



# Identification of Effective Strategies in Facilitating Virtual Mobility

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## Abstract

**Background:** Virtual mobility, as one of the emerging phenomena in the internationalization of higher education, is a process that all activities within it are done electronically or digitally. It is used, among others, to facilitate physical activities, such as student exchanges, with the help of information and communication technologies.

**Objectives:** The current study aimed at the identification of effective strategies in facilitating virtual mobility.

**Methods:** In order to achieve the objectives of the study, a qualitative approach and a phenomenological research method were used. The statistical population included all the experts experienced in the area of internationalization from the top five comprehensive and public universities in Iran, including the University of Tehran, Shahid Beheshti University, Tarbiat Modares University, Mashhad Ferdowsi University, and Shiraz University. The participants included 27 experts with international experience purposefully selected from the five universities and their comments were collected using semi-structured interviews to achieve the theoretical saturation of data. The content analysis of the data was done using MAXQDA version 2018 software.

**Results:** Seventeen minor components were identified as effective strategies in facilitating virtual mobility in higher education. The main effective strategies in facilitating virtual mobility were organized in four major themes, including promoting university websites, promoting social networks, improving virtual infrastructure, and strengthening virtual branding.

**Conclusions:** The results of the study showed that among the components, promoting university websites and promoting social networks were the most important factors highlighted by the experts as the factors that could facilitate the process of virtual mobility as an area in which more must be invested.

**Keywords:** Virtual Student Mobility, Facilitating Virtual Mobility, Higher Education, Internationalization of Higher Education

## 1. Background

The concept and approach of internationalization of higher education have changed in the last few years and become more diverse (1). There has been an increasing focus on the internationalization of students' learning experiences. One of the strategies that can enhance such experiences is virtual internationalization that can be upgraded through the use of electronic and online learning programs (2). The international mobility of academics has always been a feature of higher education and it will continue to be (3). Virtual mobility is based on the idea that students can exchange and collaborate with instructors, experts, and students of other countries using the latest information and communication technologies (ICT) (2). Virtual mobility has a great potential for participation in the process of internationalization, the development of innovation, and the improvement of higher ed-

ucation (4). In virtual mobility, through distance education and e-learning, students can continue to study while having their own jobs and maintaining their own source of income, as well as enjoying some time with their families (5). Wihlborg et al. (6), in a study entitled "facilitate learning through international virtual collaboration", demonstrated that international virtual mobility could create innovative communication and learning environments across nations and cultures. Also, in their research, Andone et al. (7) showed that students could develop web-based virtual reality by sharing the spaces of a platform, sharing it with their international and regional counterparts, and discussing the similarities and differences in their field of study. The findings showed that students' digital skills improved by the use of the Internet, mobile technologies, and other available applications. Gea et al. (5) stated that virtual mobility meant the use of ICT to gain the benefits of physical mobility without the need to

travel. In other words, virtual mobility is most suitable for students who cannot travel (8, 9). Also, the use of ICT in the internationalization of higher education, including e-learning, has provided opportunities for innovative learning approaches across countries and cultures (6). Wells (10), in his prioritization of UNESCO's sustainable goals, stated that the use of ICT and the mobility of students, both internally and internationally, are important qualitative goals in the process of globalization.

The third period of internationalization as a phenomenon has begun and the achievement of this course is only possible through the development of cross-border education and integration of ICT and education. On the one hand, the benefits of the mobility of international students have been acknowledged more and virtual mobility, which is facilitated by the use of ICT and has resulted in students' collaboration and communication on the borders of no place and time, has been welcomed as an alternative to physical mobility (11). On the other hand, the number of students using physical mobility has decreased because of financial and linguistic constraints. However, Iran's share of benefits resulting from higher cross-border education is insignificant and close to zero (12). Therefore, in line with Professor Knight's statements about using "knowledge diplomacy", it is imperative for all academics to think how, instead of focusing on internal interests in a limited sense, they can benefit from the entire existing international community (1). Equally important, it is necessary for them to ask how they can accelerate such exchanges and motility in students and professors through information technology. With the possible limitation in the growth of traditional student mobility in the long run and also given that the current sanctions imposed on our country have made the traditional mobility of students harder and more expensive, this question appears to be more relevant: How can we provide students with a platform for mobility so that they can benefit from international programs and classes in other countries, facilitate their mobility, and minimize their physical mobility?

