Electronic Social Networks and Social Constructive Learning: Designing and Verifying the Application of Virtual Social Networks in Collegiate face to face Education

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Abstract: The aim of this study is to design and validate a model in application of virtual social networks based on the social constructivism approach in collegiate face-to-face education. For this purpose, the mixed method was applied. Qualitative study was conducted with the aim of designing blended learning and using deductive content analysis method. In quantitative study, in order to determine the validity of blended learning plan, 6 experts were surveyed through a questionnaire survey method. In qualitative analysis, after the theoretical definition of each of the main concepts of research (components of education based on social constructivism, education based on virtual social networks and blended learning) referring to the scientific texts available in the period 2000-2018 and with the purposeful sampling method, 53 scientific texts including articles, books and dissertations were selected and studied. The results of this analysis consisted of 6 components of analysis, determination of educational goals and content, determination of educational tools and media, determination of educational elements for implementation, design of interaction and evaluation along with the elements of each of these components. Then, based on the existing educational design patterns, blended learning based on virtual social networks was designed with a social constructivism approach. The results of internal validation in the second study also demonstrated that the application pattern of virtual social networks based on the approach of social constructivism in collegiate face-to-face education has a good validity and suitable quality.

Keywords: Blended learning, Social constructivism, Deductive content analysis, Mixed method research

Introduction

In recent decades, new communication technologies, including web-based technologies and virtual social networks, have created a new era and society, and the growing use of these technologies, have caused significant developments in most social, cultural, political and economics statuses of the societies, so that some experts have introduced this phenomenon as a great power in today's societies. For example, Joseph Nye considered virtual social networks as a new dimension of power in the twenty-first century. Students are among the users with the most use of virtual social networks, so that according to researches, almost all students have a username on at least one social network (Sponcil & Gitimu, 2013).

The widespread use of virtual social networks by students has gradually changed their view of these networks and accepted it as a significant aspect of their lives. These conditions will lead to students' excessive use of networks as well as focus reduction in academic performance, and will affect individual study habits (Jacobsen & Forste 2011). Research shows that students' use of Facebook affects their study hours, so that students who use Facebook regularly study one to five hours a week, but students who are not members of Facebook 11 to 15 hours a week (Stollak et al., 2011). Other

research findings show that there is an indirect and significant relationship between students' use of virtual social networks and their academic performance. In other words, students with higher grades and academic performance use social media less than students with lower grades and academic performance (Javadinia et al., 2012). The students who use virtual social networks face other challenges including the creation of insecurity and consumerist culture, improper and uneducated use of programs, students' attitudes toward non-traditional values and social beliefs and identity, and the formation of different subcultures and dissemination invalid or incorrect educational contents (Javid et al., 2017).

In the field of education, researches also show the educational role of virtual social networks is at last rank in comparison with other roles. Also, according to the average rankings for different educational roles of virtual social networks, the most important role of networks is their success in creating general information exchange for users and the success of virtual social networks in specialized trainings of various social classes has the lowest rank and average (Ezzatzadeh et al., 2016). But the reality is that learners today have less incentive to learn in traditional way. They are more prepared to use multimedia tools in teaching and learning and are more involved with Web 2 tools (Cheraghmollaei, 2014).

The educational system of universities is in a way that it is not possible for students to have permanent access to professors, and students cannot refer to them at any time to learn specific topics and receive answers to their questions. In the existing education system, educational processes and activities have progressed less, and in addition, in the process of teaching students, less attention has been paid to the combination of classroom learning and the external environment, and most educational situations are limited to the classroom. Student learning does not take long, and the interaction of students with instructors as well as the students with each other has decreased (Kamar & Ong'ondo, 2007). Students have no choice in how to teach themselves (Brown, 2003). The use of existing teaching methods does not allow students to have immediate access to their essential information and, according to the conditions of the students, does not have a high degree of flexibility and does not motivate the students enough (Peters, 2007).

On the other hand, with the beginning of the serious use of e-learning and after two decades from the start of this method, the inefficiencies of this method have gradually become clear. In other words, although e-learning has been successful in achieving the goals of time and space constraints, it has not been very effective in achieving desirable and quality goals. Factors such as isolation and lack of direct and face-to-face social interaction, lack of development of discourse skills among learners, need for strong motivation and time management skills, lack of verbal and nonverbal cues, the possibility of participation of other individuals instead of learners in the learning environment and assessment tests and the increase of fraud are among the limitations of e-learning (Al-Qahtani & Higgins, 2013). These constraints have combined the two approaches of e-learning, face-to-face training, and the emergence of blended learning. Blended learning basically means using online media in a curriculum or course, along with the benefits of face-to-face communication and other traditional ways of teaching to

support learners. Blended learning was created to reduce feeling of frustration caused by the inefficiency of online media use (Mcdonald, 2007) as well as increase the effectiveness of knowledge by facilitating learning better than face-to-face and e-learning, provide lifelong learning and self-learning based on exploration, make learning more cost effective and efficient and encourage interpersonal and participatory learning between different academic levels in different parts of the world and reduce the global digital gap (Yang, Zhu & MacLeod, 2016).

