

# Identifying Effective Factors on Acceptance and Establishment of Mobile Learning in Virtual Training Center for Academics

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## ABSTRACT

**Background:** Learning and instructing have been evolved through expanding the information and communication technology in recent years for fundamental changes. Mobile learning is the newest form of learning which is the use of mobile and portable tools in learning and teaching process. The mobile learning is favorable to all learners in institutes, universities, and especially in academic virtual training center because of lack of time and space limitation. The present study aimed to identify the factors which affect the acceptance and feasibility of mobile learning in virtual training center for academics.

**Methods:** In the present study, we used the literature review method. It is used in international and national database such as Irandoc, Magiran, SID, Noormags, tandf online, Eric, Science direct, and google scholar. Through searching keywords such as mobile learning, performing, and feasibility in related articles in 2010 to 2022, we finally selected and examined 32 articles related to selective criteria.

**Results:** The findings showed that technical, technological and infrastructure, aesthetical, attitudinal, cultural, social, economic, and legal factors should be taken into account to establish and promote the mobile learning in virtual training center for academics.

**Conclusion:** It is concluded that if the mentioned infrastructures and factors are provided, mobile learning would be used effectively in virtual training center for academics. Meanwhile, the function of mobile learning indicates that authorities all over the world are trying to design and apply instructional systems with regard to the present needs.

**Keywords:** Effective factors, Acceptance, Feasibility, Mobile learning, Academics virtual training center, Online learning

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## Introduction

The use of technology, as the main component of development in education, is considered in contemporary world. The privilege of using modern technologies in education is a key to differentiating educational and scientific centers and institutes and also in the society and life. In the present conditions, the traditional instructions cannot respond to various needs in the society. Therefore, it is necessary to change the instructional systems, so that we could have cooperation with predominant and wisdom-centered organizations. The information and communication technology lead to change not only in education, but also in society (1). In fact, the changes in access to information, communication, and participation create a new generation of learners that can establish learning context with each other through virtual world environments (2). Upon spread of Covid-19, the instructional systems developed and grew the online platforms increasingly (3).

As a result of the development of these platforms, the faculties used these technologies to facilitate learning among learners and provide an innovative and creative opportunities. One of the trends that facilitated this process was the use of mobile technology, which led to the creation of mobile learning. It is beyond applying mobile tools and technologies in learning environments and providing an opportunity to develop theory and instructional practice. The mobile learning has played an important role in growing and development teaching method and learning in education, especially in higher education (4). Learners can experience a flexible and unique learning anytime and anywhere through mobile learning. Some of the main advantages of mobile learning are experiencing learning through up-to-date learning material and resource, making interaction better, and talking to peers in different issues in the virtual world through mobile tools connected to the Internet (5). Mobile learning is an effective and appropriate approach through

using the unique tools because these tools are cheaper than personal computers (PCs) and provide better accessibility and use than other electronic tools (6); in this system, the learner is free about what, how, where, and when to learn (7). The infrastructure costs are reduced because there is no need to physical equipment and classrooms(8) and finally lead to information spread and interaction among learners (9). On the other hand, there are also challenges such as data security, development and design capabilities, small screens, learner supervision, compatibility issues, learner distractions, and provision of work-life balance (10).

Studies have also been conducted on the effects of mobile phones on learning. Mishra, Gupta, and Shree in their study entitled "Online learning and teaching in higher education in coronavirus time" concluded that online education and mobile learning improved the performance of students. Kumara et al. (11) in their research entitled "The effect of information and communication technology (ICT) on reading habits of students: A survey" concluded that the students who had access to the Internet daily performed practical activities successfully. Lai and Mao (12) in their study, "the examination of effective factors on mobile learning in Chinese students", indicated that the Internet infrastructure at their university was desirable more than 96% of the students used mobile to access the Internet. Chase and Herrod (13) in their study entitled "the attitude of students to efficiency of new technology in higher education" revealed the students' higher level of satisfaction in using mobile tools such as laptop and cell phone. "Also, in the several studies (3, 14, 15), it has been indicated that "students were interested in using mobile in the learning process and considered mobile learning as an effective way".