## 2. Objectives

Considering the above mentioned, the current study sought to explore the strategies in facilitating virtual mobility from the viewpoint of experts with experience in the area of internationalization from five top universities. Accordingly, the main research question can be phrased as follows: What are the effective strategies in facilitating virtual mobility from the view of experts?

## 3. Methods

The approach of the present study was qualitative and its methodology was descriptive phenomenology. The statistical population included all experts with experience in the area of internationalization, belonging to the top five comprehensive and public universities in Iran, including University of Tehran, Shahid Beheshti University, Tarbiat Modares University, Mashhad Ferdowsi University, and Shiraz University. The logic of selecting experts from these top five universities in Iran has been the Times ranking system. Every year, universities in the world are scientifically evaluated based on different ranking systems; one of the most famous ranking systems is the Times Ranking System, which annually ranks universities around the world according to various criteria including the internationalization of higher education criterion. Therefore, we selected the five top universities from the aspect of internationalization of higher education based on the Times ranking.

The participants included 27 experts with international experience selected from five universities based on purposeful sampling. The features of the interviewees are shown in Table 1. The comments of experts were collected with semi-structured interviews in the place of their universities. The duration of each interview was between 40 and 50 min and the number of interviews continued to reach the theoretical saturation of data. The obtained data were dissected using the thematic network (13) using MAXQDA version 2018 software. The thematic network is a useful method in thematic content analysis. The thematic network, based on a specific process, systemized the basic themes (the codes and key points of the text), the organizing themes (the themes derived from the combination of basic themes), and the general themes (the high-level subjects including the principles governing the text as a whole). Then, these themes are drawn as a network map and the highlighting themes of each of these three levels are shown with the relationships between them.

In the first phase of this study, some university experts, with experience in the area of internationalization of higher education, were interviewed. The data obtained from the interviews were analyzed and some basic conceptual expressions were extracted from the interviews and recorded. Subsequently, the basic themes related to each conceptual expression were drawn out and tabulated. In the third step, all similar basic themes were grouped in a more coherent and general group called organizing themes. Finally, similar organizing themes were extracted and documented under the global theme. An example of the basic, organizing, and global themes (13) of basic con-

**Table 1.** The Features of Interviewees

	Number of Experts	Age	Academic Ranks			Field of Study
			Assistant Professor	Associate Professor	Professor	
Shahid Beheshti	5	40 to 65	2	3		
Tarbiat Modarres	5	40 to 65	3	2		
Tehran	5	40 to 65	2	3		
Shiraz	6	40 to 65	2	3	1	
Ferdowsi Mashhad	6	40 to 65	2	3	1	

English language, statistics; educational technology; education management; chemical engineering; materials engineering; mechanical engineering; geology; law and political science; international relations

ceptual expressions can be seen in [Table 2](#).

### 3.1. Validity and Reliability of the Data

In qualitative research, validity and reliability are vital. The reliability refers to the degree of reproducibility and repeatability of data by other individuals and its indicators are the accurate conduct of interviews to collect data, developing structured processes for the implementation and interpretation of convergent interviews, and the use of specialized committees (14). Open dialogues between the research team members made consistent various judgments about the similarities and differences in the content of interviews. The validity is used to determine whether the findings are accurate from the viewpoint of the researcher, participant, or reader (14). There are eight main strategies for verifying the validity of the findings in qualitative research (15) and each of them can be used in research. In this study, we made a discussion with our academic colleagues to assess the validity of research. In other words, after analyzing the content of the interviews, the results of the analysis were reviewed by the supervisors and counselors as academic colleagues and some necessary corrections were made. The coding list was also reviewed by key experts in the field.