The expansion of information technology knowledge and the optimal use of rich facilities and available technologies emphasize the necessity for university professors to apply novel and different teaching methods. In new teaching methods, professors involve students as active and thoughtful individuals in the learning process. It is possible to provide an active learning environment by using a constructivist approach and building a rich environment (Lebow, 1993). The basic premise of this approach is that human beings are active learners and must personally build knowledge and discover basic principles for themselves. Constructivism emphasizes the interaction of individuals and situations during the acquisition and development of skills and knowledge (Kadivar, 2013).

The most well-known and accepted type of constructivism is social constructivism, which is rooted in Vygotsky's ideas. Vygotsky's theory emphasizes interpersonal (social), cultural-historical interaction, and individual factors as the key to human development. He considers interaction as the key to knowledge (Saif, 2015). Interaction in the traditional sense does not mean providing useful information to people. Rather, individuals transform their experiences based on their characteristics, traits and knowledge, and reorganize their mental structures. The formation of concepts and learning is created through mutual interaction between the individual and the social environment. Vygotsky believes that cognitive development depends on his social, cultural, and historical environment, and that his knowledge, value, thought, and attitude evolve in interaction with others (Volvi, 2013). The social environment influences cognition through its own "tools," including language and cultural tools. Based on this, it can be said that the use of new technologies including web-based technologies such as social networks as a cultural and social tool, has a special place in social constructivism and enriching the learning environment with these technologies provides a context for meaningful, tangible, and sometimes simulation learning. On the other hand, the combination of rich cultural and social environment with the space for dialogue and negotiation and cooperation of learners with each other strengthens and perpetuates learning of learners (Herrington & Oliver, 2000). Despite the large geographical distance, in electronic environments and web environments including virtual social networks, it is possible to interact simultaneously and non-simultaneously between different groups and individuals, and this interaction allows for information exchange, discovery and construction of knowledge, learning advancement, and sharing of different ideas and theories (Aghakasiri et al., 2016).

Due to their high flexibility, the learning environment enriched with virtual social networks provides users with very simple features that prepare all the requirements related to implementing and creating constructive learning environments. Social networks through online tools reinforce group critical

thinking, project-oriented learning, and problem solving, and their power is not only because of production and share of knowledge among its members, but also provides the ability to reflect and generate new knowledge. In these networks, ideas are produced, challenged, changed, critiqued and evaluated by a very large network, and all of these things sometimes happen in just a few minutes (Cheraghmollaei, 2014).

Despite the challenges of face-to-face and virtual training alone, the benefits of each of these trainings are clear for everyone. Flexibility, convenience, the ability to study the learner at his own pace at any time and place where it is possible to connect to the internet, the ability to chat and exchange information with each other regardless of distance is one of the benefits of e-learning (Björk et al., 2008). Traditional training also has special benefits such as the help of coaches to learn content and encourage learning, connecting past and present learners' experiences, speeding up the facilitator in the process of gaining information, and receiving feedback from others (Zenger & Uehlei, 2001) and most importantly, there is a face-to-face and direct connection. These advantages emphasize that the elimination of each of these trainings overshadows the dimensions of learning. Therefore, in order to enjoy the advantages of these two training methods, the combination of face-to-face training and training based on virtual social networks is of great importance. The present article tries to answer the following questions by paying attention to social constructive educational environments and virtual social networks as an interactive educational environment based on Jonassen's approach and also consider the design model of Grabinger's social and cultural learning environments (which will be discussed in the following sections) to answer the following questions:

1) What is the pattern virtual social networks application in face-to-face collegiate education based on the social constructivist approach and what are its components?

2) Is the proposed model valid for experts?

Material and Methods

This research was mixed method and conducted in two studies. The first qualitative study was performed using deductive content analysis method. The second study was a quantitative study that validated the proposed model of the first study.

A) The first study: This study was performed using deductive content analysis method. In this method, categories and classes are not obtained at the end of the research but the researcher by assuming some definitions and generalizations as classes analyzes the desired text qualitatively and seeks examples of definitions and generalizations. The whole text is compared with the pre-determined definitions and the analyzed texts judge the existence or non-existence of the examples related to that definition in the desired texts (Fardanesh, 2008). In fact, deductive content analysis is used when the researcher intends to measure a theory with available data (Catanzaro, 1988). In this approach, the researcher bases his coding scheme on existing theories or previous research before data analysis. Other codes may also be obtained during this process, and previous codes obtained from the theory may be revised and modified.