According to the above-mentioned points, it can be said that if we tend to establish mobile learning in virtual training center for academics, we should use mobile tools in learning and teaching process and provide

suitable learning context and environments which correspond to the students' interests and capabilities. Also, we should consider the instructional issues related to using mobile tools in learning process and determine whether such an approach disturbs the, and if the learners like to use these technologies in learning or not?

Given that the virtual training center for academics is one of the largest instructional virtual centers that included 2.700.000 learners, it has provided a context that has caused comprehensive, extended and deep revolution in instructional concepts and contents and its delivery (16). There has been an attempt to promote necessary competencies, and hold training-instructional programs for the learners with regard to strategic and revolutionary plans. Also, the center has tried to be progressive, valid and cutting edge among instructional virtual centers in Iran and improved its capabilities at an international level. Therefore, several factors should be considered when applying mobile learning in the center. Although many studies have been conducted on mobile learning in higher education, there are few studies about its acceptance and implementation. Some studies have focused on specific aspects such as possibility of acceptance of information and communication technology (ICT). Thus, the present study provided a comprehensive view about using mobile learning in coronavirus time and reviewed new articles. The present study aimed to identify the factor effective in establishing mobile learning in virtual training center for academics. The question posed in the present study is: What are the factors influencing the acceptance and establishment of mobile learning in the virtual education center for academics?

## Methods

Were viewed the literature to identify, examine, evaluate, and analyze the documents in order to specify the effective factors in establishing mobile learning in virtual training center for academics. The review reduced the bias and objectivity

in the study; actually we used the review of literature to explain and evaluate the present theory. The goal of the review was accurate interpretation and conclusion about various research evidence through making unbiased summaries, criticizing, combining one or several study results to identify the relationship, conflicts, distances, instability, reasons, and practical implication to resolve the problems and determine important directions to future studies (17, 18).

### *The Search Strategy*

We used different databases such as Irandoc, Magiran, SID, Noormags, tandfonline, Eric, Science direct, and google scholar. Also, different keywords were applied in searching engines with varied proposition (OR and AND) such as establishing, acceptance of mobile learning, feasibility, mobile learning, and M-learning. The articles conducted during 2010 to 2022 were collected from. The keywords in systematic searching in international and national databases were Mobile-learning, M-learning, Implementation, Identifying Factors Affecting, Feasibility, Acceptance learning, and e-learning.

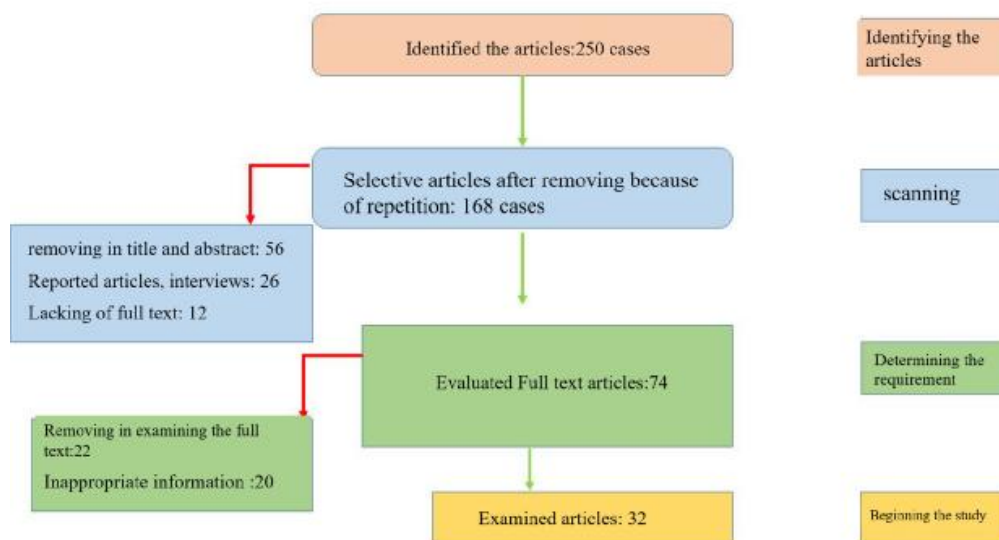
### *Criteria Used to Select the Articles*

The inclusion criteria in this study were studies related to mobile learning and e-learning, year of publication from 2010 to 2022, the studies published in scientific journal, theses, and doctoral theses. The exclusion criteria were the studies unrelated to mobile learning and e-learning and year publication earlier than 2010.