## 4. Results

The thematic network, as well as the frequency percentage of effective strategies in facilitating virtual mobility obtained from this study, is illustrated in [Figures 1](#) and [2](#).

As could be noticed from [Figure 1](#), the data from the interviews showed that the experiences of experts concerning effective strategies in facilitating virtual mobility could be divided into four categories: promoting university websites (38%), promoting social networks (30%), Improving the virtual infrastructure (27%), and virtual branding (6%). These four categories are the organizing themes, each of which contains subcategories that are called basic

themes. The frequency of each of the basic and organizing themes is written in front of it. The thicker lines indicate high frequencies while thinner lines reflect low frequencies of themes. In [Figure 2](#), the frequency percentages of the themes were calculated using MAXQDA's software designed for qualitative analysis. The findings of the themes are explained in the following.

### 4.1. Promoting University Websites

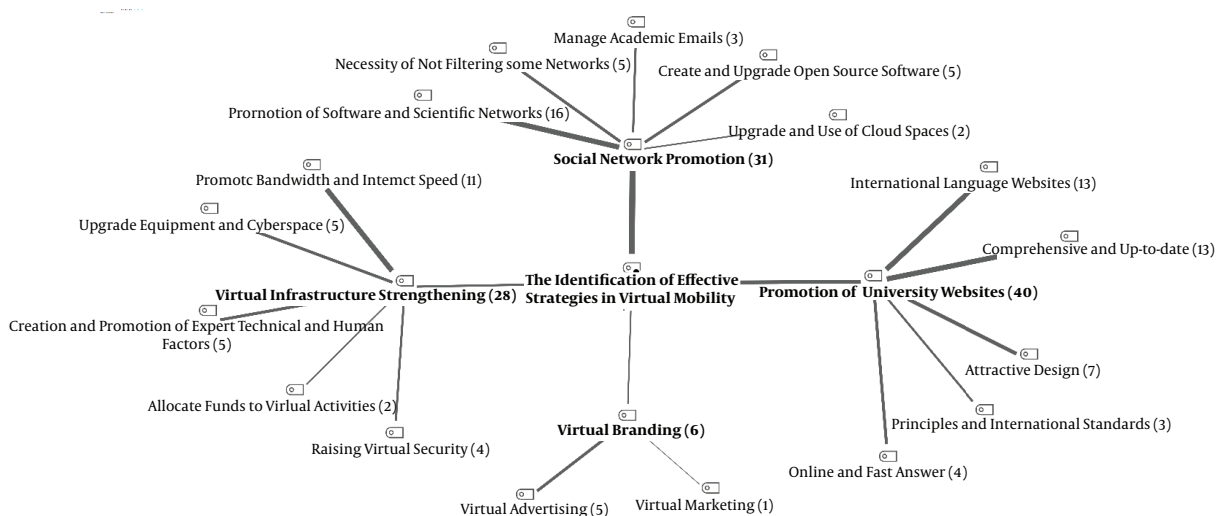
As indicated in [Figure 3](#), this theme included 40 comments from 27 experts, with the frequency percentage of 38% that were the most frequent comments in the study ([Figure 2](#)). In this study, the category "promoting university websites" was composed of five subcategories including developing websites in international languages, comprehensive and up-to-date websites, attractive design, fast and online responding, and observance of global principles and standards. The results illustrated in [Figure 3](#) indicate that two themes, i.e., "comprehensive and up-to-date websites" and "websites in international languages", were the most frequent themes mentioned by the participants, with each being referred to in 13 comments of participants. In other words, 26 comments in this category were devoted to the two dimensions. The "attractive design" with seven comments and "online and fast responding" with four comments were the third and fourth frequent themes. Finally, the "observance of global principles and standards" was referred to in three comments.

