of 108 responses were taken on the basis of cluster sampling.

3.1 Dependent and independent variable

A total of 31 questions related to the cognition considering administrative system, faculty qualifications, institutional features, and pupils' ability to choose contents freely were set in the questionnaire, which revealed the quality of current instruction. This new variable is considered as the dependent variable in this study. The independent variables were name of university, gender, age, recent previous result (highest grade is GPA 5.00), scholarship status, involvement in study work, part-time job status, extra-curricular activities, university promotion, parents' highest instruction and family income (in Taka value).

3.2 Data analysis

A multinomial logistic regression analysis was conducted. The multinomial logistic regression is fundamentally an extension of binary logistic regression for nominal variables with more than two categories. The expression for the multinomial logistic regression model is given by

$$P[y_i = j] = \frac{e^{x_i \beta_j}}{1 + \sum_{j=1}^{J-1} e^{x_i \beta_j}},$$
 where $P[y_i = j]$ is the probability of belonging to group j , x_i is a vector of explanatory variables, and β_j is the coefficients, which are estimated using maximum likelihood estimation (for details, see, for example, Agresti & Kateri, 2015). In a way we can say that we are fitting $n - 1$ separate binary logistic models, where we compare category 1 to the baseline category, then category 2 to the baseline and so on. The expected beta value $E(\beta_j)$ gives the relative odds of an individual to be in the j th category in comparison with the reference category, where the odds is defined to be the ratio of probability of an individual being in a category.

3.3 Result analysis and discussion

Data were analyzed in two phases. Descriptive analysis (frequency and percentage) was used to describe the data and multivariate analysis where the dependent variable was modeled as a joint effect of all the independent variables. All data were analyzed using the SPSS (version 17.0) statistical program.

A brief percentage description is given about the pupils' individual characteristics in Table 1.

MSJ: Mehr_E_Sajad Institute; MAH: Mahan Institute; HFZ: Hafiz Institute; SHKH: Shokuh Institute; EMT: Emamat Institute; HSC: Higher Secondary Certificate; Hons: Honors Degree.

The percentages in Table 1 indicate that for each of the variables considered, none of the categories is found to be rare, that is each of the categories has a representation. The result of logistic regression is presented in Table 2

Table 1

Percentage distribution of pupils' various variables

Variables	Categories	Number of pupils	%
University	MSJ	71	20.10
	MAH	72	20.30
	HFZ	67	18.90
	SHKH	73	20.60
	EMT	71	20.10
Gender	Female	185	52.30
	Male	169	47.70
Currently getting scholarship	No	275	77.70
	Yes	79	22.30
Participation in university study	No	296	83.60
	Yes	58	16.40
Currently doing part-time job	No	291	82.20
	Yes	63	17.80
Promotion seen of the University	No	87	24.60
	Yes	267	75.40
Pupils' involvement in extra-curricular activities	No	197	55.60
	Yes	157	44.40
Parents' highest instruction	≤HSC	37	10.50
	Hons	117	33.10
	≥Masters	200	56.50
Family income	≤TK.35,000	73	20.60
	TK.35,001–65,000	134	37.90
	>TK.65,000	147	41.50
Age	≤20	122	34.50
	21–22	150	42.40
	≥23	82	23.20
HSC or equivalent result (converted in scale of 5.00)	≤4.50	171	48.30

Table 2

Estimates of parameter of multinomial regression for cognition on instruction quality

		Cluster 1 (low expectation)				Cluster 2 (moderate expectation)			
		B	Exp(B)	95% confidence interval for Exp(B)		B	Exp(B)	95% confidence interval for Exp(B)	
				Lower bound	Upper bound			Lower bound	Upper bound
Variables	Intercept	0.76				−1.86			
Institution	MSJ	0.114	1.12	0.495	2.535	−0.5	0.61	0.177	2.077
	MAH	0.48	1.62	0.706	3.696	0.476	1.61	0.515	5.027
	HFZ	−0.21	0.81	0.326	2.026	0.942	2.57	0.838	7.847
	SHKH	0.488	1.63	0.695	3.82	0.528	1.7	0.518	5.546
	EMT	0 ^b	.	.	.	0 ^b	.	.	.
Gender	Female	0.375	1.46	0.855	2.478	0.205	1.23	0.634	2.378
	Male	0 ^b	.	.	.	0 ^b	.	.	.
Scholarship	No	−0.68	0.51	0.265	0.964	1.476	4.38	1.33	14.395
	Yes	0 ^b	.	.	.	0 ^b	.	.	.
Participation in Institution study	No	−0.23	0.8	0.406	1.566	0.54	1.72	0.648	4.546
	Yes	0 ^b	.	.	.	0 ^b	.	.	.
Currently doing part-time job	No	−0.63	0.54	0.27	1.062	−0.98	0.38	0.167	0.847
	Yes	0 ^b	.	.	.	0 ^b	.	.	.
Participation in Institution promotion	No	−0.2	0.82	0.447	1.515	0.267	1.31	0.615	2.776
	Yes	0 ^b	.	.	.	0 ^b	.	.	.
Pupils' extra-curricular activities	No	−0.8	0.45	0.255	0.79	−0.86	0.42	0.211	0.851
	Yes	0 ^b	.	.	.	0 ^b	.	.	.
Parents' instruction	Masters or above	−0.23	0.8	0.341	1.863	−0.82	0.44	0.127	1.546
	Honors	−0.73	0.48	0.268	0.864	0.024	1.02	0.527	1.991
	HSC or below	0 ^b	.	.	.	0 ^b	.	.	.
Family income	Up to TK. 35,000	−0.11	0.89	0.428	1.864	0.775	2.17	0.921	5.116
	TK. 35,000–65,000	0.302	1.35	0.77	2.376	0.199	1.22	0.598	2.491
	Above TK. 65,000	0 ^b	.	.	.	0 ^b	.	.	.
Age	20 or below	−0.74	0.48	0.239	0.959	−0.9	0.41	0.175	0.945
	21–22	−0.65	0.52	0.269	1.007	−0.68	0.51	0.231	1.117
	23 or above	0 ^b	.	.	.	0 ^b	.	.	.
HSC or equivalent result	≤4.50	−0.26	0.77	0.463	1.281	−0.23	0.79	0.423	1.482
	>4.50	0 ^b	.	.	.	0 ^b	.	.	.

The parameter is set to zero because it is redundant.

Table 2 shows the 95% confidence interval for the odds ratio or $\text{Exp}(B)$ which will be considered as the basis of justifying significance. The 95% confidence intervals for the coefficients for independent variable 'Institution' were found to include unity for all of the institutions indicating no significant influence of the Institution a pupil studies in on his/her expectation of instruction quality. However, the expected beta value for Mehr_E_Sajad Institute in Cluster 1 is 1.121 where Emamat Institute (EMT) is taken to be reference group. This indicates that a Mehr_E_Sajad Institute pupil is 12% more likely than a EMT pupil to be placed in Cluster 1 compared to Cluster 3. Similarly, the likelihood of being placed in Cluster 1 compared to Cluster 3 by a Mahan Institute (MAHU) pupil and a SHKH pupil are, respectively, 62% and 63% more than that of a EMT pupil, for an Hafiz Institute (HFZ) pupil this odds is observed to be less than that of a EMT pupil. The expected beta values in Cluster 2 compared to Cluster 3 for MAH, HFZ, and SHKH are 61%, 57%, and 70% more than that for EMT whereas for Mehr_E_Sajad Institute, it is about 40% less.

The result of this study shows that female participants are more likely to expect moderate curriculum design. Result shows that there is significant association between the cognition of curriculum design quality and the status of getting a scholarship, whereas study involvement is not significant. Negative scholarship status and study participation have 0.505 and 0.797 beta value for cluster 1 compared with cluster 3. This means that pupils who responded 'no' for their scholarship and study status compared with those who responded 'yes' have less odds to be in less expectation group than high expectation group.

Pupils who have part-time employment and extra-curricular activities have lower expectations which contradict the discoveries of Akareem and Hossain (2016), maybe because those pupils spend less time in formal instruction and more time on these tasks. Our result shows that promotional activity is not associated with the cognition of instruction quality, which supports the discovery of Akareem and Hossain (2016). From Table 2 pupils who did not see any promotional activities of their own Institution have expected beta value 0.823 for being in cluster 1 compared with cluster 3 than who have seen promotion.

Pupils who have seen promotional activities of their own Institution tend to expect lower curriculum design. Parents' instruction and family income are two demographic traits which show a pupil's social and family background. From Table 2 expected beta value for pupils having higher educated parents are 0.797 and 0.481 for Master's program (or above) and Honors degree in cluster 1 compared with cluster 3. Pupils with masters or above degree-holding parents have 56% less odds to be placed in cluster 2 compared with cluster 3, whereas pupils having honors degree-holding parents have marginally higher odds (2.4%) for the same cluster than pupils having parent educated to Higher Secondary Certificate (HSC) or below.

Pupils with family income up to BDT 35,000 and BDT 35,000–65,000 have expected beta value 0.894 and 1.353 for being in cluster 1 compared with cluster 3 than those who have family income above BDT 65,000. Pupils coming from comparatively lower income families tend to have higher expectation about the instruction quality compared with pupils having higher family income, whereas for pupils coming from moderate income level this tendency is opposite. According to Table 2 pupils coming from both lower and moderate income family tend to be in cluster 2 (moderate expectation group) compared with cluster 3 than pupils with higher income families. The result shows that pupils from lower income families are more likely to perceive a higher level of instruction quality from their institution. Age and HSC or equivalent result are the individual characteristics of a pupil that indicates maturity and previous instructional success.

6. Conclusion

Pupils' ability of curriculum design quality is heavily influenced by the Institution they study at, scholarship status, extra-curricular activities, parents' instruction, age, and previous instructional success. This study indicates that the environment created by curriculum design officers influences the pupils' ability of quality. Age and HSC or equivalent result are individual characteristics of pupils that indicate maturity and previous instructional success regardless of the geographical area of the world. For both cases, pupils with lower age and lower instructional success have higher expectations of curriculum design quality. All of these discoveries are important criteria for segmenting the total market and then targeting the most attractive group(s) of pupils.

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A COMPARATIVE STUDY ON THE IMPACT OF INSTRUCTING TRANSLATION MODELS ON IRANIAN LAW STUDENT'S TRANSLATION PERFORMANCE

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ABSTRACT

The present study tries to explore whether an experimental application of teaching translation models can positively affect the translation quality of law students. To this end, a mixed method study was conducted on two randomly selected classes including 56 participants at Islamic Azad University, Mashhad branch,

Mahshhad, Iran. Also, in order to determine the level of proficiency of the participants in both groups, the same Nelson proficiency test was first administered to all of them. Students in both groups were asked to translate some law texts from English into Persian and the outputs of the two groups were compared to assess the impact of teaching translation models. Results showed that those students who taught translation models performed better in translating English law texts in comparison to those learners who were not familiar with translation models. In other words, the study revealed that translation strategies had a positive effect on law students' translation performance. Due to these findings, the results hopefully, can be useful to suggest establishing translator-training courses for special purposes.

Keywords: Kim's Meaning-Oriented Assessment Criteria; Translation Models; Translation Quality.

Introduction

According to (Duff, 1989) the translation method develops three qualities essential to any language learning including accuracy, clarity, and flexibility. Translation is a newly born study that its main aim is to reproducing the various kinds of the texts. In other words, it is considered as the process of negotiating and understanding the source text, rendering and transferring a certain linguistic device to the target text with regard to the style, writer, reader, form and culture. More specifically, in the area of law it is tried to understand how law students convey the meaning from source language to the target one. Translation studies have been controversial from various viewpoints, such as the debate on what constitutes a good translation (Matrat, 1992). Besides, Venuti (1998, p. 240) considers translation strategies as those which "involve the basic tasks of choosing the foreign text to be translated and developing a method to translate it." Similarly, Cohen (1984, p. 4) argues that, "the element of consciousness is what distinguishes strategies from these processes that are not strategic." It is also worth mentioning that non-English students are forced to translate their proposals from Persian to English and study translated books and sometimes they are required to read English articles and texts; so it is necessary to understand the strategies of translation in order to improve their translation quality. In order to complete a translation task appropriately, students should produce the same or at least similar effect on readers like those are created by the source text on its readers. The present study, therefore, tended to investigate different strategies applied by Iranian B.A. law students. To this end, eclectic parts of the models of translation strategies suggested by Baker (1998), Newmark (1988), and Vinay & Darbelnet (2000) were employed to investigate the procedures applied by law students during the translation process from English into Persian.

It is also important to mention that there are many texts which are required to be translated carefully and appropriately such as formal legal documents, birth certificate, expense account, etc., In other words, some factors such as having technical knowledge about different fields of study would play an important role in translating different texts. In these cases, while the translator should have enough knowledge about law issues, they should also have knowledge about translation rules and strategies.

On the other hand, non-English learners such as law students are not familiar with using translation strategies and they do not know how they can transfer cultural values. Also, they are not familiar with translation rules and strategies; therefore, if they are taught these strategies, they can definitely improve their translation quality. The aim of the study is, therefore, to help students whose major is not English, and teach them the required translation strategies to reduce difficulties that they encounter when try to translate books, articles and other relevant texts. Based on the purpose of the study, therefore, the following research questions are brought into focus:

- Is there any significant difference between translation performance of those law students who had translation instruction and those who did not have with regard to the instructed translation models?

- Is there any significant difference among translations with respect to the application of translation strategies?
- How do law students react to using translations models?

Review of Literature

Kim's Meaning- Oriented Assessment

One of the key issues in translation studies is how to evaluate and measure translation text. In other words, translation assessment is a big challenge for translation instructors because they need to assess their students' translations. To analyze the data, the researchers employed objective rubrics suggested by Kim's meaning-oriented assessment of translation (2009) that represents its scoring rubrics out of 45. It contains more than 400 words since the minimum number of words for a translation to be assessed should be 400 based on the guidelines proposed by Kim (2009).

In the meaning-oriented assessment criteria, translation errors are categorized into major and minor errors. Major errors are those that influence one or more aspect of meaning, while minor errors are simple mistakes that have little impact on the delivery of source text meaning. Major errors are analyzed on the basis of different aspects of meaning which are experiential, logical, interpersonal, and textual, as mentioned earlier, and whether the error has an impact on the accurate delivery of the meaning of the source text (Accuracy) or on the natural delivery of the meaning in the target text.

The General Definition and Different Classifications of Translation Models

There are many theories and translation strategies based on different perspectives including word-for-word translation vs. sense-for-sense translation that are text-level or segment-level, source-oriented translation vs. target-oriented translation, direct translation vs. oblique translation by Vinay & Darbelnet (2000), adequacy vs. acceptability, formal equivalence vs. dynamic equivalence by Eugene Nida (1964), semantic translation vs. communicative translation by Newmark (1988), overt translation vs. covert translation by House (1997), foreignization vs. domestication suggested by Venuti (1998), and documentary vs. instrumental translation suggested by Nord.

Translation Models

It is necessary to understand the concept of strategy argued by many translation theorists. Some of these concepts asserted by Newmark, the founders of the institute of linguist. He indicates that "translation is a craft that attempts to replace a written message and/or statement in one language by the same message or statement in another language" (1981, p. 7).

Newmark replaces Nida's terms of formal and dynamic equivalence with semantic and communicative translation respectively. The major difference between the two types of translation proposed by Newmark is that semantic translation focuses on meaning whereas communicative translation concentrates on effect. According to Newmark (1981), literal translation is the best approach in both semantic and communicative translation. As Venuti (2001) states, translators can select seven procedures, the first three covered by direct/ literal translation and the remaining four by oblique translation. These procedures include borrowing, calque, literal translation, transposition, modulation, equivalence, and adaptation.

Previous Studies

Several studies were conducted in this field among which is a study done by Karimnia (2008) did another study and worked on translators' learning style in Shiraz. The results indicat-

ed that translation qualifications of the translators can be improved and on the other hand it is better for translation instructors to study different learning styles and find out which style is more effective in translating other text types than others.

Methodology

Participants

Participants at the first phase of the study included 100 law students in Islamic Azad University, Mashhad branch, Mashhad, Iran. They had the mean age of 23 and there were 14 males and 42 females. In order to determine the level of proficiency of the participants in both groups, the same Nelson proficiency test was first administered to all of them. In order to select homogeneous participants, based on the normal probability curve, those students whose scores were between -1 and +1 standard deviation were regarded as the main participants. Finally, 56 students were selected as the main participants for the present research.

Instruments

English Nelson test

The English Nelson test was used to homogenize the students' English proficiency who participated in the study. This test comprised 50 multiple-choice vocabularies, grammar, and reading comprehension items. The reliability of this version of Nelson test is $r = 0.82$ stated by Hashemian, Roohani & Fadaei (2012).

Law texts

For the purpose of this study, five paragraphs of law texts in general topics of criminal law were selected by the researchers and administered to both groups at the same time.

Procedure

The first step in the present study was to determine the level of proficiency of the participants by Nelson proficiency test in order to find the homogeneous participants among law students. A pre-test was given to the students to understand the level of student's translation and after seven weeks a post-test was administered on the same students to understand the predicted changes. During the seven weeks, the experimental group (EG) learned English based on the translation models suggested by Baker (1992), Newmark (1998) and Vinay & Darbelnet's (2000) and the control group (CG) was taught based on the traditional approach. Next, they were asked to translate the five law paragraphs from English into Persian and after collecting the translated texts, they were evaluated and scored by the researchers. Finally, the interview was administered in order to understand the students' feedbacks and their reactions.

Data Analysis

To analyze the data, ANCOVA was used to determine whether this difference between the pre-test and the post-tests was statistically significant. The scores were calculated to find the differences between the two mean scores by Chi-square, and the theme-based categorization was used to understand the students' reactions to using translation strategies.

Results and Discussion

Quantitative Phase of the Study

In order to make our sampling fairly homogenous in terms of their level of proficiency, the researchers just included those students whose scores were above and below the mean (see Table 1).

Furthermore, as displayed in Table 2, the means of the students in their post-test of translations increased for both groups, but it seems that the second group performed better.

Table 1

Descriptive Statistics for Students' Scores on NELSON Test

	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
test of homogeneity	60	19	37	26.98	4.265	.610	.309	-.062	.608
Valid N (listwise)	60								

Table 2

ANCOVA Test for Translation Scores

Source	Type III Sum of Squares	df
Corrected Model	600.488 ^a	2
Intercept	66.142	1
Pre	137.613	1
Group	423.486	1
Error	203.495	53
Total	29199.000	56
Corrected Total	803.982	55

a. R Squared = .747 (Adjusted R Squared = .737)

Moreover, in order to see if the difference between the two groups was statistically significant, the ANCOVA test was used, and the results revealed that the experimental group outperformed the control group. Therefore, there was a significant difference in the students' scores in the control group and the experimental group. Also, Chi-square tests were run since the data were nominal for each set of translation strategies. Moreover, the proportion of cases for each translation strategies translated by experimental group was significantly different from that of control group, so the experimental group outperformed the control group and based on the results obtained from Chi-square tests, the difference between the sets of translations with respect to translation strategies was significant for all of the translations strategies except for shift, equivalence, omission, and descriptive equivalence

Table 3

ANCOVA Test for Translation Scores

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	600.488 ^a	2	300.244	78.198	.000	.747
Intercept	66.142	1	66.142	17.227	.000	.245
Pre	137.613	1	137.613	35.841	.000	.403
Group	423.486	1	423.486	110.297	.000	.675
Error	203.495	53	3.840			
Total	29199.000	56				
Corrected Total	803.982	55				

a. R Squared = .747 (Adjusted R Squared = .737)

Qualitative Phase of the Study

In this part of the study, the results emerged from the semi-structured interviews with the students showed that the use of translation strategies increased their speed, it improved their translation quality, and can be considered as a useful way to translate from English into Persian, and also it is an interesting activity for them.

Conclusions

The main finding of the ANCOVA analysis indicated a positive answer to the first and second questions of the study, and it was found that teaching translation strategies had a positive effect on law students' translation performance. The experimental group's translation performance was more differentiated than the control group in the post-test. Moreover, the results of Chi-square test showed that teaching translation strategies had a positive effect on law students' translation performance. The experimental group's translation performance was more differentiated than control group in the post-test. In conclusion, the results revealed that translation strategies improved the experimental group's translation regarded their translation strategies. Finally, the results obtained from the semi-structured interviews revealed that the students were happy with using such translation strategies and they can increase their translation speed.

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EXPLAINING QUIDDITY, ARGUMENT, AND MODALITY OF EDUCATION IN IRAN'S SCHOOLS

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ABSTRACT

This study was conducted to explain quiddity, argument, and modality of education. This paper studied the results of previous researches through thinking about what is school, why it exists, and how it must be. Considering the current situation, this study identified weaknesses of today's schools, answering the crucial questions of why we could not improve and progress and did not achieve development. How should be the approach, method, model, technic, and procedure of education and training to achieve development? This study was carried out using qualitative methodology and bibliography method to review tutorship experiences and references in order to explain quiddity, argument, and modality of education.

Keywords: education; school; growth; progress; development.

Introduction

Since education is a substantial case and school is like a garden in which, students are flowers and teachers play the role of gardeners, we must not remain in past or forget about the future in terms of education and training procedures in school. Our behavior must neither be an imitative nor unreasonable acceptance but should be thoughtful, inquisitive, and innovative. There should be creativity in education and training, not losing opportunities; there must be growth, not loss; there must be insight, not just knowledge; there must be full understanding, not a delusion. In the education and training environment, we must be the origin and source of evolution.

Accordingly, this paper asks why quality has been sacrificed for quantity; why we have not achieved development; why we do not like the outcome of the education and training system in Iran.

Importance and Necessity of Research

1- Theoretical importance: this study will expand and change the insight and assessment benchmark.

2- Practical importance: this study is useful for education and training procedures.

General Objective:

Explaining quiddity, argument, and modality of education in Iran's schools

Detailed Objectives:

1- Identifying quiddity, argument, and modality of education

2- Examining reasons for lack of development in the education system of Iran

3- Revealing the significance of development and quality

4- Choosing the best method, model, and technic for education

Literature Review

Although there are numerous books and papers about education and training and school, as well as quiddity, argument, and modality of education, it seems weaknesses and defects of schools have not been identified well. This is because we paid more attention to quantity and forgot the quality; we spent more energy for the growth and progress without thinking of development; we filled minds with educational quantities and knowledge without considering the insight. This study was conducted using qualitative and bibliography methods reviewing various

references and concluded that there are numerous definitions of education while there is not any attention to weaknesses of education.

According to existing references, it was found that objective and logical knowledge could not answer such questions as "what should be done." By "remaining" in present conditions we will go backward; we must renovate the "being" and convert it to "becoming" by "starting" and breaking taboos. Some questions must be answered by deleting, that is "disbanding" instead of finding solutions and answers to achieve the desired method. Another solution is changing teacher-centered education to a knowledge-based one converting it from individual-centered to group-centered and from education-based to training-based techniques.

Conclusions

This paper examined quiddity, argument, and modality of education to examine relevant issues, to reduce the volume and quantity of course materials, to include creativity, discovery, and invention techniques in books, to increase education and training line breakers, and to create development.

To stop scarifying education and training, we must ask more questions, value the objective knowledge, dissolve instead of solving, destroy instead of rebuilding and renovating, and create the construct with new formations and innovative teachers and students who have new thoughts and ideas. Moreover, we must nurture this garden like a kind gardener to direct the interaction between trainer and trainee toward Islamic insight and more informed procedures within a pure and perfect life. Some subjects and methods in education and training are quantitative; hence, if they are not correctable, they must be designed based on Islamic views and circumstances of Iran. To achieve effectiveness and reach development peak through progress way, we must go through negation road in which "not being" reaches "being" and ultimately "becoming". In this way, the movement begins. It is similar to take vitamins against flu of quantities, to reach insight hunger from knowledge avidity. In this case, dignity grows in students, and they become righteous and virtuous humans. Finally, it is hoped that teachers work with their pure and kind hearts and thoughts for the garden of education to helps us achieve a better situation in schools and have more lively and intellectual students. In this regard, quiddity, argument, and modality of the education and development process will be achieved more optimally.

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THE EFFECT OF ASSESSMENT TRAINING INDIVIDUALLY AND COLLABORATIVELY ON IRANIAN EFL LEARNERS' WRITING SKILL

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ABSTRACT

Assessment individually and collaboratively has engaged all researchers' attention over the last century. The aim of this study was finding out the probable improvement on learners' writing skills with respect to self-assessment training individually and collaboratively. The participants in this study are 80 English learners in an Iranian English language institute, Karaj city, Iran. For the purpose of evaluating the assessment on learners' writing, this sample was divided into two equal groups. One group worked on assessment individually and another collaboratively. A self-assessment questionnaire was used to investigate the probable effect of self-assessment on improving learners' writing skills. The other instrument of this study was an ESL composition profile that defines essay rubrics for helping learners in groups to evaluate their writings and train them to assess their own writings. Findings revealed that collaboratively assessment group passed treatment sessions on instructional rubrics in essay writing and that these training sessions helped them write good writing and assess writing together like teachers.

Keywords: assessment; individually; collaboratively; writing skill; Iranian EFL learners; assessment training.

1. Introduction

Most learners decide to learn English with the aim of being able to speak in English, but the least of students consider the importance of learning and practicing English writing. If one wants to be fluent in English and shape its structure, one should aim at learning speaking, listening, reading, and writing (Yang, 2013).

Writing as a productive skill and the role it can play in language learning cannot be ignored. This productive skill received much attention nowadays due to the effect it can impose on international communication. Therefore, writing skill, like other skills, can be rated and assessed. An assessment has been described as an essential activity in the teaching and learning process (Bijsterbosch et al., 2019; Cheng, 2017). It is often performed by instructors. Students are not usually able to evaluate their writing performance accurately (Fahimi & Rahimi, 2015).

There are two main types of assessment including self-assessment and teacher-assessment. In traditional foreign language writing courses, the teacher provides some information needed to write about the topic for learners then asks learners to write a text that includes certain criteria and finally gives feedback. Learners improve their writing based on feedbacks. On the other hand, in foreign language writing courses based on self-assessment; the learner participates in the feedback process (Comert & Kutlu, 2018).

Assessment individually and collaboratively has engaged various researchers' attention over the last century (Brown, 2004, Herbert, 2006, Kurt, 2014). Their motivation for introducing and combining these types of assessments is that students can show more responsibility in learning a language. It is believed that self-assessment can help students be more active and responsible for their learning. Another characteristic of this assessment is locating and pinpointing the strengths and weaknesses of students. In this way, they can think about their weaknesses and attempt to provide a way for compensating their shortcomings (Davison & Leung, 2009).

The other significant point of assessment is related to the balance that is made by the cooperation between students. The next effective point is related to the positive impact of assessment on students' language learning (Hasani & Moghadam, 2012). In large classes that teachers do not

have enough time to monitor all members, assessment individually and collaboratively can play a crucial role.

To the best of the researchers' knowledge, there have not been enough attempts in studying assessment in the English language teaching field. In addition, researchers have paid little attention to systematic principles and procedures, while their attention focused on traditional psychometric assumptions of assessment. Thus, this research is a small step in clarifying the effect of these assessments individually and collaboratively on improving learners' writing skill.

Precisely put, this study sought to find answers to the following research question:

Does assessment training have any significant effect on Iranian EFL learners' writing skill in individual and collaborative groups?

2. Review of Related Literature

Teachers keep their own criteria for assessment to themselves without informing what considers their assessment of L2 writings, generating inconsistent assessment of student performance (Andrade, Du & Wang, 2008).

Mede and Atay (2017) studied the Turkish English teachers' assessment literacy at the preliminary programs offered by Turkish state and private universities. Most of the Turkish EFL teachers were untrained and they needed more advanced teaching in preparing classroom test, applying ready-made tests, giving feedback on assessment, and utilizing self- or peer-assessment.

Sajedi (2014) proposed the impact of self-assessment on EFL students' composition skills. The teacher asked learners to rate their compositions based on sub skills such as organization, content and structure, and grammar. The findings in this study recommended that learners in the experimental group significantly performed composition better than learners in control group.

The term "instructional rubrics" refers to the rubrics in supporting the writings of learners and developing their works with respect to standards of writing and assessing (Andrade, 2001). Instructional rubrics have some advantages for learners including: (a) rubrics are in a language that learners can understand instructional rubrics, (b) rubrics can define and describe the quality of writing as an authentic writing, (c) rubrics can define the weakness in learners' writing, and (d) they can help learners in avoiding errors. In addition, rubrics can help learners in evaluating the progress of their works (Arter & McTighe, 2001). It should be taken into consideration that assessing and scoring of L2 writing requires a meaningful and time-consuming effort (Honsa Jr, 2013).

Sundeen (2014) conducted a research on instructional rubrics for writing quality. Participants taking part in this study were 89 high school students in the 10th grade. For collecting data, the researcher took advantage of 6-Point Writer's Rubric developed by Education Northwest for assessing essays and compositions. The six criteria in this set of rubric are ideas, organization, voice, word choice, sentence fluency, and conventions of writing. All participants along with three English teachers showed the effect of explicit rubric teaching in improving writing.

In this research, those learners who got explicit knowledge of rubric collaboratively, showed a better performance in writing essays. Explicit teaching of rubric could help learners in having a clear expectation for writing. In this study, learners have been provided with elements of rubric, a copy of them, and teacher scored learners' writing using these rubrics. Findings indicated that when learners have access to the writing rubrics (through teaching rubrics or having a copy of rubrics), it can improve the quality of writing.

3. Methodology

3.1. Design of the study

The design applied in answering the question of the current study is quantitative because the intended data were collected through quantitative techniques using questionnaires. Findings of the current study will be provided through English as a Second Language Program (ESLP) questionnaire, writing essays, and treatment sessions by English as a Second Language (ESL) writing rubrics.

3.2. Participants

The participants in the study were 80 English learners in an Iranian English language institute, Karaj city, Iran. The reason for selecting this institute is its learners' homogeneity in their knowledge and their willingness to take part in the study. Their homogeneity was examined using an English Proficiency Test (EPT) test by the team of institute. Their level was upper-intermediate. Participants were female, aged between 18 and 22 years. For the purpose of evaluating the effect of teacher and self-assessment on learners' writing, the researcher divided this sample into two groups of equal size. One group worked on assessment individually, and another group worked collaboratively.

3.3. Instruments

This study employed an assessment questionnaire in order to investigate the probable effect of self-assessment on improving learners' writing skills. This questionnaire was a reliable and suitable part of ESLP 182 questionnaire. The total reliability of the self-assessment questionnaire is 0.95. As the reliability of $0 < \rho < 1$ is considered reliable, the whole questionnaire is considered reliable. This questionnaire includes questions that addressed multiple dimensions related to the students' self-assessment; grammar, punctuation, and mechanics skills; general writing strategies; before writing; during writing; after writing; grammar, punctuation, and mechanics strategies; general learning strategies. The participants were asked to rate their abilities for each item on a Likert-type scale between 1 to 5 ranging from never or almost never true to always or almost always true.

The next instrument in collecting and analyzing data was writing scores given by the teacher and students in the process of learning writing and assessing it. The teacher defined essay rubrics for helping learners in groups to evaluate their writings and practicing them to assess their own writings.

3.4. Data Collection Procedures

At the beginning of the experiment, the ESLP questionnaire was administered between two groups, and they were asked to fill in it without any information about the concept of assessment. Then, they were requested to write a piece of writing and assess it themselves because learners did not have any information or idea about assessment process on their writings at this stage. This was done to be the basis of the following performance of students in the writing skill. Then, the teacher scored all students.

At the second stage, the teacher taught both groups the criteria of writings rubrics for assessing writing and provided some writings in order to assess and rate them based on the language, content, mechanics, organization, vocabulary, and rubrics wholly. After that, both groups were asked to write essays and assess individually and collaboratively.

At the last stage, the ESLP questionnaire was administered to students again in order to examine students' views on their abilities in writing. The aim of this stage was to find the probable change in the students' ideas about their capabilities.

4. Results

Testing Normality of Data

The null-hypothesis of the study is explored through assuming the normality of the data besides its specific assumptions. Table 4.1 displays the skewness and kurtosis statistics and their ratios over the standard errors:

Table 4.1

Normality Test

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Pre-Test (Individual)	40	30.00	48.00	41.175	5.04283	-.555	.374	-.558	.733
Pre-Test (Collaborative)	40	21.00	50.00	40.275	6.27567	-.986	.374	1.138	.733
Post-Test (Individual)	40	69.00	94.00	82.125	7.10070	.056	.374	-1.134	.733
Post-Test (Collaborative)	40	72.00	98.00	86.350	7.01847	-.185	.374	-.897	.733
Valid N (listwise)	40								

The values for asymmetry and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution (George & Mallery, 2010). Accordingly, the normality assumption is assumed for the individual and collaborative groups' pre-test and post-test scores. It was required to verify homogeneity of variances of the data sets.

Statistical Hypothesis Testing

A one-way between-groups analysis of covariance was conducted to compare the effectiveness of assessment training through individual in comparison with collaborative groups on Iranian EFL learners' writing skill. The independent variable was the type of assessment (individual vs. collaborative assessment), and the dependent variable consisted of scores on the test after assessment training was completed. Participants' scores on the pre-invention administration were used as the covariate in the analysis.

The actual difference in the mean scores between individual in comparison with the collaborative group is a bit large. As Table 4.2 indicates the mean score for the collaborative group (M=86.35, SD=7.01) was greater than that of the individual group (M=82.12, SD=7.1):

Table 4.2

Descriptive Statistics of Collaborative and Individual Group

Dependent Variable: Post-Test Scores			
Groups	Mean	Std. Deviation	N
Individual	82.1250	7.10070	40
Collaborative	86.3500	7.01847	40

Dependent Variable: Post-Test Scores			
Groups	Mean	Std. Deviation	N
Individual	82.1250	7.10070	40
Collaborative	86.3500	7.01847	40
Total	84.2375	7.32992	80

Table 4.3 shows a sig value of .86 which is much larger than the cut-off of .05. So, the assumption of equality of variance is assumed

Table 4.3

Levene's Test of Equality of Error Variances^a

Dependent Variable: Post-Test Scores			
F	df1	df2	Sig.
.017	1	78	.896
Tests the null hypothesis that the error variance of the dependent variable is equal across groups.			
a. Design: Intercept + PreTest + Groups			

Table 4.4 shows that there is a significant difference in the writing skill through individual assessment in comparison with the collaborative group.

Table 4.4

Tests of Between-Subjects Effects

Dependent Variable :Post-Test Scores						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	435.256 ^a	2	217.628	4.399	.016	.103
Intercept	12494.890	1	12494.890	252.572	.000	.766
Pre-Test	78.244	1	78.244	1.582	.212	.020
Groups	328.648	1	328.648	6.643	.012	.079
Error	3809.231	77	49.471			
Total	571921.000	80				
Corrected Total	4244.488	79				
a. R Squared = .103 (Adjusted R Squared = .079)						

The sig value is .012, which is greater than .05; therefore, collaborative group outperformed the individual on writing skill test scores.

5. Discussion and Conclusion

As discussed earlier, this study tried to investigate whether assessment training had any significant effect on Iranian EFL learners' writing skill in individual and collaborative groups or not. With respect to this aim, the researcher worked on two groups including individual and collaborative groups. They passed some treatment sessions on learning writing skill and sub-skills. In addition, during these treatment sessions, teacher taught learners how to assess writings and what is necessary to write a good writing.

The results confirmed that passing the treatment sessions about self-assessment could help learners write a good writing and soon specify mechanics of writing in essays. Learners learned which components in essays are important.

In examining this question, results showed that there is a significant difference between individually assessment and collaboratively assessment of essays in the post-treatment sessions. It means that, writings of the collaborative group and their assessment for these writings were different from individual group.

This study is in line with a study trying to find out the items required for writing scoring, their findings revealed that idea and content, organization, vocabulary and grammar, and the mechanics of writing as the key components in L2 writing assessment (Davidson & Lloyd 2005, Betsis et al. 2012). In addition, findings of this study are similar to Schooner's (2012) study. This researcher compared trained raters and the raters who never received any training in scoring. Peculiarly, the results, like findings of the present study, suggested that those who did not receive any training scored the writing more precisely than the trained raters.

Findings indicated that there is a significant difference between individually assessment and collaboratively assessment of essays in the post-treatment sessions. In addition, results confirmed that passing the treatment sessions about self-assessment collaboratively could help learners write a good writing and soon specify mechanics of writing in essays. Therefore, based on various studies' results which supported the current research, students were often satisfied with the impact of self-assessment on their writing skills (Banlı, 2014; Bayat, 2010; Bing, 2016; Cömert & Kutlu; 2018, Lam; 2010).

Results revealed that learners' knowledge toward writing essays and assessing it have not been different from each other. But distributing this questionnaire again after finishing the treatment sessions showed something different. Moreover, further studies should be done with a large number of EFL/ESL learners to decrease the probable limitations in the generalization of the results. More studies are necessary to observe a large number of participants and employ more reliable instruments in screening assessment to find more reliable and valid findings.

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THE STUDY OF THE RELATIONSHIP BETWEEN MOTIVATION AND AGE WITH EFL LEARNERS LANGUAGE PROFICIENCY LEVEL

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ABSTRACT

The present study investigated the relationship between motivation and age with EFL learners' language proficiency levels. About forty-five students in intermediate-level participated from Ardabil institutes in responding to the questionnaire. They were divided into two groups: younger and older groups. A questionnaire was administered as a motivational questionnaire adopted from GEMA to assess participants' motivation. The result revealed a significant relationship between Motivation and Success in learning English. Additionally, based on the means of participants' age, there was no significant relationship between younger and older generations of onset and success in learning.

Keywords: learning; language proficiency; motivation.

Introduction

Learners' ability to learn a foreign language varies due to the influence of different factors on foreign language learning. Factors such as motivation, learning environment, learning methods, sensibilities, intelligence, and age are influential in this regard. Motivation is a word that is derived from the Latin term *motivus* (a moving cause). According to the principle of psychology, motivation is the result of behavior changes that is not directly measured. It is different from animal to animal and person to person and is analyzed through physiological, psychological, and philosophical approaches (Cofer & Petri). Motivation is not observable, but it is interpreted through observable behaviors. (Cherry, 2019). Motivation creates enthusiasm, energy, direction, and desire in each person, and lack of these factors leads to demotivation. Individuals may participate in some activities because of their interests or be motivated by engaging in activities. (Ebontempi, 2019).

Motivation can be both positive and negative. Positive motivation is the result of pleasure or love. Negative motivation results from pain or fear and leads to desperate, helpless difficulties, but it cannot always be harmful. Sometimes the pain in life is the chance to start again. Therefore, it can be said that negative motivation with positive tendencies makes individuals see more clearly and have purposes in life (Fernandez, N.D). In addition, age is another variable that individuals should pay attention to, so the onset of foreign language learning is essential for learners. Individuals over the age of 60 are less likely to achieve fluency than children aged one to five. Therefore, prolonged exposure to a foreign language influences learners' proficiency. Individuals' brains are also flexible before puberty, leading to easy learning. (Humberto Tapia Celi, 2017).

Material and Method

The methodology of this research significantly analyzed the goals and interpreted students' level of motivation. Participants were 45 students divided into younger and older groups, including 35 younger, 10 older, and ages ranged from 12 to 21 and 22 to 30, respectively. The study used a questionnaire to obtain the necessary data based on the closed-ended question, and the questionnaire was a 3-point Likert Scale containing 16 questions about motivation. Participants were asked to mark their answers. The respondents' answers to these questions were divided into low, mid, high motivational students. Data have been gathered about the students' motivation and age; an appropriate questionnaire was translated into Persian to ensure no problem arose concerning the content of the questions and understanding to enhance the validity. After collecting

information and obtaining the test results, the data were analyzed using the reliability of the test and an appropriate statistical procedure (SPSS).

Discussion

Learning English has caught the attention of many learners. Therefore, engagement and interest of students are important factors for active learning. Therefore, students must have high motivation to create more effort and engagement in learning. Knowing the level of students' motivation is vital for active engagement in the learning environment (Nayir, 2017). The role of the teacher is also essential regarding different strategies to develop students' motivation in the classroom (Almashy, 2001).

The important factor in the failure and success of individuals has a significant impact on learning English. Many factors can eliminate student Motivation, including inappropriate atmosphere, inappropriate training methods, and excessive activities (Wimolmas, N.D). Teachers can use different strategies to enhance writing skills, increasing students' reading motivation. In addition, parents' encouragement leads to the motivation of individuals, and sometimes people are motivated by their positive attitude in English. Therefore, motivation plays a vital role in learning English; even talented students without motivation do not achieve good English learning (Penjak & Karnincic, 2015).

Writing is a core literacy skill required for all students to master to use their school and community skills. Communication with others through their Language and knowledge about the topic within formative and performance evaluation. So motivation and engagement are important factors in developing writing skills and refer to students' desire, energy, interest in writing, and engagement to appropriate strategies accompanied by writing motivation. Therefore, students' abilities in writing are related to their attitude-behavior, and Self-confidence is vital in this regard. (Collie & Martin, 2019). Speaking is the most important language skill that needs to be controlled. Individuals who know specific languages have the important skill for interacting with people, and it is used to transfer information ideas. Speaking is a complex skill that students need to master through learning to become energized. (Ginting-Suka, et al, N.D).

Furthermore, Socio-cultural factors play an important role in speaking. In most scenarios, learners are not trained to memorize sentences but rather to develop conversations to practice Language in the classroom and learn about the rule of Language. Hence, the success of learners and the effect of the English courses are evaluated based on spoken language proficiency. For this reason, Speaking emphasizes the development of communicative Competence. (Bekai & Harkouss, 2018). One of the most important problems that learners face is listening comprehension. Learners who are not proficient in listening comprehension will not communicate even if they have a high level of vocabulary and grammar knowledge and can be accounted for Pronunciation (Khaghaninejad & Maleki, 2015). Thus factors can be mentioned to develop learners' Pronunciation: Motivation oral corrective feedback. Verbal correction feedback occurs in a different form in the classroom, such as self-correction, peer-correction, and teacher-correction. Sometimes oral corrective feedback influences the motivation of learners and demotivates learners. (Alavinia & Gholizadeh, 2017). Highly motivated people spend a lot of time reading activities and developing their proficiencies (GU Et Al., 2019). Reading comprehension is important to facilitate foreign language learning. In addition, Reading motivation motivates learners to promote reading comprehension and causes learners to read and understand the text. Therefore, all learners of foreign Languages need to understand the written text to succeed in all areas of learning. Therefore, learners should read written words and identify the meaning of the texts. (Anjomshoa & Sadighi, 2015).

Table 1

Evaluating the Relationship between Younger and Older Ages of Onset and Success in Learning English

Statistics Tests			
Variables	Kolmogorov-Smirnov Test	Assumption of Variances Equality	Test for Two Independent Group
Age	.000	F=.195	T=.029
Success in learning	.304	Sig=.661	Sig=.977

Enthusiasm encourages individuals to continue their goals. Success in works can go from failure to failure without losing confidence. It is a desire to self-develop and motivate learners to facilitate learning (MacIntyre & Mercer, 2014). The teacher-student relationship creates unconscious motivation, which has more significance, influencing students' emotions and behaviors. (Henry & Thorsen, 2018). Many studies have been conducted to discover the best age for learning English. It seems people at a younger age are more fluent in English because of having more time to learn English (Khalifa Gawi, 2012). Time plays a vital role in learning English. Many people do not choose the appropriate age to learn English, which leads to many problems for individuals, such as weakness in Pronunciation (Collier, 1988).

Table 2

Evaluating the Relationship between High and Low Motivation and Success in Learning English

Statistic tests		
Variables	Kolmogorov-Smirnov Test	Pearson Test
Motivation	p= .664	P=.593
Success in learning	p= .304	Sig=.000

The relationship between age and language learning is related to the neurological maturity of children. Age can influence language learning competencies. Students learn quickly until puberty; that is called the critical period hypothesis for language learning. (Becirovic, 2017). According to some research, older learners learn differently than young learners. If they remain healthy, their learning and intellectual abilities will not diminish. But the average human brain is flexible until puberty, and after puberty, the brain loses its flexibility. This is one of the reasons that learning occurs in young learners earlier than adults. (Schlepppegrell, 2019). The strategy concept is to improve linguistic and socio-linguistic proficiency in the target language. It develops learners' desire to do a particular action and helps them understand, learn or remember new information. The goal of the learning strategy is to develop communicative Competence (Dolares-Corpas-Arellano, 2017), which is the most important variable affecting second language learning and is used according to learners' age and experience. (Chen, 2014). The importance of cognitive strategy is developed with learners' age in foreign language learning. Cog-

nitive strategies consist of six main types:

Clarification, Guessing, Deductive Reasoning, Practice, Memorization, Monitoring

These strategies are essential to teaching learners to increase their motivation, develop their skills, and assist learners in becoming successful and autonomous in the learning process. (Mohsin-Abdul-Sahib, 2016).

Result

This study observed that motivation and motivational strategies could affect learning English. Methods used in learning English must be selected based on students' age to assist learners in learning English. This displayed a clear significance on the relationship between Motivation and Success in EFL learning, which indicates high motivation leads to more success in learning, and significant outlined the relationship between younger and older ages of onset and Success in EFL learning. To sum up, the results of this study showed that motivation plays an influential role in the development of learning English, and the age of participants cannot be a limitation in learning English. So, it can be concluded that there is no significant relationship between younger and older generations of onset and success in learning English.

Conclusion

Since learning English is important for many students. It can be understood students must develop their skills in learning. Thus, to develop language proficiency, students need to increase their motivation. The results displayed that high motivation in students influences students' performance and increases their success in learning English. The study concluded motivation is an influential factor in developing students' proficiency and engaging learners in learning. Hence, it can be considered a base requirement that influences students' success. That's why some of the weaknesses might be students' demotivation in learning and teaching that employing appropriate ways can be one of the effective factors to increase motivation and develop understanding.

Suggestions for Future Research

Future research is required to study further the relationship between motivation and age with EFL learners' language proficiency levels at different levels of motivation and the need to increase students' motivation and avoid factors that lead to decreasing students' motivation.