### *Systemic Searching Output*

After searching for the articles in databases, 250 articles were found. Finally, 32 articles were selected (as the samples in this study) (Figure 1).

After selection of articles through the mentioned databases, two supervisors assessed them based on the present checklists and in the case of disagreement, a third expert was asked to resolve it. The findings were recorded and analyzed in the form (Table 1).



**Figure 1:** Flow diagram of the inclusion and exclusion criteria for resources for review of the national and international research

**Table 1:** List of articles analyzed

Title	Author/s	Publication year
Students’ Acceptance and Perceptions of Perceived Usefulness of Mobile Learning Devices in Higher Educational Institutions	Edumadze J, Dithlokwa G, Demuyakor J	2022
Acceptance of Personalized E-learning Systems: A Case Study of Concept-Effect Relationship Approach on Science	Panjaburee P, Komalawardhana N, Ingkavara T	
Acceptance and Use of Mobile-Assisted Language Learning by Higher Education Language Teachers	Botero GG, Nguyet DA, Botero JG, Zhu C, Questier F	
Teachers’ Readiness to Adopt Mobile Learning in Classrooms: A study in Greece	Nikolopoulou K, Gialamas V, Lavidas K, Komis V.	2021
Inquiry-Based Mobile Learning in Secondary School Science Education: A Systematic Review	Liu C, Zowghi D, Kearney M, Bano M	
Exploring the factors affecting mobile learning for sustainability in higher education	Al-Rahmi AM, Al-Rahmi WM, Alturki U, Aldraiweesh A, Almutairy S, Al-Adwan AS	
Mobile learning Acceptance in Social Distancing During the COVID-19 Outbreak: The Mediation Effect of Hedonic Motivation	Sitar-Tăut DA.	
Determinants of Mobile Learning Acceptance for STEM Education in Rural Areas	Mutambara D, Bayaga A	
Mobile learning Perception in the Context of COVID-19: An Empirical Study of Saudi EFL Majors	Khafaga AF, Shaalan IE	
Trends of Mobile Learning: A Review of The top 100 Highly Cited Papers	Lai CL.	2020
Mobile Learning in Higher Education: Structural Equation Model for Good Teaching Practices	Romero-Rodríguez JM, Aznar-Díaz I, Hinojo-Lucena FJ, Gómez-García G	
Online Teaching-Learning in Higher Education During Lock Down Period of COVID-19 Pandemic	Mishra, L., Gupta, T., & Shree, A.	