### 4.2. Promoting Social Networks

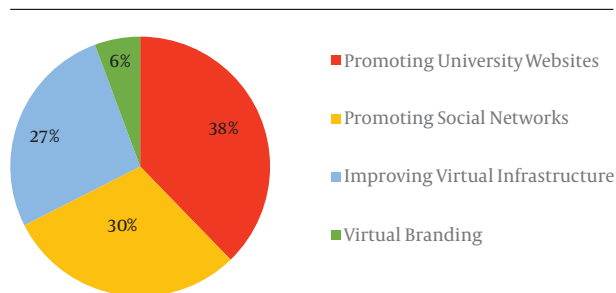
As indicated in [Figure 4](#), this theme includes 31 comments from 27 experts, constituting 30% of whole comments ([Figure 2](#)). The last, but not least, category emphasized by experts in this study was "promoting social networks", which comprised five subcategories including the promotion of software and scientific networks, the necessity of not filtering any scientific social networks, upgrading and using cloud spaces, creating and upgrading open

**Table 2.** An Example of the Integration Expression of Basic, Organizing, and Global Themes

Global Theme	Organizing Themes	Basic Themes	Phrases	Interviewer's Code
<b>The role of information and communication technologies in virtual mobility of student</b>	Improvement of virtual infrastructures	Raising virtual security	With the virtual movements in the internationalization of higher education, there is now a need for cybersecurity education. The enhancement of the security of cyberspace is very important to prevent viruses and hacking.	Code (15)
		Promoting Internet bandwidth and speed	We need broad bandwidth for virtual mobility.	Code (9)
	Promotion of university websites	International language of websites	Websites should be designed not only in English but also in Arabic, Turkish, and French.	Code (13)
		Comprehensive and up-to-date websites	In the electronic environment and the virtualization process of universities, the comprehensiveness of websites, as well as their updating, is crucial.	Code (8)



**Figure 1.** Identification of effective strategies in virtual mobility



**Figure 2.** Frequency percentage of identified effective strategies in facilitating virtual mobility

software and scientific networks”, with being mentioned in 16 comments, was considered to be the most important theme in this category among the total comments observed. This was followed by “the necessity of not filtering any scientific social networks” and “creating and upgrading open source software”, each with five comments in this category. “Managing emails” with three comments and “promoting and using cloud spaces” with two comments were the least important themes commented by the expert participants.

#### 4.3. Improving Virtual Infrastructure

As indicated in Figure 5, this theme included 28 comments from 27 experts, constituting 27% of the whole comments in this paper (Figure 2). This category consisted of five components including enhancing virtual security, upgrading broadband and internet speed, allocating budget