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СЕКЦИЯ
ПОЛИТИЧЕСКИЕ НАУКИ
POLITICAL SCIENCE

**PHILOSOPHICAL EXPLANATION OF THE POLITICAL THOUGHT OF
VELÂYAT-E FAQIH IN ISLAMIC GOVERNMENT**

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ABSTRACT

In the last four decades, the political thought of Velâyat-e Faqih (Islamic jurist's guardianship) has been one of the most challenging issues discussed by both the opposition and the proponents. This political thought encompasses a wide range; From ideas that believe in the necessity and improvisation of Velâyat-e Faqih and consider it an integral part of Islam to ideas that reject it completely and are contrary to rationality and logic and even contrary to Islam itself; In a way, the unreasonable introduction of the Islamic system with the focus on Velâyat-e Faqih has been one of the main theoretical challenges in the scientific writings of critics and their cultural and political circles. The thing sought herein is not the affirmative proofs of Velâyat-e Faqih and it is not intended to investigate the causes of the Velâyat-e Faqih's external actualization rather the justification proofs of the Velâyat-e Faqih are sought. Based thereupon, the intention by philosophical elaboration is expressing the philosophical justificatory reasons of Velâyat-e Faqih. In this article, it will be shown that the political thought of Velâyat-e Faqih is based on philosophical foundations (Islamic political philosophy), but it is necessary to look at the issue from the right angles.

Keywords: Velâyat-e Faqih; vali-e faqih; Islamic political government; Islamic political philosophy.

Introduction:

The Velâyat-e Faqih theory and mindset is the most important pillar and essence of Islam's political system in the era of the absence of Imam Mahdi (may Allah hasten his honorable reappearance). This topic is amongst the most challenging notions offered in the course of history by the Islamic thinkers in such a way that the ideas by the opponents and proponents of the Velâyat-e Faqih include a wide spectrum from the thoughts that believe in the necessity and evidentially of Velâyat-e Faqih and realizing this theory as the inseparable part of Islam to the mindsets that completely reject this theory and realize it as being in contradiction with intellectuality and rationalism and, even, at odd with Islam itself. Some of the high ranking Islamic scholars have spoken about the necessity and evidentially of Velâyat-e Faqih:

"Velâyat-e Faqih is amongst the subjects that would lead to confirmation in case of being properly imagined and there would be no need for much of proving. This description means that any person who has even received the Islamic opinions and verdicts even in a succinct manner would immediately confirm Velâyat-e Faqih in case of hearing about it and s/he would recognize it as something necessary and evident" (Imam Khomeini, 2012, p.9). Furthermore, some of the contemporary Shiite scholars believe that the Velâyat-e Faqih is an issue theorized in the philosophy of politics from the perspective of Islam (Mesbah Yazdi, 2017a). Conversely, some of the critics, as well, believe that "the combination of the Islamic Republic government under the governance of Velâyat-e Faqih is nothing more than a non-resolvable and illogical riddle" (Ha'eri Yazdi, no date, pp.215-216). In fact, "introducing the guardianship and government system that revolves around Velâyat-e Faqih as something irrational has been one of the most important and most primary theoretical challenges during the past [four] decades in the scientific writings by the critics as well as the main axis of the debates in their cultural-political" (Pishehfard, 2014, p.19).

“Government is the practical philosophy of the entire jurisprudence” (Imam Khomeini, 2010, v.21, p.289).

Thus, the issue that is proposed here is that “can the mindset of Velâyat-e Faqih be elucidated based on the philosophical reasoning?” The thing sought herein is not the affirmative proofs of Velâyat-e Faqih and it is not intended to investigate the causes of the Velâyat-e Faqih’s external actualization rather the justification proofs of the Velâyat-e Faqih are sought. Based thereupon, the intention by philosophical elaboration is expressing the philosophical justificatory reasons of Velâyat-e Faqih.

In this article, it will be shown that the political thought of Velâyat-e Faqih is (Islamic jurist’s guardianship) based on philosophical foundations (Islamic political philosophy), but it is necessary to look at the issue from the right angles.

This article consists of five parts: The first part is related to the concepts and presumptions of the discussion on velâyat and faqih (Jurisprudent). The second part is dedicated to the semantics of the discussion of velâyat-e faqih. The third part explains Islamic political jurisprudence, Islamic political theology and Islamic political philosophy. Also, the fourth part focuses on analyzing the main problem in order to solve it and avoid making mistakes. Finally, the fifth part is related to the conclusion and summary of the article.

Statement of the Problem:

Before responding to the issue that “whether the mindset of Velâyat-e Faqih can be elaborated based on philosophical reasoning or not?”, it will be seminally made clear that in what areas of the Islamic science it has to be examined. It will be also explored that whether the subject is solely jurisprudential or exclusively verbal or both verbal and jurisprudential? It has to be also seen whether this subject can be approached from philosophical perspectives or not and what answers can be provided thereto. Thus, the primary and secondary questions of the articles are as follows:

Primary Question:

Can the mindset of Velâyat-e Faqih be elucidated based on philosophical reasoning?

Main Hypothesis:

The mindset of Velâyat-e Faqih can be elucidated based on philosophical reasoning.

A Glance at the Topic’s Background:

The issue “can the mindset of Velâyat-e Faqih be elaborated based on philosophical reasoning?” has been investigated philosophically only in a few articles and books by the Islamic researchers who have intended to elaborate the Velâyat-e Faqih and the leadership position inside the Islamic society and sought defending it. Thus, the present article tries adopting a philosophical approach towards the main issue of the research.

Necessity of the Problem:

The issue “Velâyat-e Faqih” is one of the most important matters in the Islamic communities with the discussions and conversations about it being necessary from two respects: first of all, the Velâyat-e Faqih is the cornerstone of Islamic Republic System and every Muslim and Revolutionary man is required to very well recognize this principle and, then, move about the axis thereof and, secondly, the enemies of Islam and revolution have found out that the revolution and Islamic system’s fight with suppression and tyranny has stemmed from this important and sublime principle ...” (Javadi Amoli, 2018, p.121).

In addition, as it was mentioned, the mindset of Velâyat-e Faqih has not been so far examined from the sole perspective of the philosophical mindset.

Concepts and Presumptions of the Discussion on Velâyat and Faqih:

Concept of the jurist (Faqih):

One of the exact renderings about the concept of jurisprudent in the discussions on Velâyat-e Faqih is that “a jurisprudent is a person who not only has knowledge of the Islamic rules and regulations and trial procedures but he is also well-informed about the beliefs, regulations, systems and moralities meaning that he is in the full sense of the word pious and religious” (Imam Khomeini, 2012, p.76). Thus, the position of the jurisprudent reaches the extent that “from the perspective of Imam Khomeini (may Allah be satisfied with him), the perfectly qualified jurisprudent has all the nominal and relational positions of an immaculate Imam (may Allah hail on him) in the era of the absence of Imam Mahdi (may Allah hasten his honorable reappearance) and that not within the limit of purely situational right and position but along with indispensable obligation ...” (Javadi Amoli, 2018, p.278).

Therefore, here, in the discussion about Velâyat-e Faqih, jurisprudent is an individual who has the knowledge about the minor, middle and major jurisprudence.

Guardianship (Velâyat) over the Incompetent Persons; Guardianship over the Community of the Sage (Well-Educated Persons):

“Within the range of canonization in the Holy Quran and Islamic narrations, guardianship has been occasionally interpreted as taking the control of the affairs of the dead or those who cannot take their right due to scientific shortage or practical disability or inability in proving presence and it is sometimes introduced as taking the tenure of the affairs in the human societies” (Javadi Amoli, 2018, p.125). “The guardianship commonly used in the jurisprudential books pertains to the guardianship of the incapacitated and disabled persons” (Javadi Amoli, 2008, p.127).

In between, “the presumption accepted by the critics in this evaluation is the interpretation given for the concept of guardianship. It is presumed that the concept “guardianship”, as the primary and essential pillar of this theory in the jurisprudence, does not encompass anything other than proctorship of the incapacitated persons and prevention of the others’ occupation of their rights. Then, with this presumption, efforts have been made for extracting and inferring the scientific tools of this interpretation and, considering a mass of criticisms, the guardianship system is enumerated as an irrational and impossible and contradicting system” (Pishehfar, 2014, p.19). “The support of the incapacitated persons is the inseparable prerequisite of the Velâyat-e Faqih” (Kadivar, 2008, p.114).

“Many of the individuals who have denounced jurisprudential guardianship have this hallucination that jurisprudential guardianship is something of the type of guarding the jurisprudential matters and this is an incorrect imagination because the Islamic nation is neither dead nor is it minor, mentally retarded, insane or insolvent.

Velâyat-e Faqih essentially differs from the guarding of the incapacitated persons because one is related to the incapacitated individuals and the other is pertinent to the administration of the Islamic society; one serves the protection of the rights of the dead, insane, incapacitated and minor persons and the other one serves the execution of the Islamic verdicts and securing of the material and spiritual expediences of the Islamic society and protecting of the system against the enemies and preservation of the unity and corroboration of the sage and religiosity and perfectionism” (Javadi Amoli, 2018, p.128).

“The position in which a person or an authority holds the tenure of the others’ affairs like a real person for administering their lives is called guardianship” (Tabataba’ei, 2010, p.155).

Analyzing and Criticizing a Controversy; a Non-Resolvable and Illogical Riddle (Republicanism and Guardianship):

Some of the critics believe that the combination of “Islamic Republic government under the governance by the Velâyat-e Faqih” is a non-resolvable and illogical riddle and nothing more. Essentially, this system is a contradictory, illogical and irrational system in both theory

and constitutional legislation and its existence and legitimacy cannot be conjectures because “guardianship” means that the people are children and insane and have no right to vote for and intervene and take possession of their own properties and belongings and households as well as their own country’s affairs ... therefore, the issue of “Iran’s government” is the issue of “republican government under the governance of Velâyat-e Faqih” and this is equivalent to “Iran’s government being a republican government and it is not so that Iran’s government is a republican government” and this is a vivid logical contradiction refuted and invalidated by the reasoning power of the mankind as well as by the canon according to the axiom ruling the concomitancy of the reason and the canon” (Ha’eri Yazdi, no date, pp.215-216).

It is well-evident that the controversy posited by this researcher about the Velâyat-e Faqih has just interpreted guardianship as the guarding of the minors and the insane persons and, based on this wrong basis, a completely incorrect conclusion has been made.

“In case that the guardianship is just conceptualized as guarding the minors and the insane persons, the hallucination of the contradiction between the republicanism and Velâyat-e Faqih would be true but, if guardianship is termed as the proctoring and devising political strategies for the society that has to be existent in every form of the political governance, then, there would be no contradiction and riddle rather it is not possible for a political system to be actualized even if based on the social contracts or shared ownership or agency unless an individual is given therein vast and expanded authorities by which he can put his intentions and practical wisdom of his government into practice” (Pishehfard, 2014, p.39).

Thus, the correct meaning of guardianship is proctorship of everyone and one should choose such a foundation to go to reasons and issues of Velâyat-e Faqih: “the guardianship of Imam and prophet over the human community is not of the type of proctoring the insane and mentally retarded and incapacitated persons as it has been recently mistakenly debated in the writings and sayings; this is an offence to the people and an insult to the Velâyat-e Faqih” (Javadi Amoli, 1997, p.5).

“Based on what was said, Velâyat-e Faqih is neither of the type of creational guardianship nor of the type of canonization and legislation guardianship and not even of the type of guardianship over the incapacitated and dead people rather it is a sort of Islamic society management exercised for implementing and actualizing the religious values and developing the society members’ talents (the extract of the intellects’ reservoirs) and getting them to perfection and sublimity they deserve” (Javadi Amoli, 2018, p.129).

Conceptualization of Velâyat-e Faqih:

It has to be made clear in the beginning whether the Velâyat-e Faqih (Islamic jurist’s guardianship) is a jurisprudential, verbal or philosophical topic? The answer to this question is important in that, in each of these three forms, “Velâyat-e Faqih would end in a separate destiny and the jurist’s duties and authorities as well as jurisprudence’s being of guardianship, agency, appointive or selective type would depend completely thereon” (Ibid, p.141). There are several theories in this regard:

Theory One: Jurisprudential Nature of Guardianship

The first group of the thinkers believes that guardianship is an exclusively jurisprudential matter and does not have a particular stance in discourse or philosophy sciences: “...and, also, amongst the group of the guardianship kinds, there is a guardianship of the canonical ruler over every individual member of the community and the guardianship of Imam over the followers with the former being interpreted as “Velâyat-e Faqih”. In philosophy and theosophy, nothing has been mentioned about Velâyat-e Faqih and this topic is solely discussed in the science of jurisprudence.

Velâyat-e Faqih is amongst the canonical and intellectual relational and nominal matters and it features a forged reality such as when an individual is appointed to proctor the minors” (Samadi Amoli, 2013, pp.151-152).

Theory Two: Verbal-Jurisprudential Nature of Guardianship

The second group of the thinkers believes that the Velâyat-e Faqih is a topic beyond the area of jurisprudence and it falls within the hedges of discourse; however, in terms of its means, the verbal verdicts (proving the Velâyat-e Faqih) are investigated in the area of jurisprudence. This group actually states the verbal-jurisprudential nature of the guardianship. They believe that the issue can be approached from two perspectives hence it can be discussed from two separate scientific aspects. “...In regard of the idea that the Velâyat-e Faqih is the continuation of the discussions about imamate, it is to be seen as an area related to science of discourse” (Mesbah Yazdi, 2017b, p.188). “...for being the continuation of the issues related to imamate, it is pertinent to verbal matters and one of the secondary parts of the religious principles; but, it has to be seen as a jurisprudential matter from some aspects” (Ibid, p.189).

“Therefore, the principle of Velâyat-e Faqih is a verbal matter but this same Velâyat-e Faqih is also discussed in the science of jurisprudence so that the instruments of a given verbal verdict can be clarified in regard of the jurisprudential dos and don’ts. That is because the dos are based on the things that exist and there is a concomitance between the two in such a way that a well-justified verbal matter can be used to reach its jurisprudential means for the same reason that the prerequisite for exactly and definitely proving an issue is figuring out the related verbal issue; ...” (Javadi Amoli, 2018, pp.143-144).

Theory Three: The Philosophical Nature of Guardianship

The third group of the thinkers believes that the discussions about the Velâyat-e Faqih can be elaborated and investigated in philosophy: “from my perspective, there is no need at all for the jurisprudential and narrative proofs. According to Sadra’s attitudes, Velâyat-e Faqih is expanded from prophecy and imamate and it is the manifestation of guardianship. In Mulla Sadra’s hierarchical approach the imagination of which causes confirmation of the subject, how the necessity of prophetic mission can be justified in the political and educational aspects thereof? The answer is that the imamate is justified with the same necessity with which Velâyat-e Faqih is justified” (Afrough, 2002, p.452).

The goal and mission of the mindset of Velâyat-e Faqih, i.e. the determination of the ruler’s duty in the Islamic government in the absence of Imam Mahdi (may Allah hasten his honorable reappearance), can be abstracted and extracted in the thoughts and intellectual system of such an inventive philosopher as Farabi. According to some thinkers, “Islam has plans and programs for the time of His Highness Imam Mahdi’s absence and suggests “the head of tradition” as the religious and political leader of the society in the absence of the first head and the leading imam (Javanpour, Akbari, 2011, p.177).

“The epistemological and methodological summation of philosophy and religion is exemplified in Farabi’s political philosophy. In other words, the result of that look at government and religiosity was that the separation between the governmental head and religious head has been removed in Farabi’s political theory which founded theory of Velâyat-e Faqih. He believed that there is no difference between a prophet and a philosopher who is given headship in a political system (Ibid, p.176).

When speaking about the superior headship in Medina, Farabi points out that “such a human being is called sage, philosopher and perfect pondering theosophist because he receives the knowledge through the active intellect by means of the perceptive intellect and passive intellect and, thus, he is to be given the position of a prophet and a harbinger since the active intellect’s

emanations are disclosed to his imaginative faculty” (Farabi, the notions of the residents of Utopia, 2012, p.125).

“Therefore, a philosopher and a prophet are similar in that they both receive religion and intellect through the perceptions of the active intellect and the holy spirit; one through emanation to the talking faculty and the other through the imaginative faculty. It is natural in this case that there would be no difference between the rulings of the intellect and the verdicts of the canon. The philosopher’s talks are the words of the prophet and vice versa” (Javanpour, Akbari, 2010, p.177).

It is at first necessary to well elaborate the subjects of each of the sciences like political jurisprudence, political discourse and political philosophy; then, the subjects that fall under the topic “can the jurisprudential mindset be elucidated based on the philosophical reasoning?” can be subsequently clarified and it would be accordingly made clear in the end that in which of the Islamic scientific fields it should be explored?

Elaboration of the Islamic Political Jurisprudence, Islamic Political Discourse and Islamic Political Philosophy:

About each of the abovementioned sciences, there are numerous definitions but the present article tries to point to the most comprehensive and the most exact one.

Islamic Political Jurisprudence:

Political jurisprudence is a branch of the knowledge of general jurisprudence. Thus, the definition of the political jurisprudence should be achieved based on a correct definition of jurisprudence as a science. So, considering the definition of jurisprudence, i.e. “Al-Fiqh Howa Al-Elm Bi Al-Ahkâm Al-Shar’iyyah Al-Far’iyyah an Adellatahâ Al-Tafsiliyyah” meaning that “jurisprudence is the knowledge of the secondary canonical verdicts based on the detailed proofs (and resources)”. Therefore, the political jurisprudence can be defined in the following words: “political jurisprudence is a science that deals with the scientific verdicts of Islam in the area of the political affairs”. In fact, the political jurisprudence seeks clarifying the duties of the canonically obliged individuals in regard of the political affairs through canonical proofs” (Kholghi, 2014). Therefore, the subject of the political jurisprudence is the action of the canonically obliged persons in terms of the political matters:

“The subject of the civil/political jurisprudence is the political behavior and action of the Muslims with its verdicts and rules being inferred and expressed using jurisprudential resources so political jurisprudence encompasses the verdicts and regulations of the political life based on the canonical regulations” (Mir Ahmadi, 2008, p.72).

Islamic Political Discourse:

The most appropriate definition regarding the science of discourse can be offered in this form: “discourse is a science about the Islamic beliefs meaning that it discusses about what should be believed in and discussed from the perspective of Islam in such a way that it explains them and reasons about them and defends its reasoning” (Motahhari, 2012, v.2, p.13).

Thus, the political discourse can be briefly described as beneath:

“Political discourse is a branch of discourse that deals with the faith-related beliefs and religious perspectives about the political issues and defends them against the rival perspectives and teachings (Behrouz Lak, 2008, p.126).

Islamic Political Philosophy:

“Despite the oldness of the philosophical mindset in the political arena, there is no unit conceptualization and definition about the term ‘political philosophy’” (Behrouz Lak, 2003). The huge scattering of the ideas about the definition of political philosophy is to the extent that some

of the researchers and experts of the area believe that the definitions are completely personal and taste-driven;

“Anyway, the study of the aforementioned and the other resources indicate that there is no consensus about this concept and the definitions are to a large amount arbitrary. Therefore, every researcher is required to elaborate his intention of the term before applying it” (Lakza’ei, 2008, p.31).

The political philosophy can be defined as follows: “the set of the political topics that enjoy a transcendental and meta-historic situation and, put differently, do not fall in the area of the variable issues related to the political life whether they are related to the area of the “beings” and the realities beyond the humans’ will and intention and or, in philosophical terms, to theoretical wisdom or even to the field of the dos and the realities relying on the humans’ will and intention and, as put by philosophers, to the practical wisdom” (Ibid, pp.32-35).

It can be stated in short that the ultimate goal of the Islamic political philosophy is the Muslim philosophers’ thought and contemplation about the responses to the fixed and invariable questions about the political matters that do not fall in the area of the political life’s variable matters (Kholghi, 2014).

Analyzing the Problem for Solving it and Avoiding Sophistry:

The Distinction between the Islamic Political Philosophy and Absolute Islamic Philosophy:

There is a vivid distinction between the Islamic political philosophy and absolute Islamic philosophy.

In response to this question that “why one cannot go to the transcendentalism (as one of the absolute Islamic philosophies) for responding to the issues of the Islamic political philosophy”, it can be stated that “we cannot directly go to transcendentalism for satisfying the partial wants and secondary political matters for two reasons: 1) transcendentalism is an absolute philosophy and political philosophy is an added philosophy and no absolute philosophy can provide responses to the needs of the added philosophies except in offering the basics. 2) This depth and vastness of transcendentalism does not help us expect the elaboration of the partial materials of the politics rather this essential storage should be applied for extracting the foundations and it is in this case that we can understand the materials of the politics and the examples thereof with the use of those basics” (Javadi Amoli, 2008, p.78).

Analyzing the Main Problem

Now, we should return to the main problem, i.e. “can the mindset of Velâyat-e Faqih be elaborated based on the philosophical reasoning?” The issue can be approached from various angles each of which can be accordingly investigated in its relevant field of research. It has to be explored to see which of these issues is related to what area of the Islamic sciences:

“The problem is comprised of various issues. When various issues are combined within a unit appearance, the researchers are at risk of making mistakes. These mistakes are wholly called sophistry in traditional logics for the summation of a large number of matters within the format of a single problem” (Faramarz Gharamaleki, p.84). Therefore, the primary problem can be divided into more detailed sub-problems:

- Can it be determined who should rule the Islamic society only by referring theories to the evident matters?
- In case of having no access to the prophet and immaculate imams in the Islamic society, is it permissible to obey the government by the tyrannical powers?
- If God commissioned certain individuals to the guardianship of the society, what would be the people’s duty before the government and vice versa?
- Is the canon-intended leadership and guardianship compatible or incompatible with what has been independently achieved?

- In case of being incompatible, which is preferred and superior?

Each question is related to one of the Islamic sciences. Considering the framework of the subject “Islamic political philosophy”, i.e. intellectual thinking through the use of the foundations of the absolute Islamic philosophy, the first question falls in the scientific area of the issues related to the Islamic political philosophy. According to the framework of the subject “Islamic political jurisprudence”, the questions 2 and 3 would fall in the area of the issues pertinent to this scientific field.

This science responds to the problems of the political verdicts. In fact, the subject of this science is “the doings of the canonically obliged persons”. In addition, questions 4 and 5 are shared by the Islamic sciences. Therefore, the primary problem is rooted in the science of the Islamic political philosophy and it can be philosophically elucidated; however, it has to be approached by adopting correct perspectives.

Conclusion:

In this article dealt with the question that “can the mindset of Islamic jurist’s guardianship (Velâyat-e Faqih) be elaborated based on philosophical reasoning or not?” At first, it was made clear as to in what areas should the Islamic jurist’s guardianship be investigated.

Next, following the analysis of the more detailed matters, it was demonstrated that there are several secondary problems latent inside the main problem and that it should be clarified based on the definitions offered for each of the Islamic sciences that what subject can be investigated inside which field of science; the result was that it is possible to offer a philosophical elaboration for the problem.

It was shown that the intention of guardianship in discussions on Islamic jurist’s guardianship is the guardianship of the well-educated persons not the guardianship of the incapacitated persons; this was the mistake in which the rejecters of the Islamic jurist’s guardianship had been entrapped. It became clear that the intention by jurisprudence (Faqih) in the term Velâyat-e Faqih (Islamic jurist’s guardianship) is the person having perfect knowledge of minor, middle and major jurisprudence.

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СЕКЦИЯ
СЕЛЬСКОХОЗЯЙСТВЕННЫЕ НАУКИ
AGRICULTURAL SCIENCES

**STUDYING THE BIOLOGICAL PERFORMANCE OF SOYBEAN PLANT
IN DIFFERENT CONDITIONS**

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ABSTRACT

This study aims to investigate the biological performance of soybean in various settings. The descriptive-analytical research approach was used, as well as library resources. Soybean has been demonstrated to be very sensitive to photoperiodism in studies, and this is a key factor in its breeding selection. The second most critical aspect is temperature, which should be kept between 30-33 degrees Fahrenheit every day for most cultivars. However, before flowering, it does not appear to be very sensitive to daily temperatures. Temperatures of 20 °C or less each day postpone flowering and, when combined with overcast days, extend the developing stage and diminish seed output dramatically. To obtain good yields, a rainfall of roughly 700-500 mm is required. However, soybeans can endure dry soil conditions before blooming. From the blossoming stage through the final stage of pod filling, however, enough moisture is required. Waterlogging affects yield at every stage of soybean development, although mature soybeans are more resistant to waterlogging than maize or peanuts, especially at the germination and garlic stage.

Keywords: soybean plant; seed reaction; seed weight; soybean flowering stage.

Introduction

Soybean is one of the most important crops, and its importance is expected to grow over time because this plant, in addition to having a high to a high content of oil in the range of 18 to 2) percent and a rich source of protein in the range of 3732, which is less important than its oil, has a high to a high content of protein in the range of 3732. However, experts believe that as the world's population grows and there is a greater need for low-cost protein sources, soybean meal's relevance will grow, and more diversified products will be produced from it (1). Soybean is one of the most significant agricultural goods on worldwide markets. For grain, meal, and soybean oil, there are three primary markets. The oil has been edible for it, and it is sold in a variety of forms, including margarine and solid oil, and it competes with other vegetable oils in this regard (2).

It has a larger concentration of important fatty acids than other vegetable oils, which are 10% saturated, 92 percent polyunsaturated, and 13 percent unsaturated, and this is owing to the abundant storage of fatty acids, particularly linolenic acid, which ranks first among stable oils (3). Soybean meal is in high demand as a protein source for use in cattle and taboo feeds. Although soybeans are transformed into a variety of different chemicals for human use, the amount is tiny and has little impact on soybean pricing. The need for oil and meal drives global soybean prices. Soybean meal is a protein source used in livestock and poultry feed. The average soybean meal output is around 79 percent of total soybean yield, with a protein level of around 50 percent. Soybeans, like oilseeds, had an increase in consumption from 1977 to 1989, but only in 1978; the 1980s and 1990s saw a drop in production due to severe changes in production levels and pricing. Soybean consumption climbed by 35% over these years, from 77 million tons at the start of these years to 10 million tons in 1987. Soybeans' percentage of worldwide oilseed consumption ranged from 8%

and 52% throughout the same time period. In addition, because soybeans account for such a large proportion of worldwide oilseed consumption, variations in demand for this crop throughout time have influenced the demand trend for other grains around the world.

Theoretical foundations

Soybeans were initially introduced into Iran around 1310 through the Karaj Faculty of Agriculture, but soybean production as oilseeds began about 1392 in locations like Mazandaran, and soybean cultivation by oilseeds enterprises grew prevalent in other parts of the nation. Soybean agriculture in Iran has expanded in recent years, both in terms of area under cultivation and yield per unit area. Soybeans are grown in the spring and summer, with the second crop (summer agriculture in Iran occurs after crops such as wheat and barley, lettuce, and beans, and hence does not require particular land). Lorestan, East Azerbaijan, and Dasht-e Moghan are the most prominent soybean-growing areas in Mazandaran (3).

This plant is classified as a weed since it belongs to the legume family. According to the iron provided to oilseeds, the condition of soybeans in Iran has been improving in terms of research in the field of agriculture, with 1920 hectares planted with oilseeds in the prospective lands of Mazandaran in 1982. Soybean farming accounted for 39926 hectares of this total, the biggest area under soybean cultivation in Iran. In comparison to prior years, the output was 117,000 tons, indicating a considerable rise in production (4).

Botanical features of soybeans

Soybean, often known as oil bean, is an annual plant belonging to the genus *Cuminosa Leguminosae* 10 and the rough papilionaceae family, suited to tropical and subtropical regions and farmed under rainfall circumstances. However, for dry and semi-arid places with higher water demands, a new inversion (such as Williams for sites like Karaj) has just been developed (1). It grows well in both formal and sandy soils but is susceptible to soil salinity and acidity, ranging from slightly acidic to slightly alkaline (5). There are over forty species and over 3,000 cultivars worldwide, and they are visible as interwoven bushes spread throughout Asia and Australia (6).

Root

According to new research, the soybean root system is not a straight, deep root but rather consists of the main root with horizontal roots that grow about 50 centimeters along the soil surface before going deep into the soil to about 180 centimeters. Root growth in the vegetative stage is faster than aerial plant prices. Root depth is twice the plant's height during blooming, and root growth continues until seed production, then ends before the seed reaches physiological maturity. There are four types of roots: 1- The primary root, 2- Secondary root that emerges from the primary root 4-5 days after the seedling leaves the soil, develops 4-5 cm below the root apex and continues to grow like the primary root. However, the secondary root's diameter is lower than the primary root's. 3- Third roots grow higher than secondary roots and expand the root structure of the soybean. 4. Capillary roots are formed on secondary and third roots as well. The Syrian root is a large, thick plant with nitrogen-fixing glands (7).

Stem

The growth of the soybean's aerial components begins with the axis' escape from the earth and finishes with the grain's advancement. The total height of the soybean bun is 124-90 cm, with 19-24 straps that are plainly visible 4-5 weeks after the patrol. Soybean stems are frequently hairy and branch off from lower, smaller stems. Shrubs that reach their greatest height during blooming and then grow very little after that release more seeds than plants that expand rapidly after flowering (7).

Leaves

The cotyledons merge at the bottom, the second band has single-leafed cross-lobes, and the third and fourth bands have alternating triangular-ovate leaves on a long petiole and hairy ear-rings on the stem and lateral branches (7).

Flower

The number of flower clusters on each plant is 120-80, and each flower cluster may have 2-35 flowers, with the first flower looking upwards and the fourth to eighth clusters pointing downwards. Each flower has five sepals and petals that cover the female and the flag, as well as ten flags, nine of which are joined to each other and cover the female and one that is unattached. Three weeks after seedlings emerge from the earth, flower-forming cells begin to develop (7). Even though the pollination procedure for each pod took place at different times, the stage of soybean flower creation and seed growth in all pods concludes within a week. Day and night are the most important stimuli for flower production; heat and heat are hereditary (7).

Fruit

Soybean fruit is a short, hairy pod with a length of 100 cm and a width of 4 cm, depending on the variety. The pods develop 10-14 days after blooming begins, with an average of 400 pods per plant and 300-250 seeds per plant, with 2-3 seeds or more in each pod (7).

Literature review

According to Air et al. (1980), retinal stress affects numerous physiological activities of soy, including photosynthesis, cell division and enlargement, and nutrient accumulation and transport (8). Water stress can lower yield at any stage of soybean reproductive development, according to Daneshian and Ghalebi (1999). However, the biggest drop occurred during grain filling and pod formation. Water stress had no influence on the number of seeds per pod; however, lowering the number of pods per plant resulted in a drop in the number of seeds per plant. In addition, there was no significant correlation between grain yield, number of seeds per plant and grain weight. Cox et al. (1986) also found that light and heavy watering treatments produced 20 percent and 77 percent fewer pods, respectively than controls. In moderate stress, the number of seeds in pods was the most important factor, but in severe stress, both variables lowered the number of seeds in soybeans (10). Das et al. (1974) experimented with not irrigating the field at various phases of soybean growth and found that the seed closure stage is the most vulnerable to crop loss due to non-irrigation (11). According to Meadl et al. (1984), the loss of pods and flowers caused a decrease in the number of pods in soybean nodes, and drought stress caused the abortion of pods and seeds by reducing photosynthetic material production and impairing material transfer, resulting in a decrease in the ratio of grain weight to so-and-so weight. As the stress level increases, grain weight also decreases dramatically. As a result, a dramatic fall in the number and weight of grain was the cause of the decrease in grain production at stress levels (12). Plants subjected to stress at stage R1 totally recovered following stress, according to Mo'men et al. (1979) (13). The daily water intake of soybeans changes based on numerous elements, including time to soil water level with radiant energy, temperature, and wind speed, according to Zionit et al. (1999) (14).

Most crops, according to Rahimian et al. (1996), go through many stages of development and water stress and display daily fluctuations in humidity in their internal water status, even when they are irrigated (15). According to Daneshian et al. (2002), stress during the pod formation stage lowers the number of pods and seeds, as well as their weight, in the stem's middle nodes (16). Although the loss of moisture was detrimental at all phases of growth, lack of water in the blooming stage, and pod formation, caused the fall of flowers and pods, and lack of water in the seed formation stage caused seed size reduction (17).

Daneshian et al. (2000) used stress during the R1 stage (the start of flowering), i.e., when one of the main stem group's flowers is open. The plant tries to compensate for the drop in the number of seeds in the plant by maintaining 100 seeds in order to maintain grain production. Stress increases the fall of flowers and pods at stage R2 (the beginning of pod formation), i.e., when one of the four countable terminal nodes of the main stem bearing the pod reaches 5 mm, resulting in a decrease in the number of seeds in the plant (18). Schuler et al. (1998) discovered that at stage R4 (complete podding), there was a reduction in the number of seeds per pod and seed size. The main stem bearing the pod with a grain of 3 mm is at stage R5 (beginning of grain development), i.e., one of the four end nodes that may be counted. The seeds quickly fill up, and there is a great need for water. At this period, toxic stress and heat significantly diminish production, and pod filling is the most vulnerable phase for drought damage to the plant (19).

Stress in stage R6 (full grain size), i.e., one of the four countable terminal nodes of the main stem bearing pods whose pores are filled with green grains, affects yield by lowering seed size, according to DeLouch et al. (1980) (20). Moisture stress in soybeans is not as critical from plant establishment until blooming, according to Jahan et al. (2001). Dryness during aggregation lowers the number of soybean tubers, while dehydration during granulation reduces the number of pods per pod and grain weight, according to Shaw, Ling et al. (1999) experiments (21).

Bran et al. (1985) found that moisture stress reduced seed size and quantity in the R1 stage (full blooming) but not in the R2 stage (full flowering). The proportion of bloom and pod fall was unaffected by moisture stress (22). Egley et al. (1985) observed that the number of pods and seeds per unit area in the Japanese developmental stage was occasionally reduced due to competition between vegetative and reproductive organs and the loss of community photometer (23). According to Palmer et al. (1995), stage R1 is a crucial development stage in soybeans, similar to rejuvenation, and dryness can result in substantial output decreases (24).

Drought stress administered at stage R2 lowers the number of seeds in subsequent stages of reproductive development, according to May et al. (1992). Furthermore, when stress was applied to R2, the plant's dry weight was lowered compared to the control (25). According to McCall et al. (1984), severe stress lowered plant weight and yield by 20-50 percent and 21-46 percent, respectively, in the R-R phase. The decline in yield was attributable to a 16 to 15% reduction in the number of seeds per unit area (26).

In their study of the influence of potassium on photosynthetic activity and dry matter accumulation in plants, Marshner et al. (1995) discovered that the quantity of potassium affects the transport of photosynthetic material (27). Even minor soil K deficits impair netosterone transfer by decreasing photosynthesis, according to Jin Zinping et al. (1989) (24). Potassium consumption boosted zinc absorption and transport in maize, resulting in higher zinc concentrations in seeds and roots, according to Tendon (1992) (28). Given that the soybean plant requires a significant quantity of potassium, increasing potassium utilization will benefit the plant, according to Heriworth et al. (1984) (29).

According to Daneshian et al. (2000), when stress severity increased, the quantity and length of rootstocks reduced, and plant height dropped as a result. Plant height grew as the number of nodes increased with greater potassium treatment. The number of pods per plant and the number of seeds per pod declined as the severity of stress increased in the research of yield components, although the number of seeds per pod was the key factor in lowering the number of seeds in the average stress. Both variables lowered the number of seeds per plant when the plant was under extreme stress. With increased stress levels, grain weight also reduced dramatically. As a result, the drop in grain production was attributed to a significant reduction in the quantity and weight of grains (30).

In the application of 20 g/m² phosphorus and potassium solutions under soil moisture stress, Lopez et al. (1994) found no significant influence on yield, yield components, or harvest index (31). In a study of soybean drought stress, Ino et al. (1991) found that when soil water decreased, the potassium content of leaves increased fast in all sections of the stem, resulting in beta-water in the vessels being less than the water-water potential. The occurrence of stress resulted in a loss of dry weight in all regions of the plant. Finally, when stress increases, more weight accumulates in the plant's top portions (32).

According to Beaton and Sikhon (1985), wheat's potassium intake in water-stressed conditions is only 50 kg/ha, but it reaches 200 kg/ha under ideal growth conditions. Potassium flower harvest by four wheat cultivars is estimated to be 134 to 212 kg/ha, while potassium harvest per ton of wheat grain and straw is 10 to 20 kg, respectively (33). Kemler is a character in the film Kemler (1983). Inadequate daily potassium absorption during the early stages of wheat development is more detrimental than a lack after blooming. Potassium shortage affects the number of clusters in the 2-3 leaf stage and 1000-seed weight in subsequent stages (34).

Conclusion

The farmer's initial decision in soybean production should be to select the cultivar recommended by the relevant institutions. Government agricultural stations have spent a lot of time analyzing cultivars in various places, and it's likely that diverse tests will lead to the discovery of a particularly suitable cultivar for a particular region. However, the findings of these trials can identify which cultivars are unsuitable for a breed's deficiencies, and these cultivars can only be produced at a very low level for objective observations. Overall, the seeds should be healthy and good since, even if all of the growth circumstances are ideal, cultivating substandard seeds will not be successful and will result in poor performance. There must be no gaps in the seeds, and they must be free of weed seeds and other weeds.

The proportion of seed potency should be greater than or equal to 85 percent, preferably nearer to 95 percent. Experiments on how seeds react to low temperatures might give significant knowledge to northern locations with early crops. Seed size uniformity will substantially aid in efficient seed division and nurturing along the rows. Plants will be created by the cultivation of seeds of uniform size, resulting in uniform competition between neighboring plants and a reduction in competition loss.

The most reliable method of nurturing skill and quality is to use certified seeds. Because soybeans are a self-harvesting plant, the harvested seeds can be planted in subsequent years. However, in this case, the farmer must ensure that his seed is free of weed seeds and that the threshing machines uniformly distribute the seed size, and before planting, a test should be performed to determine the percentage of seed vigor so that the patrol rate in creating the desired plant density can be determined. The time of maturity in the culture medium is the first factor to consider when selecting a cultivar. The production of an earlier cultivar than the region's so-called cultivar has reduced, and the cultivation of a later cultivar is more likely to never reach maturity or produce low-quality seeds in tiny amounts.

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IMPROVEMENT OF PHYSICO-CHEMICAL PROPERTIES OF MACARONI PRODUCED FROM DURUM WHEAT CULTIVARS

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ABSTRACT

Due to the interaction between the genotype and the growth environment, the yields of crops cultivars and lines are not the same in different environments. To obtain cultivars adaptable to different areas which have an optimal quality, 36 advanced genotypes were analyzed in two different experiments, including two control cultivars of Karkheh durum wheat and Hamoon bread wheat, in the form of Randomized Complete Block Design (RCBD) in three iterations in the city of Iranshahr as a region to conduct the study in.

Notes were taken from different phases such as growth and development, some morphological traits, the number of days from germination to the emergence of clusters to ripening, plant height, percentage of lodging, and after harvesting, some traits such as the kernel's color, 1000 kernel weight, yellow berry amount, etc. were determined and recorded. One kilogram of each cultivar kernel is sent to the Laboratory of Cereal Chemistry to determine the qualitative traits.

The performance and yield of the cultivars in both experiments were analyzed by variance, and then the results were ranked compared to the average yield of other stations by the Rank Method. Eighteen cultivars were selected from two experiments of ADYT-W and picked up for the final analysis of the adaptability of universal elite lines to the warm and dry climate of the South (ERDYT-W) for the next cropping season.

Keywords: Yield comparison; advanced genotypes of durum wheat; hot and dry climate.

Introduction

The plant breeders have long praised and considered the capability of some durum wheat cultivars that can grow and develop in different environmental conditions. Determining the inter-

actions between the genotype and environment is greatly important for the breeder to prepare and introduce the adaptable and optimal cultivars (4).

Different cultivars do not have the same state in different regions. The amount of interaction between the genotype and environment is little for those genotypes that have multiple combinations of different parents or have survived for many years in different environmental conditions, i.e., the chance to obtain a cultivar that has a lower genotype-environment interaction is higher in the heterogeneous communities. Any cultivar that can neutralize environmental effects has an individual buffering and can show good adaptability to different environments (5).

The genotype-environment interaction has been considered by breeders for many years, and different methods have been developed to determine the state of a variety in different environmental conditions. Wilkinson & Finally, and Russel & Eberhart have suggested some methods for calculating the stability parameters based on the cultivars' regression value (1).

In the method proposed by Eberhart & Russel, the regression coefficient is calculated for each variety or line. The best variety in terms of adaptability is the one with a regression coefficient near one and has a high yield with a low deviation in regression. Another method to calculate the stability parameters based on the SS interaction was proposed by Wrick in the variance analysis Table (3).

In the adaptability investigation studies in terms of grains and the ANOVA and the F-test of the genotype-environment interaction, the simple Rank Method has been used to determine the stability rate of genotypes in different environments. The variety with the lowest average rank and standard deviation and the highest average yield is the most adaptable variety with the highest yield stability.

In the warm climate of the southern regions of the country, some regions do not show the full capacity of bread wheat cultivars production due to environmental stresses, and the modified irrigated durum wheat cultivars have a better yield. In these environments, the durum wheat has better adaptability than the bread wheat and tolerates environmental stresses better (1).

The durum wheat kernel is used to produce macaroni (spaghetti). To meet their raw material (semolina), the macaroni production industries of the country need more than 1 million tons of durum wheat. Optimal-quality products can conquer the markets of northern and southern neighboring countries. The value-added of these products can bring great benefits to the farmers, macaroni manufacturers, and exporters in currency.

In the four climates of the country, the drought and the living and non-living stresses are now common phenomena. Therefore, it is necessary to identify the regions with some stresses in all four climates and develop the durum wheat adaptable to these regions instead of bread wheat (Baluchestan is one of the very dry regions in the country) so that, in addition to the increase in country's wheat production, the value-added of this product can also be exploited in semolina and macaroni products exportation.

Using the experience of countries with environmental stresses such as Spain, Italy (Sicily with Mediterranean climate), Ethiopia, Tunisia, and other North African countries with hot and dry nature and Russia with cold and dry climate can be a good facilitator for our country's farmers (4).

Different breed studies on obtaining high yielding and compatible cultivars of irrigated and dry durum wheat have been carried out in international research centers and various stations in the country for the past years. The denominated cultivars such as Aria, Karkheh, Dena, and the D-79-15 are the results of the investigations during the past fifteen years in Iran (the Simareh and Kuhdasht have also been introduced by the Dry Farming Institution of the Country) (2).

Objective and Significance of the Study

Durum wheat is the most suitable wheat for semolina production due to its hardness and glassiness, which should be considered for macaroni production. So far, comprehensive studies to recognize durum wheat potentials and state and investigate their qualitative traits for macaroni production have not been conducted in Iran. Currently, first, because the food products such as meat and rice are getting more and more expensive, the use of macaroni as the main food worldwide and especially in Iran is gradually increased, and second, due to the import of different kinds of macaroni products from other countries which lead to the loss of a great deal of currency. Third, due to the role of diversity in proceeding with the breeding plans, research about the strategic product of durum wheat and its important macaroni product is necessary.

Generally, the total problems of macaroni in Iran are primarily related to flour (raw material). Regarding the necessity of durum wheat cultivation in the country to supply the raw material of the factories and macaroni industries and to prevent the outflow of significant amounts of currency that can lead to the development of the country elsewhere, a complete and comprehensive plan should be prepared for it.

The current study was conducted based on the requirements mentioned above and the objectives the following:

- Investigation of the electrophoresis and recognition of the studied durum wheat genotypes
- Investigation of the qualitative traits (physical and chemical) of the studied durum wheat species
- Investigation of the effects of gluten and gliadin subunits on the qualitative traits of the studied durum wheat species and the macaroni produced by them
- Determination of the subunits effective in the improvement of qualitative traits of the studied durum species and the macaroni produced by them
- Determination of the subunits effective in the improvement of qualitative traits of the studied durum species and the macaroni produced by them

Methods and Materials

In the 2008-2009 farming year, 36 advanced genotypes of durum wheat were selected from among 138 genotypes in the experiments on comparison of the uniform primary yield in the hot and dry climate of the southern regions of the country in the farming year 2007-2008 farming year, were divided into two 18-genotype groups in an experiment with a control group containing Karkheh durum wheat cultivar and a control group containing Hamoon bread wheat. A total of 20 cultivars were investigated in the form of Randomized Complete Block Design (RCBD) in three iterations in the city of Iranshahr, like the research stations in the hot and dry climate of the southern region the country.

Each row consisted of 6 lines of 6 meters at a distance of 20 cm, with crops being planted on two ridges. At harvest time, half a meter from the beginning and end of each row was removed as a margin, and the rest (6 square meters) was harvested, and its grain yield was weighed. Land preparation operations were usual, including plowing, disc, leveling (by leveler), and furrowing. The amounts of required nutrients, including N₂, P₂O₅, and K₂O, were 135, 90, and 46 kg, respectively, in which all fertilizers except nitrogen fertilizer are applied to the soil at the time of soil preparation and nitrogen fertilizer in the development stages of stemming, the emergence of the cluster, and granulation in the form of topdressing, spread evenly on the farm. To control broadleaf and narrow-leaf weeds, a mixture of Topic and Granstar herbicides were used at the rate of 1.5 liters and 20 grams per hectare and manual weeding, respectively. The

number of seeds per unit area was calculated as 450 seeds per square meter, and the leakage method did sowing and irrigation.

During the growing period, different stages of development (Germination - sprout- tillering - the emergence of stems and cluster), the number of days from cultivation to the emergence of cluster and ripening, the plant height, cluster length, and lodging rate were recorded. After harvesting, some traits such as the kernel's color, 1000 kernel weight, yellow berry amount, etc., were determined and recorded. Half a kilogram from each genotype of sample grain was sent to the Cereal Chemistry Laboratory to determine their qualitative traits. After the analysis, the samples were categorized in terms of the qualitative traits for semolina production.

After harvesting the weighing the grain yield, the yield of the cultivars was recorded, and the obtained results were separately analyzed by variance. Also, the average amount of cultivars was compared to the results obtained from other stations using the Rank Method. Among 36 genotypes studied, 18 more adaptable genotypes and higher yields than other control cultivars and species were selected to be tested in the next year ERDYT-W experiments for two years, based on the farm's records the qualitative results from the Cereal Chemistry Laboratory.

Results and Discussion

The records about the days required for the emergence of cluster and physical ripening, plant height, kernel color, and 1000 kernel weight were evaluated. The use of the LSD Method compared the mean values, and the cultivar yield percentage was compared to that of the control group of durum wheat. The results of these experiments are presented in tables 1 and 4.