Factors Influencing Student Acceptance of Mobile Learning in Higher Education.	Fagan, M. H.	2019
practicum teachers' use of mobile technology as measured by the technology Acceptance Model	Walker Z, Kho HH, Tan D, Lim N.	
Mobile Learning in University Contexts Based on the Unified Theory of Acceptance and Use of Technology	Aliaño, Á. M., Hueros, A. D., Franco, M. G., & Aguaded, I.	
Technological Aspect Factors of E-Learning Readiness in Higher Education Institutions: Delphi Technique	Al-araibi, A. A. M., Naz'ri bin Mahrin, M., & Yusoff, R. C. M.	
Evaluate and Ranking the Affecting Factors in Developing E-learning in Higher Education With Fuzzy Multi-Criteria Decision-Making Approach	Rahmani, F., Ahmadi, H., Ghanbari, E., KhorasaniKiasari, S.	2018
The Feasibility Mobile Learning in Primary School in Mazandaran Province and Designing The Model to Establishing M-learning.	Mousavi,	
Mobile Learning Zimbabwe--Lecturers' Perceptions	Maketo, L.	
Examining Student Perceptions About Smart Phones to Understand Lack of Acceptance of Mobile-Assisted Language Learning	Kennedy, O.	
Acceptance of Mobile Learning at SMEs of the Service Sector	Beutner, M., & Rüscher, F. A.	2017
Feasibility of M-learning at University: The Case of Payam Noor University in Bukan	Karimi, S., Soltani, A., Nozohouri, R	2016
Feasibility Study of e-Learning Project at Lorestan University of Medical Sciences From the Viewpoint of Faculty Members, Students, Managers And Executive Staff in 2012-13	Sheikhain A, AliAbadi K, Roein L, Hooshmandja M.	2015
Teachers Acceptance of Mobile Learning For Teaching And Learning in Islamic Education: A Preliminary Study	Aliff, N. A. W. I., Hamzah, M. I., & Rahim, A. A. A.	
Factors Impacting Teachers' Adoption of Mobile Learning.	Mac Callum, K., & Jeffrey, L	2014
The Examination of Effecting Factors in Mobile Learning Acceptance to Applying it by Isfahan University Students	Akhavan, M.	2013
Evaluating the Mobile Learning in Iran university	Babaii,	
An Investigation of Mobile Learning Readiness in Higher Education Based on The Theory of Planned Behavior	Cheon, J., Lee, S., Crooks, S. M., & Song, J.	2012
Presenting a Framework for Acceptance of Mobile Learning (Case study: Applicants of Entrance Exam of University).	Khotanlo H. Batmanghelichi E	
Feasibility Study of E-learning Application in Higher Education Using Factor Analysis.	Miladi H, Malek M, I.	2011
The Examination of Prerequisites and Evaluation of Facilities of Electronic Learning System	Kamalian A.R, Fazel A.	2010

## Results

The following factors were found to be the most important factors for accepting and establishing mobile learning in virtual training center for academics with regard to examination of different results reported in international and national studies. Table 2 shows the most important factors and their components.

The results of the study entitled "Factors influencing student acceptance of mobile learning in higher education" which was conducted by Fagan showed that enjoying learning and expectation of performance as effective factors influenced the acceptance of mobile learning. In fact, humanistic and aesthetics factors in accepting and applying

**Table 2:** Effective factors and their components in mobile learning

Effective key factors	Components
Technical, technological, and infrastructure factors	Hardware, including related software, network, connection, operation system of mobile tools, using an appropriate bandwidth, perceived use, incompatibility of tools with modern technology and using SMS, multimedia
Individual, humanistic, and instructional factors	Individual factors included having knowledge and skill in using the mobile tools, having laptop and mobile and other tools with high-tech, and smart PDA; the other related factors were instructor, instructional designer, executive manager, personnel.
3. Aesthetic factors	User interface, user environment, designing simple tools, quality of tools, overview of web-based services, enjoying from tools, high attractiveness
4. Attitudinal, cultural and social factors	Attitudinal factors included autonomous feeling, belief in creating attractiveness on instructional activities, belief in individual capability on instructional activities, teaching and learning, belief in interacting with instructional activities through the system and saving time through mobile learning and social structures, taking the native culture into account, organizational culture, the status of technology acceptance in society
5. Economic and legal factors	Budget, providing credit, intellectual property rights

mobile learning were examined in the study.

The study entitled “Practicum teachers’ use of mobile technology as measured by the technology acceptance model” was conducted by Walker et al. (18-21); their result showed that ease of perceived usefulness, mental norms, and perceived usefulness affected the technology acceptance.

The results of another study entitled “Mobile learning in university contexts based on the unified theory of acceptance and use of technology (UTAUT)” which was conducted by Aliaño et al. (8) showed that humanistic factors such as performance expectation, facilitating conditions and perceived satisfaction affect the technology acceptance. According to their study, humanistic factor is an important element in establishment of mobile learning.

Another paper entitled “An investigation of mobile learning readiness in higher education based on the theory of planned behavior” was carried out by Cheon et al. (19-23); the results showed that attitude, mental norms, and behavioral control on students’ intention positively affected the mobile learning.

The findings of the study entitled “Factors impacting teachers’ adoption of mobile learning” which was conducted Mac Callum et al. (20, 24) showed that the value of new

technologies had been perceived in classroom (perceived usefulness) and there are necessary attempts to learn these technologies (ease of perceived usefulness). Also, the result showed that digital literacy, anxiety of ICT as capability of instructional and humanistic factors affected the establishment of mobile learning.