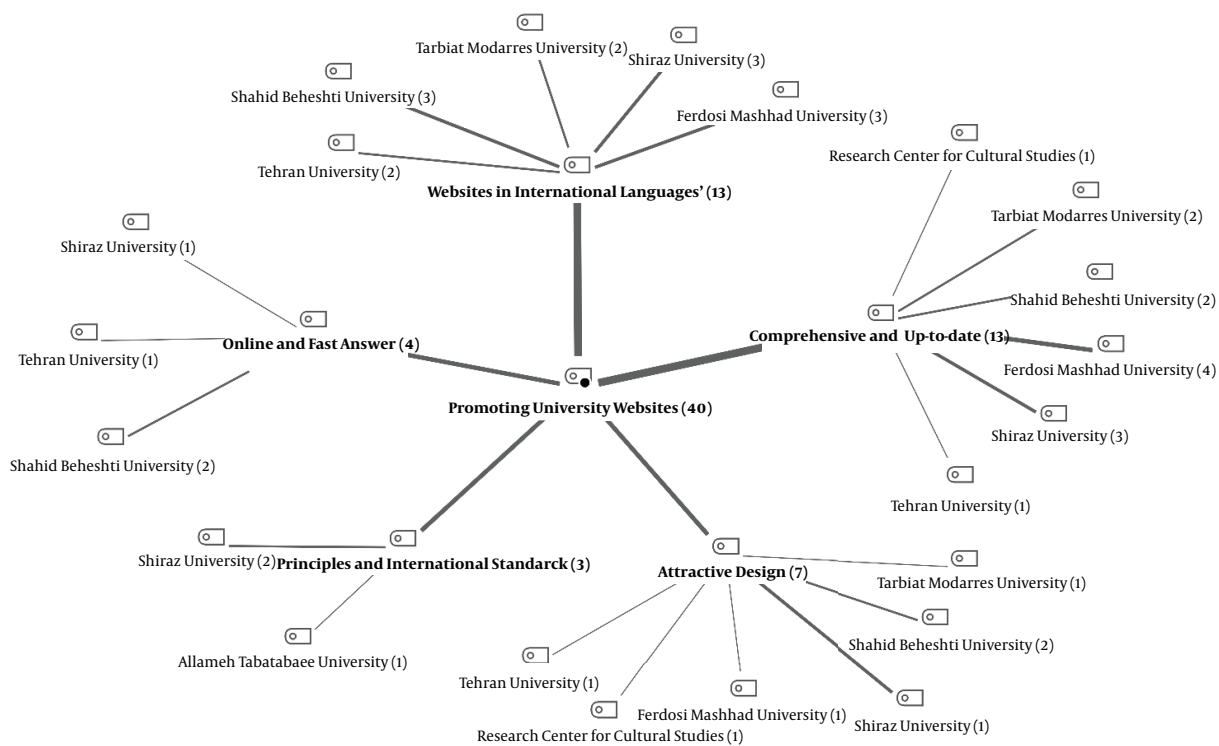


Figure 3. The thematic network of promoting university websites

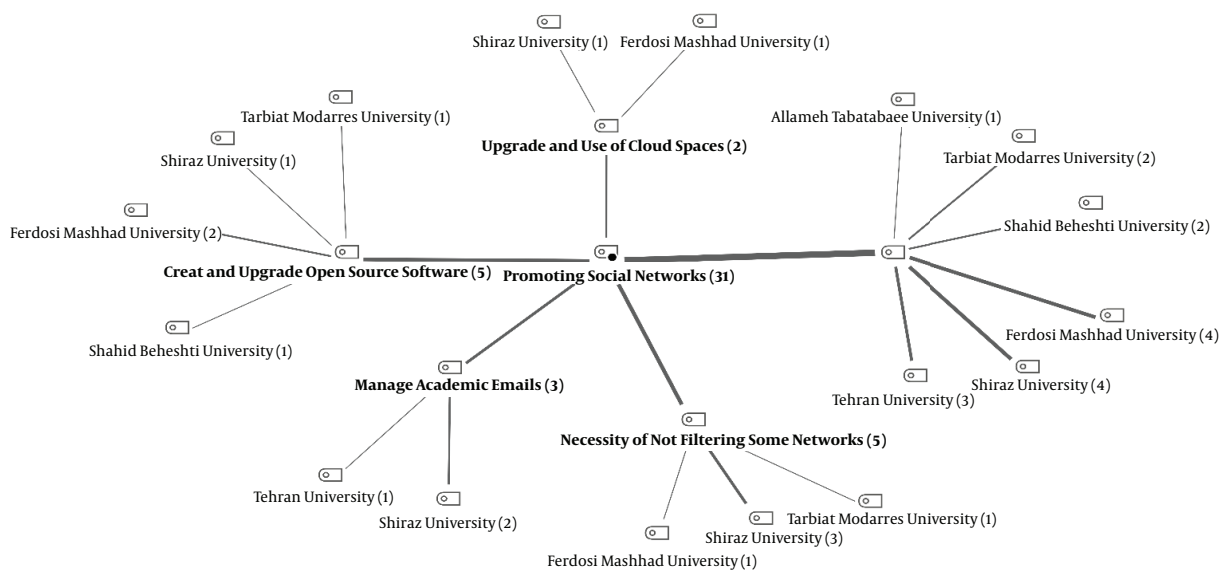


Figure 4. The thematic network of promoting social networks

to virtual activities, promoting equipment and cybercafés; and creating and promoting expert technical and human

factors. The frequency of each theme can be inferred from the thickness of its line. The results depicted in Figure 5

show that 11 out of 28 comments from the academic experts referred to the theme “broadband and internet speed promotion” as the most important theme in this category. This was followed by “the creation and promotion of technical and human factors” and “promotion of equipment and cybercafés”, which were assigned together by 10 comments out of 28 comments, each being mentioned in five comments. In addition, “raising virtual security” theme was referred to in four comments. Finally, “budget allocation”, by being mentioned in two comments out of 28 comments, was the least highlighted theme.