The statistical population of this study includes all written sources, articles, dissertations, and valid scientific documents indexed and related to databases. Systematic search of external and internal resources in the databases of Scopus, Eric, Google Scholar, **ProQuest** and Science Direct, Magiran, Noormgas, Irandoc, and SID was performed with certain keywords and titles. Sampling of this community was performed by purposeful method, which is the most common sampling method in qualitative research. That is, the selected samples are rich and specialized in terms of problem and research objectives (Petty et al., 2012). In other words, in the purposeful sampling method, the sample is not selected for convenience but the sample is chosen based on the researcher's judgment according to his previous information. Due to the breadth and background of the subject of virtual education and with the aim of accurately identifying the components of blended learning, written sources, articles and dissertations, and documents from databases between 2000 and 2018 were used to purposefully select documents and resources to identify components of education based on social constructivism and education based on virtual social networks. The study continued until the new data had not contained any new information about the subject of research, and the data reached theoretical saturation. In the initial search, over 110 scientific sources were found, which after removing duplicates, finally 53 sources (19 Persian sources and 34 foreign sources) were examined in line with the objectives of the study.

Written documents were used as data collection tools in the first study. For this purpose, first the keywords related to content analysis were identified. The target articles were selected by searching the intended keywords (Table 1). The criteria of article selection consisted the validity included the validity of the journal, the author's reputation, the relevance of the content of the article and the year of its publication. These indicators were approved after studying research sources and consulting with professors specializing in e-learning, educational psychology, and curriculum planning.

Table 1. Keywords in search of scientific resources in databases

OR		OR		OR		OR
Constructivism	AND	Social network	AND	Integrated	AND	Education
		Social Media		Blended		Learning
		Web 2.0		Hybrid		Teaching
		Electronic		Multi Method		Training
Social Constructivism		Information and Communication Technology (ICT)		Enhanced		Instruction
		Distance				Higher Education
		SNS				
		Virtual				

Data Analysis Method: In this study the classes of categories and their code were determined by analyzing the deductive content, after defining each of the desired concepts and determining the examples indicating each of these definitions, the classes of categories and their code were determined. Then the extracted data from the study of resources were placed in each of these classes. According to deductive content analysis, if there was any data in the work process that was not included in these classes, then according to the inductive content analysis method, new classes will be created. That is, using the grounded theory and determining the relationship of the categories with each other to develop a theory or model. An important issue in this section is the reversal between the codes of one class and other classes that lead to modified analysis and interpretations. In this way, the pattern and the final classes will be accessible.

In order to check and ensure the validity of the research in the first study, the methods of survey by members, triangulation the data sources (collecting data from various sources and methods) and reviewing by some experts in the relevant field were applied.

B) The second study: In this study, the blended learning model based on the proposed social networks was validated using the opinion of experts and a survey questionnaire.

The proposed community for internal validation of the proposed educational plan included: specialists of educational psychology, educational technology, curriculum planning with a doctoral degree. The proposed educational model, along with a validity questionnaire was provided for 11 professionals selected by the available sampling method. Before conducting the questionnaire, the outcomes, objectives and, importance of the research were explained to the experts and their consent was obtained for cooperation. The collaboration of experts with the researcher was completely optional. The confidentiality of individuals' identities and opinions was considered by the researcher and they were informed about this.

In the second study, an internal validity questionnaire was used to collect information. The questionnaire was compiled by identifying and determining the proposed educational elements and model in the form of questions related to the internal evaluation of the model. The purpose of designing this 8-question questionnaire was to determine the suitability and alignment of the proposed model with the research objectives, which were graded based on the Likert spectrum from score 1 (very low) to score 5 (very high). The content validity of this tool was verified using the help of supervisors and consultants and its reliability was calculated with Cronbach test at 0.85.

Data and data analysis method: In the second study, descriptive statistics indicators (frequency, mean and standard deviation) and in order to examine the level experts' agreements on different dimensions of the proposed model, the index of coefficient of experts' agreement were used.