The results of the ADYT-W1 experiment can be seen in Table 1. Among the studied cultivars in grain yield, this cultivar had a significant superiority with a probability rate of 1%, compared to the Karkheh control cultivar. The cultivar No.6 was placed in Class A with a 20% yield increase (near 1400Kg per hectare). The cultivars Nos. 2 and 11 showed a 17% yield increase with 7.987 and 8.021 tons per hectare and were ranked in Class B, compared to the Karkheh cultivar. Lines Nos. 8, 9, and 14 were placed in Class D, with a 16, 18, and 17% yield decrease compared to the Karkheh cultivar. Other cultivars were ranked in Class Control, even with an 11% increase and 13% decrease in yield. The lowest and highest yields belonged to cultivars No. 9 and No.6, respectively (5.576 and 8.215 t/ha).

Table 2 indicates the results obtained from the ADYT-W2 experiment in Iranshahr. It is seen that there is a 5% significance level among the genotypes in terms of grain yield among the cultivars studied compared to the control cultivar. The cultivar No.8 has shown a yield decrease with a 95% probability compared to the Karkheh control cultivar. However, cultivars Nos. 3, 2, 4, 9, 10, 11, and 13 have had a yield increase by 14, 7, 11, 5, 6, 4, and 5%, respectively. It should be noted that cultivar No.4 ha had the highest yield with 7.271 t/ha, and cultivar No.8 had the lowest yield with 5.049 t/ha. Other cultivars' yields did not significantly differ from the control cultivar, and all of them were placed in Class C.

The data obtained from the experiment ADYT-W1 ranking are shown in Table 3. Based on the qualitative analyses in the Cereal Chemistry Laboratory and the farm records, and most important of all, the YIR column percentage, it can be seen that cultivars Nos. 2, 3, 4, 7, 6, 11, 9, 8, 12, 15, and 18 all showed a yield increase compared to the population's mean yield, and were selected for EDYT-w(D-88) experiment for the investigation of adaptability of next year's promising lines. As seen in the table, among the regions studied, the mean yields of the experiment cultivars have been higher in Iranshar, only after Zabol.

The data obtained from the ADYT-W2 experiment ranking can be seen in Table 4. Based on the qualitative analysis results in the Cereal Chemistry Laboratory and the farm records, the YIR column percentage, only eight cultivars showed a better yield than the population means to yield. Cultivars Nos. 2, 7,8, 9, 12, 11, 17, and 1 all showed a yield increase compared to the pop-

ulation mean yield and were selected for the EDYT-W(D-88) experiment for the investigation of adaptability of next year's promising lines. As seen in the experiment's cultivars' mean yield (except for cultivar No. 8), Iranshahr's mean yields were higher than all regions studied.

Based on this project's tables and the results obtained from other regions, it seems that due to the non-living environmental stresses, the cultivation of durum wheat in Sistan and Baluchestan would be more successful and end in better yields than the bread wheat. Table 1:

Station: Iranshahr				Year : 1387-88 (2008-09)				Plot size: 6 m ²				Test: ADYT-W-1			
Plot no.	Pedigree	Diseases				DHE	DMA	PLH (cm)	Lodge (%)	K.C.	TKW (gr)	YLD (t/ha)	%Ch.	Class	
		YR	LR	BYDV	PM										
1	Karkhel(Check1)	O	O	O	O	93	95	85	O	Am	48	6.826	100	C	
2	Bread wheat (check 2)chamran	O	O	O	O	97	95	100	O	W	40	7.986	117	B	
3	RCOLTHKNEE 2	O	O	O	O	96	95	85	O	Am	52	7.486	110	C	
4	STOTI/ALTAR 84/JALD/3/GREEN 18/FO...	O	O	O	O	92	95	85	O	Am	48	6.632	97	C	
5	CAMAYOILLARETA INIA/CADO/BO...	O	O	O	O	93	95	95	O	Am	40	6.583	96	C	
6	GUAYACAN INIA/GUANYAY3/BOOMER ...	O	O	O	O	91	95	90	O	Am	48	8.215	120	A	
7	AINZEN_116/GMHB2A_10623/GIGOVZ39/L	O	O	O	O	91	95	90	O	Am	52	6.250	92	C	
8	AINZEN 1/3/MINIMUS 6/PLATA 16...	O	O	O	O	89	95	80	O	Am	56	5.736	84	D	
9	BCRIGUEROU 1/PLATA 6/GREEN 17	O	O	O	O	85	95	95	O	Am	56	5.576	82	D	
10	CF4-JS 40/3/STOTI/ALTAR 84/JALD	O	O	O	O	97	95	85	O	Am	44	6.583	96	C	
11	ALTAR 84/STINT/SILVER 45/3/LLA...	O	O	O	O	93	95	105	O	Am	44	8.021	117	B	
12	AINZEN 1/3/SN TURK M183-84 503/LO...	O	O	O	O	89	95	95	O	Am	56	6.785	99	C	
13	ALTAR 84/BINTEPE 85/3/AJAJA 12....	O	O	O	O	90	95	90	O	Am	52	6.972	102	C	
14	ALTAR 84/STINT/SILVER 45/3/POHO...	O	O	O	O	90	95	80	O	Am	52	5.639	83	D	
15	GUAYACAN INIA/YUAN 1/GREEN 18/...	O	O	O	O	88	95	90	O	Am	56	7.556	111	C	
16	ANADE 1/GREEN 2/GAUNT 10	O	O	O	O	89	95	90	O	Am	52	6.722	98	C	
17	GAUNT 10/SNITAN	O	O	O	O	91	95	90	O	Am	44	6.813	100	C	
18	LLARETA INIA/YEBAS 8/3/MINIMUS...	O	O	O	O	91	95	85	O	Am	36	6.951	102	C	
19	BRN_3/AJAJA_15/DUREN_13/DION_24...	O	O	O	O	92	95	90	O	Am	40	6.313	92	C	
20	STOTI/ALTAR 84/JALD	O	O	O	O	91	95	85	O	Am	44	5.938	87	C	
LSD 5%= 0.995t/ha														C.V.=8.88 %	
LSD 1%= 1.333 t/ha															

Table 2

Station: Iranshahr			Year : 1387-88 (2008-09)			Plot size: 6 m ²			Test:ADYTW-2					
Plot no.	Pedigree	Diseases				DHE	DMA	PLH (cm)	Lodge (%)	K.C. TKW (gr)	YLD (t/ha)	%Ch.	Class	
		YR	LR	BYDV	PM									
1	Karkhe(Check1)	O	O	O	O	90	118	100	O	Am	52	6.576	100	C
2	Bread wheat (check 2)chamran	O	O	O	O	93	119	100	O	W	44	7.521	114	C
3	ALTAR 84/STINT//SILVER 45/4/SKES...	O	O	O	O	87	115	90	O	Am	56	7.056	107	C
4	SNITAN/3/STOTI/ALTAR 84/ALD	O	O	O	O	91	117	100	O	Am	44	7.271	111	C
5	GUAYACAN INIA/GUANAY//CRAKE ...	O	O	O	O	91	117	95	O	Am	48	6.243	95	C
6	CBC 509 CHILE/SOMAT 3.1//WOODUCK...	O	O	O	O	90	115	85	O	Am	44	6.000	91	C
7	CBC 509 CHILE/4/SKES/THUITUB/3/8...	O	O	O	O	90	117	80	O	Am	48	6.368	97	C
8	GUAYACAN INIA/YEBAS 8/3//TOPDY ...	O	O	O	O	90	117	100	O	Am	56	5.049	77	D
9	AINZEN 1//HYDRANASSA30//SILVER...	O	O	O	O	91	117	100	O	Am	56	6.931	105	C
10	ALTAR 84/STINT//SILVER 45/3/CAMA...	O	O	O	O	91	117	90	O	Am	56	7.000	106	C
11	LLARETA INIA/SOMAT 4//SNITAN	O	O	O	O	90	118	90	O	Am	48	6.833	104	C
12	DUKEM 1//PATKA 7//YAZI 1/3//PA...	O	O	O	O	90	118	85	O	Am	44	6.479	99	C
13	USDAS/65/3/67 3/RABICORAU/LO/SHUYAV...	O	O	O	O	93	120	95	O	Am	44	6.924	106	C
14	ADAMAR 15//ALBIA 1//ALTAR 84/3/...	O	O	O	O	93	120	80	O	Am	48	5.806	88	C
15	PLATA 7//ILLO 9//PLATA 2//3//GREEN...	O	O	O	O	89	117	90	O	Am	48	5.889	90	C
16	STOTI/ALTAR 84/ALD/3//SNITAN	O	O	O	O	91	115	95	O	Am	48	6.000	91	C
17	SOMOCROC 4//LOTUS 1/3//KITTI/4/...	O	O	O	O	91	117	95	O	Am	52	6.083	93	C
18	CMH80A 1/66/3/3/GGOV/2/3/4/1/5/8/4/1/1/FLCH/AJZ...	O	O	O	O	91	117	90	O	Am	44	6.438	98	C
19	STOTI/ALTAR 84/ALD	O	O	O	O	91	118	90	O	Am	44	5.861	89	C
20	BD2338/3//AUK/GUIL//GREEN/4//STOTI/...	O	O	O	O	93	120	100	O	Am	42	6.688	102	C
LSD 5%=1 220 t/ha												LSD 1%=1.634t/ha		
												C.V.=11.44 %		

Table 3

Summary of results for ADYTW-1, 1387-88(2008-09)

Ent.no.	Pedigree	Yield (t/ha)						Mean YLD (t/ha)	Mean R	SDR	YDR (%)
		Baranabad	Derful	Alhaz	Darab	Zabol	Imamshahr				
1	Karthe(Check1)	5.297	5.900	3.335	6.058	6.803	6.826	5.703	14.3	4.320	94
2	Bread wheat (check 2)	6.644	6.414	3.998	5.787	8.920	7.986	6.625	7.3	6.713	109
3	ROOLTHKNEE 2	6.097	6.544	4.918	7.590	8.418	7.486	6.842	4.3	3.670	113
4	STOT/ALTAR 84/ALD/3/GREEN_18/FO...	6.328	6.676	4.249	5.929	8.047	6.632	6.311	8.2	4.665	104
5	CAMAYOILLARETA INIA/CADO/BO...	6.075	5.285	4.388	6.157	6.822	6.583	5.885	12.4	4.055	97
6	GUAYACAN INIA/GUANAY/3/BOOMER...	6.208	5.133	4.378	7.003	8.053	8.216	6.498	6.8	6.113	107
7	AINZEN_1/6/CMH82A_1062/3/GGOVZ394/...	5.033	5.308	4.917	6.477	7.023	6.250	5.835	11.7	6.976	96
8	AINZEN_1/3/MINIMUS 6/PLATA_16...	6.242	6.585	4.194	6.186	7.762	5.736	6.118	8.8	4.896	101
9	BCR/GUEROU_1/PLATA_6/GREEN_17	4.517	4.544	4.187	6.272	7.068	5.576	5.361	14.5	6.442	88
10	CF4-JS_40/3/STOT/ALTAR 84/ALD	6.619	6.175	3.063	6.241	7.515	6.583	6.033	10.9	5.535	99
11	ALTAR 84/STINT/SILVER_45/3/ILLA...	6.769	5.111	3.985	4.696	8.323	8.021	6.151	10.0	8.649	101
12	AINZEN_1/3/SN TURK MI83-84_503/LO...	6.114	6.319	5.799	5.900	7.535	6.785	6.409	9.0	4.899	105
13	ALTAR 84/BINTEPE 85/3/AJAJIA_12...	5.986	5.536	3.864	5.668	6.965	6.972	5.832	13.8	4.355	96
14	ALTAR 84/STINT/SILVER_45/3/POHO...	5.350	6.289	3.911	5.812	7.010	5.639	5.669	15.0	3.847	93
15	GUAYACAN INIA/YUAN_1/GREEN_18/...	6.922	5.433	4.392	6.302	7.703	7.556	6.385	6.0	4.517	105
16	ANADE_1/GREEN_2/GAUNT_10	6.194	5.403	3.441	6.163	6.192	6.722	5.686	13.5	4.550	94
17	GAUNT_10/SNITAN	5.672	7.169	3.999	6.156	6.677	6.813	6.081	11.2	5.981	100
18	LLARETA INIA/YEBAS 8/3/MINIMUS...	5.783	6.585	4.601	6.256	8.257	6.951	6.406	6.6	4.341	105
19	SRN_3/AJAJIA_15/DUKEM_1/3/DION_2/4...	6.519	5.917	4.118	6.027	6.675	6.313	5.928	12.3	4.676	97
20	STOT/ALTAR 84/ALD	6.058	6.250	3.435	5.984	7.604	5.938	5.878	13.3	3.830	97

Grand mean =6.081 t/ha

Table 4

Summary of results for ADYT W-2, 1387-88(2008-09)

Ent.no.	Pedigree	Yield (t/ha)					MeanYLD (t/ha)	Mean R	SDR	YIR (%)
		khorrannahad	Dezful	Ahvaz	Darab	Zabol				
1	Karkhe(Check1)	5.719	6.483	4.320	5.898	5.305	5.717	13.3	3.615	96
2	Bread wheat (check 2)	7.703	6.836	4.186	5.297	7.440	6.497	7.2	8.305	109
3	ALTAR 84/STINT//SILVER_45/4/SKES..	5.869	5.764	4.703	6.760	4.093	5.708	10.8	6.882	96
4	SNITAN/3/STOT//ALTAR 84/ALD	5.844	5.225	3.694	6.261	5.730	5.671	13.5	7.036	95
5	GUAYACAN INIA/GUANAY//CRAKE...	5.636	5.203	4.392	5.897	6.750	5.687	13.0	6.066	96
6	CBC 509 CHILE/SOMAT_3.1//WOODUCK...	6.089	6.572	4.153	5.809	6.097	5.787	13.1	3.105	97
7	CBC 509 CHILE/4/SKEST//HUI/TUB/3/S...	6.492	7.022	5.275	6.221	6.310	6.281	6.7	3.777	105
8	GUAYACAN INIA/YEBAS_8/3/TOPDY_...	5.919	7.350	5.042	6.918	6.002	6.047	9.2	7.333	102
9	AINZEN_1//HYDRANASSA30/SILVER..	6.397	6.189	4.777	5.830	5.817	5.990	10.0	4.561	101
10	ALTAR 84/STINT//SILVER_45/3/CAMA..	5.331	6.147	4.085	6.553	6.252	5.895	11.2	6.494	99
11	LLARETA INIA/SOMAT_4//SNITAN	6.528	5.708	4.963	6.148	7.312	6.833	8.0	5.550	105
12	DUKEM_1//PATKA_7/YAZI_1/3/PA...	6.344	6.631	5.246	5.771	6.198	6.112	8.7	4.761	103
13	USDA595/3/D67.3/RABI//CRA/4/ALO/5/HUI/YAV_1/6/A..	7.600	7.406	4.189	6.778	6.082	6.497	6.5	5.683	109
14	ADAMAR_15//ALBIA_1/ALTAR 84/3/..	6.106	7.097	4.324	6.458	6.087	5.806	10.5	5.394	100
15	PLATA_7/FILLO_9//PLATA_21/3/GREEN..	5.914	6.597	5.319	5.597	5.182	5.889	12.5	7.148	97
16	STOT//ALTAR 84/ALD/3/SNITAN	6.303	6.589	3.767	7.084	5.337	5.847	11.4	6.888	98
17	SOMO/CROC_4//LOTUS_1/3/KITTI/4/..	6.667	6.219	4.463	6.222	6.638	6.049	8.3	4.179	102
18	CMH82A.1062/3/GGOVZ394//SBA81/PLC/4/AAZ_1/CRE..	5.036	5.881	5.172	5.472	6.120	5.687	13.0	6.000	96
19	STOT//ALTAR 84/ALD	6.281	5.803	4.104	6.534	6.427	5.861	11.7	5.715	98
20	BD2338/3/AUK/GUIL//GREEN/4/STOT//..	5.864	5.442	4.339	6.172	6.330	5.806	11.5	4.416	98

Grand mean =5.954 t/ha

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STUDYING THE QUALITATIVE PROPERTIES (PHYSICAL AND CHEMICAL) OF DURUM WHEAT

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ABSTRACT

This study aims to investigate the physical and chemical properties of durum wheat. The experiment took place on 1600 m² of land. Using a groove maker, the land was designed as a furrow pattern following initial land map preparation and implementation. To implement the experimental design, furrows 60 cm wide were created along the ground and perpendicular to the irrigation path. There were 20 plots in each replication equal to the number of treatments. Each 6 × 1.5 m plot consisted of six planting lines with a 30 cm distance. Data were analyzed by the one-way analysis of variance (ANOVA). MSTATC and SAS software were used to make calculations, and EXCEL was utilized to create graphics. According to the comparison test, the mean grain protein percentage of the tested cultivars differs significantly at the statistical level of one percent. There are statistically significant variances in the cultivars' average number of zeleni. The grain water absorption percent of the grains of the tested cultivars did not differ statistically. The grain hardness of the cultivars did not differ significantly. In any of the statistical levels, there is no statistical difference between the analyzed cultivars, and all twenty tested cultivars are in the same statistical class in terms of dry gluten content.

Keywords: Durum wheat; Physical properties; Chemical properties; Grain hardness.

Introduction

Durum wheat is appropriate to semi-arid conditions, which the majority of its area, which is under cultivation, receiving less than 350 mm of rainfall. With 10-12 million tons produced, the Near East and Middle East are the main producers, followed by North America, the former Soviet Union, Europe, Africa, Australia, and South America. The global output ranges from 30 to 35 million tons, and the producing nations consumes more than 80% of the overall production. Durum wheat is an annual monocotyledonous plant. The root system of this wheat may penetrate to a depth of more than one meter in optimal conditions. The stem of durum wheat, like the stems of all dark cereals, is hollow, cylindrical and spongy at the ends. Sub-stems (paw) are found in durum wheat in addition to the main stem, although its tillering potential is limited.

Shepherd et al. (1996) used local Australian cultivars to repeat the electrophoretic investigation of durum wheat and bread wheat proteins and their influence on the qualitative attributes of pasta and bread undertaken by some prior investigators. Much research has been conducted to determine the function of prolamins in the baking quality of bread and durum wheat.

Cross (1991) attempted to detect two gamma gliadin bands caused by electrophoresis separation named regular taba undesirable pasta quality in a biochemical investigation and analysis

utilizing high-performance liquid chromatography with reverse phase (related to good quality). Fabriani and Lintas (1992-1991) used the flake pasta production method to investigate the technical features of durum wheat. According to Etran and Filet (1989 and 1987), heavy glutenin subunits had a considerable effect. In addition, they found a satisfactory relationship between pasta quality and the 6 + HMW band and the 16 + 13HM band in an electrophoretic investigation of high molecular weight glutenin subunits and their relationship with pasta quality in 1987. The strength of cooked pasta has also been demonstrated to be influenced by durum gluten strength. In their genetic investigations, Josephides et al. (1987) found that chromosome B1 of durum wheat is more essential than other chromosomes in regulating gluten potency.

Shewry and Mifin (1983) used chromatography to extract wheat or gluten proteins using a solvent. They used chromatography to extract wheat or gluten proteins using a solvent. Regarding wheat proteins, Bietz (1983) developed a reversed-phase high-performance liquid chromatography technique. The function of gliadin in pasta quality and the relationship between gamma gliadin 42 and 45 and gluten viscosity was investigated by Cross et al. (1982). All samples with low gluten strength had 42, whereas 90 percent of samples with high gluten strength had 45. Monen et al. (1983) extracted gluten using just an SDS solution. They presented a high molecular weight and quality of wheat flour (100 and 103), which was later validated and expanded by numerous groups of researchers. To remove gluten, Oxford et al. (1979) utilized SDS solution and lactic acid.

Durum wheat has a protein level ranging from 9 to 18 percent. Protein levels of 12 to 16 percent of grain protein at 14 percent moisture are adequate for excellent quality preparation. The physical qualities of the dough used in the pasta business should be sturdy. These qualities are studied using Farinograph. The goal of this research is to investigate the physical and chemical characteristics of durum wheat.

Materials and methods

The experiment occurred between the fall of 1987 and the spring of 1988 at the Baluchistan Agricultural Research Station, located in the Bampour section of Iranshahr city, at a latitude of 60 ° and 29 ' east, a longitude of 27 ° and 11 ' north, and a height of 525 meters above sea level.

According to climatic classifications, Iranshahr has a hot and dry climate. The mean annual rainfall in the region is 100 mm, with maximum and minimum temperatures of 38.7 and 12.2 ° C, respectively.

Table 1

Rainfall in the months of 2008 per mm

March	April	May	June	July	August	September	October
15.9	9.2	0.4	0	0	0	0	9.2

Table 2

The average temperature in the months of 2008 in terms of degrees Celsius

March	April	May	June	July	August	September	October
17.13	21.18	27.27	29.24	25.13	22	20.27	12.48

Table 3 shows the findings of soil mechanical and chemical degradation. Loamy soil texture was evaluated using mechanical examination and percentages of each soil component.

Table 3

Decomposition of test soil samples

Absorbable nitrogen	Absorbable phosphorus	Absorbable potassium	Manganese	copper	Iron	Zinc	Percentage of organic carbon	Soil acidity (pH)	Electrical conductivity (EC) ds.m-2	Soil texture	Factors to be decomposed
Percentage	Mg/kg										
0.2	8.0	98	5	1	8	0.37	1.75	7.7	3.18	Loamy Sandy	Test result

The experiment occurred on a 1600 m² of land. The aid of a groove maker was used to change the land design into an atmosphere and a ridge following initial land preparation and implementation. The furrows were 60 cm wide and ran down the ground, perpendicular to the irrigation direction, before the experimental map was adopted. The number of plots in each replication was 20 and was equal to the number of treatments. It measured 1.5 m by 6 m. N₂, P₂O₅, and K₂O with formulas of 135, 90, and 46 kg per hectare are required. All fertilizers except nitrogen applied to the soil during soil preparation and nitrogen fertilizer applied at the beginning of stem development, spike emergence, and granulation spread evenly across the field. Duncan's multiple range test techniques was used to investigate the data using analysis of variance and mean of treatments. MSTATC and SAS software were used to make calculations, while EXCEL was used to create graphics.

Findings

Table 4

Summary of analysis of variance of qualitative properties in the first experiment

Sediment height	Dry gluten weight	Wet weight of gluten	Grain hardness	Percentage of grain moisture	Zelloni number	Percentage of grain protein	Degrees of freedom d.f	Source of change s.o.v
14.067 n.s	0.653 n.s	0.163 n.s	2.606 n.s	0.014 n.s	3.634 n.s	0.152 n.s	2	Repetition
28.225 n.s	1.530 *	10.302 *	16.047 n.s	0.088 n.s	11.574 **	2.646 **	19	Figures
22.435	1.198	6.298	9.744	0.087	3.244	0.263	38	Test error
12.10	9.32	7.03	7.30	13.54	5.12	13.68	-	Percentage change coefficient

n.s There is no acceptable statistical difference between the means of the studied parameters.

There is a significant difference between the mean of the studied parameters at the statistical level of 5%.

** There is a significant difference between the mean of the studied parameters at the statistical level of 1% •

1. Percentage of grain protein

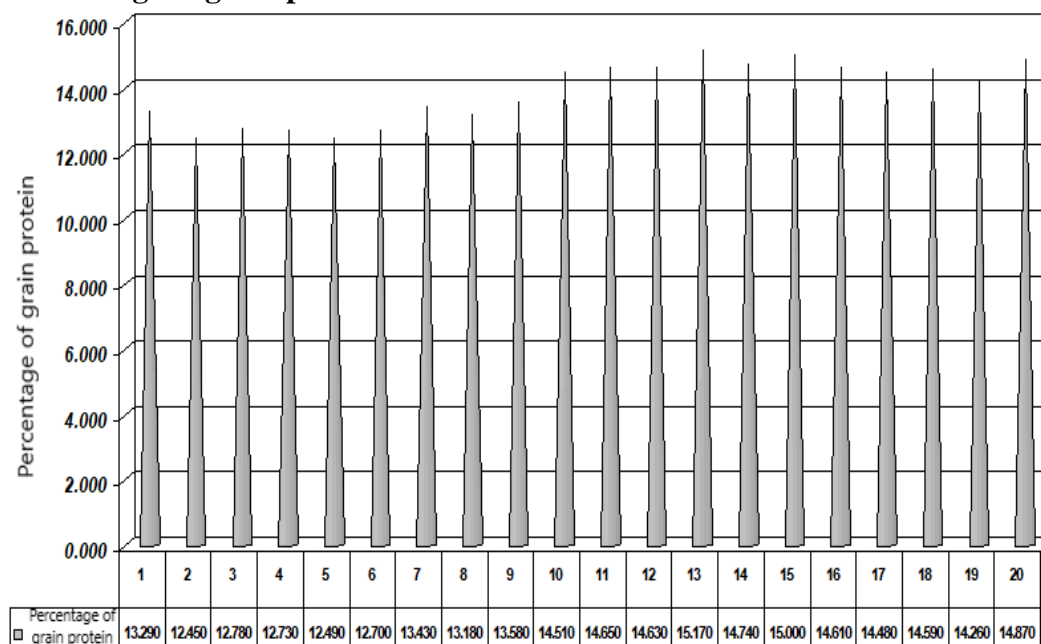


Figure 1 – Comparing the average percentage of grain protein of different durum wheat cultivars compared to the first experiment

Table (4) shows that there is a significant difference at the statistical level of one percent between the mean value of grain protein of the examined cultivars, and Figures 10 to 20 have the maximum amount of grain protein with an average of approximately 14.5%. The second group includes cultivars 1 to 9, which are in various categories in terms of grain protein amount, which has an average of around 13.2 percent and the differences are not statistically significant.

In this study, the analyzed controls (cultivars 1 and 2), which were in the group with the highest grain yield, were examined in terms of grain protein percentage in the last ranks of cultivars. This suggests that there is an inverse relationship between the quantitative parameter of economic yield and the amount of grain protein, as evidenced by the studies mentioned below.

2. Zeleni number

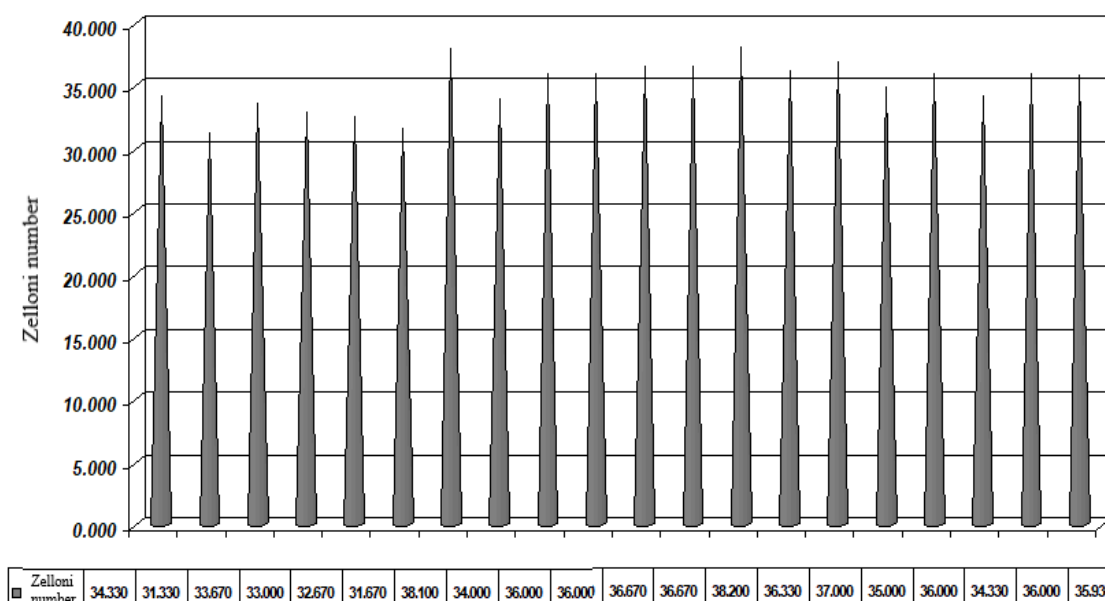


Figure – Comparing the mean changes of Zeleni number calculated by different durum wheat cultivars compared to the first experiment

The results in Table (4) and the comparison test of the mean on the Zeleni number indicate that there are statistically significant differences between the cultivars' mean Zeleni numbers, and except for cultivars 4, 5, 6, and 2, the other cultivars have the fewest Zeleni number.

3. Percentage of water absorption

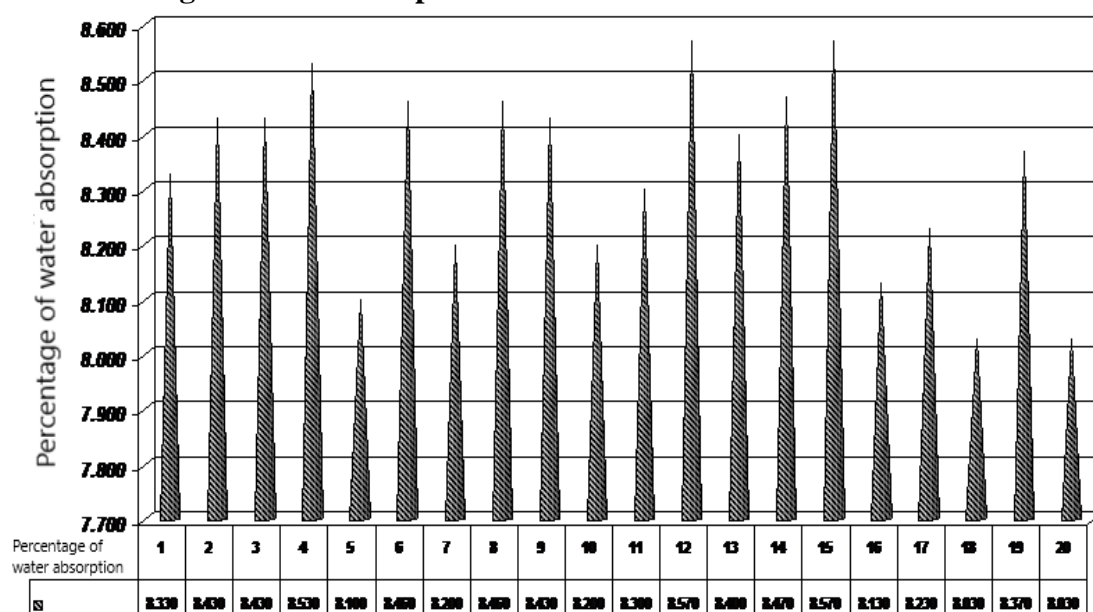


Figure 3– Comparing the mean value of water uptake of flour of different durum wheat cultivars compared to the first experiment

Based on the comparison of the means, there was no statistically significant difference in the grain water absorption value of the analyzed cultivars in this experiment. Considering the obtained mean, cultivar 15 with a water absorption percentage of 8.587 had the highest value, while cultivar 20 with a water absorption percentage of 8.033 had the lowest.

4. Grain hardness

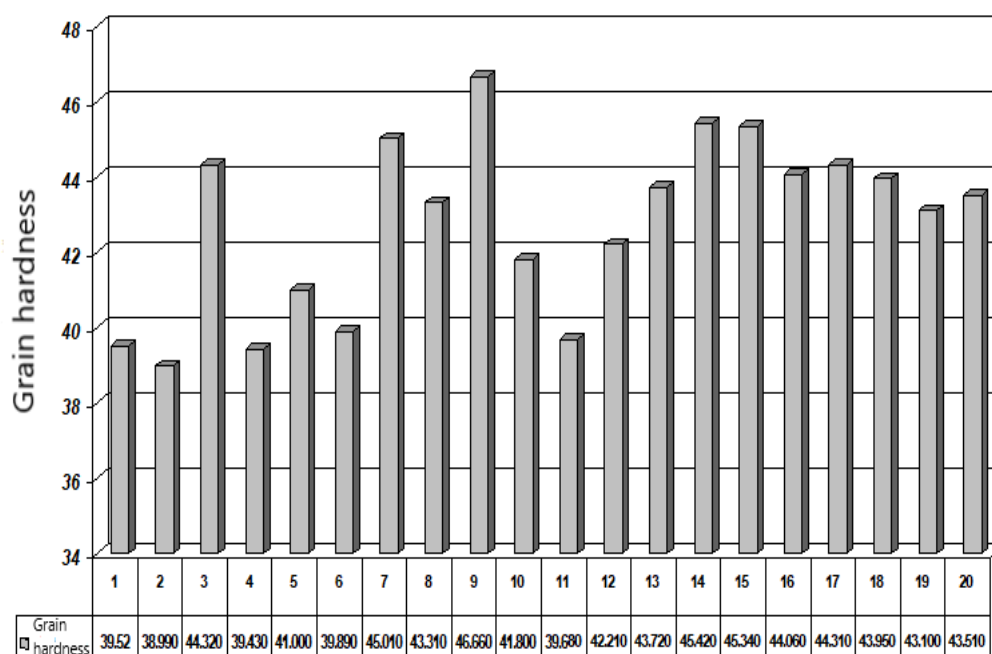


Figure 4– Comparing the mean grain hardness of different durum wheat cultivars compared to the first experiment

According to the statistical examination of this feature, there is no statistically significant difference in grain hardness amongst the investigated cultivars. Nevertheless, cultivar 9 had the maximum grain hardness of 46.66, whereas cultivar 2, which was used as a control in this experiment, had the lowest grain hardness of 38.99.

Betis et al. (36) found that grain hardness had a significant correlation with grain quality parameters such as number and size of the grain. In addition, grain hardness had a significant correlation with flour yield, in a study of single grain characteristics with final grain quality characteristics and planting 12 winter hard wheat cultivars in the Kansans region.

5. Percentage of wet gluten

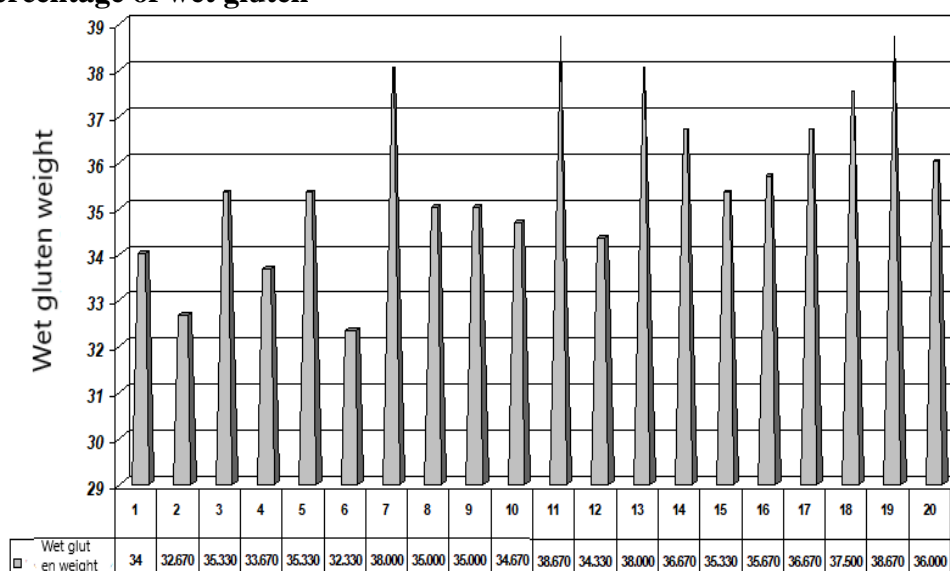


Figure 5– Comparing the mean wet weight gluten weight of different durum wheat cultivars compared to the first experiment

As found, there is no acceptable statistical difference. However, according to a study of the averages of this property in the examined cultivars, the cultivars 11-9-13 and 7 had the highest percentage of wet gluten, with a value of around 38. Conversely, cultivar 6 has the lowest amount of wet gluten (32.33). In contrast, the two control cultivars are in the same statistical group, and number 1 has a higher wet gluten content than number 2.

6. Percentage of dry gluten

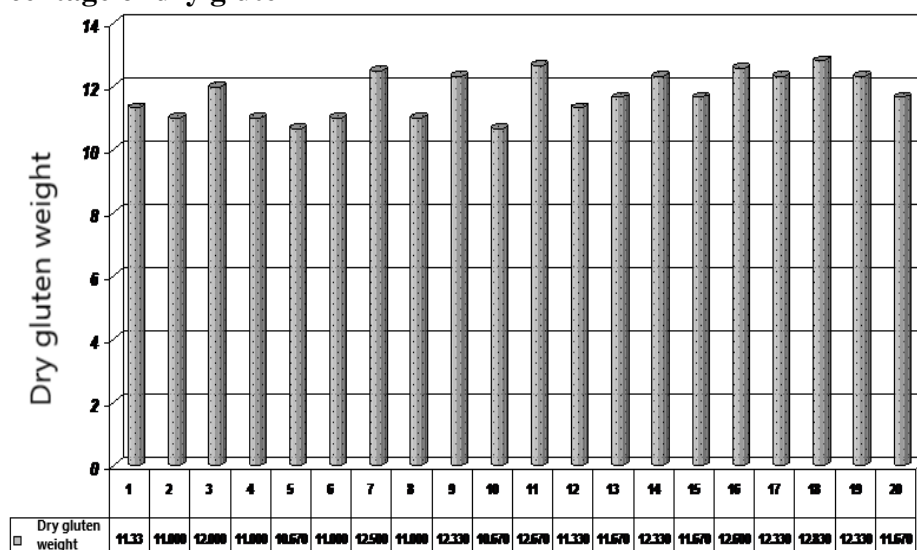


Figure 6– Comparing the average grain dry weight of different durum wheat cultivars compared to the first experiment

In any of the statistical levels determined, there is no statistical difference between the analyzed cultivars, and all twenty tested cultivars are in the same statistical class in terms of dry gluten content. The minor difference that they had in the research of wet gluten has vanished here, but according to this description, cultivar 18 has the highest value of dry gluten at 11.8 and the lowest percentage at 10.67.

7. Sediment height – SDS

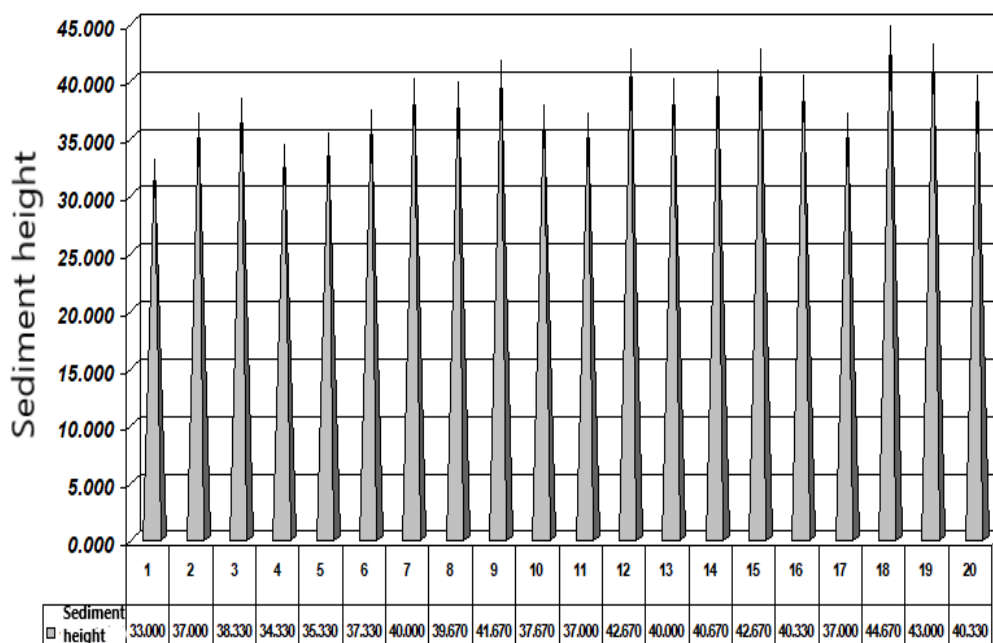


Figure 7– Comparing the mean grain deposition height of different durum wheat cultivars compared to the first experiment

It was found that there is no statistical difference between the mean sediment heights of the cultivars. Duncan's average comparison test, on the other hand, reveals the lowest difference. In terms of this feature, the examined cultivars can be statistically separated into two categories, with cultivars 1 and 4 being in the lowest category. The rest of the numbers are in a higher statistical category. Cultivar 18 has the highest sediment height determined, while cultivar 1 has the lowest at 33.

High thermal stress, according to Meflin et al. (32) lowers the deposition height during the grain filling stage. Low moisture stress during grain loading also increases sediment height, according to the researchers.

1. Percentage of grain protein

According to the findings, there is no significant difference in the mean grain protein value of the tested cultivars at any of the acceptable statistical thresholds (5 percent or 1 percent). However, according to a mean comparison, cultivar 14 has the highest amount of grain protein, with an average of approximately 14.7%. While cultivar 6 had the lowest result (13.28% grain protein), the status of control cultivars did not differ from each other (13.96% and 13.57% grain protein, respectively).

2. Zeleni number

Considering wheat grain protein quality, the findings of this experiment show that there is no statistical difference between the investigated cultivars. Control cultivars had an average of 37.67 and 36 Zeleni numbers, respectively, putting them in the group with the best protein quality.

3. Percentage of water absorption

There was no significant statistical difference when the mean percentage of water uptake of flour of the grains of the examined cultivars was compared. According to the mean, cultivar 14 with a water absorption percentage of 8.733 had the highest value, while cultivar 2 with a water absorption value of 7.833 had the lowest.

Table 5

Summary of analysis of variance of qualitative properties of the second experiment

Sediment height	More gluten	More gluten	Grain hardness	Percentage of water absorption	Zelloni number	Percentage of grain protein	Degrees of freedom d.f	Source of change S.O.V
18.117 *	0.052 n.s	2.279 n.s	2.778 n.s	0.559 n.s	19.125 n.s	0.871 n.s	2	Repetition
58.895**	3.051**	20.520**	24.330**	0.197**	5.889*	0.389 *	19	Figures
7.503	0.882	5.871	6.848	0.493	6.569	1.241	38	Test error
7.05	8.04	6.80	6.17	8.55	7.21	8.01	-	Percentage change coefficient

n.s. There is no statistical difference between the mean of the analyzed parameters that is acceptable.

At a statistical level of 5%, there is a substantial difference between the mean of the analyzed parameters.

** At the 1% statistical level, there is a fairly substantial difference between the mean of the analyzed parameters.

4. Grain hardness

In this experiment, the range of variation for this characteristic is 36.80 to 46.66 percent, and the results of the statistical analysis done on this property reveal that there is a statistically significant difference between the cultivars' grain hardness. Cultivar 17 had the highest grain hardness of 46.66 and cultivar 6 had the lowest grain hardness of 31.33 among the evaluated cultivars. Betis et al. (36) found that grain hardness had a significant correlation with grain quality parameters such as number and size of the grain, as well as grain hardness had a significant correlation with flour yield, in a study of single grain characteristics with final grain quality characteristics and planting 12 winter hard wheat cultivars in the Kansans region.

5. Percentage of wet gluten

Considering the summary table of analysis of variance of qualitative features, there is no significant difference in the percentage of wet gluten in the tested cultivars. According to a comparison of the mean on the averages of this feature in the examined cultivars, cultivars 11-9-13 and 7 had the highest percentage of wet gluten, with a value of around 38. Conversely, cultivar 6 has the lowest amount of wet gluten (32.33). In contrast to each other, the two control cultivars are in the same statistical group, and number 1 has a higher wet gluten content than number 2.

6. Percentage of dry gluten

In any of the statistical levels determined, there is no statistical difference between the analyzed cultivars, and all twenty cultivars tested are in the same statistical class in terms of dry gluten content. The tiny difference they had in the research of wet gluten has been eradicated here, but according to this description, cultivar 18 has the highest percentage of dry gluten at 11.8 and the lowest at 10.67.

7. Sediment height – SdS

The researchers discovered that there is no statistical difference in the mean sediment height of the cultivars evaluated. The analyzed cultivars may be statistically separated into two categories, according to Duncan's mean comparison test, which indicates the least difference, with cultivars 1 and 4 being in the lowest category in terms of this feature. The rest of the numbers are in a higher statistical category. Cultivar 18 has the highest sediment height determined, while cultivar 1 has the lowest at 33. High thermal stress, according to Mefflin et al. (32) lowers the deposition height during the grain filling stage. Low moisture stress during grain loading also increases sediment height, according to the researchers.

Conclusion

The correlation coefficients between grain quality characteristics were studied. Protein concentration, SDS deposition height, and dry gluten content all had a positive and substantial connection with grain hardness index. Grain hardness and protein content have a direct and substantial relationship, showing that lowering the protein level in the grain increases the space between endosperm cells, lowering grain hardness. Wet gluten and dry gluten content had a positive and substantial connection with protein content. A positive relationship between protein content and gluten content appears plausible, given that gluten quantity reflects the amount of protein. This is in line with Golabadi and Arzani's findings, which demonstrated a strong and positive relationship between protein content and gluten content.

Only grain hardness exhibited a positive and significant connection with SDS sediment height in this investigation. When grain hardness increases, so do the protein components that impact grain quality. Arzani has also observed similar findings. Protein concentration and SDS sediment height were not substantially associated. Similarly, Kovacs et al. and Atran et al. showed a non-significant association between SDS deposition height and protein concentration in independent tests on durum wheat. There are conflicting studies on the relationship between SDS sediment and grain protein content in durum wheat, with some research indicating a positive relationship between the two features. Bogini found a substantial negative correlation of -0.41 between the two variables in a study of 20 durum wheat genotypes. The strongest ($r = 0.95$) positive and significant connection was found between wet gluten and dry gluten content, as predicted. The low-cost study also underlines the significant relationship between these two characteristics. According to Kovacs et al., there is no relationship between the SDS level of durum wheat and the gluten concentration of durum wheat. While there was a 0.82 association between protein and gluten content.

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EXAMINING THE QUANTITATIVE PROPERTIES OF DURUM WHEAT

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ABSTRACT

The current study aims to examine the quantitative properties of durum wheat. The experiment was carried out on a plot of land with an area of 1600 square meters. After the initial land preparation and implementing the land plan, furrows were made in the land by a groove maker. The length of grooves was 60 cm and they made along the land perpendicular on irrigation direction and then, test plan was prepared. The plot inside each replicate was equal to the number of treatments which is 20. Each plot consisted of 6 planting lines with a distance of 30 cm and dimensions of 1.5×6 m. Data were analyzed by ANOVA and mean of treatments compared using Duncan's multiple range test method. Calculations were performed using MSTATC and SAS software and graphs were drawn using EXCEL software. The results showed that the number of ears per square meter had a significant effect in the plan. Moreover, there was a significant difference ($p < 0.01$) between the studied genotypes in terms of plant height. There was no statistical difference in the number of tillers between the studied cultivars and genotypes. Moreover, a significant difference was observed between the average 1000-seed weight of cultivars and genotypes at the statistical level of 0.01. There was a statistically significant difference between the means of leaf area index measured for the studied genotypes at the statistical level of 0.01. According to the results, there was a significant difference between the mean grain yield of the studied cultivars at the statistical level of 0.01.