#### 4.4. Virtual Branding

As indicated in Figure 6, this theme included six comments from 27 experts, constituting 6% of the whole comments (Figure 2). This category consisted of two components, i.e., virtual advertising and virtual marketing. The results shown in Figure 6, which are related to the qualitative analysis of the data belonging to the category of virtual branding, indicated that “virtual university advertising” was referred to in five comments and “virtual marketing” was referred to in one comment.

## 5. Discussion

As noted, the identified strategies from the experts with the experience in the internationalization of higher education with regard to facilitating virtual mobility could be categorized into four categories as follows: improving virtual infrastructure, promoting university websites, virtual branding, and promoting social networks. Of the 105 comments or experiences expressed by 27 experts, “promoting university websites”, highlighted by 40 comments, was the most frequent category among others in promoting virtual student mobility. This was followed by “promoting social networks” with 31 comments, “improving virtual infrastructure” with 28 comments, and “virtual branding” with six comments. Since foreign students are an asset for the country in which they are studying (16), when a higher education institution decides to attract foreign students, it needs to be conversant with the experience required to respond and meet the needs and demands of those students. As a result, if the higher education system of a country is determined to create virtual mobility and internationalize its higher education, it needs first to consider the issue of promoting university websites. More specifically, improving the websites in international languages is a major concern of the virtual mobility process and one of the key components at the level of promoting university websites, as emphasized by many scholars in this study. Boal

and Stallivieri (17) believed that the use of a universal language in virtual periods would create cultural interactions among students. Thus, paying attention to international languages is of paramount importance in designing websites.

The next factor effective in promoting university websites was having comprehensive and up-to-date websites. Wihlborg et al. (6) stated that comprehensive and up-to-date university websites should be considered as one of the requirements for accelerating and facilitating the virtual student mobility process. In this regard, the websites should offer chat rooms, links to information about the university website, and student mobility policies. Interviewee No. 14 stated: “It is better to mention all the information required by foreign students, including the cost of courses, tuition fees, accommodation costs, teaching programs, and colleges on the university website and the websites should be updated regularly”. An online and quick responding system was another component highlighted by the experts pertinent to promoting university websites. Previous studies have shown that, in fact, easy access and availability of online technologies in virtual mobility systems allow students to do research in a faster manner than they usually do it (18). Finally, the last component emphasized by the experts in promoting university websites was the observance of global principles and standards. Consequently, we can safely claim that having multilingual university websites, comprehensive and updated websites, easy and affordable facilities for all students, and observance of global standards are the features that we should take heed of when designing dynamic and effective websites.

The second influential component in virtual student mobility was the promotion of social networks. In confirming the impact of social networks on online communication, for example, a study showed that online communication, including activities done on social networking sites, has gradually replaced traditional social interactions such as face-to-face communication (19). It explains why we are witnessing the growing acceptance of social networks to support classroom activities in the area of learning (20) and learning in different environments. One of the most important components emphasized by the experts in this section was the promotion of scientific software and virtual networks. The findings of one study indicated that students’ interaction with web technologies was one of the key factors in virtual mobility of students and this could help them act more quickly (18). Another study (21) found that the use of web technologies, when applied with proper methodology, enriched students’ experience. The experts in this study also paid special attention to