Results

A)   The first study

The answer to the first research question was performed using deductive content analysis method in accordance with the steps provided by Mayring (2000) (Figure 1).
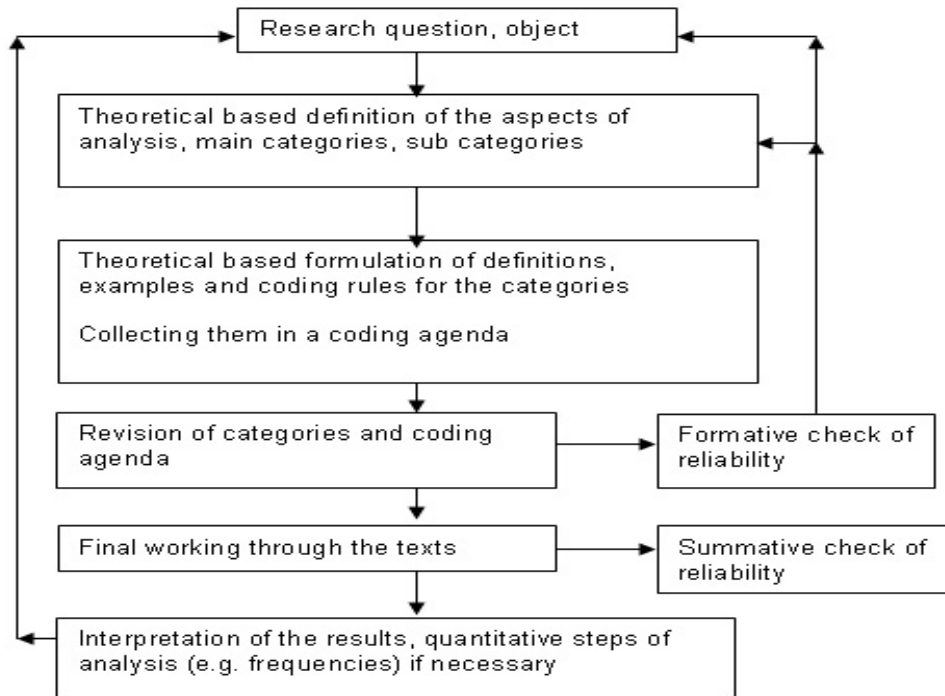

Figure 1. Step model of deductive category application (Mayring, 2000)

Definition of research concepts

Since the purpose and research problem is to design a model for application of virtual social network-based education in face-to-face education with a social constructivism approach, first definitions of virtual social network-based training, social constructivism learning and blended learning were introduced. In the following, the components of training based on social networks and also the components of learning based on social constructivism approach were examined.

1)   **Virtual Social Networking Training**: Virtual social networks are websites or a set of websites that allow users to share their interests, thoughts and activities with each other. In other words, virtual social networks are sites that with the help of search engines and some features such as chat, e-mail, image sound transmission, and etc., allow users to communicate more in a network of individual and group relationships. (Mohkamkar & Hallaj, 2014). In training based on social networks, components such as the level of familiarity of learners with virtual social networks, interaction, type of virtual social network, evaluation, necessary infrastructures for training, and etc. are considered

2)   **Learning based on social constructivism**: Vygotsky, as a representative of the social constructivist approach, emphasizes the role of social environment and social interactions as a

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facilitator of growth and learning. From the point of view of social constructivist approach, the formation of concepts and learning is created through mutual interaction between the individual and the social environment. This approach is based on two basic ideas. First, cognitive development is understood only through the socio-cultural context in which the individual is placed. Second, evolution depends on a system of signs that people grow up with, that is, the symbols that culture provides to help people think, communicate, and solve problems. According to Vygotsky, cognitive development depends on the information received from others (Kadivar, 2013). Therefore, in constructivist education, components such as interaction, learner-oriented, cultural and social context, and etc. are considered.

Blended Learning: The underlying philosophy of blended learning is that not everyone learns in the same way, so it seems necessary to use different methods for education. (Carmen, 2002). Driscoll (2002) defined the term blended learning through the following four concepts:

a) Combining and integrating different types of web-based technologies (such as online virtual classes, learning with your song, collaborative learning, video and audio and text) to achieve the educational goals

b) Combining a variety of educational approaches (such as behaviorism, cognitivism, and constructivism) to create the best learning outcomes with or without educational technologies

c) Combining any educational technologies (such as video devices, CD drives, web-based training and videos) with face-to-face training and teacher guidance

d) Combining or integrating educational technology with real work activities to create a harmonious learning and working effect.

The most common definition of blended learning is: "A combination of face-to-face training with computer training to facilitate the opportunity for interaction and feedback at higher levels of learning" (Graham, 2006). In the present study, blended learning is a combination of education through virtual social networks and face-to-face training. The following are the components of these two teaching methods.

After the theoretical definitions of concepts and the determination of the assumed components in education based on virtual social networks and based on social constructivism, scientific texts were studied with the aim of extracting examples related to the assumed components. Combining the information obtained from the characteristics of constructivist education and education based on virtual social networks in the form of 6 main components and 15 sub-components were classified and the necessary conditions for the realization of each of the following components, in the form of elements, were extracted from the desired sources (Table2).