Keywords: durum wheat; quantitative properties of wheat; number of ears; plant height; number of tillers.

Introduction

Durum wheat production and trade increased during the second half of the 1980s and early 1990s with regard to the increase in populations and further demand. According to the FAO report in 1985, the total area under wheat cultivation was about 240 million hectares, only about 8% of which (21 million hectares) was dedicated to durum wheat cultivation. As with bread wheat, durum wheat, can be grown in all regions. Durum wheat has better adaptation to drought and has more crop production in marginal areas. Under favorable conditions, durum grain yield of more than 10 tons per hectare has also been reported in improved wheat [54]. Durum wheat, with about 21 million hectares of cultivated area, ranks eighth among the cereals grown in the world, followed by bread, rice, corn, sorghum, millet, barley and oats.

Joppa et al (1983) studied the effect of gliadins on pasta quality. The results showed the chromosome B1 of the Edmore variety with strong gluten, and the γ^{45} band in the PAGE test, and the Langdon variety with weak gluten and the γ^{45} band, which indicates strong gluten. When semolina of these varieties were analyzed for qualitative properties, both Langdon and Edmore showed strong mixograms and high SDS sediment volumes, while the initial Langdon was weak. Other studies have been conducted by Mc Ritchie (1984 and 1980) and Pomeranze (1980) on the properties of gluten proteins by dissolution-based separation method. Filet (1984 and 1980) stat-

ed after doing extensive research that the baking quality of pasta as well as the baking quality of wheat flour depend heavily on gluten protein.

Properelya and Suzinov (1980) and Rigley et al. (1981) confirmed the relationship between certain gliadin bands and the quality of baking in bread wheat. Dexter and Matsuo by examining the effect of undesirable wheat grains on semolina and pasta quality showed that by increasing the grain starchy kernel ratio, the semolina husks become softer and the flour ratio produced during the milling process increases. Seibel and Filet (1977) used the Disk Method to produce pasta flakes and to examine the qualitative properties of pasta, including the cooking time of the flakes.

Along with the development of the electrophoresis method, Damidaux et al. (1978) discovered a specific polypeptide of gliadins that correlates with the consistency and quality of gluten in durum wheat (gamma gliadin 45) as well as another polypeptide in the same locus with poor correlation (gamma gliadin 42), and the presence of these polypeptides can be used as a quality characteristic of durum wheat. Dexter and Matsuo (1978) examined the effects of protein content on some quality parameters of Canadian durum wheat and concluded that the amount of yellow pigment in semolina increases as the amount of protein increases. Wasick (1978) in his study on the effect of durum wheat protein compositions on pasta quality found that a simple correlation between a number of pasta quality parameters and the ratio of each protein composition indicates the direct effect of insoluble protein on the properties of raw gluten.

Payne et al (1983) for the first time categorized the individual correlation between gluten-ins and wheat grain proteins weight based on their solubility. Irwin and Adeston (1953) in a study on 7 cultivars of durum wheat, concluded that the pigment diversity in semolina and lipoxidase is more affected by the cultivar than environmental conditions. Moreover, the determinants of pasta color are the pigments in semolina and the amount of lipoxidase activity. Semolina with high gluten content is preferred in the pasta industry. The maximum expected amount of gluten in semolina is 13%. Measuring gluten by wet method is very expensive, so it is possible to use a measure of protein which is both inexpensive and simple, because it estimates the quality and quantity of gluten. According to the above, the current study aims to examine the quantitative properties of durum wheat.

Materials and Methods

The experiment was carried out in autumn 2008 and spring 2009 in Baluchistan Agricultural Research Station in Bampur subregion (Iranshahr city) located at 60° 29' E and 27° and 11' N with an altitude of 525 m above sea level. Iranshahr has a hot and dry climate. In this region, the average annual rainfall is 100 ml and the maximum and minimum annual temperatures are 38.7 and 12.2 °C, respectively.

Table 1

Precipitation (ml) in 2008

April	May	June	July	August	September	October	November
15.9	9.2	0.4	0	0	0	0	9.2

Table 2.

Mean temperature (°C) in 2008

April	May	June	July	August	September	October	November
17.13	21.18	27.27	29.24	25.13	22	20.27	12.48

Results of the mechanical and chemical analyses of the soil are shown in Table 3. With regard to mechanical analysis and the percent of each element of soil, Soil texture was determined to be loamy.

Table 3

Result of soil analysis.

Soil properties	Soil texture	Electrical conductivity (EC) ds.m ⁻²	pH	Carbon (%)	Zn	Fe	Cu	Mn	Absorbable K	Absorbable P	Absorbable N
					mg/kg						Percent
Test result	Sand loamy	3.18	7.7	1.75	0.37	8	1	5	98	8.0	0.2

The experiment was carried out on a land with an area of 1600 square meters. After the initial preparation of the land and after implementing the plan, the land was made into a ridge by a groove maker. The length of grooves was 60 cm and they made along the land perpendicular on irrigation direction and then, test plan was prepared. The plot inside each replicate was equal to the number of treatments which is 20. Each plot consisted of 6 planting lines with a distance of 30 cm and dimensions of 1.5 × 6 m.

The amount of nutrients required included N₂, P₂O₅ and K₂O with formulas 135, 90 and 46 kg per hectare, respectively. All fertilizers except nitrogen fertilizer were applied to the soil at the time of soil preparation and nitrogen fertilizer was spread evenly on the field at the beginning of stem development, ear emergence and granulation.

Data were analyzed by ANOVA and mean of treatments using Duncan's multiple range test method. Calculations were performed using MSTATC and SAS software and graphs were drawn using EXCEL software.

Findings

According to Table (4), the number of ears per square meter has shown a very significant effect in the plan, so that the highest number of ears per square meter of the cultivars 1, 6, 3, 2, 7, 4, and 5 obtained in the range of 350-356 that according to the mean comparison test performed on this property, there is no statistical difference between these cultivars in terms of ear production per square meter and they are all in the same statistical class. On the other hand, the lowest number of ears obtained from cultivars 16, 17, 19 and 20 with a value between 260-267 ears per square meter which no statistical difference can be observed among them, and the number of ears per square meter of the other cultivars examined had a performance between these two groups. Since the number of ears per square meter along with other quality parameters is one of the important and influential factors in economic performance, it seems that these cultivars should have a higher yield than other cultivars, which was confirmed by ANOVA done on this property. It is important to note that the two control cultivars (cultivars 1 and 2) are both in the same group and have the maximum number of ears per square meter, and cultivars competing with these two, cultivars 6 and 3, 7, 4 and 5, are in the same class.

Table 4

ANOVA for quantitative parameters

analysis of variance for quantitative parameters of the first experiment										
harvest index	biologic performance	seed performance	leaf surface index	number of tillers	1000-seed weight	plant height	number of seed in ear	number of ear at each surface unit	degree of freedom	source of variation
62.562 n.s	0.868 n.s	0.125 *	0.073 *	0.002 n.s	0.631 n.s	0.538 n.s	10.117 n.s	9.450 n.s	2	iteration
19.020 *	2.922 **	1.416 **	0.383 **	0.358 **	1.106 *	72.951 **	30.066 **	4184.874 **	19	cultivar
2.733	0.031	0.032	0.018	0.013	0.512	3.717	1.924	603.100	38	experiment error
14.3	13.4	16.8	9	9	9.6	12.3	16.4	12.4	-	variation coefficient percent

n.s there is no significant difference among mean of examined parameters

* there is significant difference among mean of examined parameters at 0.05

** there is significant difference among mean of examined parameters at 0.01

1. The effect of wheatear at square meter

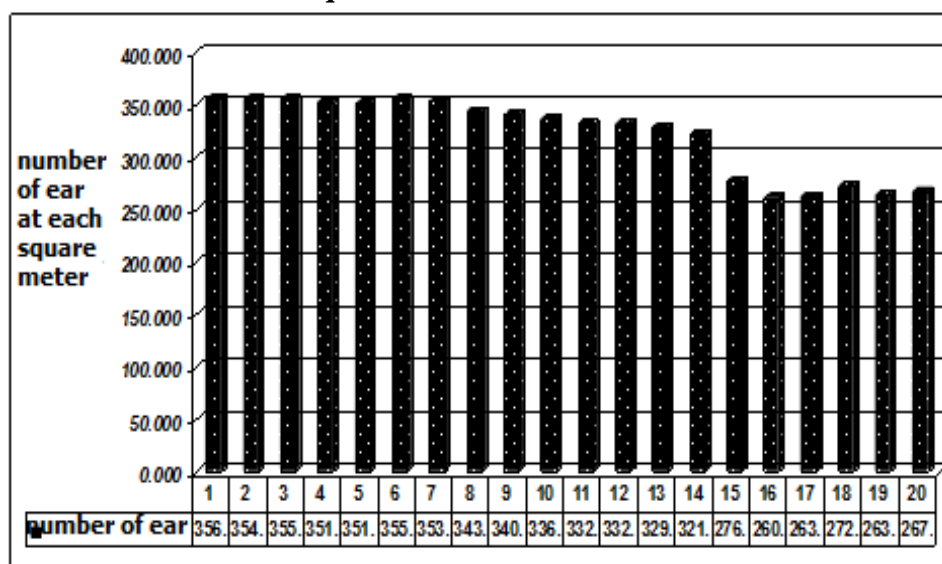


Figure 1 – Comparison of mean number of ears at square meter for cultivars of durum wheat in the first experiment

2. Plant height

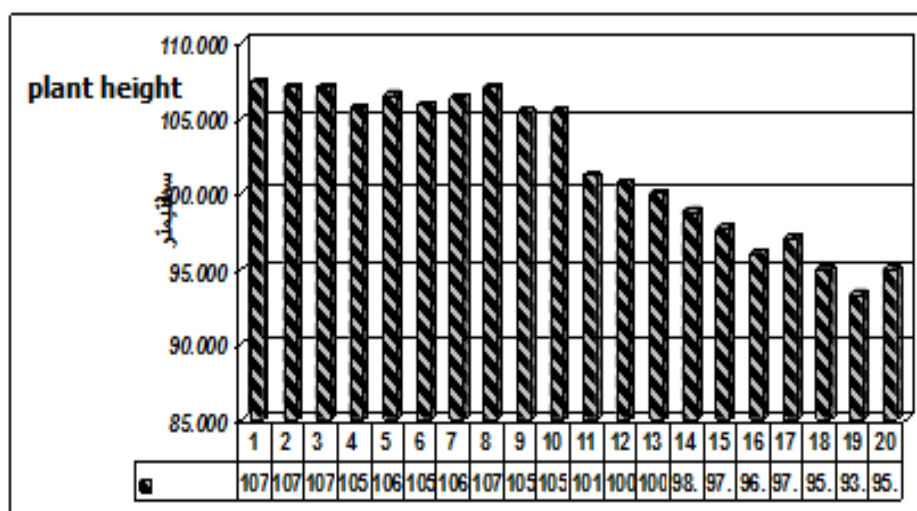


Figure 2 – Comparison of plant height of durum wheat cultivars examined in the first experiment

Data analysis shows that there is a significant difference ($p < 0.01$) between the studied genotypes in terms of plant height (Table 4). Among these 20 cultivars, there are two statistically important groups regarding to triats, including the group of cultivars numbers 1 to 10, which irregularly contain a height of 105 to 107 cm and have no statistical difference with each other. The controls (numbers 1 and 2) condition is that they are in the first group and among them the number 1 has a higher height.

3. Number of seed in ear

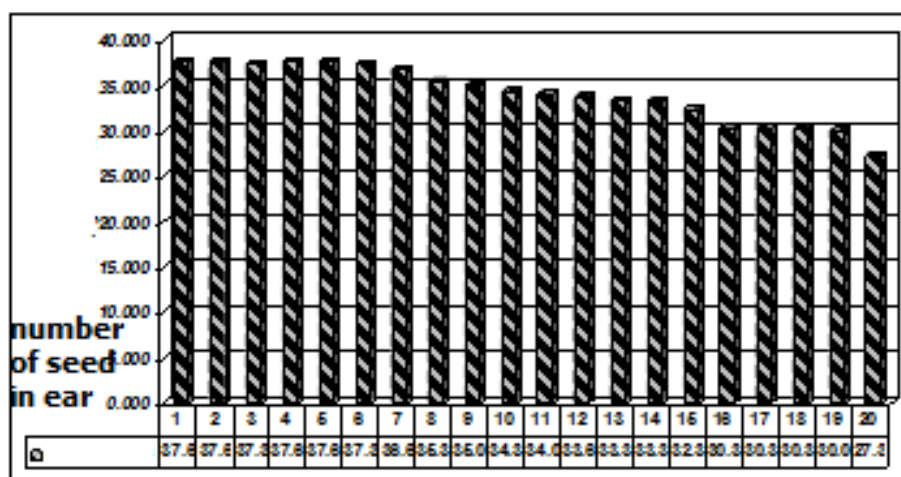


Figure 3 – Comparison of the mean number of seed in ear for durum wheat cultivars examined in the first experiment

There is a significant difference ($p < 0.01$) between different genotypes in terms of the number of seeds per ear (Table 4). Genotypes 1-10 have the highest number of seeds per ear (about 38-34), which have no significant difference according to the mean comparison test. In contrast, the genotypes 16-20 with about 27-30 seeds per ear have the lowest number of seeds per ear. The maximum number (37.7 seeds per ear) belonged to controls (cultivars 1 and 2).

4. Number of tillers

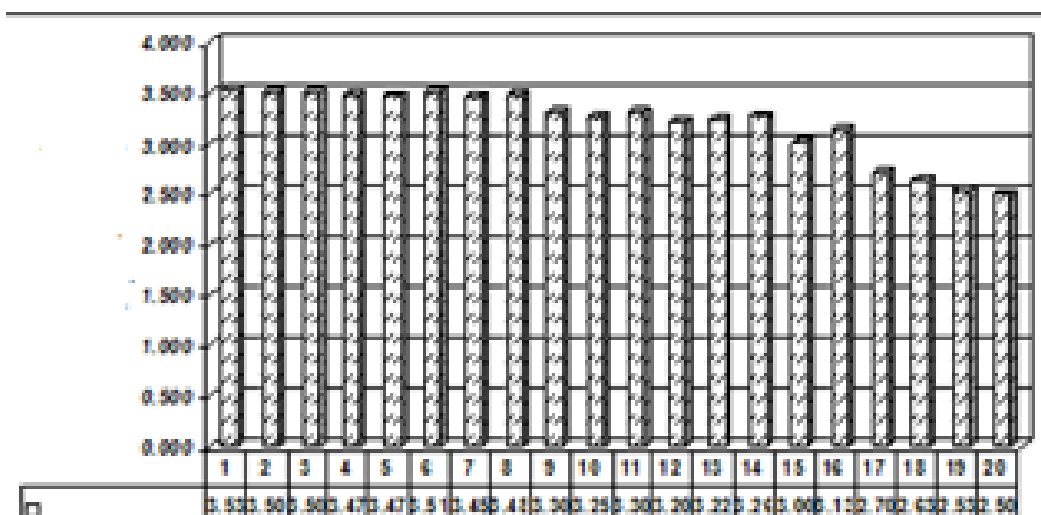


Figure 4 – Comparison of the mean number of tillers in durum wheat cultivars in the first experiment

According to the ANOVA table (Table 4), there is no statistical difference between the cultivars and genotypes in terms of number of tillers and these 20 genotypes had 2.5 - 3.5 tillers per plant, but according to Duncan's mean comparison test for number of tillers per plant, cultivars 1-8 have the highest number of tillers. Since two control cultivars were in the first group (maximum), they also have the highest number of tillers, and only cultivars 6 and 3, have been able to differentiate between these two controls with a slight difference.

5. 1000-seed weight

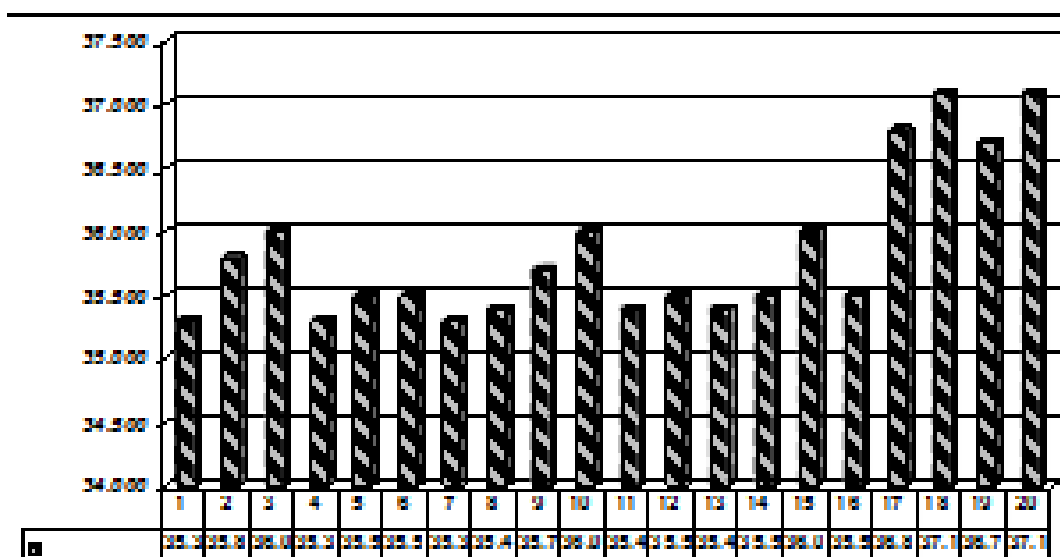


Figure 5 – Comparison of mean 1000-seed weight for durum wheat cultivars in the first experiment

According to the summary table of ANOVA, there is a significant difference between the mean 1000-seed weight of cultivars and genotypes ($p < 0.01$), so that the highest 1000-seed weight has been obtained about 40 g of cultivars 16, 17, 18, 19 and 20, while the lowest weight of 1000 seeds from cultivars 1 to 10 has been obtained about 32.5.

6. Leaf surface index

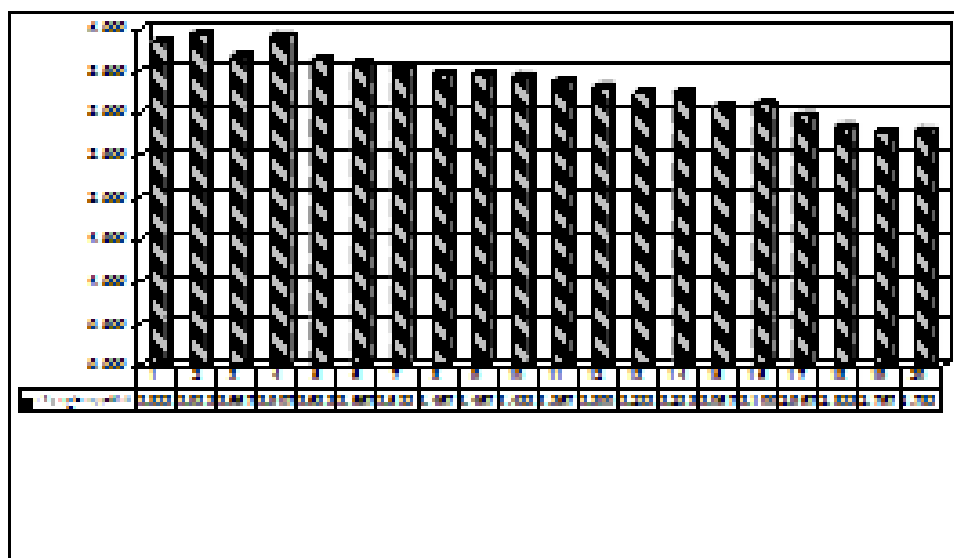


Figure 6 – Comparison of mean leaf surface for durum wheat cultivars in the first experiment

In this experiment, there is a statistically significant difference between the means of leaf surface index measured for the studied genotypes ($p < 0.01$), so that the highest leaf surface index of is for cultivars 2, 4, 1, 3 and 5 in the range of 3.6 to 3.9 which shows a very favorable vegetative growth and these cultivars are statistically classified in the first group and have no statistical difference with each other. The controls (cultivars 1 and 2) in this experiment are also in the same group. In contrast, cultivars 15, 17, 18, 19 and 20 with the lowest leaf surface index in the range of 2.7 to 3 are in the last group, which indicates a lack of optimal vegetative growth compared to cultivars of the first group.

7. Biological performance

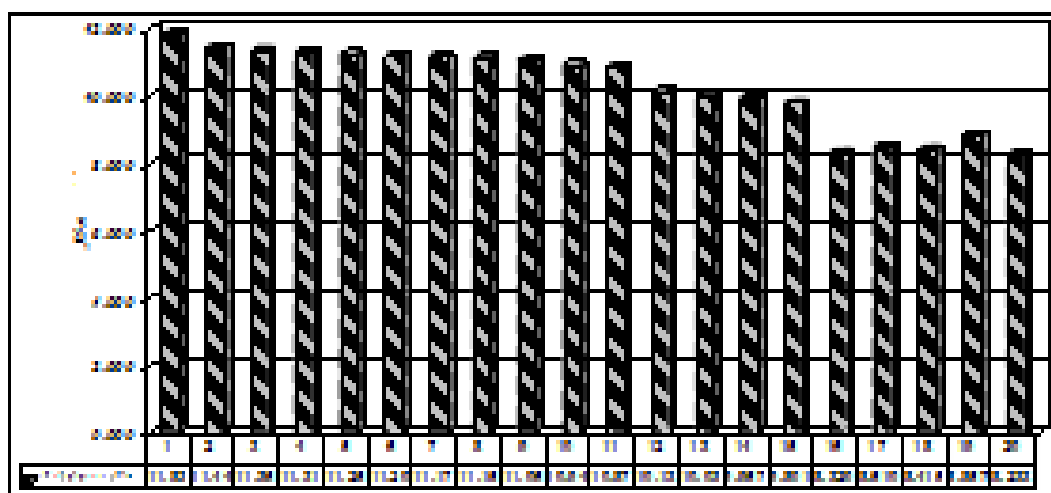


Figure 7 – Comparison of mean biologic performance for durum wheat cultivars in the first experiment

The results showed in the ANOVA table and the comparison of the mean biological performance of 20 durum wheat cultivars indicate that all cultivars with higher number of ears, number of seeds per ear, plant height, 1000-seed weight, leaf surface index, have a desirable biological performance among which cultivar one with a biological performance of 11.84 tons per

hectare has the first rank among the 20 cultivars examined. Cultivars 2-9 are in a statistical group with cultivar 1 and there is no statistical difference between them and the biological performance of the two control cultivars in this experiment are also included in this group.

8. Seed performance (economic performance)

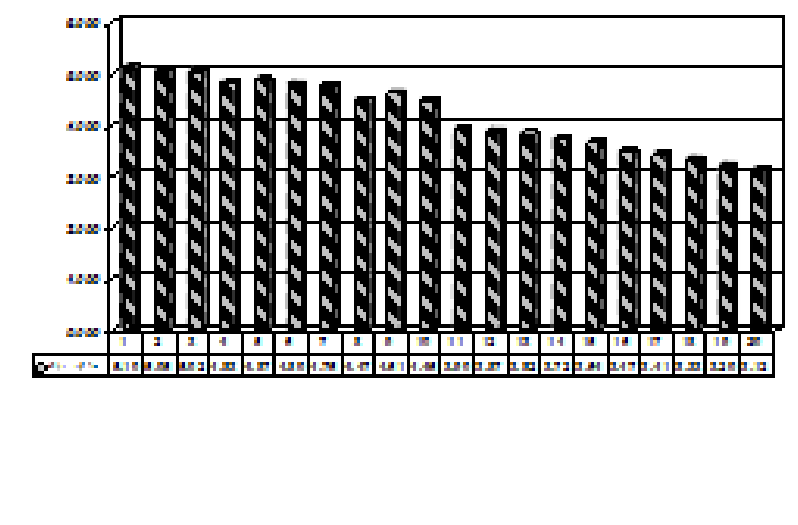


Figure 8 – Comparison of mean seed performance for durum wheat cultivars in the first experiment

According to the results shown in the table of ANOVA, the table of correlation coefficients, and a comparison of the mean (Figure 8), there is a significant difference between the mean grain yield of the studied cultivars at the 0.01 level such that performance range which has been estimated from 2.95 to 5 tons per hectare.

The highest grain yield is for to cultivars 1-7, which have a yield between 4.7 to 5.1 tons per hectare. With regard to the low values of the number of ears per square meter, the number of seeds per ear and ... in cultivars 17-20, these cultivars with a yield of about 3 tons per hectare are in the last group in terms of economic performance, which have no statistical differences with each other and are in same statistical group.

9. Harvest index

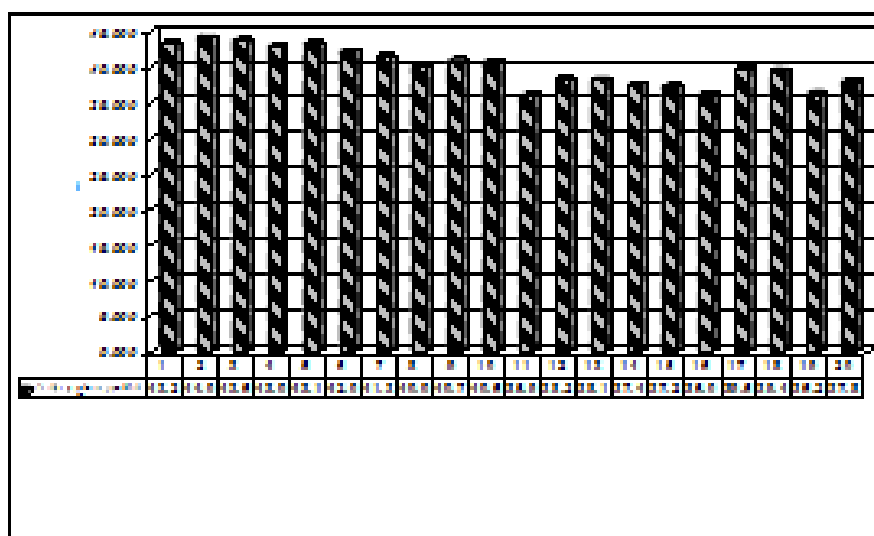


Figure 9 – Comparison of mean harvest level index for durum wheat cultivars in the first experiment

Considering that the harvest index was calculated and statistically analyzed in all experimental plots with three replications and also doing the comparison test, the mean harvest index shows that the cultivar 1 with 43.22% has the highest harvest index.

Table 5

ANOVA for quantitative parameters of the second experiment

analysis of variance for quantitative parameters of second experiment										
harvest index	biologic performance	seed performance	leaf surface index	number of tillers	100-seed weight	plant height	number of seed per ear	number of ear per surface	degree of freedom	source of variation
F(1,19)=0.5	<0.001.S	<0.001.S	<0.001.S	<0.001.S	1.01=0.5	11.17=0.5	<0.001.S	14.27=0.5	1	iteration
14.13=0.5	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	14	cultivar
15.812	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	96	experiment error
0.001	15.17	0.001	0.001	14.81	13.02	13.40	0.001	13.32	-	variation coefficient

n.s there is no significant difference among examined parameters
 * there is significant difference among examined parameters at 0.05
 ** there is significant difference among examined parameters at 0.01

1. The effect of the number of ear per square meter

According to Table 5 (ANOVA for quantitative parameters of the second experiment), and comparing the mean number of ears per square meter of cultivars, the effect of the number of ears per square meter has a significant effect ($p < 0.01$). Among these 20 cultivars and genotypes of all treatments (cultivars and line), except cultivars 14 and 17 which are in different statistical classes, other cultivars have no statistical differences with each other. They are in the same statistical class, and the important point is that the two cultivars 1 and 2, which are considered as controls, are also in the same class with this group of cultivars and there is no significant statistical difference between them.

2.Plant height

Data analysis shows that there is a significant difference ($p < 0.05$) between the studied genotypes in terms of plant height. It is important to note that one of the controls (cultivar 2) among these 20 cultivars has the highest plant height of 106 cm, while the other control (cultivar 1), with a height of 98 cm is about 7 cm different from the maximum height obtained.

3.Number of seed per ear

According to the results, there is a significant difference between these 20 lines and the cultivar. Moreover, there is a statistical difference between the two controls in this regard, so that the cultivar 2 is in the maximum group and cultivar 1 is in the minimum group.

4.Number of tillers

According to the table of ANOVA (Table 5) for the second experiment, there is a statistically significant difference between the cultivars and genotypes in terms of number of tillers and these 20 genotypes showed diversity in terms of number of tillers in the range of 3-4. There is no statistical difference between these 20 genotypes and 15 cultivars in terms of number of tillers.

The highest number of tillers is for cultivar 11 with 3.8 tillers per plant, while cultivar 8, which is in the last rank in terms of yield and has the lowest value with 3,133 tillers per plant.

5.1000-seed weight

According to the table of ANOVA there is a significant difference at the 0.01 between mean 1000-seed weight of cultivars and genotypes studied, so that the highest 1000-seed weight has been obtained about 55 g for cultivars 1, 8, 14, and 19, while the lowest weight of 1000 seeds has been obtained about 43 g for cultivars 12-18 and 20.

6. Leaf area index

In this experiment, there is a statistically significant difference between the means of leaf surface index measured for the studied genotypes 0.01, so that the highest leaf surface index is 3.63 to 3.9 for cultivars 4, 9, 11, 13, which indicates a very favorable vegetative growth that these cultivars. They are statistically classified in the first group and have no statistical difference with each other. In contrast, cultivars 6-8 and 14 with the lowest leaf area index of 2.7 to 3 are in the last group, which indicates a lack of optimal vegetative growth compared to cultivars in the first category.

7. Biological performance

The results showed in the ANOVA table and the comparison of the mean biological yield of 20 durum wheat cultivars studied in this study indicate that all cultivars with more ears, number of seeds per ear and height have higher biological performance. They are also more desirable, which includes a large range of cultivars studied in this experiment. The most significant cultivars are cultivars 2 and 18, whose biological performance is 16.04 and 15.96 tons per hectare, respectively. These cultivars were also more voluminous, taller and juicier than other cultivars.

8. Seed performance (economic performance)

The results of ANOVA indicate that the cultivars are very different from each other in terms of grain yield and their economic performance varies from 6,894 tons per hectare to 5.087 tons per hectare. The highest yield is for cultivars 2, 4, 9 and 11 equal to 6675, 6730, 6,894, and 6,595 tons per hectare, respectively, which one of the studied controls (cultivar 2) is in this category or statistical class.

9. Harvest index

Considering that harvest index was calculated and statistically analyzed in all experimental plots with three replications for each of them, and considering mean harvest index test, cultivar 3 with 48.17% has the highest harvest index, while many cultivars with the same value in the mean comparison test are in the same group, including the two control cultivars.

Conclusions

The results showed that the number of ears per square meter has a very significant effect in the plan, so that the highest number of ears per square meter have been obtained for cultivars 1, 2, 3, 4, 5, 6, and 7 with a value in the range 350 – 356. Moreover, there is a significant difference ($p < 0.01$) between the studied genotypes in terms of plant height. Among these 20 cultivars, two groups are significant which are the group of cultivars 1 to 10, which have a height of 105 to 107 cm. there is a significant difference ($p < 0.01$) between different genotypes in terms of number of seeds per ear. Genotypes 1-10 with about 38-34 seeds have the highest number of seeds per ear.

According to the ANOVA (Table 4), there is no statistical difference between the cultivars and genotypes in terms of number of tillers and these 20 genotypes are in the range of 2.5-3.5 tillers per plant. However, according to Duncan's mean comparison test on number of tillers per plant, cultivars 1 to 8 have the highest number of tillers. Moreover, there is a significant difference between mean 1000-seed weight of cultivars and genotypes ($p < 0.01$). There is a significant difference between the means of leaf surface index measured for the studied genotypes ($p < 0.01$), such

that the highest leaf surface index is for cultivars 1, 2, 3, 4, and 5 in the range of 3.6 to 3.9.

According to the results, there is a significant difference between the mean grain yield of the studied cultivars ($p < 0.01$), so that the range of these yields is estimated from 2.95 to 5 tons per hectare. Moreover, mean harvest index test shows that the cultivar 1 with 43.22% has the highest harvest index.

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INVESTIGATING THE EFFECT OF CALCIUM CHLORIDE ON MAINTAINING POST-HARVEST QUALITY AND SHELF LIFE OF STRAWBERRY

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ABSTRACT

The present study aimed to investigate the effect of calcium chloride on maintaining post-harvest quality and shelf life of strawberry. In the present study, a factorial experiment was conducted in a completely randomized design in Jiroft city (Azad University laboratory). In this experiment, calcium nano-chelate in four levels (0 (control), 25, 50, 100 mM / l) was used. In this experiment, 17 kg of strawberries of Parus cultivar were used (350 ± 30 g was used in each treatment). The obtained data were analyzed using SAS software. Mean comparisons were performed based on Duncan's multiple range test and graphs were drawn with Excel 2003. The results showed that the effect of calcium chloride on TSS / TA of Parus cultivar strawberry was significant at 5% level, so that the highest amount of TSS / TA was obtained from 100 mM calcium chloride treatment and the lowest amount of TSS / TA was obtained from 0 mM calcium chloride treatment. The results showed that the effect of calcium chloride on the amount of vitamin C in Parus cultivar strawberry was significant at the level of 1%, so that the highest amount of vitamin C in was observed in the 100 mM calcium chloride treatment. The results also showed that the highest stiffness of fruit tissue was obtained from 100 mM calcium chloride treatment which was not significantly different from 25 mM calcium chloride treatment.

Keywords: strawberry harvest; calcium chloride; strawberry shelf life; strawberry stiffness.

Introduction

One of the problems in strawberry fruit is the short shelf life of this fruit. The results show that calcium plays a key role in the quality of strawberry fruit, so that with increasing the amount of calcium in the fruit tissue, its shelf life is prolonged. The mean amount of pectin in strawberry fruits treated with 1% calcium chloride is significantly different from the control samples (Souza et al., 2000). Increasing the amount of calcium of plant tissues reduces the respiration rate of tissues by reducing the leakage of respiratory substrates from vacuoles, which leads to a reduction in ethylene production in plant tissues and a reduction in fruit ripening speed. It should be noted that no other element, even similar divalent elements like magnesium, can replace calcium and perform its functions in the structure of the plant cell (Marschner, 1995). Calcium is an essential element and plays major role in maintaining the post-harvest quality of fruits and vegetables, so that it reduces the speed of respiration and ripening of fruits (Ferguson, 1984).

Physiological effects of fruit storage include increased metabolism, browning of fruit pulp and reduction in water and weight of fruit, which result in accelerated aging, reduced quality and reduced marketability of the product (Miller, 2000). Aging rate often depends on the amount of calcium in the tissue, so that with increasing calcium levels, various parameters affecting aging, such as respiration, protein content, chlorophyll, and membrane fluidity change (Poovaiah, 1996). The role of calcium in maintaining the quality of fruits and vegetables has been well known. Increasing the calcium content in the cell wall of strawberry fruit tissue can delay tissue softening and mold growth and reduce the prevalence of physiological complications (Munos et al., 2006).

Calcium stabilizes the cell wall and the stability of cell membranes is closely related to the stiffness of the fruit pulp. It also stabilizes the pectin compounds in the middle septum by strengthening the intermolecular bond. In pectin polymers, two chains of galacturonic acid are linked by a bond with calcium (Aboot and Conway, 1989). In an experiment to evaluate the effect of post-harvest application of calcium salts on the quality and shelf life of strawberries, Goodarzi (2007) reported that despite the positive and beneficial effects of calcium salts on increasing tissue stiffness and calcium content of treated samples and also significant reduction in the amount of mold in these samples compared to the control, these positive effects were overshadowed by the appearance of fruits and due to creating slippery state and loss of freshness of fruit, this method is not recommended for strawberries eaten freshly.

One of the recommended methods to reduce fruit waste is to increase the calcium concentration of fruits using calcium salts. Calcium is one of the most important mineral elements involved in determining the quality of fruit and its shelf life. In fruits and vegetables, calcium is more important owing to its general effect on delaying fruit ripening and shelf life. Calcium is found in the structure of the middle septum of cells and plant tissue in a compound called calcium pectate, which prevents the degradation of the pectin wall as long as it is sufficient (Marschner, 1995). Atri et al. (2008) investigated the effect of foliar application of calcium chloride on increasing the shelf life of Kurdistan cultivar strawberry. They reported that foliar application of calcium chloride on strawberry plants of Kurdistan cultivar, 18 days after flowering and with a concentration of 0.3% will reduce the rate of fruit rot and improve their shelf life.

Pre-harvest calcium application prevents physiological disorders, delays ripening and improves the quality of various fruits, including strawberries (Chaiprasaht et al., 2006). Calcium is an essential element in forming the cell wall and activating the enzyme phosphatase. It plays a vital role in the formation of carbohydrates, anthocyanins and the development of the root system. Calcium is present in the structure of the middle septum of cells and in a plant tissue in a compound called calcium pectate (Sharma, 2002). Calcium ions increase the strength of the cell

wall, so that it increases cell membrane stability by increasing the number of bonds between calcium and carboxyl groups of pectin fibers in the cell wall (2000 Demarty et al).

Conway and Sam (1997) reported that calcium in the cell wall largely protects the fruit from microbes that try to enter it by breaking down pectin. Also, increasing the concentration of calcium, in addition to increasing CO₂ production, is effective in reducing ethylene production by the fruit and can control and delay the complex process of fruit ripening. Mousavi (2006) reported that due to the use of calcium as a foliar application in Silva cultivar strawberry increased fruit tissue pectin content. Morris et al. (2000) immersed strawberry fruits in 0.18% CaCl₂ solution for 5 minutes and then kept in polyethylene containers. The results showed that the stiffness of fruit tissue increased without significant change in weight or color of fruits.

De Soza et al., (2000) showed that 0.5 and 1% calcium chloride solution did not affect the physical and chemical properties of Sequoia cultivar strawberry such as pH, soluble solids and pectin, but the shelf life of fruits treated with the above solutions increased from 3 days to 16 days without being contaminated with mold. Sanchezet et al., (2006) reported that foliar application of iron and zinc increased yield by 50%. It also increased the weight and volume of grape fruit. Ellis and Erincik (1999) reported that with increasing the amount of calcium chloride, its shelf life is prolonged. Appropriate amount of calcium in strawberry fruit tissue increases the post-harvest strength and shelf life of strawberry fruit (Dugaard, 2001).

The presence of sufficient calcium through foliar application increases the strength and stiffness of strawberry fruit and increases shelf life of fruit (Hernandez et al., 2008). Narayana et al., (2006) reported that foliar application of 2% calcium chloride on banana greatly increased post-harvest shelf life and banana fruit quality. Senevirathna and Daundasekera., (2010) reported that 2% calcium chloride treatment in tomatoes increased fruit stiffness and shelf life, but did not change fruit acidity. In a study conducted to investigate the foliar application of folic acid and calcium chloride on vegetative and reproductive growth and storage of Silva cultivar strawberry, Lolaei et al. (2011) reported that foliar application of calcium chloride increased strawberry shelf life by increasing cell wall strength and created more opportunities for consumption. Lara et al., (2004) reported that the improvement of fruit quality characteristics is achieved by delaying the ripening or increasing the shelf life of fruit following calcium chloride treatment. In strawberry, calcium chloride treatment also prevents the reduction of soluble solids during storage (Asghari, 2006).

Due to having a molecular charge and binding to membranes, calcium chloride stabilizes them, thereby preventing the binding of free radicals and reactive oxygen species to membranes and helping to maintain the health of biological membranes. It in fact plays the role of antioxidants such as vitamins (Spinaradi, 2005). Calcium chloride treatment in plums improves fruit storage by increasing the fruit stiffness, because calcium increases the amount of putrescine binding to the cell wall and free spermidine during the storage period increased the strength of the cell wall and consequently tissue stiffness (Valero et al., 2002). In an experiment on the effects of calcium on respiration and ethylene production in pear fruit, use of the use of calcium significantly reduced the production of ethylene, resulting in increased fruit stiffness and longer fruit shelf life (Richardson and Lambard, 1979). Most fungi and bacteria penetrate plant tissue by producing pectolytic enzymes such as polygalacturonase. These enzymes dissolve the middle wall. It has been proven that the activity of these enzymes reduced by calcium. Plant tissue that has less calcium is more sensitive to physiological complications as well as fungal diseases during storage (Malakouti and Tabatabai, 1999). Given what was stated above, the present study aims to investigate the effect of calcium nano-chelate on maintaining post-harvest quality and shelf life of strawberry.

Materials and Methods

In the present study, a factorial experiment was conducted in a completely randomized design in Jiroft city (Azad University laboratory). In this experiment, calcium nano-chelate in four levels (0 (control), 25, 50, 100 mM / l) was used. In this experiment, 17 kg of Parus cultivar strawberries were used (350 ± 30 g was used in each treatment). Parus cultivar has relatively large fruits with bright red color. It has relatively good yield and has high storage properties (Behnamian and Masiha, 2002). Before the experiment, 500 g of strawberries were taken from the whole fruit mass and placed in 5 groups of 100 g. After taking the fruit juice, the desired traits were measured. To make solutions in mM units, the molar mass of the substance must be used. Since the molar mass of calcium chloride is 110.99, if we dissolve 110.99 mg of calcium chloride in one liter of distilled water, the resulting solution is 1 mM calcium chloride. As a result, if we dissolve 25×110.99 in one liter of distilled water, the resulting solution is 25 mmol of calcium chloride, and the same was done for the other treatments. The above guideline was used to prepare the calcium nano-chelate solution. Strawberries were obtained from greenhouses of the desired region. Strawberry fruits were selected from healthy fruits of almost same size and 50 to 80% color at the stage of commercial ripening, which were transferred to the laboratory immediately after harvest and kept at 4°C until treatment.

After preparing the solutions with the determined proportions, strawberry fruits were immersed in it for 5 minutes and after dehumidifying the fruits, about 30 fruits were placed in packages with transparent polyethylene caps at dimensions of $13 \times 10 \times 5$ cm and were weighed, and after labeling, they were placed in refrigerator. The experiment was performed in 16 treatments and 3 replications. For each treatment, 15 strawberry fruits were considered in each box. In the control treatment, distilled water was used. After placing the fruits in the refrigerator, we kept at a temperature of $1 \pm 5^\circ\text{C}$ and closed the refrigerator door for 15 days, and then all the samples were transferred to a room with a temperature of $18\text{--}20^\circ\text{C}$ for sampling. The evaluated traits included the following cases. The obtained data were analyzed using SAS statistical software. Mean comparisons were performed based on Duncan's multiple range test and graphs were drawn by using Excel 2003 software.

Results

Table 1

Analysis of variance of traits measured in Parus cultivar strawberries

Anova		Mean Squares						
S.O.V	DF	TSS	TA	TSS/TA	pH	Vitamin c	Fruit rot	Fruit tissue stiffness
Calcium chloride	3	3.26**	0.03**	0.74*	0.59**	579.13**	1062.88**	1.88*
Error	32	0.21	0.002	2.28	0.04	5.57	5.37	0.03
CV%	-	7.58	14.31	14.80	8.24	14.29	14.98	12.92

ns, * and **, respectively, represent non-significant and significant at 5% and 1% levels.

The results of the analysis of variance of the data (Table 1) showed that the effect of calcium chloride on the TSS / TA of Parus cultivar strawberry was significant at the level of 5%, so that the highest TSS / TA was obtained at 100 mM calcium chloride treatment and the lowest

TSS / TA was obtained from 0 mM calcium chloride treatment (control) (Figure 1).

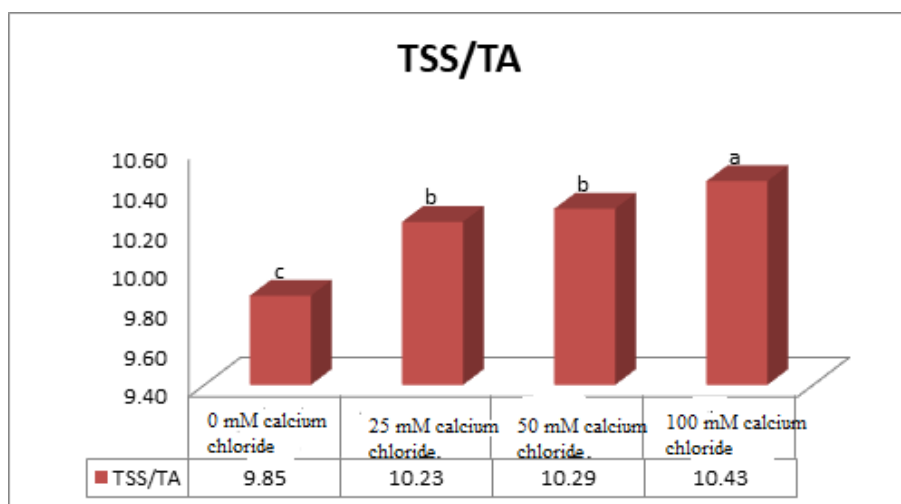


Figure 1 – Effect of calcium chloride on TSS / TA level of Parus cultivar strawberries

The results of analysis of variance (Table 1) showed that the effect of calcium chloride on the amount of vitamin C in Parus cultivar strawberry was significant at the level of 1%, so that the highest amount of vitamin C was obtained in 100 mM calcium chloride treatment. Calcium chloride 25 and 50 mM were not statistically significant and were in a statistical group. The lowest amount of vitamin C was obtained from 0 mM calcium chloride treatment (control) (Figure 2).