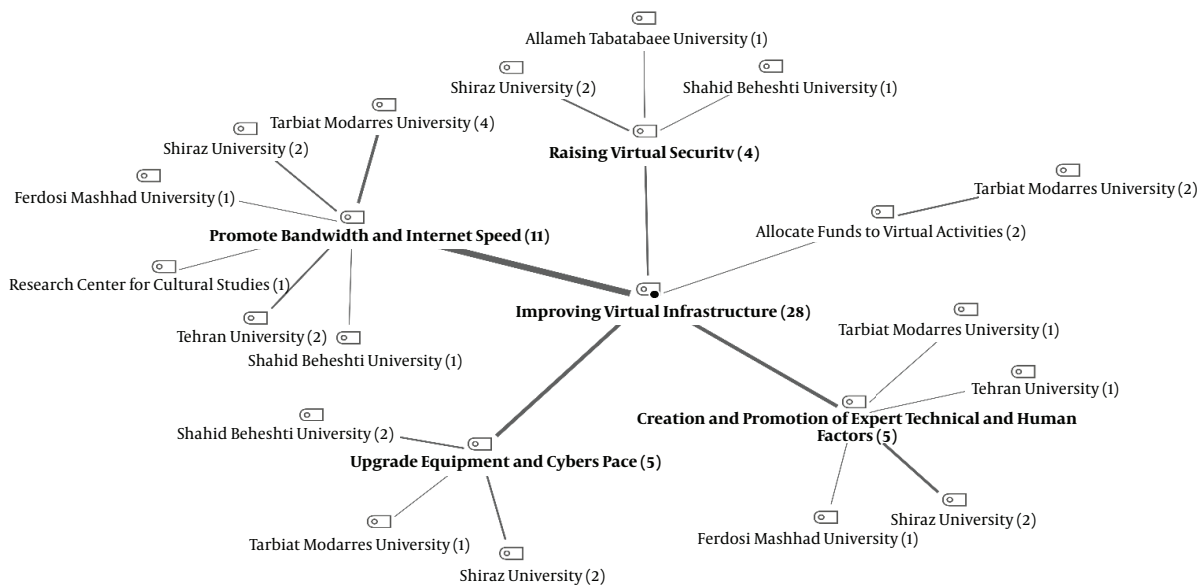


Figure 5. The thematic network of improving virtual infrastructure

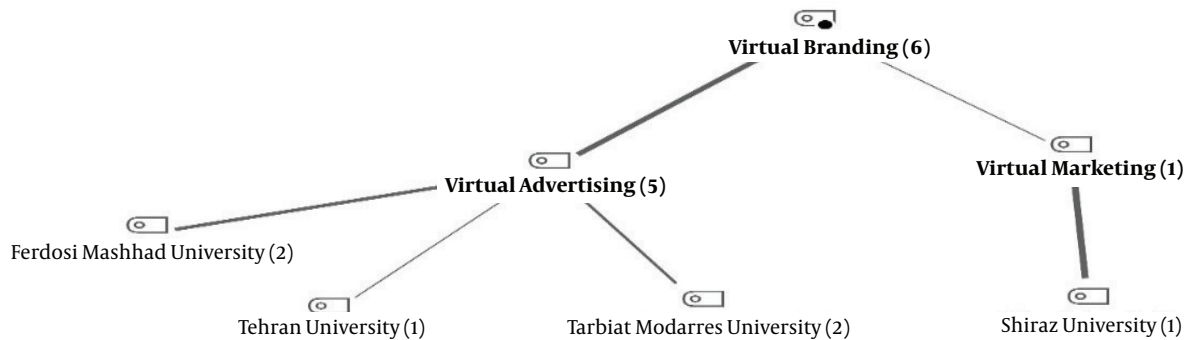


Figure 6. The thematic network of Virtual Branding

this factor. Another important factor in promoting social networks from the perspective of scholars was the necessity of not filtering any social and scientific networks. Promoting and using cloud spaces was another topic raised by experts. In addition to the above-mentioned items, the university instructors observed that creating and promoting open source software was another influential factor in the internationalization process. In a study, the use of open-source websites, such as MOODLE and MOOCs, was reported to be very influential in accessing information sources and mobility of students (6). In their research, Wu and Zha (1) noted that emerging technologies, such as open-source courses (MOOCs), eroded the boundaries between countries, and certainly these emerging technolo-

gies were going to have an uncontrollable impact on the process of internationalization. In a study entitled “the impact of open massive online courses on the process of internationalization of higher education”, Boal and Stallivieri (17) concluded that MOOCs boosted the development of knowledge on a large scale and facilitated the process of internationalization, as well. Managing academic emails was the last component that was considered in this category by some scholars. They considered the use of academic emails in scientific communication, as well as quickly responding to the received emails as an important point in scientific communication.