Table 2. Components of qualitative content analysis for blended learning based on virtual social networks with a social constructivist approach

Main Components	Sub-Components		Elements
Analyze	Recognize the characteristics of the learner and the instructor		Considering the age, learning style, educational needs and learners' motivation, assessing the knowledge and previous experiences of learners, evaluating and paying attention to general skills of students and professors in using social network, technical skill of instructor in using social network and attitude of instructor and student towards social networks
	Identify environmental conditions		Paying attention and evaluation of the cultural context and educational situation, technical facilities and educational infrastructures
Determining educational goals and learning outcomes	Determining educational goals and learning outcomes		Functional goals (learning outcomes), learner-centered goals, basic goals (individual and group), interaction-based goals, and goals based on real criteria
	Determining educational content		Content tailored to learners' needs, content selection with learner participation and interaction, use of multiple content, content tailored to real educational situations
Determining educational tools and media	Prepare a list of media and educational tools		A variety of educational tools with a focus on interaction and participation, electronic tools (computer, laptop, mobile) and Web 2 and social network technology tools, technology tailored to the context and conditions of learners
	Choose the appropriate media and educational tools		
	Combining face-to-face training with technological tools		
Determining the learning elements to implementation	Time		Consider adequate opportunities and appropriate activities, sufficient opportunities for thinking and reflection, changing the time of learning in accordance with the conditions of learners and determining the time ratio required for face-to-face learning and network learning
	Learning environment		Provide real physical space for classrooms and cyberspace, determine the appropriate social network (native network tailored to the situation), relocate education tailored to the needs of learners
	Choosing the appropriate learning approach		Blended learning (combination of face-to-face training and social network-based training) with a social constructivist approach
	Select learning strategies	Diverse and appropriate methods	Using methods based on participation and group interactions (participatory learning, dialogue, project-based discussion and learning, etc.), using individual learning-based methods (learning based on problem, learning based on projects, and etc.), Strengthening teaching-learning methods using the interactive capacities of social networks, bridging (between the learning experiences out of class and in the formal classroom space) and learning process-oriented
		Feedback	Using multiple feedbacks (professors, students) and quick and continuous feedbacks
		Home works	Using genuine and real homework, basic questions, teaching technical skills in social network
Interaction design	Multiple interactions		Grouping, Student-Student Interaction, Professor -Student Interaction (Scaffolding), Student-Educational Content Interaction, Student-Tool Interaction, Content-Content Interaction, and Cyberspace Interaction (Social Network)
Assessment	Use a variety of evaluation methods and tools		Assessment by the teacher, self-assessment, assessment by learners (peers), portfolios, exams, group projects, discussions regular assignments, and etc., evaluation through social network

The next step in the second study was to identify and select appropriate models for compiling the blended learning plan. Studies have shown that in constructivism educational design, instead of emphasis on certain design steps, features of this education are considered. Therefore, the features of Table 2 were designed in a coherent and codified format, as well as in accordance with the appropriate patterns of constructivist educational design. For this purpose, the necessary studies were conducted on the characteristics of constructive educational design as well as appropriate models for this project. In his research (1995-2009), Willis examines constructivist educational design models and notes that these models have characteristics that are more appropriate for use in the modern education system. The features that should be considered in the design of constructive educational models are:

1) Return, nonlinear and sometimes chaotic educational design

2) Planning in a reflective, participatory and evolutionary way

3) The emergence of goals during the design process and progress in it

4) Lack of proficient educational design experts

5) Emphasis of teaching on learning in meaningful areas

6) The significance of continuous evaluation

7) The high value and importance of changes and mental data

In "constructivist learning environment design theory", Jonassen (1999) emphasizes on principles such as inclusion of learning in relevant and real fields, learning in social experiences, encouraging ownership and commenting on the learning process, providing experience in the knowledge building process, encouraging self-awareness of the knowledge building process, experience presentation and appreciation from a variety of perspectives, and encourages the use of a variety of presentation methods, as constructive educational design features.