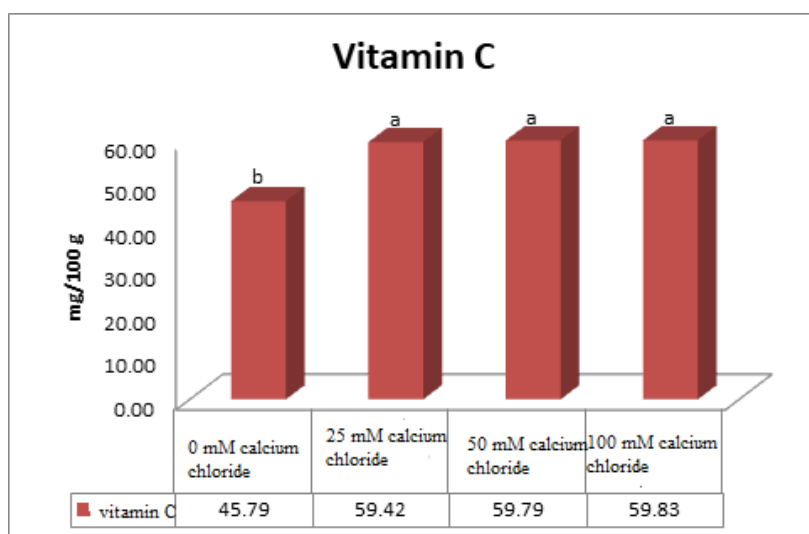


Figure 2 – Effect of calcium chloride on the amount of vitamin C in Parus cultivar strawberries

The results of analysis of variance (Table 1) showed that the effect of calcium chloride on the stiffness of Parus cultivar strawberries was significant at the level of 5%, so that the highest fruit stiffness was obtained from 100 mM calcium chloride treatment that was not significantly different from 25 mM calcium chloride treatment. Also, the lowest amount of fruit tissue stiffness was obtained from 0 mM calcium chloride treatment (control) (Figure 3).

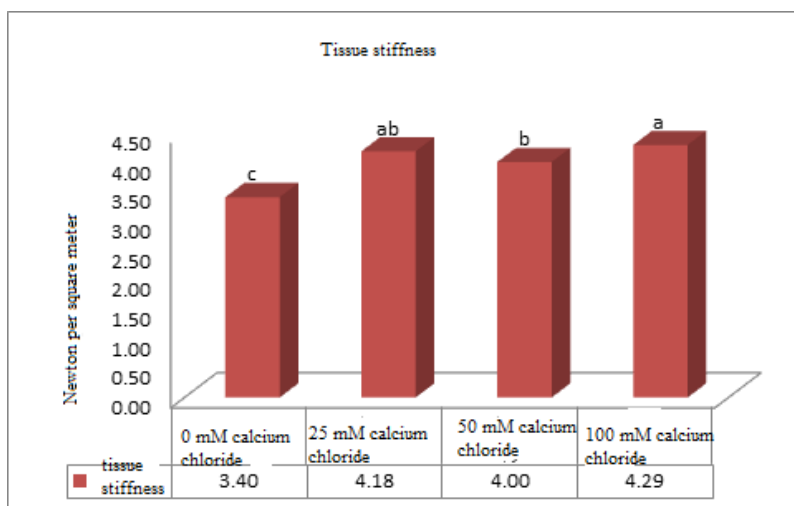


Figure 3 – Effect of calcium chloride on the stiffness of Parus cultivar strawberries

Discussion

Experiments have been conducted on the effect of calcium chloride on leaves and fruits in recent years. The results have shown the positive effect of calcium chloride on the shelf life of strawberries and it also prevented the growth of gray mold. Calcium is more involved than other minerals in disorders caused by deficiency of elements. The use of calcium salts can completely prevent disorders such as tomato flower rot, but, it is not completely eliminated in other disorders such as bitter spots. However, variation in the rate of disorder regulation may be related to the level of uptake by the fruit. For example, immersing the fruit in calcium chloride under atmospheric pressure significantly increases calcium absorption and normally eliminates the bitter spot.

Significant amounts of calcium bind to pectin in the middle layer and membranes, and may prevent the disorder from appearing by strengthening the components of the cell structure without eliminating the cause. The strength of cell components may prevent or delay the destruction of cell formation and enzymatic reactions that cause brown signs (Farahi and Goodarzi, 2008). It has been found that calcium is displaced in apples during storage. It has been shown that calcium affects the activity of many enzymes and metabolic sequences in plant tissues. Overall, the addition of calcium to the fruit or slices of fruit suppresses respiration, but the reaction is concentration-dependent. The activity of isolated enzymes, pectin methyl esterase (PME), exopolygalacturonase (EXOPG) and endo-polygalacturonase (ENDOPG) have shown different reactions to concentration.

Conclusion

The results showed that the effect of calcium chloride on the main measured traits, including the degree of rot in Parus cultivar strawberries was significant, and 50 mM calcium chloride treatment had the most positive effect on all measured traits.

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STUDYING THE EFFECT OF UNDER-IRRIGATION AND POTASSIUM FERTILIZER ON SOYBEAN YIELD

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ABSTRACT

This experiment on soybean yield and yield components was conducted in 2002 using a randomized full block design with split plots and three replications. The primary factors of under-irrigation are S₃ (optimal irrigation as a control), S₂ (water cut from the beginning to the end of podding), and S (water cut from the beginning to the end of flowering), as well as the secondary factor of potassium fertilizer at three levels of zero (K₀), 50 (K₅₀), and 100 (K₁₀₀) kg K₂₀ per hectare. The control treatment (S) produced the highest grain yield of 4168.2 kg/ha, whereas stress in the flowering stage produced the lowest yield of 4426.6 kg/ha (S₁). The greatest grain yield was 3502.2 kg/ha in the K₅₀ treatment, whereas the lowest grain yield was 3159 kg/ha in the K₀ treatment. Grain yield rose as the number of grains in the pod grew, according to the findings. The harvest index was highest in the optimal irrigation condition, and when drought stress was applied from blooming to pod stage, the harvest index dropped from 26.1 to 21.6 percent. The number of pods per plant and grain weight was the yield components that were most susceptible to stress. The number of grains per pod, for example, exhibited a rather high level of stability and was unaffected by drought stress treatments or potassium fertilizer. S₃ treatment had the highest grain yield, harvest index, biological yield, and leaf area index among the stress treatments, whereas S₁ treatment had the lowest grain yield, harvest index, and biological yield. According to the findings, the K₅₀ fertilizer treatment had the most seeds, pods per plant, seeds per pod, harvest index, biological yield, and grain yield among the fertilizer treatments, while the K₀ treatment had the least of these characteristics.

Keywords: potassium fertilizer; moisture stress; biological yield; soybean.

Introduction

Soybean is an oil seed that has been grown in China since approximately 2800 BC and is regarded as a holy plant in the country. *Glycine | ussuriensis* is most likely the source of soy (Khajehpour, 1984). *Glycin Min's* origins and origins are unknown; however, soy is widely available in East Asia. From East Asia to Northeastern North China and North Central China, there are many hypotheses concerning a Pure Genesis Center for Soybeans. Himowitz is a well-known figure in the world (1970). The base of soybeans was established in the eleventh century BC, as evidenced by visual indications for the Chinese term soybean (evil) in the Book of Addis in the form of a brass inscription (Kouchaki et al., 1993). While soybeans were a significant crop

in the United States before 1880, by 1930, the United States had produced nearly 75% of the world's soybeans, with China coming in second with 17%. More than half of US goods are sent to Europe; soy has a long history of use as a staple meal in the Far East, including exports to Japan and Canada. However, in the West, this plant's whole output is mostly employed in manufacturing and extraction. Although soybean is consumed, the majority of it is extracted oil (90 percent in the US) and consumed as food, with nearly all of its protein (98 percent in the US) used to augment animal feed. Similar applications for this product have evolved in the Far East's industrial sectors in recent years (Majnoon Hosseini, 1997).

Climate change, management, crop season, and soil type will all affect soybean water usage. During the growth season, certain studies, such as Dorn Yus et al. (1989), have documented the rate of evapotranspiration of soybeans according to climatic parameters for maximum output, ranging from 0-450 mm (Anonymous, 1986). Whereas Pald (1987) reported soybean irrigation water from 1200-600 mm, indicating that soil conditions (suitable clay and sandy soil), climate, and variety have a significant effect on water consumption by this plant (Anonymous, 1375), Farsh et al. (2000) estimated the pure water needed for soybeans in the Boroujerd and Lorestan regions at 7500 cubic m³/h for 100 percent production.

Irrigation of soybeans in rainfed circumstances enhanced the number of pods developed in the branches formed in the lower nodes of the plant, according to Wallis et al. (1986). Despite the fact that nodes 3-3 and 9-9 of the main stem generated the most pods, stress reduced the number of pods in the main stem nodes, particularly the lower and frontal nodes, by increasing the fall and pods (Wallace, 1986). The decrease in the number of pods at plant nodes was also attributed to the leap of pods and flowers, according to Hindel and Brann (1984). Drought stress caused pod shedding and dormancy, which lowered the ratio of grain weight to pod weight by lowering the synthesis of photosynthetic components and impairing material transfer. With increased stress levels, grain weight also reduced dramatically. As a result, a dramatic fall in the number of grain weights was the cause of the loss in grain yield at stress levels (Heindl, W. A Bran. 1984).

Moisture stress during the blooming stage of soybeans reduces flowering period duration, number of flowers, number of pods, number of seeds, and seed weight, according to Zionite and Kramer (1977). (Sionit and Kramer, 1977). Moisture stress has a major influence on the performance of seria and its components, according to Khodambashi et al. (1987). According to Dane-shian et al. (1999), moisture stress in the R1-R2 stage (flowering stage) resulted in the largest yield drop (80%) in soybeans. Drought stress during soybean flowering increased the weight of 1000 seeds, according to Froud and Mendel (1993). The reduction in yield caused by pod stage stress was attributed to a rapid drop in the number of seeds per plant and the weight of 1000 seeds. The goal of this study, as stated above, was to look into the impacts of potassium on the quantitative and qualitative features of soybeans under moisture stress.

Materials and methods

This experiment is carried out in the form of a randomized complete block design with split plots in three replications per 81 crop years in Lorestan Agricultural and Natural Resources Research Center, Sarab Changai Station, Khorramabad, with a longitude of 48 ° 18 ' and latitude of 33° 30' and 1171 meters above sea level. The 81-80 crop year saw 585 mm of rainfall, an absolute maximum temperature of 47.4 ° C, an absolute minimum temperature of -14.6 ° C, 28.5 frost days, and an annual evapotranspiration rate of 1033 mm. The experimental design was split plots with three replications, with the main factor of under-irrigation at three levels, including cessation of irrigation from the beginning of flowering to the end of flowering (s1), cessation of irrigation from the beginning of podding to the end of podding (S1), and control (S3), and the

secondary factor of fertilizer application at three levels of zero, 50, and 100 kg/ha K₂O as the source of randomized complete block type.

Features of iterations

Each block had 9 garrets with a one-meter spacing between them, and each plot had 6 planting lines with a half-meter spacing between them. The block was 20.5 × 6 meters long and 3 meters wide, with a gap of 3 meters between them. The land was fallow before the trial. Two plows were created perpendicular to each other to prepare the planting bed. The area was next prepared as an atmosphere and ridge by furrow, according to the test plan, and then the major streams for irrigation were made by a streamer, and the plots were ready for planting.

Until blooming, all plots were watered uniformly every seven days. Irrigation was discontinued at the start of blooming in the S treatment, i.e., R1 from start to finish, and R2 and irrigation were done in the S2 and S1 treatments. Irrigation was discontinued in S2 treatment, i.e., from the commencement of podding (R3) to the conclusion of podding (R4), and irrigation was performed in treatments after this stage (R2-R1) (S1-S3).

In the three-leaf stage, the bushes were shortened to reach a proper space between the rows for each treatment. In this manner, a stick with a diameter of roughly 2 cm was placed next to each planting line, on which the appropriate distances were miraculously marked. Between the markings, garden shears were used to clip shrubs neatly.

Before planting, all phosphorus fertilizers were applied at a rate of 150 kg/ha, with half of the fertilizer applied at a rate of 100 kg/ha. Potassium fertilizer was placed in the center of the soil at the same time as planting at a depth of 1 to 12 cm and roughly 8 cm under the seeds, according to the Kurdish treatment plan.

Results and discussion

Reduced water moisture in the S3 treatment compared to the S2 treatment (interrupted irrigation from the beginning to the conclusion of podding) resulted in a substantial drop in grain yield of 859.7 kg/ha (Figure 1). The moisture decreases in S1 Neymar reduced grain average yield more than the S2 treatment. Since there are more nodes in the tail pod stage (S) than there are in the flowering stage (F), the plant has a better chance of producing a large number of florets (S1). Despite the fact that it lacks pod sheaths, it may compensate for this limitation by relying on the numerous nodes that carry the pods. Furthermore, flowering stress leads the plant to grow fewer branches, resulting in fewer seeds and pods per plant but a greater 1000-seed weight since photosynthetic material is distributed between the number of pods and fewer seeds.

Moisture stress during the blooming phase, according to Zionite and Kramer (1977), shortened the length of the flowering period by the total number, pod number, and the number of soybeans. More measurable parameters such as number of tubers per root, plant height, number of seeds, yield, percentage of oil, and protein in soybean rose as water consumption increased, according to Saadati and Yazdi Samadi (1977). Moisture stress has a considerable impact on soybean yield and its components, according to Khodambashi et al. (1987). The fall of pods and flowers, according to Mindell and Brann (1984), caused a decrease in the number of pods in plant nodes. Drought stress lowered the ratio of grain weight to pod weight by lowering the synthesis of photosynthetic materials and impairing the transfer of toaster materials, resulting in pod and seed abortion. With increasing stress intensity, grain weight also decreased significantly, implying that the loss in grain production in the stress scheme was due to a decrease in the quantity and weight of grains.

According to Daneshban et al. (1999), the application of moisture stress during the blooming stage resulted in the largest yield drop (80%) in soybeans. This suggests that by raising potassium fertilizer to 50 kg per hectare, grain output may be increased by increasing the number of

seeds per plant. Alternatively, via osmotic adaptation, the plant can take more water from the root through a potential slope when there is less potassium in the plant tissues or when sweating is reduced.

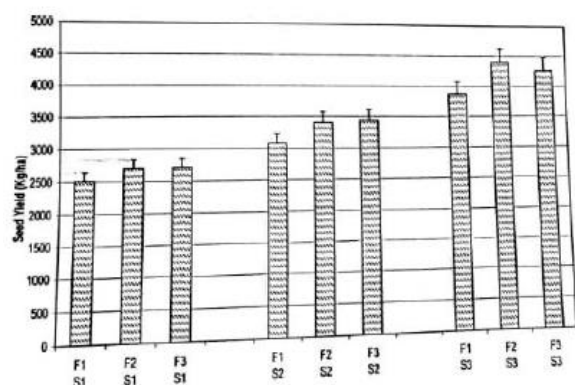


Figure 1 – The effect of moisture stress and potassium fertilizer on soybean yield

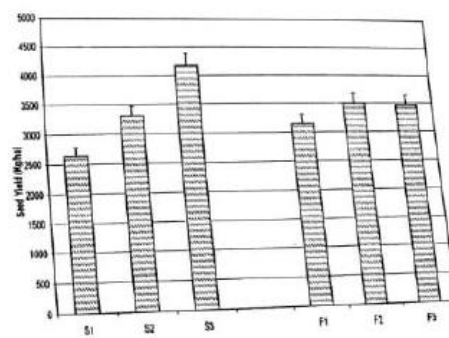


Figure 2 – Interaction of moisture and potassium fertilizer on grain yield

Biological function

Because S1 was 360.7 kg lighter than S2, there was no significant difference between the two treatments (Figure 3). This might be attributable to an increase in the dry weight and 1000-grain weight. Drought stress during stage R2 decreased the number of seeds in subsequent stages of reproductive development, according to C. Cyclas et al. (1992). Furthermore, as compared to the control, applying stress at R2 reduced plant dry weight.

Etio et al. (1991) found that dry weight dropped with the start of drought stress in all regions of the plant in a study of the effects of drought stress on soybeans. Although there was no significant effect of fertilizer on biomass, Figure (4) displays that the amount of fertilizer to the level of 50 Kgh increased the mean biomass to 13724.1 Kg / h, which there was a significant difference between not consuming potassium (Ko) at the rate of 12761.1 Kg / h, but there was no significant difference compared to 100 kg at the rate of 13615.2 kg / h.

Sharma et al. (1992) found that using potassium under moisture stress averted considerable grain and dry matter yield reductions. Even minor K deficit impacts photosynthetic activity and dry matter formation in plants where the photosynthetic material transfer is regulated by potassium levels, according to Jin Zinping et al. (1987). In the S2 treatment, there was no statistically significant difference in biological performance between different quantities of potassium fertilizer, as shown in Figure (4).

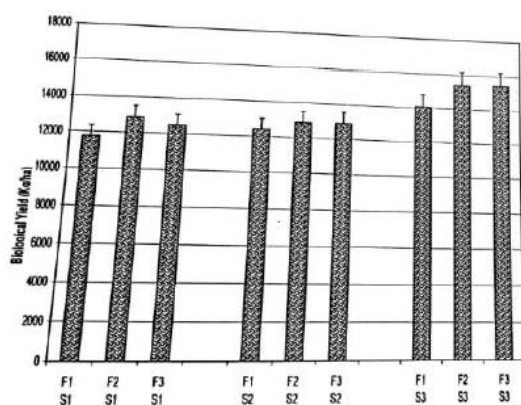


Figure 3 – The effect of moisture stress and potassium fertilizer on biological performance

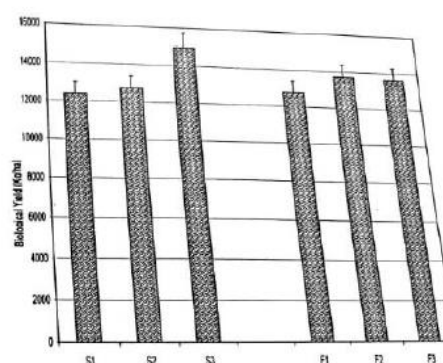


Figure 4 – Effect of moisture stress and potassium fertilizer on biological yield

Straw yield

The best straw production was associated with treatment S1 at 10.10805 kg/ha, while the lowest was associated with S2 treatment at 9430.4 kg/ha, a significant difference. However, the S2 therapy yielded 303.3 kg less than the S1 treatment, which was not a statistically significant difference. Under stress, reproductive growth appears to be more responsive to stress than vegetative growth, and straw output has not fallen as much as grain yield.

Most of the measured parameters, such as number of tubers per root, plant height, number of seeds per pod, grain yield, oil percentage, and protein in soybean, rose as water consumption increased, according to Saadati and Yazdi Samadi (1977).

More size parameters, such as number of tubers per root, plant height, number of seeds per pod, grain yield, oil content, and protein in soy, rose with higher water consumption, according to Di Samadi (1980). Figure (5) demonstrates that applying up to 50 kg/ha of potassium fertilizer boosted straw production by 92.921 kg/ha, a substantial improvement from Neymar KO's output of 9.6060 kg/ha. However, when compared to treatment of 100 kg/ha, which yielded 10142.1 kg/ha, there was no significant difference.

This is owing to the fact that using potassium fertilizer in drought-stricken areas might enhance straw production to a point, and then increasing potassium fertilizer use without improving straw output. It will also reduce the amount of straw produced. The explanation for this may be attributed to the plant's genuine requirement for physiological processes to generate straw under drought stress circumstances, which was supported by the findings of other researchers.

In a study of drought stress on soybeans, Etio et al. (1991) found that when soil water decreased, the potassium content of leaves in all regions of the stem increased fast, causing the water potential in the vessels to fall below the water potential. The occurrence of stress resulted in a loss of dry weight in all regions of the plant; with increased stress, more potassium was collected in all of the plant's higher portions.

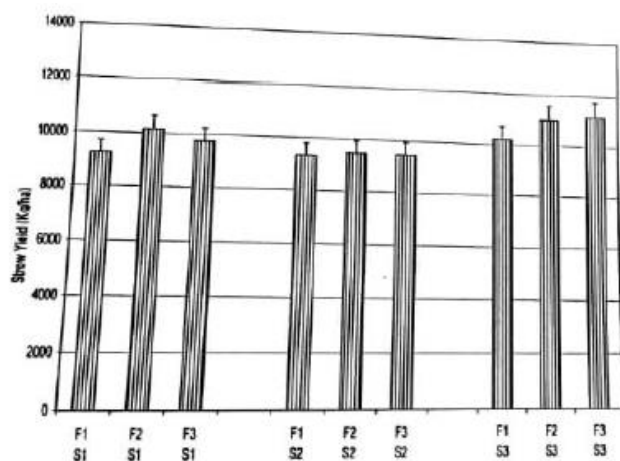


Figure 5 – Effect of moisture stress and potassium fertilizer on straw yield

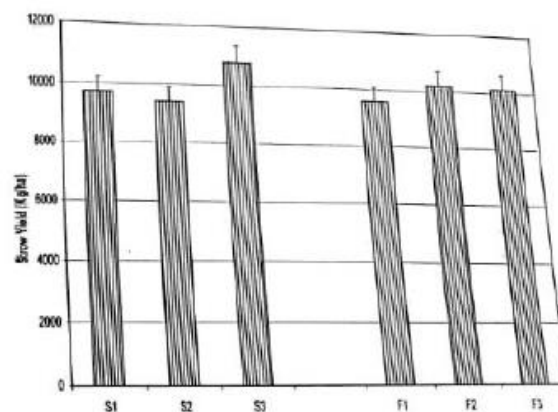


Figure 6 – Interaction of moisture stress and potassium fertilizer on straw yield

Harvest index

Figure (7) demonstrates that the greatest harvest index in the S1 treatment is 28 percent, while the lowest is connected to the S2 treatment (29.16 percent), both of which have a statistically significant difference, and that the S1 and S2 treatments have a statistically significant difference (26.1). The reason for this is that while the yield in the S2 treatment was sometimes lower than in S1, the grain yield was higher; therefore, the harvest index of the S2 treatment was higher than

Neymar S1. Furthermore, at this time, the rise in potassium raises the harvest index. The harvest index of the S1 treatment was greater than the S2 treatment because the plant had optimal growth in the S1 treatment and its grain yield was lower than the S1 treatment's grain yield. As a result, the harvest index of the S1 treatment was higher than the S2 treatment.

In irrigation circumstances, Fisher et al. (1979) found a clear association between drought sensitivity index and features including harvest index, number of seeds per square meter, number of seeds per wheat spike, and leaf water potential when comparing normal and stress conditions. However, there was no relationship between these qualities and the Ssi (drought sensitivity) index when it came to stress. According to Figure (7), the greatest harvest index was associated with F2 treatment at 25.9%, while the lowest was associated with F1 treatment at 24.7 percent, both of which are not statistically significant, implying that high fertilizer has had little influence on the harvest index.

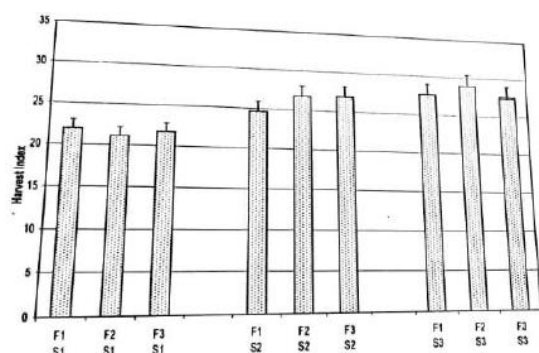


Figure 7 – Effect of moisture stress and potassium fertilizer on harvest index

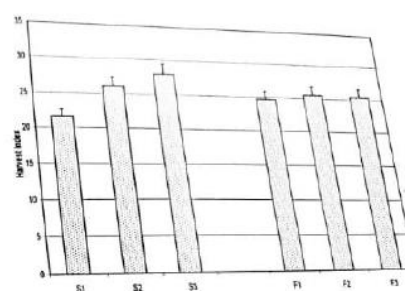


Figure 8 – Interaction effects of moisture stress and potassium fertilizer on harvest index

Number of pods per plant

There is a considerable difference between treatments, as seen in Figure 9. Since moisture stress in the S1 treatment lasts until the end of blooming, more flowers fall than in the S2 treatment. By minimizing drought stress, the plant, on the other hand, is unable to generate blossoms. As a consequence, after the plant has produced adequate vegetative growth and moisture stress, the number of pods produced is lower than in the S2 treatment. Despite the fact that the pods are shed at this stage, it yields more pods than the S1 treatment. Plant growth and height have been lowered as a result of moisture stress in the blooming stage compared to the pod stage. As a result, fewer flowers and pods are produced.

In the reproductive developmental stage, Egle et al. (1985) viewed the rivalry of vegetative organs with reproductive organs, as well as the loss of photosynthesis in the plant community, as lowering the number of pods and seeds per unit area. Irrigation of soybeans in rainfed circumstances enhanced the number of pods developed in the branches formed in the lower nodes of the plant, according to Wallace et al. (1986). The number of pods in the major stem nodes, particularly the lower and upper nodes, was reduced only by flower and pod stress. Water stress reduced the number of pods and daisies in the majority of the cultivars studied, according to Karimi (1979). The number of seeds per pod was determined by the dry weight of pods and seeds, as well as the grain wall.

The average (Figure 9) demonstrates that the quantity of fertilizer used up to 50 kg/h differed considerably from not using fertilizer.

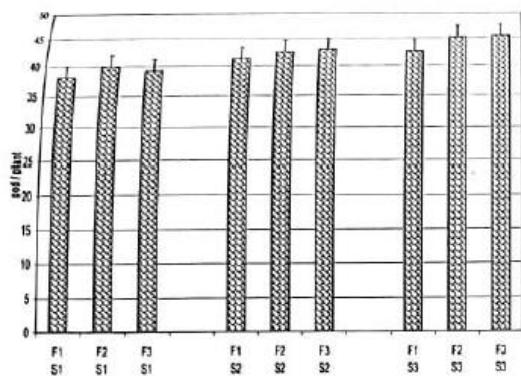


Figure 9 – Effect of moisture stress and potassium fertilizer on the number of pods per plant

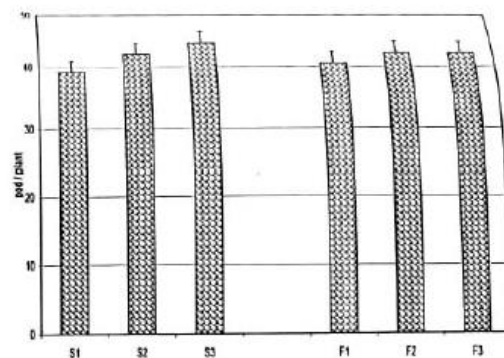


Figure 10 – Interaction of moisture stress and potassium fertilizer on the number of pods per plant

Number of seeds per pod

Figure 11 shows that the S2 treatment has the most seeds per pod, whereas the S1 treatment has the least, indicating that there is a substantial difference between the treatments. In addition, the collapse of the florets, which had a lesser number of seeds per pod at this stage than Neymar S2, caused a decrease in the number of seeds in the flowering stage. Figure 11 reveals that the S2 treatment had the greatest difference in the number of seeds per pod (2.7), whereas the S1 treatment had the smallest difference (2.5), but it was not different from the S2 treatment. However, because the grain yield of the S treatment is larger than the grain yield of the S2 treatment, it is determined that grain yield has a moderate (517%) connection with pod number.

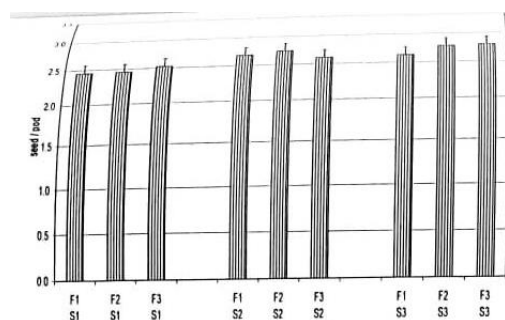


Figure 11 – Effect of moisture stress and potassium fertilizer on the number of seeds per pod

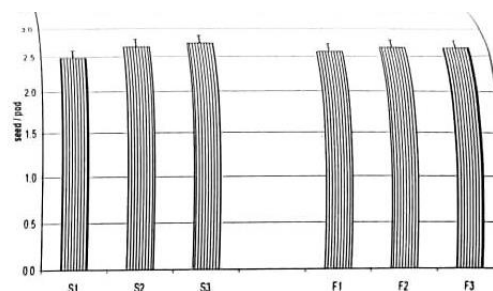


Figure 12. Interaction of moisture stress and potassium fertilizer on the number of seeds per pod

Conclusion

In the Khorramabad area, the flowering stage was more vulnerable to drought stress than the pod stage. In summary, it appears that increasing the degree of drought stress increased the effectiveness of potassium up to level 50 in avoiding yield decline and yield performance in the Khorramabad region. The best performance was associated with the control treatment (no stoppage of irrigation) and node at level 50, according to the findings.

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INVESTIGATION OF THE EFFECT OF DEHYDRATION STRESS ON PLANT GROWTH CHARACTERISTICS IN SAINFOIN (*ONOBRYCHIS VICIFOLIA*) POPULATIONS UNDER GREENHOUSE EXPERIMENTAL CONDITION

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ABSTRACT

Field sainfoin (*Onobrychis sativa*) in one of the most important forage legumes in Iran. Which has an important role in increasing livestock products with its proper yield and quality. The present study was conducted to investigate the effect of drought stress on germination characteristics of 58 sainfoin population in greenhouses conditions in Boroujerd Azad University in 2021.

Drought treatment (100, 75, 50% of field capacity) were calculated based on weighting methods.

Germination percentage, root length, stem length, root to stem ratio, plant length, seed vigor index, plant fresh weight, plant dry weight, dry to wet weight ratio were measured.

The results showed that the effect of population, drought treatment and population interaction on dehydration were significant for all traits.

With increasing drought stress, the mean of all traits showed a decreasing trend, while the ratio of root to stem length increased.

Compared with population of 10, 29, 31, 38, 40, 50 and 53 in all dehydration stress, the ratio of plant length and seed vigor index were higher than other treatments and can be caused as valuable plant materials for improved hybrid and drought tolerant cultivars.

Keywords: field sainfoin (*on obrychis sativa*); PEG6000; germination characteristics; seed vigor; dehydration stress.

Introduction

There are 56 species of sainfoin (*Onobrychis*-ssp) in Iran that have extraordinary forage and rangeland value (Mozafarian 1996).

Most species of sainfoin have spread to northwest Asia, including Iran and Turkey which has been identified as the main center of genetic diversity of the genus (Irfan et al., 2007)

In terms of honey production sainfoin is one of the most desirable plants (Karimi 2005) among these species, (*O.Vicifolia*) is the most desirable species in terms of agronomic characteristics and in general, this is also the meaning of sainfoin and it is the only plant of this genus whose free grazing does not cause bloating in livestock. due to its special properties this plant can be used in low-yielding dryland and rangeland improvement its fresh forage is soft, juicy, very tasty, high in protein, a favorite of livestock, its stem is more nutritious than alfalfa and leaf fall is low (Akbarzadeh and Salari 1995).

Leaf fall in sainfoin is rarely done as the plant ages despite percentage of alfalfa leaves.

It is more than sainfoin but the durability of sainfoin leaves is longer, so the leaves of the plant, which is an important factor in determining the nutritional value fall less, on the other hand sainfoin stem are hollow and are better than alfalfa in terms of nutritional value (Farshadfar. 2005)

One of the important factors in the establishment of forage plants is drought resistance (sandgol.1989) because drought-resistant plants have a more suitable establishment in the field and are indirectly related to higher plant yield by producing strong plants. Research has shown that embroderies have better germination under stress produced with better cotton and stronger root system (Opoku et al., 1996)

In the field of research on drought stress in sainfoin in Iran, limited research has been done on species and limited specimens (Kaboli and Sadeghi 2002, veispour et al., Nasirzadeh et al., 2004 and Rounak et al.,)

But so far, no research has been done this number of genotypes (58 genotypes) and it is expected that by evaluating a large number of genotypes, drought-resistant cultivars will be more available. Seems evaluation of plants, tolerance to environmental stresses, especially during the germination and emergence stages, as an important factor in selection them for cultivation in different conditions.

Because routine assessment field conditions are full of time on the one hand influenced by several uncontrollable factors on the other hand, including soil climate and crop operations. Therefore, using a laboratory and greenhouse method under controlled conditions, it is possible to quickly and relatively accurately assess the response of plants to stress. The aim of this study was to investigate the effect of drought stress on germination characteristics of 58 sainfoin population in greenhouse condition

Materials and methods

In this experiment, 58 populations of cultivated sainfoin from the natural resources Gen-Bank of Iran affiliated to the national forest and Rangeland research institute were planted in pots water requirement test was calculated by weight method. This experiment is a factorial experiment in a completely randomized design of three levels of soil drought treatment. Including 100 % field capacity (normal water condition with field capacity), 75 FC (low stress), 50% FC (medium stress) to the weighting method was performed in three replications.

To apply the treatments, first all the pots were weighted. The final weight of all the pots was increased to 144 gr. Irrigated 3 pots weighting 144 gr to the capacity of the field. Then, after 24 hours the pots were weighted and their weight was 190gr.

The pots were placed in Avan at 80°C for 72 hours. After removing the pots from it, weighted them again and the dry weight of the dry pots became 154gr. Depending on the weight deference of the pots, the pots are divided into three control (NFC), (%100FC), (%75 FC) and (%50FC) weighted 190 gr, 178gr and 166 gr, respectively. After 60 days from the time of planting, until the drought stress, the plants irrigated once every two days and the soil moisture was maintained at the experiment field capacity and then drought treatments were applied based on the factorial experiments.

All posts remained the designated weights for each group for 45 days and drought stress was applied to them elevation was started after 45 days and immediately after harvesting the plants they were transferred to the laboratory and the fresh weight of the plant as well as length root and stem length were measured.

After collecting the data, they analyzed the variance by factorial method and the comparison of the average by Duncon's method using SAS9 software was done.

Results and discussion

Analysis of variance showed the results in both environments showed that the effect of drought stress was significant for all traits at the level of 1% probability level. The results also

showed that the effect of genotype for all traits was significant at the level of 1%. probability interaction effect of genotype on drought stress was significant for all traits at the level of 1% probability (Table 1). Comparison of the effect of drought stress on different germination traits is shown in Table 2. The results showed that with increasing drought stress, the average of all traits except dry weight to wet weight of seedling and to stem ratio decreased in comparison between populations. The results showed that populations 6, 11, 21, 25, 27, 32, 35, 38, 41, 42, 44, 47, 48, 51, and 55 in all drought levels in the mean flower, they had a higher germination percentage than other treatments, in terms of plant length populations of 4, 9, 12, 23, 30, 31, 38, 40, 45, 49, 50, and 53 in all drought levels were higher than other treatments. Also, populations 3, 7, 9, 12, 14, 17, 23, 33, 38, 40, 43, 50, 52 in all drought levels had a higher ratio of root length to stem than other treatment in terms of seed vigor index of populations 12, 21, 23, 27, 3, 31, 38, 40, 43, 44, 50, 53, and 55 and in term of plant dry weight populations 10, 27, 32, 36, 40, 41, 50, 51, 53, 55, and 57 in all levels of drought were higher than other treatments. Populations 5, 7, 16, 19, 23, 24, 25, 39, 47, 52, 54 and 57 in all drought levels the ratio of dry weight to wet weight of the plant was higher than other treatments. They had in general, in comparison with the populations in the greenhouse, the populations of 12, 23, 31, 38, 40, 50, and 53 in all drought levels had higher ratio of plant length and seed vigor index than other treatment which can be used for them as materials.

Table 1

Analysis of variance and mean squares of traits measured in 38 sainfoin populations 4 drought stress treatment in green house

Weight dries to wet plant	Weight wet plant	Dry weight plant	Seed vigor index	Plant length	Ratio root to stem	Length stem	Length root	percentage	Degree freedom	Changes sources
0.038**	87.9**	6.23**	233.4**	193.1**	1.12**	22.7**	148.9**	600.1**	57	genotype
0.006**	946.3**	67.45**	13018**	2850**	1.08**	219**	1476**	32378**	2	Drought treatment
0.005ns	19.8**	1.88**	131.0**	62.8*8	0.37**	7.66**	46.23**	431.2**	114	Drought * genotype
0.005	2.20	0.21	20.48	14.07	0.10	1.66	9.91	63.90	174	error

*and**=significant at level of 3 and 1%, respectively.

Table 2

Comparison of mean effects of drought level on 58 sainfoin genotype for traits measured in greenhouse

Dry weight to wet weight	Wet weight plant	Dry wet plant	Seed vigor index	Plant length	Root to stem ratio	Stem length	Root length	Seed germination percentage	Treatment drought
0.35	8.39	2.73	23.69	35.70	1.88	12.73	23.04	65.86	FC 50%
0.31	13.48	4.03	39.01	41.90	2.07	13.98	27.93	92.72	FC 75%
0.32	13.18	4.06	44.03	45.50	1.99	15.48	29.98	96.51	100% FC

The mean of treatments with similar letters according to Duncan's 5% multi-range test not statistically significant

Table 3

Comparison of the mean of different seed germination traits in 58 sainfoin populations in green house environment

number	popul.	place	Germination percentage	Plant length	Seed vigor index	Dry weight plant	Root length to stem	Dry weight ratio to wet
1	35	Gen bank	80.0	36.08	29.57	1.98	1.72	0.34
2	36	Gen bank	76.7	39.17	30.48	2.77	2.09	0.35
3	37	Gen bank	90.0	45.66	41.72	2.95	2.53	0.33
4	38	Gen bank	76.7	46.52	37.47	2.28	2.21	0.35
5	242	Merrand-Payam	73.3	35.62	25.82	3.83	2.20	0.37
6	962	Isfahan	93.3	37.73	35.33	3.26	1.53	0.32
7	1174	Hamedan	86.7	39.62	34.49	3.73	3.18	0.36
8	1586	Golestan	83.3	42.73	36.01	3.67	1.87	0.31
9	1601	Golestan	66.7	49.50	37.63	3.65	2.52	0.34
10	1674	Tabriz	90.0	33.76	30.43	4.52	1.97	0.31
11	2759	Hamedan	99.2	38.57	38.27	3.89	2.08	0.24
12	2979	Zenoz	76.7	58.65	47.92	3.31	2.54	0.30
13	2985	Tabriz	76.7	38.28	30.43	2.28	1.81	0.32
14	3001	Karaj	73.3	39.18	30.84	3.79	2.51	0.33
15	3002	North Khouasan	90.0	38.79	34.92	2.90	1.31	0.32
16	3013	North Khouasan	80.0	42.05	36.33	2.38	2.25	0.36
17	3026	North Khouasan	86.7	40.36	35.61	4.03	2.81	0.32
18	3501	Kerman	86.7	35.04	31.13	3.48	1.95	0.32
19	3981	Karaj	83.3	34.98	29.86	2.48	1.83	0.38
20	4404	Orumieh	90.0	43.59	39.54	3.46	1.77	0.35
21	4824	Armehal	99.2	42.65	42.38	4.22	1.60	0.33
22	5794	Arak	86.7	40.48	35.15	3.14	1.95	0.31
23	6604	Orumieh	86.7	46.33	41.12	4.04	2.75	0.38
24	6606	Orumieh	53.3	25.73	19.60	1.98	0.94	0.42
25	8199	Tehran	99.2	35.12	34.82	3.04	1.65	0.36
26	8204	Tehran	80.0	40.73	32.61	3.72	1.53	0.35
27	8206	Tehran	99.2	44.10	43.78	5.18	1.48	0.24
28	8799	Gen bank	73.3	37.73	29.44	2.14	1.74	0.29
29	9054	Karaj	86.7	44.53	38.67	4.01	2.08	0.31
30	9262	Karaj	70.0	50.33	36.68	3.68	2.01	0.29
31	9263	Karaj	90.0	44.64	40.33	3.43	2.26	0.34
32	9264	Karaj	99.2	40.00	39.68	6.35	1.67	0.34
33	11195	Khansar	76.7	38.95	30.28	2.11	2.30	0.32
34	11815	Khalkhal	90.0	41.33	37.20	3.92	1.81	0.31
35	11941	Sanandaj	93.3	37.18	35.11	4.17	1.47	0.30
36	12243	Kashan	90.0	39.21	35.68	5.59	2.00	0.34
37	12539	Gen bank	86.7	36.65	32.25	3.05	1.51	0.32
38	12542	Gen bank	93.3	51.43	48.65	3.97	2.65	0.30

39	12552	Gen bank	70.0	37.29	30.35	1.95	1.30	0.42
40	12773	Kabodar Ahang	90.0	54.31	49.17	5.71	2.55	0.32
41	13771	Gen bank	92.5	41.51	38.51	4.45	1.63	0.31
42	15353	Gen bank	93.3	38.86	36.53	3.17	2.12	0.29
43	15354	Gen bank	90.0	44.66	40.63	3.79	2.30	0.27
44	15360	Gen bank	99.2	42.85	42.52	4.31	1.90	0.32
45	15361	Gen bank	63.3	48.87	33.30	3.22	2.22	0.31
46	15363	Gen bank	80.0	42.46	34.83	3.79	1.71	0.31
47	15364	Gen bank	92.5	35.95	33.11	3.47	1.31	0.37
48	15366	Gen bank	92.5	37.74	35.39	2.60	2.21	0.28
49	15370	Gen bank	86.7	44.81	39.10	4.41	1.74	0.29
50	19261	Zanjan	86.7	47.89	41.95	4.93	2.36	0.29
51	21929	Hamedan	93.3	37.68	35.43	4.74	2.11	0.28
52	26725	Siahkal	80.0	35.19	28.71	1.65	2.66	0.37
53	52136	Gen bank	90.0	47.90	43.82	4.74	1.55	0.27
54	52175	Gen bank	86.7	31.03	27.60	2.85	1.83	0.40
55	52468	Gen bank	93.3	42.71	40.40	4.47	1.88	0.29
56	150028	Gen bank	63.3	38.05	24.08	2.87	1.70	0.29
57	150062	Gen bank	86.7	39.23	34.63	5.32	1.88	0.36
58	150069	Gen bank	89.2	38.11	33.83	4.40	1.98	0.33
average			85.03	41.03	35.71	3.61	1.98	0.32

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OPTIMIZING PLANTING ARRANGEMENT AND NITROGEN FERTILIZER APPLICATION IN THE CULTIVATION OF SPRING SAFFLOWER USING RESPONSE SURFACE METHODOLOGY

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ABSTRACT

The present study aimed to determine the effects of planting arrangement and different levels of nitrogen fertilizer on some morpho-physiological traits, yield, and yield components of spring safflower. Therefore, an experiment was conducted in a Box-Behnken design with three factors of nitrogen fertilizer, row spacing, and plant distance, as independent variables, using the response surface method (RSM). Experimental treatments were designed based on high and low levels of nitrogen fertilizer (control and 200 kg.ha⁻¹), row spacing (20 and 50 cm), and plant-to-plant spacing within a row (4 and 20 cm). Results showed that yield components had different responses to the experimental factors so that the number of seeds per boll had a non-significant response to the experimental factors. However, the highest number of boll per plant was obtained in the middle row spacing and the plant density of 20 cm. In addition, it was observed that increasing nitrogen fertilizer application was inversely related to nitrogen use efficiency and nitrogen uptake efficiency indices, while decreasing row and plant spacing increased them. In general, according to the results, it is suggested that the use of nitrogen fertilizers (urea fertilizer) should be reduced to less than 50 kg.ha⁻¹, and the maximum distances between rows and plants should be equal to 25 and 10 cm, respectively, to achieve grain and flower yields of 1000 and 100 kg.ha⁻¹, increase nitrogen use efficiency and decrease nitrogen losses in the soil.

Keywords: optimization; plant distance; response surface; row spacing.

Introduction

Oilseed plants are the most valuable crops that have long been cultivated as an essential part of world agriculture, and their increasing consumption has led to their entry into markets as commercial products with a high economic value from the mid-20th century (Filizadeh, 1991). In this regard, Iranian agricultural lands have a significant potential for planting and producing oilseed crops, e.g., castor, safflower, and sesame (Naseri, 1996). Safflower (*Carthamus tinctorius* L.) is an annual and drought-resistant oilseed crop from the Asteraceae family (Akhtarbeg and Pala, 2001; Hamidi et al., 2001; La Bella et al. 2019), which originated from southern Asia and has been cultivated in China, India, Egypt, and Iran (Maghsud et al. 2014). It was also reported that Iran is known as one of the 24 countries producing safflower with an average of 1105 kg. ha⁻¹ in 2016 (Abdipour et al. 2016). This plant has fourth place after barley, sugar beet, and cotton under irrigated conditions in terms of salinity resistance. Safflower has many applications, including forage, nutritional, industrial, and pharmaceutical uses (Carvalho et al. 2006; Fatahi et al. 2008; Rudolphi et al. 2012; Khan et al. 2016), and its seeds contain 25 to 45% oil and 12 to 24% protein (Zeinali, 1999).

On the other hand, since the unnecessary and continuous consumption of nitrogen fertilizer to various crops has been continuously increasing for the last many decades and leading to harmful environmental, health, and economic consequences, efficient nitrogen fertilizer management is essential. Therefore, applying appropriate crop improvement techniques, e.g., proper planting patterns, fertilizer management, planting date, and irrigation, are among priority farming systems in each region. Accordingly, this study was conducted to investigate different responses of spring safflower (*Carthamus tinctorius* L. cv. Sofeh) to changes in planting arrangement and different levels of urea fertilizer under rainfed conditions of the Saqqez city, located in Kurdistan province, Iran.

Materials and methods

This study was conducted based on the Box-Behnken design with three levels of urea fertilizer (control/no application of fertilizer, 100, and 200 kg. ha⁻¹) as the first factor, row spacing (e.g., 20, 35, and 50 cm) as the second factor, and plant spacing (including 4, 12, and 20 cm) as the third factor in the spring and summer seasons of 2018 in one of the suburban research farms of Saqqez, Kurdistan province, Iran. Before beginning the experimental research, a combined sample of the soil used in the present study was sent to the soil laboratory to determine its physicochemical properties, and then, the required nutrients were added to each experimental plot based on the soil analysis. It should be noted that tillage operations were performed in the form of spring tillage at a time when the weather was favorable.

Statistical analysis

The data were analyzed using the Response Surface Methodology (RSM). In addition, statistical operations were included analysis of variance of models, stepwise regression and selecting the best model, plotting response surface and contour plot charts, and finally optimizing variables, which were performed using Design Expert 7 software.

Results

Morphological traits

Results related to the analysis of variance of complete quadratic regression models for plant height, first branch height, and the number of lateral branches per plant are shown in Table 1.

$$Y = 73.62 - 3.59X_3 + 0.12(X_3)^2$$

Where Y and X₃ represent the first branch height and plant-to-plant spacing within a row (cm). In general, this model showed that first branch height was affected only by plant spacing (plant-to-plant spacing within a row), and other variables, such as row spacing and nitrogen levels, had no significant effects on this trait.