The third component, from the viewpoint of experts, was to improve the virtual infrastructure of the univer-

sity. One of the effective factors in improving virtual infrastructure is paying attention to cybersecurity to prevent hacking and the attack of computer viruses. Additionally, improving bandwidth and internet speed was mentioned as one of the challenges facing the process of internationalization, especially virtual student mobility. Interviewee No. 19 stated: "The interruption of internet connections and its low speed during virtual conferences are all the challenges and weaknesses of our universities in the process of internationalization". Starck and Hossein Zadeh (11) argued that the Internet and ICT, including equipment such as web pages, emails, videos, and virtual conferences, were important communication factors in attracting and enrolling students; these factors can facilitate the transfer and mobility of programs and information. Allocating funds to virtual activities and processes was another factor referred to as being influential in improving the virtual infrastructure of the universities. Lee and Park (22) pointed out that although virtual mobility seems to be cheaper for students, it costs a lot for the university that intends to set it up and the university has to pay this extra cost to shore up its image and improve the status of its students. Promoting equipment and cyberspace was another factor mentioned to be effective in improving the infrastructure. Interviewee No. 18 stated: "for virtual activities and internationalization, the need for conference halls, rooms equipped with modern technologies, space for hardware, etc., are necessary". In line with these statements, Lee and Park (22) stated that the classroom and space of the university must be equipped with the most advanced and up-to-date communication equipment to set up virtual mobility for students. Finally, creating and promoting technical factors and human resources were cited as other essential and valuable factors in encouraging student virtual mobility and improving virtual infrastructure. The results of a study by Liu et al. (23) showed that being satisfied with university staff and administrative services of a university were the fifth and sixth important factors in choosing a Chinese university, respectively. One of the benefits of virtual mobility environment is that students can take control of their learning and teachers only have a facilitating role in their learning (18).

The last level pointed up to facilitate and accelerate the process of virtual mobility was to strengthen the virtual branding, i.e. to take steps to make universities renowned for their quality education, research, etc., and turning them into global scientific and international brands. To fulfill this ambition, a university must be able to communicate with industry and international institutions and publicize its scientific achievements in the international market. In general, the results of previous research show

that the most effective variables in choosing a university by students were academic quality, reputation, and organizational brand (24). Virtual advertising, as one of the most important factors in virtualization, emphasizes that universities should demonstrate the international reputation of the university to other countries by creating video clips related to universities. In this regard, interviewee No. 19 stated: "We must have clever advertising in cyberspace and shore up the image of our country in the minds of people from other countries through networks and virtual platforms." The findings of some studies indicate that virtual spaces that a university offers for learning can include various components including photos and videos related to the university and its facilities (6). Some scholars believe that virtual branding is not limited to virtual advertising, but virtual marketing is also crucial for universities. In agreement with this finding, Holicza and Feher-Polgar (25) stated that physical and virtual mobility of students around the world was increasing due to the increase in students' demand and the competition in the global educational marketing. Therefore, in order to preserve the existing potential, it is imperative that all stakeholders involved in this process, i.e. students, student associations, universities, educational institutions, and governments, address the emerging issues in this area and prepare themselves to participate in the great internationalization marketing of higher education.

In summary, to facilitate the process of virtual mobility, attempts should be made and steps must be taken to promote and develop the above-mentioned factors simultaneously; as a result, in order to develop virtual mobility in the process of internationalization, a university has to take into consideration all the above-mentioned factors. In the end, it should be noted that the present study, like other qualitative studies, had some limitations. Perhaps, one of the most important constraints of using qualitative approaches is the limited possibility of generalizing the data collected through them. Accordingly, future researchers are encouraged to consider utilizing a mixed-method methodology to both address the issues of concern in virtual mobility and explore the idea and perspectives of graduate students that have some experience in virtual mobility.

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## Footnotes

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