The study entitled “Teacher’s acceptance of mobile learning for teaching and learning in Islamic education: A preliminary study” by Aliff et al. (21, 25) indicated the infrastructure factor in mobile learning, especially smartphone as a learning tool. The teacher used smartphones to produce and send the learning activities in teaching process. It was interesting to them and explained that they liked learning anytime and anywhere, used smartphone in the learning-teaching process, and wanted to be prepared all the time.

Another study entitled “Acceptance of Mobile Learning at SMEs of the Service Sector” by Beutner et al. (22, 26) showed that 85% of the participants liked to use mobile learning and presented some reasons such as using mobile learning in train and airplane, reconstructing the knowledge and information in different subjects, portable learning, and electronic seminars. Also, some challenges in using the mobile learning were discussed

such as: small size of mobile to use some of the learning contents, low communication and interaction, need to new learning concepts, high organizational investment, high freedom in learning material, disturbance and hardware and software problems, and students' unfamiliarity with new learning environment. These challenges are categorized into instructional, humanistic, aesthetics, and economic factors. Disturbance and hardware and software problems; students' unfamiliarity with new learning environment, high freedom in learning material and interaction; and organizational investment were considered respectively as infrastructure, instructional and humanistic, and economic factors in establishing mobile learning.

The study entitled "Mobile Learning Zimbabwe--Lecturers' Perceptions" was conducted by Make to (23, 27) to identify the effective factors on establishing mobile learning. In this study, the following factors were identified as limitation and challenges in establishing mobile learning:

**Infrastructure:** it included electric equipment and resources, bandwidth, and access to the Internet.

**Lack of mobile tools:** as the African countries were not in an appropriate economic status, there were some challenges on establishing the mobile learning such as lack of mobile tools such as smartphone, compatibility to modern technology, and lack of financial facilities.

**Instruction:** Professionals emphasized that using mobile technology in the learning-teaching process needed training and apprenticeship. Also, the personnel did not have enough skill to use mobile technologies in teaching and learning.

The study entitled "Examining student perceptions about smartphones to understand lack of acceptance of mobile-assisted language learning" which was carried out by Kennedy (24, 28) revealed the issues related to using or abusing mobile tools were; they included ease and facilitation, information, communication and overuse that were the factors important in accepting or not accepting mobile tools. The

study emphasized the importance of internal environment in mobile learning context that was considered as an aesthetic factor in establishing mobile learning system (24, 28).

A research entitled "Technological aspect factors of E-learning readiness in higher education institutions: Delphi technique" by Al-araibi et al. (25, 29) indicated that hardware, software, communication, security, flexibility of system, data center, cloud computing, technical support affected the readiness for e-learning and were considered as technical and infrastructure factors important in establishing mobile learning (25, 29).

The study entitled "Teachers' beliefs and technology acceptance concerning smart mobile devices for SMART education in South Korea" which was conducted by Leem et al. (30) highlighted the relationship among humanistic, instructional, and aesthetics factors with the teacher's beliefs of presented emergency, interaction, instability, unease. The instability, unease, and interaction were correlated with perceived usefulness and ease of perceived usefulness. It indicated that based on the teacher's beliefs, varied and complicated mobile tools could be a barrier for using technology in classroom. The aesthetics factors can influence the instructional and humanistic factors whether the mobile learning is accepted or established or not (26, 30).

Also, several studies have been conducted on feasibility and establishment of mobile learning in Iran. The study entitled "The Examination of Prerequisites and Evaluation of Facilities of Electronic Learning System" by Kamalian et al. (27, 31) showed that some factors affected the feasibility of E-learning system, including access to technology, hardware, software, establishment of the E-learning system, student's skills and abilities, interaction in E-learning environment, and a literature on establishing the E-learning system. These factors are categorized into technical, infrastructure, instructional, and humanistic ones (27, 31).