The design model of the Grabinger's socio-cultural learning environments is also one of the educational models based on social constructivism (Figure 2). This model is related to educational design based on social networks and is designed to be very simple. According to Grabinger and colleagues (2007), educational programs related to preparing people for global change require the use of strategies based on critical thinking, problem solving, research, and lifelong learning. Achieving these goals depends on adopting a socio-cultural approach with an emphasis on learning from experience and discourse. The model also emphasizes the development of complex skills and knowledge building using participatory and productive learning. He considers the main purpose of learning to be the development of ability to use cognition, emotion to build knowledge, and considers learners as members of society who have been working and practicing in this community since the beginning of the learning experience. In this model, learning occurs through interaction with the environment and others, and from the beginning, the learning process is complex and real. The learner participates in activities that he requires and has strengths and weaknesses in then. Educational strategies are based on creating a dialogue between the teacher, the learner and other members of the community.
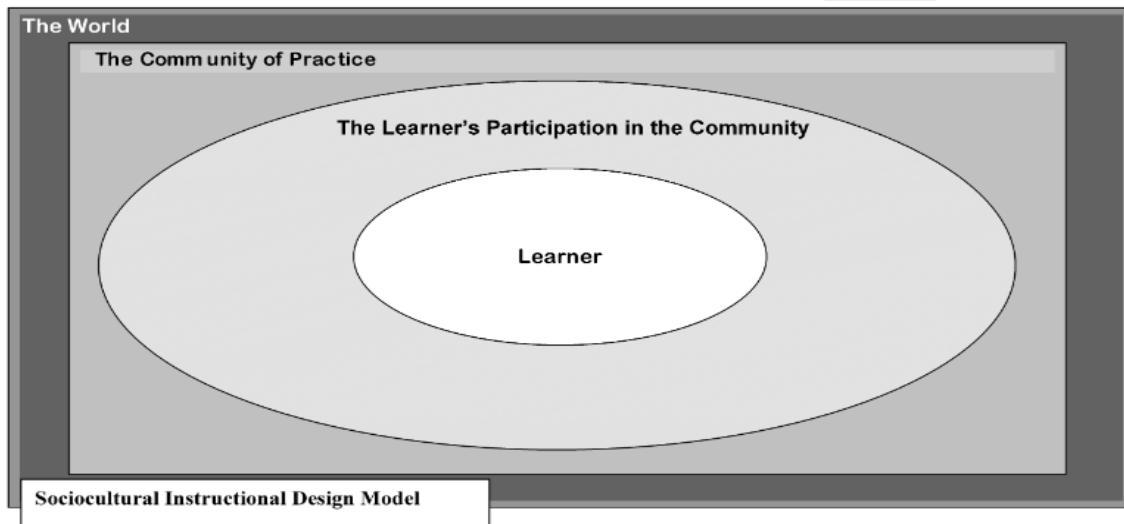
Figure 2. Design model of socio-cultural learning environments Grabinger and et al. (2007)

After determining the components, based on the view of Jonassen and also the view of Grabinger and his colleagues, the application pattern of social network-based education in face-to-face education (blended learning) was designed with a constructivist approach (Figure 3).
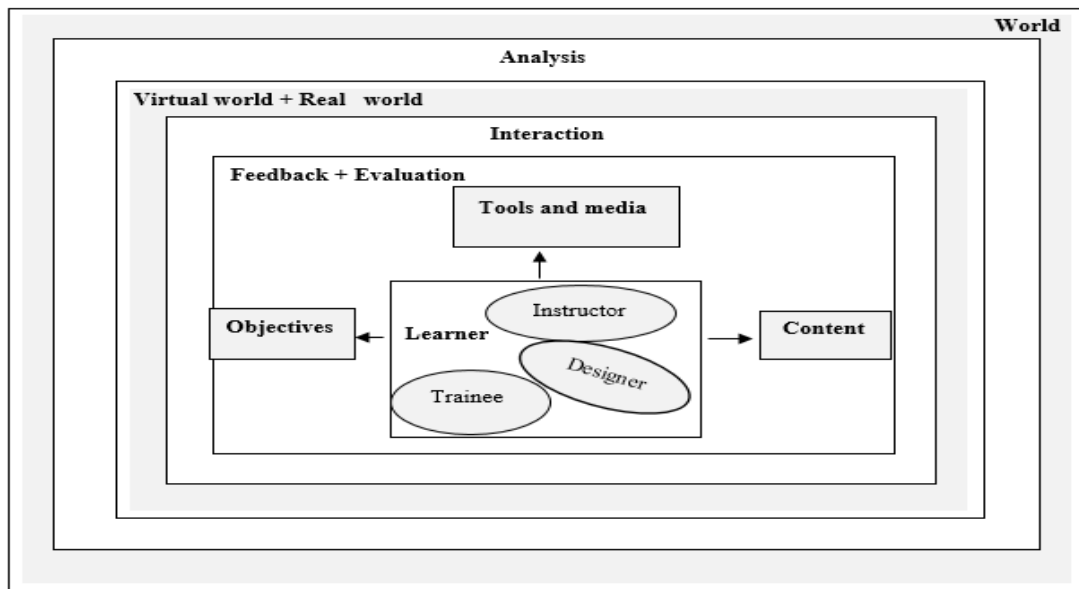

Figure 3. Design of integrated training networks based on virtual social networks with a social constructivist approach

B) The second study

In order to answer the question of whether the proposed design pattern has the sufficient internal validity, the internal validation questionnaire of the project was analyzed based on the opinions of 6 experts. Descriptive statistics of the respondents to each of the questions about the social network-based educational design model are presented in Table 3.