Table 1

Analysis of variance of the quadratic model for morphological traits of spring safflower

Mean Squares				
Sources of variation	df	Plant height	First branch height	No. branch per plant
Model	9	49.8 ns	87.04 ns	5.54 ns
Linear effects				
Nitrogen (X₁)	1	73.2 ns	9.25 ns	7.60 ns
Row spacing (X₂)	1	22.45 ns	34.45 ns	0.18 ns
Plant density (X₃)	1	2.88 ns	292.82 ns	21.13 ns
Interactions				
X₁X₂	1	46.24 ns	60.84 ns	0.64 ns
X₁X₃	1	15.21 ns	72.25 ns	0.25 ns
X₂X₃	1	56.25 ns	7.29 ns	0.16 ns
Second-order effects (R²)				
X₁²	1	20.39 ns	5.77 ns	3.75 ns
X₂²	1	86.85 ns	90.47 ns	17.20 ns
X₃²	1	107.67 ns	236.31 ns	0.043 ns
Residual errors	5	86.16	54.09	11.88
Lack-of-fit	3	9.01 ns	3.72 ns	0.97 ns

Net Errors	2	201.88	129.64	28.25
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ns: non-significant difference

The response surface diagram (Fig. 1) showed that the application of nitrogen fertilizer had no significant effects on the first branch height while reducing plant spacing within rows significantly increased this index. In other words, increasing planting density within the rows had a direct and significant correlation with increasing the first branch height, which could be due to increased inter-plant competition in high plant densities. In this regard, evidence revealed that higher plant densities have led to changes in plant morphology (25). Additionally, Kafi et al. (2015) attributed this phenomenon (plant branching) to changes in phytohormone ratios, especially auxin and cytokinin.

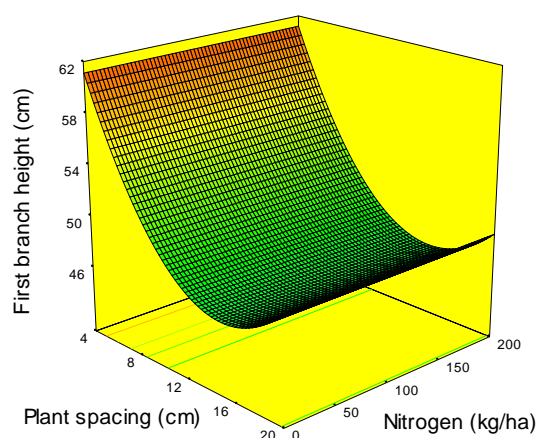


Figure 1 – A schematic of the response surface of the height of the first branch affected by nitrogen fertilizer (X1) and plant spacing (X3)

Yield components

Results of analysis of variance of fitted regression models for the number of poll per plant, seed per poll, and 1000-grain weight of safflower indicated the importance of the quadratic (second-order) polynomial model to explain the effects of experimental factors on both traits of the number of poll per plant and 1000-grain weight (Table 2).

Table 2

Analysis of variance of the quadratic model for yield components of spring safflower

Mean Squares				
Sources of variation	df	Boll per plant	Seed per boll	1000-grain weight
Model	9	5.76 *	28.27 ns	12.25 *
Linear effects				
Nitrogen (X₁)	1	0.84 ns	19.10 ns	34.45 **
Row spacing (X₂)	1	5.78 ns	4.45 ns	0.011 ns
Plant density (X₃)	1	21.12 **	14.99 ns	20.16 *
Interactions				
X₁X₂	1	0.81 ns	10.24 ns	1.69 ns
X₁X₃	1	4.00 ns	89.87 ns	26.01 *
X₂X₃	1	0.01 ns	26.27 ns	0.72 ns
Second-order effects (R²)				
X₁²	1	5.03 ns	12.46 ns	7.99 ns
X₂²	1	15.02 *	0.59 ns	10.62 ns
X₃²	1	1.19 ns	78.46 ns	7.28 ns

Residual errors	5	0.96	27.94	1.83
Lack-of-fit	3	0.92 ns	35.08 ns	2.10 ns
Net Errors	2	1.2	17.24	1.42

ns: non-significant difference, ** and *: significant at $p < 0.01$ and $p < 0.05$, respectively

Nitrogen-related indicators

Preliminary results of nitrogen-related indices in Table 3 indicated that all models (except the model related to the NUtE index) had significant effects on the studied indices. In this study, although numerous reduced models were examined to find a suitable model for the NutE index, no significant correlations were found between the independent variables and this index; hence, further research on NutE was omitted.

Table 3

Analysis of variance of the quadratic model for nitrogen-related indicators

Mean Squares					
Sources of variation	df	NUE	NUtE	NUpE	N loss
Model	9	92.43 **	44.05 ns	339.89 **	10059.97 **
Linear effects					
Nitrogen (X_1)	1	152.06 **	20.64 ns	513.74 *	72843.44 ***
Row spacing (X_2)	1	216.14 ***	8.53 ns	729.93 **	6532.76 **
Plant density (X_3)	1	355.36 ***	13.05 ns	1359.31 **	8635.74 **
Interactions					
X_1X_2	1	1.82 ns	203.04 ns	53.62 ns	1598.80 *
X_1X_3	1	36.42 **	0.21 ns	212.35 ns	67.36 ns
X_2X_3	1	22.91 *	34.70 ns	18.90 ns	148.15 ns
Second-order effects (R^2)					
X_1^2	1	6.42 ns	30.49 ns	116.72 ns	220.58 ns
X_2^2	1	22.64 *	37.65 ns	25.95 ns	389.15 ns
X_3^2	1	24.4 *	42.57 ns	50.67 ns	209.27 ns
Residual errors	5	1.56	32.45	32.51	165.10
Lack-of-fit	3	0.58 ns	45.60 ns	50.04 ns	242.67 ns
Net Errors	2	3.02	12.73	6.22	48.73

ns: non-significant difference, ***, ** and *: significant at $p < 0.001$, $p < 0.01$, and $p < 0.05$, respectively;

NUE: Nitrogen Use Efficiency; **NUtE**: Nitrogen Utilization Efficiency; **NUpE**: Nitrogen Uptake Efficiency; **N loss**: Nitrogen-losses

Response surface for nitrogen losses (Fig. 2) indicated that increasing the level of nitrogen fertilizer and row spacing led to an increase in nitrogen losses so that the maximum nitrogen losses from the soil occurred under the treatments of 200 kg N.ha⁻¹ and row spacing of 50 cm.

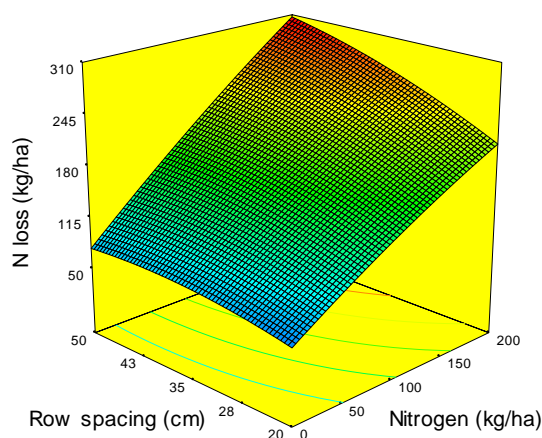


Figure 2 – A schematic of the response surface of Nitrogen-losses (N loss) affected by nitrogen fertilizer (X1) and plant spacing (X3)

Optimization

Here, two scenarios, namely achieving grain yield equal to or greater than 1000 kg.ha⁻¹ using the lowest inputs (saving inputs) and achieving maximum grain yield in the range of 1000 to 1500 kg.ha⁻¹ (regardless of any of the inputs), were considered and relevant data presented in Table 4.

Table 4

Optimal values for independent variables (namely row and plant spacing) and predicted results for several response variables in two different scenarios

Variables		The first scenario (Saving inputs)	The second scenario (Maximizing yield)
Independent variables	Row spacing (cm)	22.7	20.3
	Plant-to-plant spacing (cm)	7.6	4.2
Response variables	Grain yield (kg.ha ⁻¹)	1025	1347
	Flower yield (kg.ha ⁻¹)	106	143
	Oil percentage (%)	22.7	21.7
	Oil yield (kg.ha ⁻¹)	231	302
	NUPE (%)	44.5	57.5

*In both scenarios, the nitrogen level was constant and less than 50 kg.ha⁻¹

Results related to the optimization process (Table 4) showed that the savings-based scenario with grain yield of 1025 kg.ha⁻¹ could be achieved through adjusting both row and plant spacing equal to 23 and 8 cm, respectively (density of 54 plants per square meter). Also, maximizing yield-based scenario with a production of 1347 kg.ha⁻¹ (the second scenario) could be accomplished through modifying row and plant spacing equal to 20 and 4 cm (density of 125 plants per square meter), respectively.

Conclusion

The most important results in this study were summarized as follows:

- Nitrogen fertilizer application had no significant effect on grain yield.
- Applying higher levels of urea fertilizer decreased NUE and NUPE indices and increased N-losses from the soil.
- Reducing plant-to-plant spacing within the row accelerated flowering and crop maturation.

- Reducing both row and plant spacing variables increased yield indices, e.g., grain, flower, oil, and biological yield, per unit area.
- Under soil nitrogen abundance, not only plant performance traits had no positive response to nitrogen fertilizer application, but also nitrogen losses increased.
- Since nitrogen fertilizer levels had no significant effects on grain yield, two scenarios of saving inputs and maximizing yield (using the variables of plant spacing and row and kg. ha⁻¹ nitrogen) were considered for optimizing the variables. Our findings revealed that approximately 1000 and 1300 kg. ha⁻¹ of grain could be produced respectively through adjusting density equal to 54 plants per square meter in the first scenario and maximizing plant density (namely minimizing row spacing and plant spacing within the row) in the second scenario.

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СЕКЦИЯ
ФИЛОСОФСКИЕ НАУКИ
PHILOSOPHICAL SCIENCE

**AN EXPLANATION OF THEOLOGICAL-MYSTICAL THINKING OF
PHILOSOPHER MULLA SADRA AND IMAM KHOMEINI ON VELAYAT
AND CALIPHATE**

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ABSTRACT

Of the prominent scholars who meticulously investigated in their own philosophical and interpretive works the dimensions of the subject “Velayat¹ and Caliphate” were Mulla Sadra and Imam Khomeini, both considered the great Shia thinkers. This article concerns the theo-mystical thinking of philosophers Mulla Sadra and Imam Khomeini on the issue of Velayat and the caliphate. These two thinkers have reviewed and analyzed the levels, status and typology of Velayat and Caliphate. Also, they have investigated subjects of prophethood and Imamate², which are both representations of the Caliphate and Velayat. It is thus concluded that the key mystical thoughts of Imam Khomeini do not conflict with the basics of Sadr Al-Mutallehin’s Transcendental Philosophy, with the difference being that the latter has a philosophical view of the issue, and the Imam concerns with the subject by using a mystical approach.

Keywords: Velayat; Caliphate; Imamate; Perfect Human; Imam Khomeini; Mulla Sadra.

Introduction

The subjects of the Caliphate and Velayat are thought to be the key subjects of Islamic mysticism, without which nothing becomes apparent in the world of creation. Unless there is a caliphate or a guardian, no truth is revealed, with God the Almighty remaining behind the curtain of the eternal Unseen. For this, the divine Caliphate and Velayat stimulate and manifest human dignity (Hosseini, 2006). Various Muslim thinkers have long debated these subjects. Of the prominent scholars who meticulously investigated in their own philosophical and interpretive works the dimensions of the subject “Velayat/Caliphate” were Mulla Sadra and Imam Khomeini, both considered the great Shia thinkers. One would say that Imam Khomeini and Sadr Al-Mutallehin are among the thinkers who have, throughout history, investigated the issues of the Caliphate and Velayat at a higher level and provided valuable interpretations in this regard.

In some of his books, such as *Shavahed Al-Raboubya*, Mulla Sadra has elaborated on the issues considerably. He regards the content of the book to be derived from divine and Koranic lights, suggesting in the foreword that: “Swear by my one soul that these debates are originated in heavenly lights which radiate across the sky of Velayat where there are hands that knock the door of prophethood” (Mulla Sadra, 2008:4). Because the subject of Velayat/caliphate is thought to be the spirit of the transcendental philosophy and Shia mysticism and serves as the loop to connect the universes and the highest level of divine closeness and is also an intermediary of grace for many of the theo-mystical issues, any thinking which can help reveal horizons in this regard assumes high importance. It is critical to explain the similarities and differences of opin-

¹ guardianship/ authority

² leadership

ion between Imam Khomeini and Sadr Al-Mutallehin. This article deals with Imam Khomeini and Sadr Al-Mutallehin's thoughts on Velayat and Caliphate and other subjects such as human position, human souls, perfect human caliphate, etc.

Literature Review

Various sources are available on the subject of the present article, the oldest of which refers to Ibn Arabi's "Fosous Al-Heakm," many interpretations have been provided, such as Kharazmi, Ghiesari's interpretation, Ashtiani's interpretation on the Gheisari foreword, etc.

Imam Khomeini has also written an interpretation on "Fosous Al-Heakm." Interpretative and theological books have provided rich and in-depth debates about the verses on Velayat; these books include the valuable interpretive book of "Al-Mizan" by Allame Tabatabaei, who has given his thoughts on verses related to Velayat. Ayatullah Javadi Amoli has described the subject in his works "Velayat in the Koran," "Alawite Velayat," and "Velayat-e-Faghih," and Ayatullah Hasanzadeh Amoli has also meticulously elaborated on this issue in his book "Formative Velayat."

Velayat, in the two philosophers' thinking

Velayat, in Imam Khomeini's thoughts

To Imam Khomeini, Velayat (also known as leadership/authority) is characterized by political, jurisprudential, mystical and theological aspects, each having its specific meanings. For the Imam, belief in the significance of establishing a government and setting up an executive system to rule the nation is part of the Velayat. He also maintains that belief in Velayat includes the struggle to achieve it (Khosrow Panah, 2006:21). The truth behind Velayat is the manifestation of divinity which is the essence of existence and perfection. Each creature with a grain of existence benefits from the divinity of truth and divine grace, the true caliphate and Velayat (Imam Khomeini, 1990, 41; 1994, 67). In other words, the Imam's insight suggests that the external manifestation of divinity and spreading of divine grace in external eyes takes place in the form of Velayat. This denotes that Velayat, especially in the perfect human, is the first and most notable manifestation of God the Almighty. The Imam also says, "the truth of Velayat for the mystics denotes the absolute grace and that grace is out of all determined limits called absolute existence, as existence does belong to that truth" (Ibid, 1997:9-101). He has also considered the prophet's Velayat and the Alawite Velayat the same; thus, all the characters he has enumerated for the prophet can be regarded as Imam Ali and his great son (AS). He states in this regard:

"The caliphate you have heard about his position is the truth of Velayat because Velayat refers to closeness, popularity, divinity and succession, which are revelations of the truth and reality. Other Velayats are the shadows and secondary. It is the Alawite Velayat which corresponds to the Moahamadya Velayat" (Ibid, 1994:36).

Velayat, in the Mulla Sadra's thoughts

Mulla Sadra debates about the human being, human existential stages, the perfect human, and his various ranks in his works. He argues that the prophethood and Imamate ranks are the major stages of Velayat. Mulla Sadra has been concerned with this issue meticulously. For him, "Vali" (guardian) denotes closeness and a blurring of distances. Vali refers to the one who is worthier than others to lead the affairs. For this, Vali is the one who is a loving and assisting person; this is because he approaches man due to his affection and assistance. For this, to be against Velayat is to cause enmity and hostility. Movalli (the one who accepts Velayat) is the one who gets his problems removed (Mulla Sadra, 1990, vol. 4, 226). He states:

"Know that Velayat is taken from Vali which denotes closeness. Thus, a friend is called vali in that he is close to his friend and suggests closeness to God the Almighty" (Ibid, 1984:816).

Caliphate in the two philosophers' thinking

Caliphate in Imam Khomeini's thoughts

In his various books, Imam Khomeini pays much attention to learning theoretical mysticism as well as practical mysticism and purification of the soul, providing rational, Sharia, exploratory, narrative and Koranic reasoning in his illuminating book “Mesbah Al-Hedayah,” where he depicts the true nature of realities which suggests his thinking about caliphate (Zomorodian, 2011). The Imam has provided definitions of the caliphate, which indicate the ranks of the caliphate. He considers the caliphate to be the manifestation of divinity, arguing that the principle of existence and perfection of the manifestation of divinity is revealed in the caliphate. He remarks that each creature who has a take on existence takes benefit of the truth of divinity and its manifestation, which is the truth of caliphate and Velayat, suggesting that man is a perfect being who encompasses all rational ranks and represents the Unseen and Seen worlds (Imam Khomeini, 2012:4).

Caliphate in Mulla Sadra’s thoughts

To Mulla Sadra, the philosophical words of caliphate and Caliph are taken from the Koran, which refers to a perfect human, i.e., the Adam (father of all humans) who was a human being and served the first Caliph of God on the earth; he also served as the Caliph of all those who were residents of the earth (Mulla Sadra, 1984: 301). Mulla Sadra argues that the main reason why a man was made worthy of caliphate is his intellectual power, and the highest character by which man is superior to the angels is the knowledge and wisdom he possesses, just as God considers the plants to be the product of the chosen elements, and animals to be the chosen elements of the world (Mulla Sadra, 1984:254).

Types of Velayat and its levels

Specific and general Velayat

Specific and general Velayat in Imam Khomeini’s thoughts

Imam Khomeini has expanded the concept of Velayat to include all creatures. In this regard, he says:

“Any creature accepts Velayat and inward caliphate by the size of his capacity and existence, and it is the inward (esoteric) caliphate and Velayat that cuts across all the boundaries of the sky and earth” (Imam Khomeini, 1994, p. 119).

He generally debates the issue of Velayat but does not define the title of specific and general Velayat.

Specific and general Velayat in the Mulla Sadra’s thoughts

To Mulla Sadra, genial Velayat is defined as a kind of guardianship that every believer and a righteous can achieve, as the Koran says: *“God is the guardian of those who have faith, surely He will bring them out of the darkness and direct them to the light.”*

Also, specific Velayat denotes inexistence in God, or existential, characteristic and conduct inexistence. Thus, Vali is the one who becomes inexistent in God and bears His names and qualities (Mulla Sadra, 1984, p. 634). This character could be both intrinsic or acquired:

Intrinsic/granted specific Velayat: It is a type of Velayat that comes from being attracted to God before the Mojahedah or struggle.

Acquired specific Velayat: It refers to a kind of Velayat achieved after the struggle with the attraction force (Ibid, 487-488).

Shari’a-based and formative Velayat

Shari’a-based and formative Velayat in Imam Khomeini’s thoughts

To Imam Khomeini, the Imam must have a spiritual position to substantiate Velayat and government. He argues that the Imam not only is tasked with assuming the government affairs but also has a general divine caliphate, called a formative caliphate to which all creatures are subordinate (Imam Khomeini, 2012:53). This Imam’s attitude suggests that the Imams need to enjoy transcen-

dental spiritual ranks and government and Velayat affairs. These two issues have always been concomitant and are never separate. In other words, religiosity and politics are inseparable.

Shari'a-based and formative Velayat in the Mulla Sadra's thoughts

Formative Velayat refers to stages of existential perfection, which overshadows the will over the existing world. However, the Shari'a based Velayat is an appointed position that impacts the Sharia and social affairs. The world of creation is in a purposeful direction and has a plan outlined by the Lord. Consistent with philosophical rules, divine grace spreads to the world of creation using divine intermediacy. As narrations have suggested, these intermediaries are the saints and the apostles and their successors who were created to demonstrate the ultimate goal of human creation. In essence, they attained the divine rank of the Caliph, with others enjoying some inferior ranks of this level, the extent of which is as great as the divine glory. Mulla Sadra reasons that the saints are the ultimate cause and the action cause of the creation (Mulla Sadra, 480-481).

End of Velayat

End of Velayat in Imam Khomeini's thoughts

For Imam Khomeini, the end of the Velayat is the epitome of the end of Resala (prophetic mission). He says:

"The end of Velayat has no superiority over the end of Resala because the end of Velayat is a manifestation of the end of Resala, and the end of Resala is a representation of the end of Velayat, where it involves the beauty of the truth. It is clear that the beauty of the truth is revealed in the perfect human, as quoted by the Ghodsi (divine) hadith, which says: "I created man to get known,"; i.e., my essence for my essence in the truth, as this essence does belong to the Lord from the beginning to the end" (Ibid, 1987:74).

To Imam Khomeini, Imam Mehdi is the last of all the saints, as he is quoted as saying:

"Just as the prophet Mohammad is the ruler of all creatures, Imam Mehdi is the ruler of all creatures; prophet Mohammad is the last of all the apostles, and Mehdi is the last of Velayat (Imam Khomeini, 1991, vol. 20, 249).

End of Velayat in the Mulla Sadra's thought

At the end of prophethood, Sadr Al-Mutallehin argues that prophethood and Shari'a are never distinct; however, the two are differentiated by the divine revelation of the prophet, which has a different nature. In other words, the light of guidance is not distinguished even by the cessation of revelation and end of the prophethood missions, as the door to the truth and divine mercy will never be shut. Also, although sending down of the apostles and revelations on the prophet's heart is not ceased, prophethood and mission will never be discontinued (Mulla Sadra, 2008:387).

Worlds of existence and impacts of Velayat and Caliphate on them

The five levels of existence

The five levels in Imam Khomeini's thoughts

The views of Imam Khomeini on the five levels of existence differ from that of the mystics. Imam believes the five levels incorporate an elaboration of the ranks, levels and hierarchies of the human being, not suggesting the levels of the worlds of existence. Thus, we see that the Imam has accepted the famous view of the mystics on the five levels of existence; however, since the Imam has always provided new theories, this is not an exception, and thus he has enumerated the five levels as follows:

- Absolute unseen level
- Absolute observation level
- Unseen level, in addition to the closest to the absolute unseen
- Unseen level, in addition to the closest to the observation
- The singularity of the Unseen and Observation (Ibid, 1987:32).

The five levels in Mulla Sadra's thoughts

Mulla Sadra maintains that the five levels of existence are: 1. World of providence, 2. World of will, 3. World of fate, 4. World of destiny, and 5. World of implementation (Mulla Sadra, 1990, vol. 1, 189). By the world of order, he means the world of "Koun" (Arabic term translating as "be"), and the world of wisdom belongs to the world of order, which is a kind of innovated world, not a world of creation. In his famous philosophical categorization, Mulla Sadra categorizes the worlds into three worlds wisdom, form and matter; however, his basics and perspectives on the spiritual world and divine manifestation, on the one hand, and the world of the perfect human, on the other hand, reveals the fact that although he is not on the same level with the famous definition of the mystics of the five levels, his basics are completely in agreement with this categorization, with his viewpoints being consistent with those of the mystics.

Eternal Knowledge

Eternal knowledge in Imam Khomeini's thoughts

Imam Khomeini suggests that eternal knowledge is a manifestation of God's names, attributing the world to the eternal knowledge of the perfect human. Thus, for the Imam, there must be eternal knowledge to manifest any knowledge level (Ibid, 2013, 77).

Eternal knowledge in the Mulla Sadra's thoughts

For Mulla Sadra, eternal knowledge is never materialized as an externality because eternal knowledge refers to knowledge-based forms and subjective natures which are not externally existent. The term eternal knowledge is the opposite of external knowledge. Eternal knowledge is not against existence to be neither a non-existent nor a being; rather, it is solely for the knowledge-based forms as an externality (Hasanzadeh Amoli, 2008:502).

Prophethood

Prophethood in Imam Khomeini's thoughts

On prophethood, the Imam says:

"Since this position comes from intermediacy in the divine grace, it merely belongs to the prophet; in this grace, observation is revealed onto him by the angel."

Prophethood in Mulla Sadra's thoughts

In many of his works, Mulla Sadra explains the issue of prophethood; he has assigned the fifth part of the book "Shavahed Al-Raboubya" to this subject, thus describing the two issues of prophethood and mission as follows:

"Prophethood refers to the knowledge of the human's heart of divine truth, and mission refers to the selection of such a person by the Lord over the people, aiming to lead the people to God" (Mulla Sadra, 2008: vol. 3, 216).

Therefore, according to Mulla Sadra, *"Prophethood is a position that whoever achieves it, can inform about the rules of God and His commands and prohibitions, and the prophet is the one who informs about the commands of God and communicates his lawful and unlawful rules to the people"* (Sajjadi, 1999, p. 489).

Imamate

Imamate in Imam Khomeini's thoughts

Imam Khomeini has broadly discussed the position of the Imamate and its role in preserving Islam and the Imam's apparent and esoteric responsibilities against the Islamic community and the world of humanity. He maintains that consistent with wisdom, as the religion and the Koran are important before God and his apostle, Imamate should be important before them because Imamate is the driving force of the law. While the main goal is religion and legislation, the legislation would be useless and irrational without Imamate, while religion is perfected with Imamate (Ragheb, 2008).

According to Imam Khomeini's thoughts, the necessity and significance of an Imam in every era are religiously obligatory because it is only through the Imamate process that divine rules are guaranteed. One would say that the Imam is the guardian of the religion and its rules. Therefore, it is obligatory for God, his apostle and the next Imam to appoint an Imam.

B) Imamate in Mulla Sadra's thinking

Mulla Sadra maintains that the Imam has an earthly and heavenly rank because of enjoying perfections; this is because he is a divine-human and is connected to the Higher realms; his worship is simply for God, and just as the prophet is the prophet, though not all people agree upon his prophethood, the Imam has an Imamate position, though not all people agree upon his Imamate. Mulla Sadra remarks that this subject is so clear that if one entrusts caliphate and Imamate with the popular votes, it will be a surprise (Mulla Sadra, 1990: vol. 4, 220-221).

Conclusion

The following is a summary of the results:

- The truth of Velayat is the closeness to God that a perfect man will achieve; however, Vali (guardian) is the one who manipulates the world with God's permission and harnesses all the forces. Therefore, the caliphate is the appearance of Velayat and the esoteric Velayat is the caliphate.
- It is the Velayat and caliphate of a perfect human being that causes the existence and survival of the existential universe.
- The esoteric Velayat originates from the ultimacy of the closeness to God, while apparent Velayat refers to how the government and the community are run, both of which belong to the prophet and the infallible Imams. Following the infallible Imams, the apparent Velayat goes to the Vali-e-Faghih.
- Caliphate is the appearance of Velayat, and Velayat is the heart of it, both mediating what is represented as specific.
- Prophethood denotes informing people of divine truths and manifests the Velayat truth, while esoteric Velayat is the key to all divine caliphates. Velayat has a broader scope than prophethood.
- Imamate is leadership, prophethood and guidance. The Imam's mission is the Velayat and guardianship, and the prophet's mission is promulgation. Imamate has a higher position than prophethood.
- The necessity and significance of an Imam at every point in time should be determined. This is because it is only through Imamate that divine rules are guaranteed, for the Imam is the guardian of the religion and its rules.
- The Imam is the heart and pole of the possible world, the Caliph of God and His reason on earth. The earth will never be void of an Imam. Imam is the orbit of the existing world and the axis of the universes. The sacred realm of the Imam is the channel through which divine grace is spread and is the origin of guidance in the Shari'a and formative world. No doubt, the world of existence will not be perfected without him. He is the same perfect human being who has control over everything. This human is, in fact, a great scholar. In other words, only perfect humans can attain this position.
- Prophethood and Imamate are representative of the truth behind the caliphate and Velayat. Velayat is a character of the divine caliphate. Divine Velayat is systematically sent down to the levels of existence based on creation requirements so that it appears in human society in the form of prophethood and Imamate.
- The rank of Imamate is above the prophethood rank, but both constitute the heart of Velayat.

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KORANIC DOCUMENTATION OF IMAM ALI'S PRAYERS IN THE THIRD CHAPTER OF SAHIFE-YE-ALAVIYA

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ABSTRACT

The present research aims to investigate the Koranic documentation of Imam Ali's prayers, as suggested in the third chapter of Sahife-ye-Alaviya. Studies have indicated that regarding a request for guidance from God, it is obvious that the Koran has originally been revealed to guide human beings. Imam Ali's requests have been compatible with the Koranic verses. For instance, the Imam asks God for a happy and good end of life which is cited in the Koran, where prophet Jacob famously advises his children to remain subservient to God by the time of death. Concerning the request for lawful provision from God, the Imam's call is also compatible with the Koranic verse. It calls on people to eat lawful provision and refrain from satanic commands, for he is the manifest enemy of man. A large number of books have discussed the positive outcomes of lawful provision from a moral perspective. The Imam asks God to make things convenient for him in yet another discussion, reminding us of the prophet Moses in the Koran. Thus, we learn that this call also conforms to the Koranic verses as God tells the prophet that He made things simple for him. Also, regarding the last request examined in this study, the Imam asks God to save him from predicaments; as we

read in the Koran, Prophet Joseph asks God to save him from predicaments. Some verses suggest that the residents of the Heavens consider their triumph to be assistance from God.

Keywords: Sahife-ye-Alaviyah; Imam Ali; Koranic documentation; narration.

Introduction

As pioneers of knowledge, all the infallible Imams (AS) have sought to promulgate and interpret the Koran. In their blessed course of life, they have always sought to disseminate the religion in different contexts, aiming to make people aware of the advice and commands provided in the holy Koran. As the first commander of the faithful, Imam Ali (AS), like the prophet (Peace be Upon Him), used to provide the Koranic teachings in prayers and invocation. These prayers are gathered in a valuable book entitled “Sahife Alaviya,” with two volumes. The first volume contains 156 prayers gathered by Sheikh Abdullah Samahichi, while the second one is a compilation by Mirza Hossein Noori, a documented book of the former. In the meantime, professor Seyed Hashem Rasouli Mahallati has gathered both books under “Al-Sahife Al-Alaviya Al-Jame’a.”

The present research, which deals with the Imam’s prayers in the said book, has classified them under various chapters. These prayers include the invocation of God, the Almighty, prayers on faith and religious recourse, and praising God and His qualities. This 147-page book reveals that the prayers are related to Koranic subjects and inspired by Koranic concepts and structure. For example, the prayer “O’ God **confer blessing upon** Mohammad and his household, and have mercy on me when I am not in the world, and keep alive my name among the people” is a Koranic-document verse that reads: *“Indeed, Allah confers blessing upon the Prophet, and His angels [ask Him to do so]. O you who have believed, ask [Allah to confer] blessing upon him and ask [Allah to grant him] peace”*.

Therefore, the research aims to investigate the Koranic concepts and reveal a content-based relationship between the prayers in the third chapter and the Koranic verses.

Theoretical Foundations of the Research

In his prayers on Friday nights, Imam Ali asks God to turn away every impurity and evil from him, despite being infallible. He used to call on God to forgive his sins, saying: “O’ God forgive the sins that tear apart the veils, O’ God forgive the sins that culminate in retribution and punishment, O’ God forgive the sins that change the blessings, O’ God forgive the sins that cause calamities. The severity of some sins is as if the sinner has stood up to war with God. The sin man commits in this world will be a fire in the Doomsday which overwhelms him¹”. This prayer conforms to the Koranic verse which says: *“Indeed, those who devour the property of orphans unjustly are only consuming into their bellies fire. And they will be burned in a Blaze”. (Nisa, 10).*

Ima Ali asks God for guidance in another prayer and says: “O’ Merciful and Compassionate, guide me.” Guidance is divided into two types: specific guidance (Canonized guidance), which is performed by sending down the apostles and the books, etc. and general guidance (Generative guidance), which is performed by God through wisdom, intellect, thinking, conscience, instincts and some properties in the humans and animals².

Generative guidance³ is like bee guidance which reveals how it should suck the nectar of the flower and build a hive for itself, or like bird guidance in winter and summer migration. In

¹ Sahife Alaviya, 371

² Mohammadi, Moslem, "Dictionary of Terms of Theology", Qom: Representation of the Supreme Leader, first edition 2011, p. 230

³ Hashemi Rafsanjani, Akbar, "Dictionary of the Quran", Qom, Qom Book Garden, second edition, 2004, vol. 33, page 38

this connection, God says: *"Our Lord is He who gave each thing its form and then guided [it]."* (Taha, 50). In the meantime, **canonized** guidance refers to the sending down of the apostles and holy books for the guidance of mankind¹.

On Fridays, when Imam Ali prepared for the ablution to say his prayers, he used to ask God for a good end of life, saying, "O' God, make my health and wellbeing as well as my end of life good."

In the Koran, God says: *"O you who have believed, fear Allah as He should be feared and do not die except as Muslims [in submission to Him]"* (Al-Umran, 102). Thus, the Koran considers piety and fear of God to be the main factor of a good end of life (believer's death), reminding us that *"And the [best] outcome is for the righteous"* (Al-Ghesas, 83).

Upon going to and entering the mosque, Imam Ali said prayers and asked God, "Confer upon me lawful provision." Looking at the Koran, we learn that the holy book has never invited us to ignore God's blessings, not considering poverty as a value or blessing, but inviting man to make efforts to find lawful provisions. Thus, we read in the Koran: *"mankind! Eat of what is lawful and pure in the earth, and do not follow in Satan's steps. Indeed, he is your manifest enemy"* (Al-Bagharah, 168). Chapter An'am of the Koran says those who kill their children out of poverty are mistaken because God is the sole provider *"and do not kill your children out of poverty; We will provide for you and them."* (An'am, 151).

These verses suggest that God is the only provider, and it is He who provides all the creatures with the provision. These verses are clear examples of a generative reality.

To make things easy and make the affairs more convenient, Ima Ali used to say: "Make for me easy and convenient all that I fear is difficult." Easiness and convenience in work are achieved when no barrier exists to its fulfillment. In other words, simplicity and convenience help man achieve his goals in life without difficulty. God uses the word "Yosr" (which translates to easiness) as one of God's Unseen assistances, conferred upon the faithful. For the Koran, "Yosr" stands against "Usr" (which translates to difficulty), which has been very important even in the lives of the great apostles such as the prophet Moses who called on God to make his affairs easy and convenient. God has repeatedly used the word "Yosr" against "Usr." As stated, prophet Moses called on God to make his prophethood against the pharaoh easy and convenient. *"Go to Pharaoh. Indeed, he has transgressed"* (Taha, 24).

Before asking God and saying his prayers, Ima Ali asked God to confer a blessing on His prophet and give him a lawful provision.

The word "*Salavat*" (blessing) is an Arabic term derived from *Salat*, denoting salutation, prayer and praise. The word also means pray, which also includes prayers. In religion, a blessing is infusing something with holiness, spiritual redemption, or divine will. It also denotes pray, praise and salutations². Koranic verses suggest that blessing the prophet Mohamad creates comfort and peace of mind. Conferring blessing on the prophet creates closeness to God, the Almighty, drawing the attention of God and attracting His mercy and compassion³. In Zobda Al-Bayan, Mohaghegh Ardabili cites verse 65 of Chapter Al-Ahzab (*Abiding therein forever, they will not find a protector or a helper.*) and says the obligation to confer a blessing on the prophet may be due to the obligation in *Tashahhod* in saying the prayer⁴. This means that in praying *Tashahhods*, it is required to confer a blessing on the prophet and his household. However, this obligation does not only refer to prayer, as the faithful are almost always required to confer blessing upon the prophet. The point

¹ Noor Interpretation, vol. 1, p. 33

² Fakhreddin Tarihi, "Bahrain Assembly", Vol. II, Tehran, Islamic Culture Publishing Office, 1988, vol. 1, p. 266.

³ Ibn Ashour, Muhammad Tahir, "Tafsir al-Tahrir wa al-Tanwir", Tunisia, Dar al-Tanumiyah, 1984, vol. 6, part 11, p. 51

⁴ Zobda Albayan, 131

here is that this blessing did exist even before the creation of the prophet's Household, and there are numerous narrations about it. Imam Ali says: "God made Abraham his friend, for he used to confer a blessing on the prophet and his household repeatedly."

Blessing on the prophet (Peace Be Upon Him) is not only a sign of faith and piety but also creates love and affection for the prophet and his ultimate satisfaction. This also makes God be pleasant over His servants. This is because whoever wants to become a friend of God must first be a friend of the prophet (*Already there has been for you a sign in the two armies which met - one fighting in the cause of Allah and another of disbelievers. They saw them [to be] twice their [own] number by [their] eyesight. But Allah supports with His victory whom He wills. Indeed, that is a lesson for those of vision.*) (Al-Umran, 13). In the meantime, expressing love and compassion towards the prophet using conferring blessing is a way towards this end. Imam Ali Ibn Mosa (AS) says: "The one who is incapable of veiling his sins must abundantly confer a blessing on the prophet, for the blessing will remove the sins." The late Kooleini says: "Whoever says a hundred times O' God send a blessing on the prophet; God will answer a hundred prayers of him¹." Another benefit of conferring blessing is that it makes gatherings and assemblies beautiful and embellished. Citing a document attributed to Ayshe, Sayouti says: "Make the assemblies embellished with conferring the blessings" because the blessing removes the sins."

In saving from predicaments, Ima Ali asks God to help him come out of suffering. Regarding what the people of Paradise say, it is said that they owe their paradise to the pleasure of God and the help of the Almighty, and they are happy that God saved them from dangerous and deadly places, which is why the Imam also referred to this important issue. In his request for saving from dangerous places, the Imam asks God for salvation, saying: "O' God have mercy on me and save me from the evil ending."

Also, the Imam's prayer refers to Chapter Toor, verse 26, where God says: "*They will say, 'Indeed, we were previously among our people fearful [of displeasing Allah],'*" as the residents of the Heavens owe their blessing to fear of God.

The verse "Indeed, we used to supplicate Him before. Indeed, it is He who is the Beneficent, the Merciful." (Toor, 28) is a cause of the preceding verse which discusses the dialogue of the residents of the Heavens who tell each other "So Allah conferred favor upon us" (Toor, 27), "because" we used to pray God in the world." Thus, we can suggest that divine blessing includes guidance and direction, success and conferring the light of faith on the believer's heart and protection from Satan, darkness and disbelief, and protection from caprice². By "blessing," means success, guidance, and assistance from God. Here, the word "Mohzarin" comes from the word "Ehzar," meaning punishing the offender, which, if the word "Ehzar" is used in an absolute sense, denotes evil and punishment. The entire meaning of the sentence is: if the Lord did not assist me with this, and if He did not guide me, I would be overwhelmed with the fire of Hell³. In one of his prayers, the Commander of the Faithful asks God and says, "And join me - my Lord - with the righteous (Salehin)."

Regarding the meaning of the word "Salehin" (the righteous), if it refers to an individual's quality, it denotes the one who deserves the endless divine grace and blessing and His mercy and compassion. This sense is also noted in the prophet Abraham (AS), where he says: "[And he said], 'My Lord, grant me authority and join me with the righteous.'" (Shoara, 83). If the sense is taken for an action, it denotes the conduct which renders in nobility,

¹ Usool Kafi, vol. 2, p. 164

² Teib al-Bayan vol. 15, p. 156

³ Almizan, vol. 17, p. 209

righteousness, and quality and characteristics of the human being to benefit from divine blessing¹. It is also clear from the above that "Salehin" refers to the individual's characteristics.

In another narration from Imam Hossein, he says: "O' Lord, the beginning of the creation is yours, the will is yours, and the authority is yours, please join me with the righteous (Salehin)." Interpreters disagree over the meaning of Salehin. However, narrations suggest that the word Salehin, it is meant the prophet Mohammad (PBUH) and his successors, and the Saleh (the righteous) is the one who is a good doer and has achieved transcendence in the knowledge of the religion; it refers to the one who has all the qualities of good and grace and is immune from all impurities and evil. It is narrated that the first people who enter the Heavens are the prophet, the commander of the faithful and the prophet Abraham².

In his prayers, Imam Ali (AS) prays for the believers and asks God for forgiveness and grace, saying, "O' Lord, have mercy on the believing men and women."

Praying for others and giving priority to the wants and needs of others over oneself is a great deed in the sight of God, the Almighty. That praying of this kind is very beneficial for the one who prays because, for this, God shall turn away from us all the evil, give us much provision and have mercy and compassion on us.

No doubt, one of the most important parts of night pray is a prayer for others and asking for forgiveness for 40 believers. This kind of prayer turns away from the believer all the envy, animosity, and suspicion and creates kindness and grace for him.

Man sometimes prays for himself, such as the one by the prophet Solomon who said: *"He said, 'My Lord, forgive me and grant me a kingdom such as will not belong to anyone after me. Indeed, You are the Bestower.'"* (Saad, 35). The man usually prays for himself and others: *"And [there is a share for] those who came after them, saying, 'Our Lord, forgive us and our brothers who preceded us in faith and put not in our hearts [any] resentment toward those who have believed. Our Lord, indeed You are Kind and Merciful.'"* (Hashr, 10). In his prayers following the construction of the Ka'be, Prophet Abraham said: *"Our Lord, forgive me and my parents and the believers the Day the account is established."* (Ebrahim, 41). Also, prophet Noah said: *"My Lord, forgive my parents and me and whoever enters my house a believer and the believing men and women. And do not increase the wrongdoers except in destruction."* (Nooh, 28). Prophet Joseph prays for his children and says: *"He said, 'I will ask forgiveness for you from my Lord. Indeed, it is He who is the Forgiving, the Merciful.'"* (Yousef, 98).

The Koran reveals over twenty types of prayers from the prophet Abraham, including prayers for his son, which fall under three doctrinal, practical and moral categories, as verse 124 of the Koran reads: *"And [mention, O Muhammad] when Abraham was tried by his Lord with commands, and he fulfilled them. [Allah] said, 'Indeed, I will make you a leader for the people.' [Abraham] said, 'And of my descendants?' [Allah] said, 'My covenant does not include the wrongdoers.'"* (Bagharah, 124), and *"Our Lord, and send among them a messenger from themselves who will recite to them Your verses and teach them the Book and wisdom and purify them. Indeed, You are the Exalted in Might, the Wise."* (Bagharah, 129).

Imam Ali (AS) calls on God to place his prayers among the accepted and answered prayers, saying: "O' Lord place my prayers among the answered prayers," which refers to prophet Abraham in the Koran who says: *"And [mention, O Muhammad], when Abraham*

¹ Teib al-Bayan vol. 2, p. 203

² Teib al-Bayan vol. 14, p. 47

said, *"My Lord, make this city [Makkah] secure and keep my sons and me away from worshipping idols. (Ebrahim, 35).*

Thus, it is concluded that Imam Ali's prayers conform to the Koranic verses and are documented based on them.

Conclusion

The present research aims to investigate the Koranic documentation of Imam Ali's requests, as suggested in the third chapter of Sahife-ye-Alaviya. Studies have indicated that with regards to the request for guidance from God, it is obvious that the Koran has originally been revealed to guide human beings. Imam Ali's requests have been compatible with the Koranic verses. For instance, the Imam asks God for a happy and good end of life (believer's death) cited in the Koran, where prophet Jacob famously advises his children to remain subservient to God by the time of death. Concerning the request for lawful provision from God, the Imam's call is also compatible with the Koranic verse. It calls on people to eat lawful provision and refrain from satanic commands, for he is the manifest enemy of man. A large number of books have discussed the positive outcomes of lawful provision from a moral perspective. The Imam asks God to make things convenient for him in yet another discussion, reminding us of the prophet Moses in the Koran. Thus, we learn that this call also conforms to the Koranic verses as God tells the prophet that He made things simple for him. Also, regarding the last request examined in this study, the Imam asks God to save him from predicaments; as we read in the Koran, Prophet Joseph asks God to save him from predicaments. Some verses suggest that the residents of the Heavens consider their triumph to be assistance from God.

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СЕКЦИЯ
ЮРИДИЧЕСКИЕ НАУКИ
LAW

**THE PRICING METHODS IN THE CONTINUOUS AND SERVICE
CONTRACTS**

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ABSTRACT

The goal of this research is to investigate the pricing methods of the continuous and service contracts. Methodology is analytical-descriptive using the library resources. The investigations showed that the fixed pricing model approach which has been defined for the projects with exact requirements and scope in the best way will not change. Each change needs to the additional estimation and the additional contract. Therefore, one of the main requirements is the use of the fixed cost pricing model, the definition of domain exactly and the technical requirements before it. Also in last years, EPC contract has been considered because of decreasing the employer risk and determination of the contract price and time from between the different methods of performing the project and the different types of the structure contracts. One of the important specifications of this contract is to be long time. By considering to this specification, it gets important to manage the relationship of the parties of contract during the project. The contractual adjustment conditions are going to exhibit the approach for the unforeseen events and or the inevitable changes in the contractual agreements between the parties. Among these inevitable changes are the increasing and or decreasing the narrative values and volumes of the contract, because it is almost impossible to foreseen the values and volumes of the contract exactly.

Keywords: continuous and service contracts; pricing; fixed pricing; contractual adjustment.

Introduction

It is considered to determine the exchange as one of the substantives and very important conditions to hold the contract in the continuous and service contracts such as other concluded contracts; because the contractual exchange among the price is one of two basic pillars of the contract and its being certain is regarded as the validity and invalidity elements of the contract. There have been two theories about the exchange determination in the contracts from a long time ago. In the first theory, which it is known to the traditional theory too, the bond accuracy condition is to being certain of the exchanges. But based on the new theory which this research is based on it too, the contract is valid and in fact according to the today requirements even if there have not been any the certain exchanges but there have been the specified and exact criterion of their determination. In the contracts traditional theory, the lack of exchange determination of the exchange into one of the traditional theories is caused to cancel the transaction, but in the new theory, the contractual exchange can be determined to one of the new methods of the exchange determination which nowadays, is prevalence in the contracts such as the use of the standards, the use of determination by the third party or the use of fixed pricing agreements.

The fixed price is inexpressible amount which it has been accused to a product, service or work piece. The most common reason of the fixed price for a product is to control and or to authorize by an outer existence. For example, a monitoring organization may adjust the fixed price for some goods. The service and fixed price contacts are as a replacement for other models. The

fixed price is desirable to the small- and medium-scale projects in which the requirements, specifications and the programs before beginning to develop the project can be determined clearly. If the customer asked to search more about the conclusion and no achieving to the cited goals, this model is suitable. The service provider analyzes the project domain and complexity after requesting the customer, it provides to the customer the project delivery program and the fixed budget to develop the perfect product. The fixed price model has less danger to the customer particularly with the well-defined requirements and the established projects management methods. But after agreement, each change to the specifications or domain is caused to change the price and program. By considering to the topics cited in this research, it is investigated the pricing methods in the continuous and service contracts by the analytical-descriptive methodology.