The study entitled "Feasibility study of e-learning application in higher education using factor analysis" was conducted by Miladi

and Malek Mohammadi (28, 32), showing that the following could be considered as technical and infrastructure factors:

Selecting an appropriate instructional media, providing ICT infrastructures, accessing high-speed Internet, planning to hold an instructional courses, being nationally prepared to establish the virtual courses, and possessing ICT tools. Also, several factors such as designing the website, updating the information, presenting enough resources to learning in virtual contexts, and delivering an appropriate instructional package were considered as aesthetic factors (28, 32).

Another study entitled “a Framework for Acceptance of Mobile Learning (Case study: Applicants of Entrance Exam of University)” which was conducted by Batmangholichi and Khotanlo, showed the factors that influenced accepting mobile learning such as ability to work with smartphone, abstract interpretation to ease of usefulness, user’s satisfaction, and lack of dependence to space and time. These are considered as humanistic and instructional and aesthetics factors important in establishing the mobile learning (29, 33).

The study entitled “Feasibility study of e-learning project at Lorestan university of Medical Sciences from the viewpoint of faculty members, students, managers and executive staff” by Sheikhian et al. (30) showed that technical and instructional experience and readiness, cultural readiness, equipment, communicative network readiness, personnel readiness, management readiness, instructional policies readiness, supporting, and security readiness influenced the feasibility in Lorestan’s Medical Science University. The readiness in different factors were considered as key to feasibility, and all technical, instructional and humanistic factors had to be prepared in specified degree; there is a need to follow a special standard in order to establish mobile learning successfully (30, 34).

“Feasibility of m-learning at university” was another study conducted by Karimi et al. which indicated that there were important factors in establishing instructional system based on smartphone in university such as

hardware, software infrastructure, supporting and financial resources, contents, and professionals (31, 35).

Finally, the study entitled “Evaluate and ranking the affecting factors in developing e-learning in higher education with fuzzy multi-criteria decision-making approach” which was carried out by Rahmani et al. (32) showed that several factors influenced the instruction in developing E-learning such as students, software infrastructure, quality of the instructors, quality of content, management of structure, technical infrastructure, and hardware.

## Discussion

This research aimed to identify the factors affecting the acceptance and establishment of mobile learning in virtual training center for academics. The literature review shows that in order to successfully and effectively establish the feasibility of mobile learning system in virtual context, we need to look carefully to factors that affect this type of learning. In addition, in different studies a well-documented method such as technology acceptance theory, TAM, planned behavior theory was used. With regard to international and national studies, it can be concluded that it is necessary to take the following factors into account in order to establish and accept mobile learning in virtual training center for academics, as shown in the following Table 3.

1. Infrastructure, technology and technical factors: in fact, one of the requirements in establishing learning system in virtual context is important infrastructures such a hardware, related software, network, connection, mobile operation system, use of an appropriate bandwidth, ease of perceived usefulness, use of short message service (SMS), multimedia individually and collectively and other technologies. These facilities and equipment were considered as basic need and their absence leads to lack of establishing any learning system in virtual context and online environment. This case is obvious in some of the studies mentioned above (29, 33-39).



**Table 3:** Determining factors in acceptance and establishing mobile learning in academics virtual training center

Factors:	Values
Infrastructure, technology and technical factors	Hardware, related software, network, connection, mobile operation system, using an appropriate bandwidth, ease of perceived usefulness, using short message service(SMS), multimedia individually and collectively and other technologies.
Instructional, humanistic, personal factors	Instructors or teacher, learners or students, instructional designer, IT engineer, personnel
Aesthetics factors	Graphical design, instructional design, technical design, navigation, user interface
Attitudinal, cultural, social factors	Autonomous feeling, belief in creating attractiveness on instructional activities, belief in individual capability on instructional activities, teaching and learning. Belief in interacting on instructional activities through the system and saving time through mobile learning, to individual, social, cultural differences and needs
Economic and legal factors	Financial and economic resource,

It is necessary to develop information technology skill, extend the qualified and quantified technology infrastructures and improve the Internet network infrastructures to establish and execute mobile learning in virtual training center for academics. Thus, the center should establish mobile learning in technological aspect such as native platform.