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Table 3. Descriptive statistics of the characteristics of the integrated training model based on virtual social networks

Row	Phrase	Frequency	SD ± Mean
1	The dimensions of the proposed design are appropriate	6	0.52±4.66
2	The components of the relevant plan are suitable for blended learning based on social network.	6	0.41 ± 4.83
3	The plan is suitable for teaching through social network.	6	0.41 ± 4.83
4	The proposed plan for designing educational programs through the social network is comprehensive	6	0.52±4.66
5	Educational program designers can use this design.	6	084 ±4.5
6	The social network-based blended learning plan is practical.	6	0.52±4.66
7	Design dimensions strategies are executable.	6	082 ±4.33
8	Interaction between design elements is appropriate.	6	0.41±4.16

Based on the information in Table 2, the average opinion of experts in evaluating the internal validity of the pattern designed in all questions is between 4.16-4.83. Therefore, the proposed model has been evaluated positively by experts in all dimensions.

In order to evaluate the level of experts' agreement on each dimension of the educational model, the ratio index and percentage of agreement were applied (Table 4).

Table 4. Index of ratio and percentage of experts' agreement on multiple dimensions of blended learning based on social networks

Row	Phrase	Completely agree	agree	Ratio of agreement	Percentage of agreement
1	The dimensions of the proposed design are appropriate	4	2	1	%100
2	The components of the relevant plan are suitable for blended learning based on social network.	5	1	1	100%
3	The plan is suitable for teaching through social network.	5	1	1	100%
4	The proposed plan for designing educational programs through the social network is comprehensive	2	4	1	100%
5	Educational program designers can use this design.	4	1	0.83	83%
6	The social network-based blended learning plan is practical.	4	1	0.83	83%
7	Design dimensions strategies are executable.	3	2	0.83	83%
8	Interaction between design elements is appropriate.	1	5	1	83%
The ratio of the total agreement	0.81				
Percentage of total agreement	0.81				

According to Table 4, 100% of experts have considered the dimensions of the proposed model and its components to be suitable for teaching through social networks. The comprehensiveness of the plan has been approved by 100% of the experts, and everyone considers the proposed educational model to be suitable for teaching through social networks. 83% of experts point the applicability of this model

and suggest it to be used by educational. Also, 83% of them confirm the feasibility of implementing the proposed model strategies and evaluate the interaction between the elements of the model as appropriate. In total, on average 81% of experts agree on the various dimensions of this plan and evaluate it positively.

During the interview with some experts and based on the answers to descriptive question questionnaire, partial problems were raised about the model and the educational protocol. Then, suggestions were made to improve the pattern and its implementation outcomes. One of the suggestions was to clarify the role of the teacher in the proposed educational plan, determine the relationships between the various components more accurately and to use more appropriate words to name the categories. Some experts have acknowledged that the university does not have the infrastructure to implement such projects.

Discussion

Collegiate education and learning have changed dramatically with the expansion of Internet and virtual social networks' usage. The expansion of virtual social networks has provided many opportunities for academics, and one of these benefits is the use of blended learning based on virtual social networks. The mere use of e-learning and face-to-face training has gradually exposed the failures of these two teaching methods and highlighted the need for blended learning web-based and Internet-based blended learning. Most of the articles reviewed in the context of web and Internet blended learning (Al-Qahtani & Higgins, 2013; Choi & Han, 2015; Demirer & Sahin, 2013; Krasnova, 2015; Swoboda & Feiler, 2016) have better improved the effectiveness of this new teaching method. This method can easily provide the high quality university education compared with both face-to-face and e-learning methods for all students by adding learner-based learning to face-to-face teaching methods and using interactive-based tools such as virtual social networks. The study of new educational approaches such as social constructivism also shows that the use of virtual social networks as a tool plays an important role in enriching the interactive educational environment. Studies and opinions of educational design experts also emphasize the proper combination of web capabilities and constructivist-based learning theory, and believe that the web learning environment can be shaped in such a way that it can help people build knowledge (Ebrahimi et al., 2012). Therefore, due to the significance of blended learning and in order to make better use of social constructivist approach in collegiate education and also with the aim of optimal and favorable use of students' significant acceptance of virtual social networks, the present study was done to design integrated education based on virtual social networks using a social constructivist approach.