Research Theoretical Principals:

The Concept of Fixed Price

This price is including all the overheads and the profit of the contractor and for this same reason it should be defined the clear and perfect scale. In comparison with other contracts, the fixed price contract needs to struggle more for defining the work-scale and requirements and technical needs, thus the contractor accepts the risk created by the fixed price of the work. These risks are including the changes in the labor cost and first elements, need to more labor than what it has been predicted, adding the possible resources to the contract price, tendency of the contractor to decrease the costs for its own and more costs into the employer and etc. One of the important points in these contracts is the project implementing time, because the contractual contractor has signed it with the fixed price, therefore it tries to decrease the time and finish the work at shortest time until it can prohibit the double and additional costs.

The contract is complete in which is determined the party's commitments and the contract conditions completely. As in the contract, the seller is committed to deliver the apartment at definite date and with the specified price. Some believe that to being complete the contract depends to the complementary rules highly. Whatever there had been more rich complementary rules in the juridical provision, the contractual gaps have been better covered.

The fixed price contracts exhibit the fixed payments based on an inflection point payment program or the results exhibition. The charges of cost repayment is paid as the calculated and sustained costs as monthly or three-monthly. A considerable difference between the fixed price and the cost repayment contracts is to allocate the risk. The university is subject to more danger by the fixed price agreements, while the sponsor has more risks with the cost repayment contracts.

There is two Articles in Vienna Convention that based on one of them, it is necessary the pricing or determining the criterion for it, the conditions specified to necessitate and the contract accuracy; but based on other Article, if there is a contract and it has not any specified price and also there is not any the criterion to determine, therefore it is assumed that the traders have considered the price implicitly in which it has been common to this type of goods during to hold the contract, in similar position and the related commerce. Therefore, whenever the price is not definite and the criterion has not been exhibited to determine it, this contract is correct.

One of the most important conclusions to the pricing and to inform about the transaction is the famous Prophet's tradition "forbid Prophet to the transaction which it has the uncertainty". To investigate the uncertainty, it should be defining the word of "uncertainty" at first. The word of uncertainty in the judicial contexts has been applied with the ignorance and also with danger and the deceit too, while the aim of the legislator is only the deceit. It has been stated many meanings for the word of "uncertainty", but two words of the danger and the deceit have overshadowed on all of them.

The damage is not the criterion to cancellation of uncertainty but anywhere there had been the uncertainty, even if there had not been the damage, it is caused to corruption of the transaction. But some jurisconsults consider as necessary also the danger and the damage in addition to the ignorance into the price for realizing the concept of uncertainty and they believe that the uncertainty and corruption will not be arranged by the lack of each one of the two. Therefore, some jurisconsults have known generality and peculiarity in some respect the relationship between those two the public and private during denying implication between the uncertainty and ignorance. Nevertheless, the most suitable meaning to the uncertainty in the cited tradition is the danger, because the uncertain transaction is the pseudo-gambling transaction that it can pave the way of the conflict and involvement because of being uncertain and indeterminacy of its conclusion. For this same reason, the rationalists don't proceed the uncertain transaction.

If the project is financed with fixed interest rate or the taken loans had been with the invariable interest rate, it can be said that the risk of the interest rate will not be created. There are the contracts that allow to buy the property with the fixed price in future such as the today price. On opposite of these contracts, there are the optional contracts that allow to accept or reject the contract into the buyer at definite date. The charge of this selection is the amount in which is paid to the seller by the buyer. These contracts are used to decrease the fluctuations of the interest rate too. In fact, by the interest rate cap, the buyer is committed to the seller by paying the amount until it pays it if the interest rate future is higher than the interest rate cap.

Whenever the contract amount and price are specified as the fixed and definite in the contract, it should be had two basic specifications of being certain and definite. In this case and assuming to being fixed and definite of the price, it is specified that the contract price is not the unknown. Because the unknown price can't be fixed and definite. Therefore, the price can be fixed and definite if firstly it is definite such as the cash, benefit or goods; secondly it is specified such as how much it should be? which the legal tender is for that country?

If the contract price is specified as the fixed and definite, so it has all needed conditions to accuracy and there is not any alteration. Of course, this is not meant that the price should be the specified at beginning and the change of the contract conditions is not caused to adjust the contract conditions. The nature of the industrial and contractual works will be the change in the working conditions and position. It is meant that in the industrial mega-projects, the work of the contractors is subject to the employer orders and the project position.

The Contractual Adjustment

Sometimes as a result of the unforeseen events that have not be predicted in the contract too, if implementing the obligations gets impossible by one of the parties which it is adjusted in these conditions, the court leaves beyond of obtaining and implementing the common aim and if it had been prescribed the law and by inspiration of fairness and good intention and judicial conscience along with appeal and based on the structural and implied term to balance in the reciprocal obligations of the parties, it revises in the contract and adjusts the huge difference of the obligator position.

Of course, at first it may be imaged that there is not the relationship between the interpretation and adjustment, because the adjustment is mentioned after specifying the contract provision by interpretation and completion. In other word, after explaining the bond theme, it disrupts the economic balance of the parties because of happening the events existed during the bond and it is hardened to implement for one of the parties and it is mentioned the adjustment. On other hand, it is certain that the contract can't be changed or transformed by interpretation.

Encouragement (Increase) And Punishment (Decrease)

As the economic fluctuations and the repeated increase and decrease of the service and goods rate is caused to adjust the contracts necessarily, the parties are gotten out to the judicial consults and law offices and the courts to resolve. For example, the contractor who has been committed to construct and deliver the residential complex based on the agreed price is faced to the unexpected events such as flood, earthquake, or war and economic, social and political crises which it has been caused to multiple the prices of the structural elements into the price during the contract and fulfillment of obligations create the damage for the contractor. Here it is that the necessity of the contract adjustment is occurred and it is considerable highly to accept and reject the legal license of the contract adjustment

Based on the contract common conditions, if it is notified the works to the contractor in the contract framework which it has not been predicted the price and amount in the price list and the amount attached to the contract, the contractor should submit to the consultant engineer its own suggested price to implement the cited works along with analyze the price immediately. The price is the criterion for payment that is defined by agreement with the contractor and the consultant engineer and is approved by the employer.

Pricing Through Standard (Regulation)

There are two regulations to the pricing through regulation namely objective and subjective. In objective regulation (standard), it is used to the pricing the objective regulation instead of the human being's will; the regulations such as the exchange price, market price, delivery time and price list. This method is one of the most important methods to the pricing the contractual contracts. It is customary to contract in our country with the method of referring to the price list issued by the government. The price list issued by the government in different courses has been transformed as a suitable method to discover the contractual contract price. Article 55 United Nations Organization Convention about the good's international sale contracts (1980) has predicted to the pricing in the form of the determination of the pricing regulations.

Article 216 civil law has prescribed that: the object of transaction should not be ambiguous except in the special cases in which the brief knowledge is enough, it should be corrected as following: In the viewpoint of the traders or tradition, the object of transaction should not be ambiguous except in the cases in which the tradition say that the brief knowledge is enough. The viewpoint of convention than the tradition interference with completing the sale contract without pricing clearly is that Article 14 goods international sale convention says that: "... the offer is clear enough if it can specify the goods and it can specify the amount or price clearly or implicitly or the regulations to determine them...."

It has been recommended to the governmental party strictly in some guidance provision supervised on the contracts such as the contract common rules that they should specify the object of transaction and if the object of transaction and the contractual price can't be determinable, they can specify the criteria and regulations. Based on this, the governmental authorities of establishing the contract and the juridical consultants should predict the possibility of the contract adjustment and its criteria in the contract text by considering to change the position and to upset the exchange economic balance.

Subject Regulation

The sale contract parties should agree with all pillars of the sale contract, but they should premise the pricing their own next agreement as the sale contract became implementable to realize the above agreement than to determine the definite price. It is not a sure method to the pricing basically. Because it is not certain to agree with the parties subsequently and if there is not any reflection behalf one of the parties, what there is the sanctions for it. This method can be spread to contract the contractual contracts in a method in which a protocol has been signed between the

parties and they assign the pricing in the protocol to close future. But there are many difficulties in this method such as the bankruptcy of the company before holding the contract. Of course, according to the common rules of the contracts, this contract is void and this contract is considered as the pre-contract.

Other method is the delegation of authority to the pricing to one of the traders based on the intention governance principle and or it may be assigned to the third party except to the interactors. This person is different than the third party who has been specified by the court to pricing as the expert. Nevertheless, this third party, who has been assigned by the parties whereby the condition during the contract or the independent contract, has not to accept the cited assignment and it is free to select.

To Determine Through the Court

When is discussed about to not implement of a side obligation generally or to not implement of a basic obligation partly, this is the judge who distinguishes that is the cancellation justifiable or no? with its own assessment and interference. When to not implement partly can be led to cancel all contract that it can be related to a decisive obligation during to hold the contract.

It is not possible to the pricing in the contract text definitely. Because it is rationally and logically impossible the pricing without having a viewpoint of the expert or the expert institutes. Therefore, the parties hold the contract and the pricing is assigned to the expert. To assign the pricing to the expert is considered as to determine the regulation to the pricing. In this suggestion, the expert should determine the known price during the contract and has not any right to determine the unknown price. The cited rule is inferred from the intention of parties implicitly (it is understood from Articles 225,220,356 civil law).

The judicial adjustment of the contract created by decreasing the money value is from the economic-judicial concepts which has been created by the economic fluctuations in last century. By considering to the economic, philosophy and judicial foundations exhibited to adjust the contract and to decrease the money value, it seems that to get rich unfairly is the suitable foundation; but the now position of the judicial system accept it less. It seems that the legislator has accepted this institution as the foundation by accepting the adjusting effect of the distress and constriction. Decreasing the money value is compensable by considering to its nature.

Price Based on Loss

The stop loss is the price or the time that sustaining more than it in the investment is hard to the investor. In fact, if it can make a mistake to select the stocks and or its buying time, the mission of the stop loss is that it can minimize the loss of the investor. You need to know the possible loss maximum in all stages of the margin and not-margin transactions %100 and it is necessary to apply manually and automatically.

The Cases of Applying

In some contracts, the pricing not only is not determined but the pricing method remains silent. Thus, it can be imaged two states. Firstly, the price can't be determined in the contract and the pricing method remains silent. Secondly, the parties can predict the methods to the pricing of the contract, but the price can't be determined by these methods at next.

On other hand, not having a definite economic strategy and the pre-codified programs are caused to increase the risks of activity in the economic sector, additionally, the general changes in the economic policies will be resulted to instability in the market behavior and the permanent shocks in the market part behavior. There is not any the investor to invest on the short-return plans. Therefore, there should be the minimum stability to agree and trade in the market.

It has been recommended to the governmental party strictly in some guidance provision supervised on the contracts such as the contract common rules that they should specify the object

of transaction and if the object of transaction and the contractual price can't be determinable, they can specify the criteria and regulations. Based on this, the governmental authorities of holding the contract and the juridical consultants should predict the possibility of the contract adjustment and its criteria in the contract text by considering to change the position and to upset the exchange economic balance. Generally, it has been stated the general rules and principles to the pricing in the civil law, and the new principles were not observed to the pricing in the contracts by searching in other laws and regulations.

But as it was said, it has not been determined the specified and clear method to pricing and holding the contract in any law and regulation supervised on the contractual contracts. Therefore, as far as there is the specified method, it was expressed in other discussions and there is a principle that the specified method has not been specified in the contract. On this basis, the legal principles of European contracts know correctly the contract in which is not definite the regulation to the pricing, as Article 6-104 appoints that "if the price or the pricing regulation can't be specified in the contract, it is assumed that the parties have agreed with a rational price."

Pot-Agreement of Parties

Also, the basic criterion and resource to distinguish the seller and buyer obligations is the contract condition and provision. Based on Article 6 of 1980 Vienna Convention, the party's intention is the resource of first sale contract. This Article says: "the parties can except the inclusion of regulation in this convention or can back each regulation out by regarding Article 12 or can change it." Therefore, the intention governance principle in Convention has been accepted. The followers can deny to implement Convention generally, or some regulations except it or transform its effects.

Therefore, if the special obligation had been excepted from the parties' obligations territory which there is usually in the sale international contract, to not implement is not considered as the cancellation, although it had been predicted in Convention. It seems that the party's freedom principal has priority over the good-will principle which it comprises the special works and behavior behalf the parties and can't be ignored the clear agreement with the lack of agreement being by considering to the cited principal implementation and can consider their non-implementation as the cancellation.

The Agreement Methods (back out)

Whenever the contract had been held correctly but the price had not been defined implicitly and explicitly or the regulation had not been predicted to the pricing, if there is not any opposite reason, it is supposed that the traders have considered the price implicitly in which it has been common to sell these types of goods in similar position in the related commerce during holding the contract. Article 56 of above Convention adds that if the price had been determined according to the goods weight, in case of doubt the net weight is the criterion to the pricing. Also, the net weight earns from the difference the gross weight and the goods or package weight.

Other factor to hold the basic breach is the obligator power and ability to implement the contract, while there had not been the possibility to implement the contract (objective impossibility), obligee can cancel the contract according to the basic breach. Therefore, if the object of transaction is unique to the unit and there is not to waste the possibility to implement the contract and it is resulted to realize the basic breach. Also, it is supposed that the contract implementation had not been discarded, but the obligator can't implement it by considering to the person position, the basic breach happens (subjective impossibility).

Base of Legitimacy

To being correct each transaction, to being definite is necessary in addition to being specified. Article 190 civil law has mentioned only to "to being definite" which it is from the condi-

tions of the transaction accuracy. Nevertheless, Article 216 has compensated the breach of Article 190 and has added “to being definite” to the numbers of the basic conditions of the transaction accuracy too. The aim of “to being definite” is that the transaction not be unknown. In administrative contracts the direction of the judicial action should not be the opposite to law and rules governed during holding the contract. If the direction is cited, it is supposed that it is the correct and basic, unless it is proved the opposite of it. Because the direction of the contract is legitimate, the direction of the administrative decision with the legislator intention and aim should be compatible inherently and really, and each type of abusing to hold the contracts that are the opposite of public elements and society benefits, can eliminate the legitimacy direction.

Based on the common law and regulations related to (Articles 216,338,348 civil law), the contractual exchange among the transaction price should be specified. But the parties have not to use for the pricing from the special method. There are many methods in this case. Nevertheless, the parties may compromise to all methods in the contract text or before it, or may postpone to hold the contract of pricing to the future. Additionally, the parties may confine only to determine the regulation and criterion of the pricing.

The Cases of Applying

If the parties had been silent about the contractual obligations and also, had not been expected to some obligations, the best resource to distinguish and achieve the obligations of an international sale contract is Convention. The seller obligations have been predicted in Articles 30 to next and the buyer obligations have been predicted in Articles 50 to next and to not implement each of them is considered as the cancellation of the contract. Other resource to achieve the obligations of the traders and the cancellation consequently is the tradition and habit and transactional procedure between the parties.

In investigating the credit of the contracts in which their price is the percentage of all of the project costs, the criterion to the pricing in this method is the pricing of the contract firstly that or it is the definite or the unit. After the pricing in this method, it is considered the percentage of the contract price as the profit of the contractor and it is added to the price. Thus, this method is including two prices, first price that it is for the contractor based on the taken price, and second price that it is the percentage of the first price, and the final price will be the result of sum first and second prices.

Conclusion

To being correct each transaction, to being definite is necessary in addition to being specified. Article 190 civil law has mentioned only to “to being definite” which it is from the conditions of the transaction accuracy. Nevertheless, Article 216 has compensated the breach of Article 190 and has added “to being definite” to the numbers of the basic conditions of the transaction accuracy too. The aim of “to being definite” is that the transaction not be unknown. In administrative contracts the direction of the judicial action should not be the opposite to law and rules governed during holding the contract. If the direction is cited, it is supposed that it is the correct and basic, unless it is proved the opposite of it. Because the direction of the contract is legitimate, the direction of the administrative decision with the legislator intention and aim should be compatible inherently and really and each type of abusing to hold the contracts that are the opposite of public elements and society benefits can eliminate the legitimacy direction.

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Sometimes as a result of the unforeseen events that have not be predicted in the contract too, if implementing the obligations gets impossible by one of the parties which it is adjusted in these conditions, the court leaves beyond of obtaining and implementing the common aim and if it had been prescribed the law and by inspiration of fairness and good intention and judicial conscience along with appeal and by a document to the structural and implied term to balance in the reciprocal obligations of the parties, it revises in the contract and adjusts the huge difference of the obligator position. Of course, at first it may be imaged that there is not the relationship between the interpretation and adjustment, because the adjustment is mentioned after specifying the contract provision by interpretation and completion. In other word, after explaining the bond theme, it disrupts the economic balance of the parties because of happening the events existed during the bond and it is hardened to implement for one of the parties and it is mentioned the adjustment. On other hand, it is certain that the contract can't be changed or transformed by interpretation.

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STUDYING THE CAPACITIES OF RESTORATIVE JUSTICE IN FORMAL LAWS

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ABSTRACT

Restorative justice is a fresh model in criminal policy highlighting the restoration of victims' rights and resolving the issues stemming from the happening of crime and reparation of damages - especially, the harm to the victim with the free and active participation of the victim and the offender and the local community, through negotiation and dialogue in the form of means including mediation and family meetings, and achieving tranquility and reconciliation. This study aimed to explore the capacity of restorative justice in formal laws. The research method is descriptive-analytical and library resources were used. Studies have revealed that because of the extent of the ruling authority in suspending the execution of sentences, the application of alternatives to imprisonment, parole, semi-liberty, and delay of sentencing are good bases for the rehabilitation of criminals to deliver at least indirect prerequisites for repairing the damages to the victim. Repentance, viewed as one of the factors for the abolition of punishment, is not fulfilled in the case of crimes that are in some way related to the violation of the rights of others, except by reimbursing the material or moral damages imposed on the victim. And this can be a suitable way for criminals to try to make up to the victim.

Keywords: restorative justice; punishments; alternatives to imprisonment; parole.

Introduction

In the classic criminal justice model, punishment has a moral dimension, and the moral falsehood of the offender is penalized. Traditional criminal justice in neither of its two forms has been able to achieve the expected objectives. Failure of the offender's penalty to stop the crime, failure to rehabilitate the perpetrators, overcrowding of the prison, length of the trial¹, the hostility of the trial², being expensive, Ignoring those who have been directly or indirectly offended and who have been harmed by the crime, and their needs and desires, and considering society and the state as victims are among the criticisms that have been made about the traditional model of criminal justice, that is, repressive and rehabilitative. Various solutions have been offered even to the point of repealing the penal system. One of the solutions to this situation is to design and follow a model for the victim to be involved in the investigation process. In this respect, a new model called "restorative justice" was introduced in criminal policy. This type of criminal justice has turned its attention from the offender to the offended and has concentrated on compensating all kinds of harms inflicted on them³. In this context, we view justice as a system that guarantees the superiority of a more respectable interest in judging between two conflicting interests. This view believes that the offense primarily affects the victim, and what is most essential is to pay attention to the victim and recompense for the material, spiritual, spiritual, psychological, and emotional damage inflicted on them and prevent their re-victimization⁴.

It appears very evident that the execution of sentences such as postponing sentencing, release from prison, and replacements to imprisonment can reduce expenses and criminal inflation, reconcile criminals with society, and secure the victim's interests. Furthermore, the Code of Criminal Procedure of 1392 hosts innovations and capacities for implementing restorative jus-

¹ Gholami, H. (2006). Restorative Justice. Tehran: Samat Publications, p.64

² Ibid., P.65

³ Zahar, H. (2004). The Small Book of Restorative Justice, translated by Hossein Gholami, Tehran: Majd Publications, p. 32

⁴ Gholami, H. (2003). Criminal Sciences, Collection of Articles in Honor of Professor Dr. Mohammad Ashouri. Tehran: Samat Publications, p.731

tice, the most tangible of which is the specification of mediation. Including items can be seen as manifestations of restorative justice in the new Code of Criminal Procedure, such as parole, suspension of sentence, adjournment of the sentence, the extension of exoneration by the plaintiff, and inclusion of amnesty and prediction of issues such as reconciliation and mediation between litigants. Accordingly, this study aimed to research the capacity of restorative justice in formal laws.

1. Terms of criminal mediation in the Criminal Procedure Code

The most significant advantage and goal of mediation are to lower the volume of cases in the judiciary. Initiating a criminal process costs the community. For the government to ensure an honest trial, it will have to employ a free lawyer and translator. But if the litigation is directed to mediation, there is no requirement for these expenses. The criminal process has adverse effects on the accused, will cause them to be stigmatized, and will put them in the spotlight of the accusation for a long period. Implementing restorative processes will contain these issues.

One of the regulations and foundations of the restorative justice process is the acceptance and confession of the accused of the crime and their readiness to reimburse for the damages and injuries done to the victim. With the offender stepping up, the restorative justice process starts, and other partakers in criminal justice are encouraged to collaborate and help rebuild the affected individual and social environment. In this way, the legislator first takes a privilege from the accused (confession and admission of his unlawful act) and then supplies the basis for cooperation with him.

The consent of the victim is demanded to direct the case to mediation. Because the process of criminal mediation, influenced by the teachings of restorative justice or the victim-centered approach, is spreading and evolving. This consent of the victim can be reached in any way: an apology from the accused, a favorable promise to compensate the damages, etc.

2. The stages of mediation in the proceedings

The steps of the trial include the pre-trial stage (proof of guilt), mid-trial (in the court) and post-trial (execution of sentences).

The pre-trial phase is the stage of prosecution and investigation. Mediation is suitable at this stage for two reasons: 1- Resorting to mediation is not restricted to criminal proceedings and the guarantee of executions, 2- Mediation is in contact with the criminal justice system as much as possible, and there is some judicial supervision over it; This gives the parties a chance to resolve the conflict arising from the offense and removes the need to go to the next stage of criminal proceedings to save time and money in the criminal justice system. Although Mediation at this stage is superior to the "mid-trial" one, it is not without its flaws the most critical of which in the investigation phase is that the circumstantial evidence of innocence is in conflict.

In the criminal procedure, parallel to the ability to mediate according to Article 82 in the prosecution stage by the prosecutor and the investigator and Article 192 in the investigation stage and before the trial by the investigator, it can be seen from Note 5 of Article 81 regarding the possibility of suspending offenses that go directly to court, and the end of Article 82 that mediation is possible in 7th, 8th and 6th degree offenses.

3. Terms for agreeing to the outcome of mediation and seizure or suspension of prosecution

The cases of administering a moratorium on prosecution are limited to Article 13 of the new Code of Criminal Procedure. In the second paragraph of the article, amnesty by the plaintiff or private plaintiff in forgivable crimes, is subject to the new law in this section. Nevertheless, obtaining amnesty by the plaintiff and the private plaintiff is foreseen in this article under restor-

ative measures, which distinguishes the "process-oriented" nature of amnesty from other "result-oriented" pardons.

4. Securing the rights of society in the mediation process

Ensuring the rights and interests of the society directly in litigation with a restorative approach in comparison with criminal proceedings is a punishable offense. In other words, through the execution of restorative justice programs, particularly criminal mediation, the public rights of the community are better guaranteed and implemented. Because crimes damage the public order, and their public aspect is more investigated than the private ones, society takes it upon itself to prosecute until the order is restored. In the meantime, honorably, by using the capacity of social institutions and non-governmental organizations by participating in dispute resolution, a firm and useful step will be taken for the judiciary in order to save time and money in this regard, and at the same time restore the violated status of the rights of society and individuals.

With the referral of mediation proceedings and the removal of criminal cases from the judicial system, there will be the necessary time for a qualitative review of the most important cases and better criminal cases, so that a more favorable result can be achieved in the criminal justice process. On the other hand, by setting a deadline of 3 months for the mediator and the parties, they are directed to expedite the investigation and use the opportunity, especially for the accused. The extension of this quarter is decided by the representative of the community.

Mediation in sharia and governmental punishments

Examining cases such as repentance and amnesty in cases that are merely a divine right (punishment for adultery, sodomy, moharebeh, etc.), and amnesty by the plaintiff in cases such as qazf (false accusation of adultery) and theft, may lead to the annulment of punishment under certain conditions. These cases cannot be said to be a complete and indisputable illustration of restorative justice, but they can provide the basis for the implementation of restorative justice programs.

In Iranian law, because there is no proper division of crimes in terms of severity, there is no border between severe, ordinary, and minor crimes, opposite to the law of other countries. Crimes fall into limits, retribution, blood money, punishments and deterrent sentences, and forgivable and unforgivable crimes.

The realm of mediation in penal offenses includes grades 8, 7, and 6. That is, depending on the severity of the grade, it includes the three mild degrees of offenses. In total, the offenses include up to two years of criminal imprisonment. In the case of criminal penalties for forgivable and unforgivable crimes, by separating these two, forgivable ones can generally be referred to mediation at any grade, provided they are private. For instance, premeditated murder, which according to the history of mediation, is among the cases in which disputes are always settled through peace and reconciliation, and with pardon by the plaintiff, the punishment is reduced to a ransom. As a principle, the amnesty of crimes is subject to the stipulation of the legislature, some of which are stated in Article 104 of the Penal Code.

Article 347 of the Islamic Penal Code indicates the expansive powers of the holder of the right to retaliation. With this approach, the legislature has opened the space for the implementation of restorative justice programs at all stages of the proceedings, with special importance and care for the victims. Following articles on the rights of guardians of the deceased (heirs or secondary victims) to retaliation may include many individuals. In this case, different restorative methods such as meetings, circles, and local community restoration circles or boards can be used.

In Iranian legal practice, one of the most important uses of mediation in crimes is subject to retaliation, especially retaliation, as we have seen in the traditional rituals of the chapter, "Khon Bas" and "Peter" - either spontaneously or by referral to the judiciary. The support of so-

cial groups for the capacity and potential of this restorative institution has been and will be of great benefit to Iranian society.

Other restorative institutions in the Criminal Procedure Code approved in 2013

1. Authorities of the judicial authority to rehabilitate criminals in the Criminal Procedure Code

One of the innovations of the new Code of Judicial Procedure to accomplish the terms of restorative justice is the issuance of a suspension sentence for the prosecution of the accused by the judicial authorities. However, this deal was already not banned by law, according to the law amending some of the justice laws approved in 1977. However, in Article 81 of the new Code of Judicial Procedure, in line with the principle of the possibility or appropriateness of prosecution, an alternative to criminal prosecution, provides the prosecutor as a prosecuting authority so that if he considers the consequences of the criminal process and the conviction of the accused, such as the stigma of guilt, familiarity with the prison environment and the ways of committing the crime, to be more than its benefits for the society, he will suspend the public lawsuit for a while so that if the accused does not commit a crime during this period, he will not be prosecuted for that crime.

One of the embodiments of restorative justice is the issuance of a revocation order, stated in Article 79 of the Criminal Procedure Code (2013). Although the issuance of the order to cancel the prosecution was also predicted in the note of Article 177 of the Code of Civil Procedure of the General and Revolutionary Courts in 1999, it had ambiguities and problems resolved in this newer law, including the fact that the issuance of the order to cancel the prosecution is prescribed only for forgivable crimes. The time limit for issuing a revocation order is a maximum before the issuance of the indictment. The time for the issuance of the order to cancel the prosecution is the maximum before the issuance of the indictment. The issuance of the order to cancel the prosecution is one of the special duties and powers of the prosecutor and the investigator does not have the right to issue a restraining order and must propose it to the prosecutor.

Amnesty by the plaintiff or private plaintiff, as the case may be, leads to the repeal of prosecution or the abolition of the sentence. Thus, the victim can cancel the prosecution before or after the indictment is issued by announcing an amnesty.

The demands of the victim are distinct in each crime, and the temporary cancellation of the prosecution at specific stages without announcing the cancellation helps to reimburse for the damage and prevent the problem from escalating in their personal and social environment.

The challenge of amending the modification of the law is that by issuing a restraining order and following the last part of Article 251 of the Criminal Procedure Code, with the termination in any way, which is to cancel the prosecution is one of the same cases, the prosecutor is obliged to cancel the security and supervision order. It is judicial. If within one year, the accused does not wake up and the plaintiff requests further proceedings, access to the accused will face problems that the legislature will need to take measures in this regard.

About the suspension of the investigation, it should be said that one of the issues that the judiciary is facing is the high volume of criminal cases. In most cases, this takes a lot of time and causes costs due to the lack of identification of the perpetrator. Thus, the legislature has provided for this provision in Article 104 of the new Criminal Procedure Code. Of course, not in all crimes it is possible to stop the investigation after a while just because the perpetrator is not known. It is permissible only in some relatively minor offenses under this article to consider them "fourth, fifth, sixth, seventh, and eighth-degree criminal offenses."

Another embodiment of restorative justice envisioned by the legislature other than criminal security arrangements is judicial oversight deals, which is an innovation that has not been addressed before. It should be noted that this order is meant to punish or individualize punishments, and Article 247 of the Criminal Procedure Code notes that these cases are a kind of supplement

to complement the effect of security contracts and prevent recidivism. Judicial supervision orders can be integrated not only with security contracts but also with each other and can be numerous. And all judicial supervision orders can be objected to. If these orders are issued by the investigator, the court competent to hear the objection will be the court stated in Article 271, and if they are issued by the court, the reviewing authority will be the provincial court of appeal.

2. Supportive policies to protect the victim and rehabilitate the criminal within the framework of the Criminal Procedure Code of 2013

Reimbursement to the victim by the offender, sometimes to repair tangible damage, and sometimes the symbolic aspect for the victim is regarded as an essential matter. When the offender tries to recompense for the damage caused by the crime, even if it is partially compensated, he is in fact taking a step showing that he takes responsibility and feels guilt. He, therefore, undertakes reparation to the victim to reimburse the damage caused by his crime.

Criminal procedure is the actualization of the rights of individuals entangled in a criminal case. From the start, the rights and freedoms of individuals must be regarded. For the victim, after the commencement of the victim, support should begin and continue until the end of this process. In the new law, in various ways, parallel to the preliminary protections immediately after the crime, the victim is furthermore protected during the prosecution and investigation of the accused.

The victims are not decision-makers regarding their passive participation in the criminal proceedings, but they can affect decisions. Receiving and providing information to criminal authorities is included in this category. In forming an appropriate policy and decision-making, counseling is obtained from the victim, but the outcome does not necessarily follow their wishes. The affinity between the victim and the criminal justice system can take the form of providing and receiving information. Criminal authorities embark to receive information from the victim, and in return, the victim undertakes to supply their information. For instance, in settling the punishment, the opinion of the victim and their will must be minded, and the determination of punishment is otherwise unfair and unjust.

In the criminal proceedings, it takes a lengthy process to fulfil the rights of the accused, and this is only a possibility, even after industrious pursuit. But the first condition in the mediation process is the confession and initiative of the accused to reimburse the material and moral damages of the victim. In this way, the victim is mentally rehabilitated and achieves their rights in a fair process without enduring the hardship of proving the act committed against them.

The most significant matter regarding the observance of fair procedures in mediation is the objectivity and independence of the mediator. That is why, in France, judges, lawyers, and legal advisers, bureaucrats, and forensic experts are barred from mediation, and this is largely left to the people.

3. The principle of speeding up the investigation to support the victim

a. Oral indictment

An oral indictment is a queue-free mechanism for dealing with cases that, for reasons (such as damaging public sentiment), need a public reaction to a crime. Essentially, on the same day that the case is referred to the branch, the defendant is charged and convicted. However, although Article 86 of the Criminal Procedure Code notes that the prosecutor files a criminal lawsuit "without an oral indictment," it does mean that the lawsuit is filed "without a written indictment," not that there is no indictment at all. Because of the verbal claim of the prosecutor or his representative in court (paragraph "a" of Article 359), the indictment is oral. So the indictment is not completely "oral and unwritten," and the trial proposal and the indictment are written down to be recorded in the case file. Finally, it is done without writing in the special indictment form.

B: Proceedings without an indictment

In some cases, the court is mandated to attend (whether written or oral) without an indictment. In these cases, sometimes the investigation is not done in the prosecutor's office at all, and the court performs an investigation and (a), whereas sometimes, after a preliminary study in the prosecutor's office, the case is transmitted to the court without an indictment (b).

The investigation without investigation in the prosecutor's office includes the cases studied while discussing the preliminary study in the first volume of the present book, under the title "Cases of non-investigation in the prosecutor's office." These cases, assuming the existence of a prosecutor in the jurisdiction, are crimes of individuals under the age of fifteen (Note 1 of Article 285), crimes against chastity (Article 306), and seven and eight-degree crimes (Article 340), known as cases of direct filing of a court case. Considering that there is no prosecutor's office in that place, these cases are the event of a crime in the jurisdiction of the district (Article 336).

4. Participation of non-governmental organizations in the criminal proceedings

following victim-centered thinking, the Iranian legislature in 1992 passed Article 66 of the Criminal Procedure Code. This article defines:

"NGOs whose statutes are based on protecting children and adolescents, women, the sick and physically or mentally disabled, the environment, natural resources, cultural heritage, public health, and the protection of civil rights can plead guilty to the offenses committed in the above areas and participate in all phases of the proceedings."

Before the enactment of the new Code of Criminal Procedure (adopted in 1992), the possibility of declaring a crime by law enforcement agencies was dubious. On the other hand, Article 66 of the Code of Judicial Procedure of General and Revolutionary Courts in Criminal Matters, enacted in 1978, by declaring the necessity of observing a crime on the part of the declarant, specifically considered natural individuals. On the other hand, if Article 67 of the same law was associated with the opposite meaning, the reports and letters whose identities of the reporters and their authors are known could be used as a basis for initiating prosecution. It seems that according to the second part of paragraph d of Article 3 of the Law on the Establishment of Public and Revolutionary Courts, which considered the declaration of a crime to the investigator as a legal reason to start an investigation without any conditions, the mere declaration of a crime by a non-governmental organization, in unforgivable crimes, could be considered sufficient to initiate prosecution.

Conclusion

Considering that a lot of human and financial resources are spent on imprisoning people and also the conditions prevailing in the prison have made the process of rehabilitation and reform of prisoners difficult and as a result compensating the victims,

Given the scope of the authorities in suspending punishment, applying alternatives to imprisonment, parole, semi-liberty and deferral of sentencing, there are good grounds for rehabilitating offenders to provide at least indirect conditions for reparation. Repentance, which is known as one of the factors that eliminate punishment, is not achieved in the case of crimes that are in some way related to the violation of the rights of others, except by compensating the material or moral damages inflicted on the victim. And this can be a good way for criminals to try to compensate the victim.

In the case of modification and lessening of punishment, the victim has an active and emphasized role because amnesty is a condition for implementing this deal, and the legislator has considered the terms and interests of the victim. To the extent that Article 38 of the Islamic Penal Code considers the defendant's endeavor to mitigate the consequences of the crime to mitigate or change the punishment. Based on this, traces of the principles and programs of restorative justice can be observed in this section. Because with the active and energetic presence of a facilitator

and the implementation of a restorative process such as criminal mediation between the victim and the offender or family group meetings, etc., it is possible to restore the harm done to the victim on the one hand and hold the offender accountable on the other hand and acquire the victim's consent.

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INVESTIGATING THE CRIME AND LIABILITIES OF CONTINUOUS AND SERVICE CONTRACTS

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ABSTRACT

The goal of this research is to investigate the crime and liabilities of continuous and service contracts. Methodology is analytical-descriptive using the library resources. It was addressed to claims for late payment damages in this research which is related to the time elapsed from due date to its payment date, namely it should be happened the fault until it can claim the damages. Until the performance bond is as the threatening condition whereby the person in whose favor a condition is made must pay the amounts in case of the fault. If the performance bond is for the fault, it only can ask the performance bond and not the original obligation too, namely if it wants to, it can waiver the performance bond and only ask the original obligation and or can ask the performance bond. In this case, it is optimal the unity state. It should be added that to determine the performance bond is not meant to authorize the implementation of the original obligation or giving of the performance bond. there is not any authorization to him/her absolutely.

Keywords: liabilities of service contracts; crimes of service contracts; late payment damages; performance bond.

Introduction:

The contractual liability is to commit to compensate because of the fault. Therefore when there is the contract between the parties and it is refused to implement by one of the parties and whereby it is happened the damages by other party, the person whose has violated for the fault will have the contractual liability. Other condition to realize the contractual liability is to damage in which, the contractual liability is excluded if there had been no damage, therefore some lawyers has included the damage one of the main pillars of the contractual liability. One the other hand, it is said about the contractual liability that those damages are compensable which they got predictable. So to be predictable for the damage has been accepted as one of its conditions to compensate and the unexpected languages are not included in the territory of the contractual liability.

The fault (breach of covenant) arising from the contract is another one of the conditions to realize the contractual liability which can be appeared as the failure to performance, incomplete performance, or delay in performance of commitment. Whether the fault is the type of oblige wrong or it should be the one of the necessary conditions to realize the contractual liability, there is not any solidarity between lawyers. One opinion is that there is not any oblige wrong in the civil law for the contractual liability, so in Iran law, the fault is not effective to create the contractual liability, while other opinion is that oblige wrong is as the one of the conditions to realize the contractual liability. Of course, this oblige wrong is meant to violate the contract or the fault. Whether what is the failure to performance of commitment and how it should be proved depends on this topic that we can recognize the commitment as a tool or a result.

It is necessary to realize the contractual liability a causal relationship between the fault and happening damage. The person whose claims to damage can prove this relationship, namely it is the duty of claimer who prove that there is a civil causal relationship between oblige wrong and happening the damage. Of course, one of the conditions to this relationship is to be immediacy.

While realizing each type of liability is different, so the method of proving oblige wrong in them is different too. To prove oblige wrong is possible more easily in the contractual liability, because the fault is assumed oblige wrong unless it can be proved to the outer cause by the violator. The easiness to prove oblige wrong has be caused the courts try to achieve a contractual liability between damager and damagee as far as even the liability of the dangerous goods sellers and manufacturers and public victual suppliers is attributed to the contract and the consumer is exempted to prove oblige wrong based on the contractual liability. It is harder to prove oblige wrong in the out-contractual liabilities, because the damagee must prove thah the damage has been created by oblige wrong of the damager in addition to prove the damage. What it is hard is to prove the oblige wrong of the damager, because the oblige wrong is contrary to the principle and it is sometimes hard to prove as it is caused to reject the plaintiffs claim. As for the cited topics, the goal is to investigate the crime and the liabilities of continuous and service contracts.

Research theoretical principals:

Late payment damages

Lawyers believe that “late payment damages are about those claims in which their topics are cash, but the damage created by the failure to performance is not cash and it is stated as the fair equivalent remuneration and damage created by the failure of submission and or late payment in the complaints”. And other lawyers has written that “late payment damage is the amount in which it is taken from the borrower and or credit because of the late payment in the interest and principal installment of the loan and or the credit, from the due date or the maturing debt date to maximum of legal description for the delay time”.

The concept of late payment damage is generally to decrease the money value. It means that the base of late payment damage can be resulted with any reason other than decrease the money value which the debtor has created the late payment for the creditor.

The question which it is important about the late payment damage is that what time is the origin of late payment damage and what time the debtor must pay it to the creditor in the case of conviction and when the damage is computed and it should be paid to the creditor?

To response to this question, we should separate these two modes :

First- the cases in which the parties has agreed about the late payment damage as contractually or orally.

Second- the cases in which the parties has not agreed about the rate and the value of the late payment damage.

While the payment condition of the late payment damage is included in the contract by considering to compensate the damage created to the late payment damage, can not be considered as “condition in favor the creditor” and or “condition of the excess reception” until it is questioned to be usury, because the damage created to the creditor is compensated by performing this condition and it do not recieve any benefit. Also, the condition of the late payment damage to defend the legitimacy can be documented to those same criterions cited in the juridical resources to lockout the usury.

In justification to recieve the late payment damage as the condition during the contract and the performance bond in the bank contracts, it can be said that in according to the rule of “المؤمنون عند شروطهم” the believers must implement on their conditions” which it is constant between jurisconsults, if a condition is written during the true and necessary contract, as it can not be against to the condition, secondly it can not be against to law and thirdly it can be agreed between the parties, this condition such as the bond is true and has the ability of implementation.

In Iran legal system, even if the performance bond had be determined as fixed, it should be considered to some topics because they are caused to adjust the sentence as following.

1-It is assumed that the performance bond cited in the contract is not proportional to the real damage as it is meaningless, this condition is discredited for the lack of real intention and the obligee can ask to compensate the based on public rule.

2- In the cases that the sections of the contract are done and those sections are independent for the creditor, the magistrate can justify the performance bond proportionally. For example, It is assumed that it has be promised to sell 10 automobile which it has be owned 5 automobile on timely, the court can decrease the performance bond %50 proportionally and can deduct it from total amount.

3- It is assumed that the contract was canceled for each legal reason, also the performance bond related to the late payment damage created by the failure to performance or to performance will be canceled. Article 246 of civil law which states that “if the deal was broken for cancellation, also the condition cited during it will be canceled ” confirms this same topic. Therefore the performance bond is discarded by cancellation too. Of course, it is considered that, if it is assumed that if the damage had be anticipated because of the price which is belonging other person, the cancellation of the contract is not lead to the cancellation of the condition, owing to the parties already have paid the damage and regarded the liability by assuming the cancellation.

Agreement with the degree of liability

From the last part of Article 522 of civil law can be deducted the possibility and impossibility of agreement with the liability of the late payment damage. After approval of the late payment damage based on Central Bank Price Change Index, this Article has allowed that the parties compromise against it. It has not been anticipated in this article that the parties can make a con-

dition in their own contract against these provisions. It has come at the following of Article that if the parties compromise in another way, their compromise is effective.

If the condition of the late payment damage had not been interfered with the provisions of usury (namely the borrow usury and the extend usury) and was valid in according to the conditions, it can't be imaged any limitation for the accuracy of condition. Some say that its result is undesirable clearly, because it creates the possibility of abuse the creditors specially the financial firms. These persons put the ruling laws aside easily according to the additional contract provisions which the creditor has to sign it and take the performance bond into its own hands completely.

Commercial commitments are resulted with civil commitments and juridical acts mostly and the conditions in civil commitments have an irrefutable role to the commitments resulted with commercial documents. Whether it is reflected on the commercial documents or not.

One of public conditions for the reasons of bonds accuracy is which the deal can't make any damage and some believe that the insurance bond is necessary, so it is not considered valid for the legislator. The reason of the believers of this theory is that the most insurers do not receive anything in exchange for the payment of installments (because any event not happened) and it is certain the payment without repayment in exchange for that damage. Therefore the insurance is a necessary bond and it is not implementable consequently. In respond, they have said that firstly the insurer earns the mental relaxation in exchange for the payment of premium and in exchange for it can be property or service or spiritual affairs. Secondly, that damage in which "the rule of prohibition of detriment" has be forbidden is that somebody don't implement it rationally, while the possible damage of the insurer will not prohibit to contract the insurance bond and also will not prohibit it's accuracy and implementable. It can be acknowledged that the insurer has received its own premium exchange by earning mental relaxation basically and there is not any damage until it is made a cancellation of the premium documented with "the rule of prohibition of detriment".

Private International Law

Since the governments enjoy freedom to make a law of nationalization such as other laws, when the properties belonged to foreigners are included in this type of law too, the necessity of international relationships specially the rules reflected to the rights international resources limit their freedom about this topic.

Ownership of the properties belonged to foreigners by the government is caused to litigate against them if they can claim the compensation. The competent court in these cases is the arbitration contract if there had been the arbitration contract between them and the government, and the competent court is Internal Public Judicial Authority if there had not been the arbitration contract. On other hand, their followed government can litigate against that government as the political support according to the public international law. Anyway the competence of pending court is limited to handle the damage and no the principle of nationalization, which it is an act resulting with the right of ownership and it is inviolable. However, it is considerable to the civil liability law provisions too. The government in Article 11 civil law about applying governance states that "about applying governance the government didn't have to pay any damage even if it is done to supply the social benefits necessarily according to law and is harmed to other"

The competence of pending court is a part of governance of each government, so the court conflict has a political face and it is far from the complexities created by the laws conflict because of having legal face, therefore the court conflict is easier than the law conflict due to the rules considered with domestic rights. The law conflict is based to equity domestic nationals with foreign nationals, while there are usually the points for the domestic nationals in the court conflict.

Although the competence of pending court is not meant the governance of law in that country, nevertheless the conflict in the competence of pending court is effective to solve the law conflict, because it is possible to effect the competence of pending court on handling the complaint, thus the judge always should approve the qualified law due to its own rule of solving conflict, which this law at other countries and consequently the competence of pending court may be different by referring to the court at each of the two countries. On other hand, if the foreign law is opposite to public order of law located in the pending court where the court can recognize it as pending court in according to the law of solving the conflict, it is not possible to perform the foreign law and consequently the judge may perform the law located in the court, or may refuse to perform the foreign law. Because generally judicial competence, identifiable and applicable law and holding the votes of the foreign law are subject to the rules of private international rights at the countries.

Arbitration Reference

Nowadays in international arbitration the parties allow to refuse selecting the national law as the ruling law and to oblige the arbitrator which solves the plaintiffs according to private international rights, traders customs. The parties can select the law of two or more countries as the ruling law among the countries where they have a close relationship with them, for example they can agree to govern the law created in the bond location on creating the contract, the law created in location of implementing the bond on how to perform the contract and the related difference. The parties can back their own previous selection out and can replace other law to previous law and even can assign it to the court and or arbitration reference by cancelling the ruling law.

For selecting the court which it is competence locally, plaintiff must determine the defendant location and also must sue its complaint in that country, this public law has been anticipated in Article 3 Hague convention draft. In 2 Brussels convention that it is the last and most important document about competence of pending court at the level of Europe Unity, which it has been approved as "Council Regulation (EC) No 44/2001 of 22 December 2000 on Jurisdiction and the recognition and Enforcement of Judgments in civil and commercial Matters." by the countries membered in Europe Council and it is performable since 2002 March, the competence of pending court located at the defendant location is principle.

Ruling Law

It is only Article 968 in Iran civil law that is including the mutual rule of solving conflicts in the case of the contracts and in fact, it is not found any the provision in Iran private international rights that it had been considered specially to determine the law governed on the contracts about the intellectual property rights. Therefore Article 968 civil law and its analyze are necessary to earn the law governed on the contracts about the intellectual property rights. The certification given to inventor and or innovator by the related administrations is not considered a contract, consequently they are not included in this Article, but the contracts related to it are included in the territory of Article 968 civil law, and it can be found the law governed on the contracts about the intellectual property rights by analyzing this Article. The ruling law may limit actability of law of the supporter country or the law governed on the contracts that we will pay attention to this topic in the part of analyzing Article 968 civil law.