2. Instructional, humanistic, personal factors: When the technical factors and technology are ready to establish the mobile learning system, there is a need to define the role of instructors or teacher, learners or students, instructional designer, IT engineer, and the personnel. In fact, these factors as well as knowledge and professionally should be used as a motivating force to establish mobile learning. The importance of instructional factors is mentioned in the literature. For example, Kon explained two basic barriers in mobile learning: lack of enough professionals and unawareness of mobile learning advantages. Thus, the virtual training center for academics which includes 2 million active users is the largest instructional virtual center in Iran and tries to improve access to learning and instruction for all people, instructional justice and access to resource and information. Also, one of the policies in virtual training center for academics is using the experienced professionals. This factor has been shown in the results of previous research (3, 9,11, 15, 17, 20, 34).

3. Aesthetics factors: The application and importance of aesthetics is highlighted in deigning mobile learning environment. Aesthetic factors are so important that designers present effective interactive ways through their manipulation and the learners take it into account in online learning environment. If the aesthetics is followed through graphical design, instructional design, technical design, navigation, and user interface, the learning environment is more attractive to learners and learning take place quickly and easily. It would be boring if the learners acquire a new knowledge through interacting with long directions in the learning environment. One of the main advantages in mobile learning is using the virtual and online learning and learners like to experience it and the instructors and designers should use this opportunity in ways that improve the mobile learning system. It is mentioned in literature (8, 13-19, 22-23). Therefore, the virtual training center for academics tries to design and organize the content and information in screen appropriately and logically through educational technologists and designers.

4. Attitudinal, cultural, social factors: The advent of technology has had advantages and disadvantages in any society. Technology sometimes makes cultural deconstruction among people and influences the social and organizational relationship. The attitudinal, cultural, social factors influence the new

learning experiences. The process of cultural and organizational structures is configurator to technology acceptance, so that technology and its advantages can be used in the learning and teaching process. If the institute or social organization tends to approve the use of technology in learning and teaching process, it should consider the attitude to technology and its application in learning and teaching process. The attitudinal factors (autonomous feeling, belief in creating attractiveness on instructional activities, belief in individual capabilities in instructional activities, teaching, and learning. Belief in interacting with instructional activities through the system and saving time through mobile learning play an important role in mobile learning. The findings are in the same line with the mentioned literature (2, 7, 30, 32, 35). Thus, the virtual training center for academics provided these factors to establish the mobile learning with regard to individual, social, cultural differences and needs and extend the flexible and audience- based learning.

5. Economic and legal factors: The economic and legal factors are different in each society. It examines the legal contexts and conditions with regard to financial and economic resources in instructional organizations or institutes and if the legal permission and financial resources are approved, mobile learning is established. Financial resources act as a strong support and access to high financial resource improves the systems and application of the new technology in mobile learning. It is necessary to take financial resources into account to establish the mobile learning system. However, allocation of financial resources requires legal permission from the authorities, and their justification to approve the legal permission is necessary in order to establish the use of mobile learning. This is also highlighted in some literature (8, 9, 14, 30, 33, 36). For example, Howard showed that it was necessary to improve the IT infrastructure; humanistic, economic, social resources; and planning based on ICT to develop the ICT. Also, Koponen indicated

that cultural, social, attitudinal, cognitive, physical factors, and the personnel influenced the feasibility of mobile learning.

### Limitation and Suggestion

Therefore, it is expected that the results facilitate the instructional issues and guide the instructional centers such as virtual training center for academics to be more effective. However, the results can be used as instructions to the instructional centers which have established the mobile learning. The main limitation was removing some unintended cases from systematic review although the researchers specified the all keywords and searched all related databases and precisely examined the articles. Also, with regard to cultural consideration in application of mobile learning, it is necessary to design and establish a native model in mobile learning acceptance.

### Conclusion

In general, it can be said that emergence of the technology has cause interaction to be more important in new learning environments. The use of E-learning and mobile learning has been increasingly expanded due to the Covid-19 pandemic; in spite of some problems emerged, it can be considered as a solution to the instructional needs in this global crisis.

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### Author's Contribution

All the authors contributed equally to conceptualization, methodology, software, data curation, and writing the original draft preparation.

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