The results of the internal validation of this study demonstrate that the design of blended learning based on virtual social networks with the approach of social constructivism in collegiate   education has the required efficiency. In order to achieve more efficiency of this project and to increase the academic performance of learners using this educational project, it is necessary to define each of the elements of blended learning accurately and the blended learning that are appropriate to the country's

native virtual social networks and culture, the needs and characteristics of learners, be planned. The proposed educational plan is a learner-centered one and almost all the components and elements are anticipated including; educational goals and consequences, educational content, educational tools and media, evaluation methods and tools, and etc., are developed and planned with the active participation of learners. Also, one of the main characteristics of the proposed blended learning is its non-dependency on time and place, so that the time and place of training can be changed in accordance with the conditions of the learners as well as the environmental conditions.

In the proposed plan, participation and interaction have been mentioned as important components in social constructivism as well as social networks. This interaction is multidimensional (Table 2). As Liu, Tao, and Nee (2008) points out, virtual social networks are the missing link in operationalizing the real and active participation of learners in construction and production of knowledge and learning. In other words, in the social constructivist approach, knowledge building by learners is achieved through interaction and participation, and virtual social networks as an educational tool and through the creation of an educational space provide the background for creating an interactive space for building knowledge. Researches also emphasize that communication and interaction on the Internet is horizontal, not vertical, therefore learning in a network environment is very self-governing and self-guided, and learners have more control on their learning. These characteristics make the learning process of learners more interactive, and this interaction eventually leads to participatory learning, which is one of the basic methods of education based on social constructivism (Lai, 1999).

In the proposed scheme, the relationship between its components and elements is not a linear or purely reciprocal relationship but all the components and elements of the relationship are intertwined, meaning that, first, the relationships of its components and elements are often a back and forth relationship. Secondly, many components and elements are not time dependent and not specific to a particular stage of education, but in all stages of education are considered. For example, the evaluation method is formative and in the process of teaching continuously, in different ways and with various tools is feasible

Culture is important as basic factor in social constructive education and in education based on virtual social networks and, of course, in blended learning. In the section on social constructive education, the proposed plan pays special attention to the cultural situation and subcultures of learners as an essential component, and also in the education section based on virtual networks, on the selection of virtual networks appropriate to the country's culture and so-called native networks have been emphasized. Paying attention to subcultures such as collectivism and individualism of learners in grouping and creating the ground for their interaction in education is one of the priorities of the proposed plan. Currently, the challenges in using non-native virtual social networks and the lack of proper infrastructure emphasize on necessity of using virtual social networks appropriate to the culture of Iran and the selection of virtual networks that can be used in educational environments and networks with the infrastructure tailored to the conditions of the students and the facilities of the universities.

Research background demonstrates that the components and relationships between them in the proposed blended learning with various models such as constructivist-based learning conceptual model (Sarmadi and Veisi Tabar, 2014), social network-based learning design (Cheraghmollaei, 2013), Inclusive Learning-Based Blended Learning (Iloanusi & Ogechukwu, 2007), Koohang Constructivist-Based Blended Learning Model (2009), Enriched Virtual Model (Stacker & Horn, 2012), Enriched Learning Environment Model with Virtual Social Network (Toofaninejad et al., 2018) is consistent.

Given the growing proliferation of virtual social networks in universities, it is inevitable to take advantage of this opportunity to address existing educational challenges including solving the problems of traditional education and teacher-centered education. The variety of these networks and their educational services make it possible for learners to enjoy the educational services of these networks while receiving   in- person and face-to-face training. In blended learning based on virtual social networks, learners have the opportunity to follow their homework and projects in a group or individual manner according to their needs and receive the necessary feedback from others.

The proposed educational plan provides a framework for the higher education system to be able to, in addition to the face-to-face training common at the university, provide new capacities and facilities of educational technologies including virtual social networks in a targeted and programmed manner, and with the aim of expanding the interactive and participatory space in learning and teaching. In addition, the use of social networks as a scientific and specialized base and the emphasis on building knowledge by combining these networks with face-to-face training, promote the scientific role of networks and reduce the damage caused by their use. And so it provides a space for the exchange of knowledge and the creation of new ideas. Using this plan will enrich the learning environment and collegiate education, and ultimately improve skills such as academic self-efficacy, self-regulation, and etc., which are rooted in social interaction and cognition.

The difficulty of accessing experts and the poor cooperation of some of them due to their busy schedules are among the biggest limitations of the present study.

Finally, in order to reduce the educational costs of universities, reduce the manpower required for education, and reduce the problems caused by student traffic, the plan is proposed. Also, conducting further research based on the findings of the present study regarding the effectiveness of the plan on students' academic performance and other academic and motivational variables, will significantly contribute to the strength and richness of the findings.

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