What it should be done if the ruling law had not been identified explicitly and implicitly? Article 4 Rome convention has considered to this topic and has been specialized by assuming the lack of identifying the ruling law by the parties. The criterion of identifying the ruling law in this Article is the criterion of "closest connection" with the contract. Rome convention 1 starts the process of identifying the identity of "closest connection" in Article 4(2) by applying a reputable Article. This Article exactly states that the contract has the most connection with the country in

which there is the party who is effective on the index obligation permanently. If the party of contract is a judicial person, its administrative center is replaced to the permanent location and it applies as the basic location of the commerce while the person who is effective on the index obligation had been contracted along with its commercial affairs.

It has been considered a condition in the international convention of selling goods in which the contract should be valid. In other words applying the basics of convention is necessary as the contract accuracy and validity should be confirmed according to the nation law and In other words the convention has accepted the principles cited in domestic country laws. But by considering to Article 14 convention to identifying the price, if it had not be cited in the contract but the contract be about the price explicitly and implicitly, the contract will be correct.

Therefore, 3 principles is earnable from the convention cited about the price:

Firstly the principle 55 of the convention will not be done if the national law of the country followed by the parties of contract cancelled the contract in despite to no mention to the price.

Secondly it should be confirmed that there is not other background to the lack of accuracy and validity in the law governed on the contract if the contract is correct according to the nation law.

Thirdly there had not be any the identifiable or determined and fixed price until it can reach to the explicit price and finally Article 55 of convention is applicable, it will determine the price subsequently.

Performing Foreign Votes

Whatever it can be said about the countries of German-Roman judicial family generally that the difference of performance ritual and promote each two different and basic methods is related to perform the foreign arbitration votes in the countries of this family. Some countries such as Poland, Italy and Spain where have used the comparison method of the foreign arbitration votes with the foreign court rules and the performance ritual of last group to first group, and some countries such as Germany, Austria, French and Belgium have gained the comparison method of the foreign arbitration votes with national arbitration votes and the invariable system of performing the forign and national arbitration votes. It is inevitable to adjustments that create the possibility of desirable conformity of implementing by law in relation to the foreign arbitration votes : It has not been considered to submit or to valedict the foreign votes to the court in Germany against to the domestic arbitration votes. It has been only allowed to sue together in Belgium by considering to the impossibility of transferring the judicial monitoring into handling the cancellation about foreign arbitration votes as beginning the first phase of performance handlings, by expanding to the judicial monitoring.

The rules published by the foreign court are applicable only in the territory of governance that same issued country, although are certain and final and have all conditions. Because the rules published by the courts of a country are issued with the name of governance of that country and the right of governance of each government is not limited to its political territory according to the principles of public international rights, and any government can't govern the out of its territory. Also, if a country accepted to implement the rules of foreign countries courts according to the domestic rules, in fact it has harmed to its own governance and independence, and its own territory has be opened to implement the judicial rules the out of border that this is the opposite of interests of country.

It is considerable that the phase of implementing a foreign rule is done after identifying that rule and the court of a country should identify at first the each implemented rule. Nevertheless, identification don't inhere to its implementation.

Also, about implementing the foreign rule, it is the most important to contradict or non-contradict the foreign rule with the public order and the good morals. Article 975 civil law about

this topic states that “the court can’t implement timely the foreign rule and or the special contracts which are opposite to the good morals, and or they are considered the opposite to the public order because of injuring to the emotions of society or other reason, even if it be allowable to implement the cited rules basically”. In addition to Article 170 the law of implementing the civil rule about the conditions of implementing the foreign rules states the conditions as following that:

About the conditions of implementing the foreign rules, Article 177 the civil law states that”: the applicable documents adjusted by the foreign countries are applicable similar to the conditions determined to implement the rules of the foreign court at Iran, and additionally, at the country in where has been adjusted the document, the Iran council or political representation should agree to adjust the document with the local law”.

Conclusion:

It was considered to the late payment damages in this research which is related to the time elapsed from due date to its payment date, namely it should be happened the fault until it can claim the damages. Until the performance bond is as the threatening condition whereby the person in whose favor a condition is made must pay the amounts in case of the fault. If the performance bond is for the late payment, it can ask both of the performance bond and the original obligation too. In this case, it is desirable the multiplicity mode but if the performance bond is for the fault, it only can ask the performance bond and not the original obligation too, namely if it wants to, it can waiver the performance bond and only ask the original obligation and or can ask the performance bond. In this case, it is desirable the unity mode and it is the same ai French. It should be added that to determine the performance bond is not meant to authorize the implementation of the original obligation or giving of the performance bond. There is not any authorization to him/her absolutely. Also it was considered to the courts and arbitration.

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A LEGAL ANALYSIS OF E-SIGNATURES IN IRANIAN-CANADIAN LAW CONTRACTS

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ABSTRACT

An e-signature is a piece of data linked to communication that identifies the signer and affirms his or her agreement to the message's contents. The present study compares and contrasts the legal treatment of e-signatures in Iranian-Canadian law contracts. The research method is descriptive-analytical, and it is conducted with the use of library resources. An e-signature, according to Canadian legislation, is a signature that must be unique to the person who uses it and not to anybody else. The e-signature must be attached to the e-document in a way that allows the person to make that decision, and the technology or process by which the signature is made must be under the complete control of the person to whom the signature belongs, and that particular technology or process must be such that the person is known by it. The certification body is the organization that gives e-certifications to applicants under Canadian legislation. The applicant's public key, as well as the applicant's information and the certificate issuing center, are all included in these certificates. An e-signature, according to Iranian law, is any mark that is physically or conceptually linked to message data and is used to identify the signer of the "message data." Furthermore, an e-signature by itself does not confirm the signer's identity. As a result, the third party must ensure the message's legitimacy by identifying the digital signer.

Keywords: E- Signature; contracts; Iranian Law; Canadian Law.

Introduction

The sharing of e-documents is common in e-commerce. Sensitive information, such as legal contracts, private technology, or financial activities, is frequently found in these documents. It is vital to encrypt these papers and sign them digitally to avoid computer criminals from stealing in the electronic environment who are always on the lookout for documents. The digital signature ensures the data's validity, completeness, and lack of degradation.

The Iranian legislative defines e-signature as any sort of mark affixed or conceptually related to the "message data" that is used to identify the signer of the "message data" in paragraph "Y" of Article 2 of the Electronic Commerce Law issued in 2003. The legislator's choice of the term "mark" in the definition of e-signature appears to be related to the mentality that existed in jurists' books of the previous definition of signature, which applied to any sort of "mark or writing."¹ According to Article 2 of the aforementioned law, an e-signature is a type of mark that is affixed to or attached to message data and is used to identify the signer of the message data. Explaining ideas like message data, signage, concatenation, connection, and signature applications is necessary to expand on this topic.

An electronic document is the message data that can be cited as a claim or defense. Using Iran and other countries' civil and e-commerce laws, the electronic document is divided into three types: official electronic documents, ordinary electronic documents with simple signatures, and ordinary electronic documents with secure signatures. Unlike the Canadian legislature, Iranian law does not have a clear definition of an official electronic document, and to define this type of document, one must refer to the interpretation of traditional rules governing paper documents. A message data might be mentioned as a claim or defense in an e-document. The e-document is classified into three categories based on civil and e-commerce regulations in Iran and other coun-

¹ Mazaheri Kohanestani, Rasoul, Nazem, Rasoul, A Comparative Study of E-Signature in Iranian Law and UN-CITRAL Regulations, Tehran, Jangal Publications, 2014, p.10.

tries: official e-document, ordinary e-document with a simple signature, and ordinary e-document with secure signature. Unlike the Canadian legislature, Iranian law lacks a clear definition of an official e-document, requiring interpretation of customary standards controlling paper documents to identify this sort of document.

The consideration of contracts is one of the most significant themes in jurisprudence. What requirements must be met in order to form a contract, as well as its legitimacy, is a critical consideration. According to Article 190 of the Civil Code, a transaction must meet four essential characteristics in order to be valid: the parties' intent and consent, the parties' competence, the transaction's specific subject matter, and the transaction's legitimacy are all factors to consider. Each of these circumstances has been the topic of substantial judicial dispute. We know that a contract is an agreement formed between two or more persons to have a legal effect and that the essential ingredient of a contract is the will of the individuals who agree to do something. In order for a legal effect to be created, the two parties must express their intent to each other, which might be explicit or implicit.

The current study examines the nature and legal effects of e-signatures, as well as traders' awareness that they cannot be present at the same time to confirm documents by physical signature and validate their documents with digital signatures for financial exchanges and documents, as well as the level of awareness of people and managers of departments and commercial companies and relevant officials, of the rules of civil liability in relation to electronic signatures.

Theoretical foundations

The literal meaning of signature in Iranian law

In Iranian legal sources, there is no exact definition of a signature, which might be owing to the legislator taking the concept of a signature for granted. As a result, the legal definition of the signature is based on customary sources and is influenced by both custom and judicial processes. Farhikhteh Jafari Langroudi believes that a signature is "writing a name or surname or both, or drawing a mark as an expression of the identity of the owner of the mark under papers and documents to confirm the text of the document that was written or will be written from the signature » in expressing the legal definition of a signature¹. In addition, the signature has been defined as "writing the name or surname (or both) or drawing a special mark, which is a sign of the identity of the owner of the mark under the documents (ordinary or official) that include the transaction or commitment or confession or testimony "or it must be recorded on those bonds or transactions later."² Dr. Nasser Katozian, the other professor, explains the signature as follows: "A signature is a drawing of a person that generally contains the person's name and represents the person's final choice and agreement." As a result, the signature should be placed in a location that is traditionally regarded as a sign of consent."³

"The common and basic element and basis of the validity of ordinary signature documents is the attribution of the contents of the document to the signatory and his firm will to issue the document," according to Article 1293 of the Civil Code, and "written when it has a document against a person whose signature or fingerprint is under the document," according to Article 1291 of the same law. As a result, the signature and certification in which it is entered are responsible for the paper's legitimacy. If a piece of the writing ascribed to a person is signed, it can be referenced. The unsigned document is incomplete and lacks the most crucial ingredient of credibility, as evidenced by basic legal and customary norms. As a result, the signature and certi-

¹ Jafari Langroudi, Mohammad Jafari, Extensive in Legal Terminology (Vol. I), Tehran, Ninth Edition, Ganj-e-Danesh Publishing, 2012, p. 636.

² Jafari Langroudi, the former, p.633.

³ Katozian, Nasser, Proof and Reason for Proof (Vol. I), Tehran, Fourth Edition, Mizan Publishing, 2011, p. 317.

fication in which it is entered are responsible for the paper's legitimacy. If a piece of the writing ascribed to a person is signed, it can be referenced¹. The unsigned document is incomplete and lacks the most crucial ingredient of credibility, as evidenced by basic legal and customary norms.

The literal meaning of signature in Canadian law

A signature is a name, symbol, or word that is used to validate a document in foreign texts². According to Canadian sources, a signature is a personal mark placed on the foot of a text or work to affirm that we are, in fact, the author of the text or work or that we recognize its contents³.

A signature was defined as a written signature made by someone who made a promise under Canadian law⁴. All of the terms and conditions are agreed upon and signed by the parties in traditional contracts. Electronic signatures are the same way.

E-signature in contracts

The signing of a contract is indeed an act by which the parties' talks become legally enforceable responsibilities for them. The parties to a contract have traditionally signified their agreement to the terms of the contract by signing it in the presence of the other party, with each party keeping a signed copy of the contract. The wet ink technique is the name for this technology. This technique assures that neither party will be able to subsequently contest the contract's contents or make it binding on the basis that it was signed by someone other than him.

The preceding method, on the other hand, necessitates the parties to the contract signing it at the same place or exchanging a printed and signed copy of the contract by mail. Furthermore, in recent years, when it comes to important commercial and financial contracts, the wet ink approach has been supplanted by a signature and scanning approach, which entails each party manually signing the contract, scanning it, and e-mailing a signature page as an attachment to the contract. The parties to the contract, according to this method, depending on the e-mail sent by the other party to the real signing as adequate proof of the signature page's legitimacy. Although this strategy has helped the conclusion of international contracts by employing traditional office resources such as printing machines, stationery, and scanners, it may not be viable to use such tools in a circumstance when the great majority of workers are away from their workplaces. The electronic signature is a suitable and efficient choice in certain situations for concluding business transactions. The e-commerce legislation in Iran recognizes electronic signatures in such a manner that where laws and regulations need the presence of a signature, the e-signature is adequate and has the same validity as a handwritten signature⁵.

Any symbol (for example, a password number) that permits the identification of the signer of the message data is regarded as an e-signature in the electronic space where the writings are not material and cannot be touched, and the interchange of information takes place in a virtual environment. The sender is introduced, and the communication data is assigned to him via electronic signature. When a person buys a book online, it is impossible to know if the buyer is qualified until the buyer signs the message data and the certificate authorities verify his or her identity, which is strongly connected to the issue of e-signatures and certificates authorities⁶.

¹ Asgharzadeh Bonab, Mostafa, Applied Registration Law, Volume II (Lawsuits and Registration Objections Related to Documents and Procedure), Tehran, Majd Publications 2016, p.154.

² Garner, A, Brayan. (2012). Black's Law Dictionary. Tehran: Dadgostar.327.

³ Ki Nia, Mohammad, E-signature in accordance with French law, Tehran, sixth edition, Mizan Legal Foundation Publications, 2016, p. 140.

⁴ Ki Nia, Mohammad, e-signature in accordance with French law, Tehran, sixth edition, Mizan Legal Foundation Publications, 2016, p. 140.

⁵ Abdul Elahi, Mahboubbeh. 2012. Electronic reason in the system of proof of litigation, Tehran, Khorsandi., P.122.

⁶ Shams, Abdullah 2014. Evidence of Proof of Lawsuit, Darak Publishing, Volume I., p.91.

An e-signature, according to some, is any certification that is electronically generated and can be a token, word, number, typed name, scanned picture, handwritten signature, or any other electronic mark created by the issuer or her deputy and linked to a document¹. An electronic signature is also defined as any electronic mark or mechanism that a party accepts to express its intention to confirm the validity of a document or to be bound by it². It should be emphasized that any non-cryptic sign or symbol is deemed a signature if it allows the author of the sign and the symbol to be identified.

Article 7 of the Iranian Electronic Commerce Law only allows for electronic signatures if the lawmaker deems them essential. However, in order to be certain, the electronic signature must meet the requirements set out in Article 10 of the ICCPR. Those criteria must be unique to the signer, identify the message data signer, and be provided by the signer or under his own authority. It is linked to a message data stream in such a way that any changes in the message data may be noticed. According to Article 15 of the ICCPR, if the electronic signature meets the aforementioned criteria, the denial and doubt against it are not considered, and only the accusation of forgery or proof that the data in the message was legally defective can be incorporated into the data of the message.

Part II of Article 1316-4 of the Civil Code of Canada defines an e-signature as follows: "It is when the signature is electronic that the signature incorporates a secure mechanism that assures that the signature is connected with the document to which it is affixed." Unless there is a cause to believe otherwise, the process's trustworthiness is presumed. When an e-signature is formed, it ensures the signer's identity and the document's integrity according to the standards outlined in the State Council resolution. The criteria indicated in the first sentence of Article 4-1316 BC's second paragraph have been observed and created³.

E- signature in the legal system of Iran and Canada

1. E-signature terms and conditions in Canadian law

"A signature consisting of one or more digital letters, signs, numbers, or symbols registered or affixed to or accompanied by an electronic document," according to the Canadian Data Protection and Electronic Documents Protection Act (PIPEDA)⁴.

A secure e-signature must be unique to the person using it and not to anybody else, according to the law. The person who owns the signature must have complete control over the technology or procedure used to create the signature. In addition, the technology or procedure must be unique enough to identify the individual. Furthermore, the e-signature must be tied to the e-document in such a way that the individual can determine whether the document has changed after the signature was applied.

Cryptographic, biometric, and digital image technologies are used in most e-signatures. Make sure the electronic signature is legal and valid by consulting a computer or technology attorney. The role of the signature is stated in the first paragraph of Article 4 of the Canadian Civil Code: "The signature necessary to complete a legal document identifies and verifies the legitimacy of the signatory." The approval of the parties to the transaction on the obligations emanating from the instrument is indicated by this signature.

Article 16 of this law deals with the substantive regulations of e-signature without discussing or paying regard to the concept of e-signature. The third paragraph of this article states: "By

¹ Todd, Paul, E- Commerce law, London: Cavendish Pub. 2012, p 99.

² Ralph Bloemers, Electronic and digital signatures, available at: <http://www.stoel.com>.

³ See: DAUZON, OLIVIER, Le Droit du Commerce Electronique, Hercity – France, Editions Du Decree NO 2001 – 272 Du 20 Mars 2011, Available at: <http://playmendoit.free.fr//droit-des-novellas-technologies/decret-du->

⁴ Zarqalam, Sattar, "Electronic Commerce Law and Electronic Alphabet", p. 79.

demonstrating the issue of a signature by a specific individual, the contract (agreement) will have the same worth and legality as its paper counterpart." Furthermore, this legislation deems electronic writing to be comparable to and equivalent to written writing, and it is accorded the same legal status as written writing".

Article 1 of the Canadian Civil Code, in explaining the legal value of an electronic signature, states: "The writing is accepted as evidence electronically, as well as written writing, with the same degree of validity, provided that it can accurately identify the person from whom the writing originates, and the writing is somehow created and maintained to ensure its integrity." The role of the signature is described in the first paragraph of Article 4 of the Canadian Civil Code, and the concept of validity is described in the second paragraph of Article 4 of the Canadian Civil Code. This section specifies: "A signature is an electronic signature if it employs a reliable way of identifying and validating authenticity, as well as ensuring that it is tied to the document to which it is attached." Until demonstrated otherwise, the accuracy of this procedure is assumed (the principle is correctness). Once the e-signature has been formed, the signer's identity and the document's completeness are guaranteed under the rules established by a decree issued by the State Council¹.

A simple e-signature, according to Canadian law and Article 1 of the Government of Canada By-Laws, is the use of a trustworthy identification technique that confirms its link to a document to which it is regular. A secure e-signature, on the other hand, must first be created by methods that are under the exclusive control of the signer and, second, ensure the relationship of the signature to the attached document so that any subsequent changes to the document can be detected, in addition to having the conditions for an electronic (simple) signature². The certification body in Canada is the organization that offers electronic certifications to applicants.

Customers' identities are unknown to certificate authorities; thus, they require a trusted person to authenticate their identity and function as a liaison between the certificate authority and the client. The registrar's office is in charge of this. The registration office thereby delivers the required information to the certified authority, allowing that authority to provide its services to clients. Before issuing the certificate, the registry is responsible for identifying and certifying the person. It is in charge of administrative duties such as registration, details, and statements of applicants, as well as ensuring that the applicant meets the requirements for receiving the certificate. Persons are authenticated using documentation given by the applicant for an electronic certificate to the registration agencies. However, depending on the degree of the certificate granted, the sort of proof required to identify persons, whether natural or legal, will vary.

Simple identifying papers, such as credit cards, are acceptable for low-level certificates, while stronger documents are required for certificates with a greater level of protection. A digital certificate will be issued by the owner of the future signature after receiving the registration offices' report.

2. Terms and conditions of e-signature in Iranian law

A secure electronic signature must meet certain conditions, according to Article 10 of the Iranian Electronic Commerce Law, which governs paragraph 2 of Article 2 of the same law: "A secure electronic signature must meet certain conditions: it must be unique to the signer, and it must specify the identity of the message signer. It should be issued by the signatory or under his own authority, and it should be connected to a message data in such a way that any modification in the message data may be detected". The integrity of the document, the confidentiality of the infor-

¹ Mazaheri Kohanestani, Rasoul, Nazem, Rasoul, A Comparative Study of E-Signature in Iranian Law and UN-CITRAL Regulations, Tehran, Jangal Publications, 2014, p.59.

² Ibid, P. 59

mation (if necessary), and the security of the data are all assured when utilizing the electronic signature technique or a signature-based on asymmetric cryptography. However, one significant issue remains unresolved: ensuring the signer's identity. Indeed, the most significant legal impact of a signature is to establish the document's link to the person to whom the signature is attributed¹.

"Any message data captured and preserved by a third party in compliance with Article (11) of this legislation is legal," it adds, confirming the necessity to ensure the identification of the signatories of Article 16 of our country's e-commerce law. As a result, the necessity for a competent third-party authority to certify the accuracy of the attribution of the secure message contents and the secure e-signature to the issuer is indisputably crucial.

In comparison to other centers, Articles 12 and 14 of the by-Laws provide extensive rules and regulations surrounding the creation and operation of e-registration offices. "Registration offices may be established, as the case may be, by natural or legal persons, whether governmental or non-governmental," according to Article 12 of the By-Laws.

Regarding Iranian legal procedure, paragraph 15 of Article 2 in the second chapter of Iran's e-commerce law states: "The signatory is any person or his deputy who provides the electronic signature."² People are defined as natural or legal persons in paragraph 17 of the preceding article. The preceding article should be interpreted as a personal signatory who creates an e-signature under the guise of a valid electronic certificate. The legal entity that has the certificate and the private key, as well as the natural person who holds the key, are both liable for the created signatures in this situation.

3. Legal issues arising from e-signatures in domestic laws

Since most nations' domestic law (on e-signatures), including ours, does not require the signatory to appear before a competent notary public to record the signature. As a result, there is no need to go through the procedures of the registration legislation to identify the signatory, which raises the risk of a signature being issued by someone who does not exist (imaginary people). As a consequence, the signatory can establish rights and duties for him/herself in contracts with others, yet her obligations can be avoided owing to her lack of true identity.

In terms of conformity between local law and Canadian law and legislation, it is worth noting that, under Article 86 of the ICCPR, "If a request to register a document is made, it is the office owner's job to verify the identity of the interlocutors or party who has made a promise, and if the aforesaid man does not know them personally, he must act in line with the terms of this legislation³."

Article 102 also relates to Article 101, which provides for the offender's expulsion from public employment for a period of one to three years. "If the person in charge of the office has any doubts about the identity of the interlocutors or the party who undertakes, both well-known and trusted persons should confirm their identities in person, and the person in charge of the office registers the ranks in the registry office, signs them to the witnesses, and states this point in the documents," according to Article 50 of the Penal Code⁴.

In specifying the prerequisites of a secure electronic signature, Article 10 of the ICCPR does not explain with whose authority these conditions are met: Despite the fact that the signature itself may be unique to the signatory and issued by her or under her own authority (Article 10, paragraphs a and c). However, there is no assurance that the identification revealed to the signer by the digital signature is the signer's genuine identity, and this is something that should be left to a responsible authority.

¹ Zarkalam, Sattar, e-signature and its place in the system of evidence. Modares Magazine, No. 1, 11392, p.45.

² Zarkalam, Sattar, "e-Commerce Law and e-Alphabet", p. 65.

³ Ibid. P. 25

⁴ Abdollahi, Mahboubeh, Electronic Reason in the System of Proof of Litigation, Tehran, Khorsandi, 2012, p. 37.

Utah's inability to identify the function of notaries in re-registrations has been extensively criticized by attorneys and registrars in Canada as a consequence of the enactment of some Canadian laws mandating the existence of a digital signature in notaries. As a result, the National Association of Notaries of Canada saw it as an unofficial heist of its profession.

4. E-signature certificate authorities

A secure or digital e-signature by itself does not verify the signer's identity. As a result, the third party must ensure the message's legitimacy by identifying the digital signer. "Any message data captured and preserved by a third party in compliance with Article (11) of this legislation is legal," it states in this respect, reinforcing the requirement to prove the identity of the signatories of Article 16 of our country's Electronic Commerce Law¹. As a result, the necessity for a competent third-party authority to certify the accuracy of the attribution of the secure message contents and the secure electronic signature to the issuer is indisputably crucial.

E-service agencies are also required by Canadian legislation to ensure the signer's identification.² As a result, e-certificate offices' job is to identify the signature and, as a result, to document the electronic data. Indeed, by managing the link between the public key and the holder of the appropriate private key, the digital certificate issued by the electronic service offices ensures the signer's identity.

Conclusion

There are two ways to e-signatures in the Canadian legal system: first, it identifies the person from whom the document was issued, and second, it establishes the legitimacy of the document's content and legal implications. However, in Iranian law, the signatory's approval of the document's requirements is ignored, and just the signatory identity is recorded. As a result, it was only natural that the Iranian legislature, in completing its definition, said that the signing intended to abide by the document's requirements. An e-signature, according to Canadian legislation, is a signature that must be unique to the person who uses it and not to anybody else. The person who owns the signature must have complete control over the technology or procedure used to create the signature. And that technology or procedure must be unique enough to identify the individual. Furthermore, the e-signature must be tied to the e-document in such a way that the individual can determine whether the document has changed after the signature was applied. "The signature necessary to complete a legal document identifies and certifies the legitimacy of the signatory," the Canadian Civil Code says of the signature function. The approval of the parties to the transaction on the obligations emanating from the instrument is indicated by this signature. "A signature is an e-signature when it employs a reliable way of identifying and confirming authenticity, and (and) assures that the signature pertains to the document to which it is affixed," according to the Canadian Civil Code. Until demonstrated otherwise, the accuracy of this procedure is assumed (the principle is correctness). Once the e-signature has been formed, the signer's identity and the document's completeness are guaranteed under the rules established by a decree issued by the State Council.

The institution that offers e-certificates to its applicants is the authority to issue certificates in the Canadian legal system. The applicant's public key, as well as the applicant's profile and the certificate issuing center, are all included in these certificates. Indeed, the public key is linked to this certificate of identification. The center continually monitors the issued certificates, and if the holder's identity is compromised after the certificate's expiration, the center will revoke the cer-

¹ Ibid, P. 44

² KAINIYA, Mohammad.(2011). La dématérialisation des actes et conventions (de l'expérience française à sa réception par le droit iranien?), Thèse de doctorat. Université Jean-Moulin Lyon3:68.

tificate's validity and place it on a list of revoked certificates. In Iranian law, demonstrating the issue of a signature by a specific individual gives the contract (agreement) the same worth and validity as its paper counterpart.

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INVESTIGATING THE BASICS AND CONCEPTS OF TUTELAGE AND CUSTODIANSHIP IN LAW

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ABSTRACT

Based on article 1168 of Iran's civil law, tutelage is both the right and the duty of the parents. Therefore, the tutelars should not only manage the children's financial affairs but they are also responsible for physically and psychologically taking care of and maintaining the children under their tutelage; all of the children's affairs are delegated from all respects to the individual who shoulders their tutelage. Moreover, custodianship means guarding and protecting. Custodianship is the job of a protecting and supporting custodian who is selected by a judge for keeping a minor child or an insane person or a not fully grownup individual; such a person is commonly termed as the governing trustee. The present study tries investigating the basics and concepts of tutelage and custodianship using a descriptive method and through library and documentary research.

Keywords: tutelage; custodianship; law.

Introduction:

One of the essential topics in the civil laws pertains to the individuals and the incapacitated persons; this topic is frequently taught and debated in the faculties of law. During the common life, the tutelage of the children is the right and the duty of the parents as ruled in the law but who is to shoulder the keeping and supplying of the child's financial costs when a father dies considering the fact that it is the father who has to pay alimony to the wife and the children. The law has not specified any specific person in this case. It has been seen many times that discrepancies arise about the tutelage and taking care of the children after the death of the father amongst the family members. However, the tutelage is usually given to the mothers due to the emotional and non-concealable relationship between them and the children. In fact, the tutelage

of the children is delegated to the mothers when they are ethically sound and are personally and financially qualified for taking care of the children and in case that there are not any disagreements in this regard. On the other hand, although no discrepancy arises in many of the cases about the tutelage and keeping of the children and mothers become the tutelars of their children without any lawsuit being filed to the courts and also without anyone's objection thereto, the issue is completely different in regard of custodianship. A custodian is the person who shoulders most of the child's financial affairs. Custodianship means protecting and guarding. A custodian is a supporter and a protector. A custodian is appointed by a judge for taking care of the minor children, insane persons or not fully grownup individuals; a custodian is commonly known as a governing trustee. The present study seeks exploring the concepts of custodianship and tutelage.

The study is analytical research carried out through library investigations.

Tutelage:

It means keeping the children and taking care of them in physical, psychological, material and spiritual terms as well as instruction and upbringing of them.

Fathers are given superiority in regard of the children's tutelage; after the death of a father, it is the mother who has the tutelage right and nobody can deprive her from such a right unless her ineligibility is justified in a qualified court.

The Difference Between Tutelage and Custodianship:

As held by general public, tutelage belongs to a person who takes care of, instructs and fosters the child. Such a person takes him or her to a doctor in case of being sick and s/he accompanies him or her to school for education. It is the mother who should protect the child after the death of the father because taking care of the children is usually directly related to a person's emotions towards and attachment to the child and mothers say the first and the last word in this regard; however, custodianship is pertinent to the decision making about the children's financial affairs. As it is known, the children are envisioned as minors until reaching the age of 18 and it is the father who has to shoulder all their financial issues (income-cost) and the grandfather or the custodian does so after the death of the father. Commonly, fathers and grandfathers are called "special guardians". So, it has to be noted that a child whose father has died does not need any custodian in case that his or her grandfather is living but, in case that he is also found dead, the public prosecutor is obliged to install a custodian for the child.

Custodianship:

Custodian is the person shouldering and taking care of the affairs of an orphan or an incapacitated person. A custodian is installed for an incapacitated person when s/he is found having no natural guardian or executor. Essentially, boys and girls are assumed to be minors when below 15 and 9 years of age, respectively, and they have no right to take material and nonmaterial measures in regard of their properties.

Legal Duties and Authorities of Custodian:

A custodian should possess perfect capacity and feature ethical competencies and be reliable; besides, according to the criterion in article 1192 of the civil law that pertains to executorship, it can be stated that non-Muslim custodians cannot be appointed for Muslim incapacitated persons. In addition to the fathers and mothers, the administration of the affairs of some of the children can be delegated to their custodians. Of course, custodians can be specified for the insane persons and not fully grownup individuals in addition to the children who have no living father or paternal ancestor. Generally, custodian is the person who is determined by a court as requested by the public prosecutor for the support of the incapacitated individuals, i.e. for taking care of the incapacitated persons and administering their properties; such a person's job has been termed custodianship.

Conditions of Custodians:

In judicial courts, custodian is the person appointed by a judge for taking care of a minor child, an insane person or a not fully grownup person; such a person is commonly called governing trustee. Corresponding to the Islamic regulations, a custodian appointed for a Muslim minor child should be also Muslim.

Furthermore, the custodian should be wise, mature, insightful and well-aware of the issue. To select a custodian for a Muslim minor, a non-Muslim person should not be selected for the reason that Kaffirs cannot hold the custodianship of Muslims.

Custodian should possess perfect capacity and ethical competency and be reliable. In addition, according to the criterion introduced in article 1192 of the civil law which is pertinent to executorship, it can be stated that the Muslim incapacitated persons cannot be put under the custody of non-Muslim custodians; additionally, based on article 1231 of the civil law, the following persons should not be appointed as custodian:

- The individuals who are themselves under the custody or guardianship of another.
- The individuals who have committed crimes or perpetrated one of the following transgressions and convicted by the force of decisive sentence: robbery, breach of trust, fraud, embezzlement, rape or unchaste actions, offences towards children and blameful bankruptcy.
- The individuals for whom a sentence of bankruptcy has been issued but liquidation is still in progress.
- The individuals who are known for immorality.
- The individuals who themselves or their first degree relatives have filed a lawsuit about the incapacitated person.

Duties of Custodian:

According to the law, custodians can take measures in respect to the movable properties but their measures for the immovable properties should be taken with the permission of the public prosecutor. In case that the minor reaches maturity, s/he can take possession of all the properties, including the movable and immovable ones, and, in case of having a complaint about his or her custodian's non-observance of an expediency related to him or her, s/he can refer to a legal authority but, in this case, the custodian can claim through offering proofs that s/he has observed all his or her expedienices in regard of his or her properties.

Supervision on Custodian:

Emphasizing on the idea that there would be undoubtedly no possibility for the soundness of the custodian's performance without correct and logical supervision on him or her, a jurist explains that, for assuring the preservation of the rights of the individual under custody, the law has predicted that the public prosecutor can specify certain individuals for supervising the performance of the custodian. Article 1247 of the civil law should be taken into account in this regard: "the attorney general can delegate the supervision on the affairs of the individual under custody in part or in whole to trusted individuals, committees or institutions". The trusted person, committee or institute that has been determined for exercising supervision would be responsible for the losses incurred by the individual under custody in case of being found guilty or treacherous. Of course, it is possible for the custodian to ask for an amount of wage and s/he can withdraw common and reasonable amounts of money as ordered by the public prosecutor from the incapacitated person's properties for performing his or her affairs.

Appointment of a Custodian:

In case that the incapacitated person is found having no natural guardian or executor, courts can appoint a person as custodian who would shoulder the administration of the incapacitated person's affairs in the absence of the foresaid individuals. Therefore, it has to be noted that

there is a hierarchy for selecting a guardian, an executor and a custodian; this way, as long as the incapacitated person has a natural guardian, the turn does not come for the executor and custodian. Additionally, a custodian is not specified for the incapacitated person in the absence of the natural guardian as long as s/he has an executor.

The installation of the custodian is not directly ordered by the law rather, in the absence of the special guardian (including the natural guardian and the executor), s/he is installed by the court under certain conditions. In fact, custodian is the person who is determined and installed by a court and as requested by public prosecutor for supporting the incapacitated persons such as taking care of them and managing their properties. After installation, such a custodian shoulders the duties and responsibilities specified by law for him or her. It is worth mentioning that failure in complete performance of the duties would be followed by hefty legal liabilities.

The Qualifications of the Custodian in Law:

One of the important qualifications of custodianship is having the required ability and competency which can be viewed as positive characteristics for a custodian and, considering the necessity of the competency and capability and power of doing the legal actions and proper management for the preservation of the incapacitated person's properties, this qualification is essential for the custodians. A custodian should make efforts in line with instruction of the incapacitated person and correction of his or her state and s/he has to take his or her expediencies into consideration while doing so.

The necessity of having ability and power of recognizing the good from the bad is also a matter in regard of the custodian's qualifications. Of course, physical power is not intended by ability rather it means the power of performing legal actions and administrating the incapacitated person's affairs in an astute manner.

The second positive quality and qualification for a custodian is his or her trustworthiness. If it is proved according to the law that a custodian lacks this trait, s/he will be immediately deposed.

The third positive attribute of a custodian is that s/he has to be mature and fully grown. The individuals who themselves need custodians cannot be installed as custodians.

The fourth qualification of a custodian is his or her being a Muslim. In the laws of Islam, the guardianship of a disbeliever over a believer has not been accepted. Thus, non-Muslim custodians cannot be specified for incapacitated Muslim individuals.

Formalities Related to the Installation of a Custodian:

Declaration of the existence of an incapacitated person to a qualified court (based on the law, certain individuals are obliged to inform the courts of the existence of incapacitated persons):

- Father and mother (article 61 of the law on non-litigious affairs and article 1233 of the civil law)
 - The relatives of the incapacitated person (close family members/kin and friends) (according to article 1220 of the civil law)
 - Wives and husbands (article 1221 of the civil law)
 - Public prosecutor (article 1222 of the civil law)
 - Consular agents (articles 1228 and 1229 of the civil law)
 - Individuals mentioned in article 55 of the law on the non-litigious affairs (municipality, statistics office and state registration organizations and their agents and the sectoral and rural governors)
 - Courts (article 56 of the law on the non-litigious affairs)
 - Former custodian (article 59 of the law on the non-litigious affairs)
- Trial and Issuance of Sentence by a Court:
- Issues a sentence indicating the incapacity

- Issues a sentence indicating an individual's being a minor

Publication of the Sentence (Articles 1225 and 1226 of the civil law):

The custodian and the court are informed about sentence (articles 67 and 69 of the law on non-litigious affairs).

Priorities of Installing Custodian:

- Father and mother (article 61 of the law on non-litigious affairs and article 1233 of the civil law)
- The relatives of the incapacitated person (article 1232 of the civil law)
- The individuals who have provided enough guarantees (surety/mortgage)

Qualifications of Custodian According to Article 1192 of the Civil Law:

- Capability of exercising proper management
- Trustworthiness
- Being a Muslim
- Not being incapacitated (first paragraph in article 1231 of the civil law)

Kinship (Relatives of an Incapacitated Person):

- Kinship by blood: birth and consanguinity
- Kinship by affinity: marriage

Conclusion:

After the death of a father, the tutelage and protection of the children is the right given to the mother. Custodian is the person who organizes the legal affairs of a child. Due to the same reason, the law has practiced a lot of fuss for appointing such a person. The duties of the custodian are determined by the civil law and the non-litigious affairs' law and this depends on the things for which a custodian is appointed; for example, it has its own special law if it is for the administration of the properties and it obeys its specific law if it is for the rearing of a child. The regulations are perfect except for certain and exceptional cases in which regard other regulations should be utilized.

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THE CONCEPT AND FEATURES OF INSIDE INFORMATION IN THE SECURITIES MARKET OF IRANIAN AND THE EUROPEAN UNION

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ABSTRACT

Information in the capital market is known as the basis of the market in such a way that the decision in the capital market is based on the information that is available to investors. In the present study, we comparatively examine the concept of inside information, examples of its misuse and the role of the regulatory body in this field from the perspective of the securities market laws of Iran and the European Union to address the gaps in the Iranian legal system and identify and find solutions to solve problems in this field.

Keywords: capital market; inside information; holders of inside information; regulator; information transparency.

Introduction

The capital market, along with the monetary and insurance markets, constitutes a major part of any country's economy and, as a long-term financial market, has the task of gathering and preparing available financial resources and directing it to investment. In this market, especially the securities market, information is the most valuable asset in such a way that most investors make decisions based on this information. In an efficient and transparent stock market, information is disseminated quickly and accurately and made available to the general public; therefore, market watchdogs should provide equal access to information and, consequently, a fair decision for the general public. Stock market information is important to influence investors' decisions and stock prices. Some of this information is related to the important information of companies whose shares are traded in the market. This important information is called "inside information"; that is "inside information" is any information that is not disclosed to the public that is directly or indirectly related to securities, trades or issuers and, if disclosed, "it affects the price or the decision of investors to trade the relevant securities." The authors of this law appear to have adapted such a definition from Paragraph 1, Article 7 of the EU Market Abuse Guidelines on Transactions Using Inside Information; because in the definition of this article of inside information, similar elements have been considered to identify inside information. This information is available within companies, and the first people to be informed about it based on their job and professional status are the managers and officials of the same companies.

In the Securities Market Law of the Islamic Republic of Iran, adopted in 2005, Note 1 of Article 46, some people are introduced as holders of inside information, including company managers, auditors, accountants, consultants, shareholders, etc.

Regarding the fundamental role of the capital market in the economic system of countries and the importance of correct and timely dissemination of information that can affect the price of securities and investors' decision to enter the market, it seems necessary to study the nature and characteristics of such information and identify it from similar concepts.

Literature review

The valuable book "Capital Market Law" by Dr. Mohammad Soltani, which in parts of the book, "Monitoring the Iranian capital market and its regulatory elements", examines "the nature and characteristics of inside information in the securities market" and "Information-related crimes from a legal perspective.

- Articles written by Dr. Laia Junidi and Mohammad Norouzi titled "Understanding the nature of inside information in the stock market" and "Recognizing the holders of inside information in public companies"

- Article written by Dr. Abbas Ghasemi Hamed and Mohammad Norouzi titled "Use of Inside Information in the Securities Market" and Article on Securities Transaction Using Inside Information (Comparative Study of Iranian and American Law)

Method

It is a descriptive-analytical method and the library method has been used and referring to books, articles, related dissertations, internal and external rules and instructions, internal and external internet sites for collecting information and resources.

The concept of inside information

In the securities market, the concept of information has a specific and different meaning. Information in the securities market is considered as one of the most valuable and sensitive assets and in other words, "the traffic light of the capital market". In the capital market, information is the basic foundation for investors' decisions to invest and operate. Especially in the securities market, which is a place for securities trading, like any other market, the general public and investors will act as long as they believe that the prices in it represent the true value of the securities. Investors rely on information released by companies by taking risks and endangering their capital. Information that should be published in a timely and accurate manner and in a way that makes it possible for them to analyze the information so that investors can invest and operate with confidence in the information published by market publishers.

Features of "inside information" in the capital markets of Iran and the European Union

The first definition of inside information in the Iranian legal system was made by the Securities Market Law of the Islamic Republic of Iran approved in 2005. The latter law in paragraph 32 of Article 1 defines inside information as follows: "Any information not disclosed to the public directly or indirectly relating to securities, trades or issuers and, if published, affects the price or decision of investors to trade the relevant securities." This definition of inside information seems to be largely influenced by the definition of EU directives on the prohibition of infidelity and market abuse. Article 7 of the European Union's latest directive on the prohibition of transactions based on inside information and market abuse examines inside information and its characteristics.

According to some authors, the EU resolution provides the most valid definition of classified information and is binding on all EU member states, contrary to US law, which, despite paying close attention to financial matters and leading the United States in drafting securities-related laws, it has no law on inside information, and has left the interpretation to the Securities and Exchange Commission.

Infidelity of information or lack of access to the public

In the securities market regulations of the Islamic Republic of Iran, both in the law itself and in the regulations and instructions related to it, many cases of publishers' requirements for correct, accurate and timely disclosure of information were observed. Including Article 2 of the Market Law which stipulates: "In order to protect the rights of investors and with the aim of organizing a transparent, fair and efficient securities market, and to monitor the proper implementation of this law, a council and an "organization" shall be formed with the composition, duties and powers contained in this law. According to Article 7 of the same law (paragraphs 8 and 18), the Board of Directors is responsible for taking the necessary measures to prevent violations in the securities market and to monitor the disclosure of important information by companies registered with the organization. In addition, the Securities Exchange Organization, in the instruction titled "Executive In-

struction on Disclosure of Information of Companies Registered with the Exchange Organization in Article 2" obliges the issuer to send the information subject to this instruction within the prescribed time, according to the forms required by the organization and is published electronically on paper in the official letterhead, to the organization and at the same time in the ways determined by the organization for public information.

Accuracy of information

In EU directives, this feature is stated as the first feature of inside information. According to this guideline, accurate information is considered which first as explained in the previous section, be special and distinct from other company news and information, and secondly, be clear and include details of the information. In other words, the accuracy of information can be considered a higher and more rigorous concept of information specificity. In the EU directive and the definition of inside information, only the feature of "accuracy" is considered and no reference is made to the specificity of the information, but it seems that with regard to the other elements in the definition of inside information, the legislator has considered the two characteristics of accuracy and specificity. In the UK Market and Financial Services Act, Article 118, in defining precise information, states: "It must be special enough to estimate its effect on the price of securities."

The ability to influence the price of securities

Given that in EU law, the legislature usually combines these two features in all cases where information motivates the transaction, the legislature combines these two features, citing the "importance" feature for enough information. In this directive, the measure of price impact is stated as follows: "If the information is such that a reasonable investor uses it as part of his investment decisions, that information will have a significant impact on price". An important point to note in this case is that the impact on the price of securities can only be considered significant and affect the decisions of investors when the impact is significant and significant enough, otherwise, minor effects that lead to small and minor price changes or insignificant and ineffective changes, cannot "hide" the information and burden the publishers with disclosure and guarantee its performance. This is something that has been taken into account in the EU directives, and the term "significant impact" on classified information indicates such thinking.

How to identify the holders of inside information

To facilitate the identification of holders of inside information and determine their duties and responsibilities to the supervisor and increase the level of transparency and public trust in the market, it is necessary to determine how to identify holders of inside information to monitor their behavior and transactions by supervisors and provide inspection bodies. In this regard, the stock exchange laws of various countries, including the European Union, have special rules and regulations regarding the disclosure of the names of holders of inside information. The EU Directive, adopted in 2014, also provides Article 18 for Member States to provide a useful tool for market regulators to more accurately identify potential market abuses and control the flow of classified information. Securities issuers or persons working for or on behalf of them must provide a list of persons for whom they are employed under an employment contract and who have access to inside information, such as consultants and accountants; the list should be updated regularly and made available to the competent authorities immediately whenever requested. In the Iranian legal system, as in the European Union, there is no such comprehensive system for monitoring the work of holders of inside information and identifying and combating the misuse of inside information or transactions based on it. However, to increase the level of market transparency and facilitate the flow of information and control the possibility of unfair exploitation or misuse of inside information to the detriment of other market participants, the Board of Directors of the

Stock Exchange Organization approved the executive instruction titled "How to report the holders of inside information" on 11/10/2007.

Distinguishing hidden information from similar concepts

As observed, inside information is one of the most sensitive and important issues in the capital market of countries because the price of securities and the decisions of individuals with inside information and investors are highly dependent on this information. In addition, in order for investors and market stakeholders to have equal and fair access to information to enter into stock trading to avoid major and significant risks in trading, information symmetry and greater market efficiency, inside information should be precisely defined and its nature clarified and define its boundaries with similar concepts such as important information, insights, rumors, and probabilities. Considering the ambiguities in this field and the need to accurately define inside information in the new law, the Iranian legislator has defined inside information as follows in paragraph 32 of Article 1 of the Market Law approved in 2005: "Inside information is any information that is not disclosed to the public that is directly or indirectly related to securities, trades or issuers and, if disclosed, affects the price or investors' decision to trade the securities." Article 46 of the Market Law, which deals with the guarantee of the fines prescribed for crimes such as transactions based on inside information, also shows the legislator's support for this information and increasing the regulatory and legislative dimension in the new law.

Conclusion

Due to the special nature of securities trading in the capital market and the greater vulnerability of stock markets to incorrect and misleading information than other markets, information in these markets plays a much more important role. Transparency of information in these markets is the main factor of investors' trust in the market and consequently the value of the securities traded. Therefore, creating a comprehensive regulatory structure to enact effective laws and regulations to ensure investor protection and consider more requirements and guarantee heavier enforcement for breaches of obligations related to the mandatory disclosure of information by securities issuers than in the current market law in the Iranian securities seem necessary. In addition, the Securities and Exchange Commission, as the market watchdog, can establish and enforce specific legal standards for the correct and complete disclosure of information and the elimination of procedures involving the misuse of inside information and related transactions. The legislator's definition of inside information in Article 32 of the Securities Market Law seems vague and concise compared to the definition of the EU Market Abuse Guidelines and should be amended as follows: "Inside information is information of a precise nature that is directly or indirectly related to its securities, transactions or issuers and, if disclosed, has a significant impact on the price of the relevant securities."

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**ФУНДАМЕНТАЛЬНЫЕ И ПРИКЛАДНЫЕ ИССЛЕДОВАНИЯ
В СОВРЕМЕННОМ МИРЕ
ТОМ 1**

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