




**Research Article**

Examining Merits and Demerits of Master's Virtual Programs of English from Students' Perspectives in light of Motivation and Self-Efficacy

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ARTICLE INFO**Article History:**

Received: 17/04/2023

Accepted: 26/05/2023

**Keywords:**

Motivation

Self-efficacy

Virtual learning

ABSTRACT

Introduction: Due to the current situation (coronavirus pandemic) as well as time and place restrictions, the replacement of traditional classes with online courses is prevailing, and instructors and learners rarely attend in a classroom. Thus, an unexpected immersion in virtual learning revealed the advantages and disadvantages of virtual education. The present study aimed to explore the merits and the demerits of the virtual master's programs of English regarding students' perspectives on motivation and self-efficacy.

Methodology: The researchers developed and validated an instrument that measured online students' self-efficacy and motivation toward virtual programs. Relying on the semi-structured interviews and open-ended questions, the researchers developed a 21-item scale on a 5-point Likert scale. The designed scale was distributed among 151 students from four universities in Mashhad, Iran. Exploratory factor analysis and confirmatory factor analysis, as well as correlational analysis, were performed to answer the research questions. The SEM model was used to explore the interrelationships among attitudes toward virtual programs, self-efficacy, and motivation.

Results: The obtained results indicate an acceptable level of reliability for the scale (0.82). The findings indicated that the independent variable, the virtual program of the university, positively had a relationship with the dependent variables of the study, which were motivation and self-efficacy.

Conclusion: Based on the findings, it can be concluded that virtual education still needs new expertise and more developed skills from educational designers and programmers to students and instructors.

1. Introduction

As technology continues to permeate our daily lives, it becomes increasingly crucial to acquire and harness the modern knowledge that is intertwined with our world (Kellner, 2001). Given the ongoing coronavirus pandemic and the limitations of time and location, there is a prevalent shift from traditional classroom settings to online courses, resulting in a reduced presence of instructors and learners in physical classrooms. Hills (2003) proposed e-learning as an effective approach for learners who are motivated and equipped to leverage the advantages of online learning. However, learning a

language virtually can be challenging, and it is important to stay motivated to achieve your language goals. One common challenge is the lack of face-to-face interaction and social presence, which can lead to feelings of isolation and reduced motivation (Zhan & Mei, 2013). Therefore, the success of any creative application of technology in an educational program depends on the support and attitude of the participants. Additionally, technical issues and limited technological literacy among students may hinder their learning experience (Nim Park & Son, 2009). These factors can impact students' self-efficacy and

confidence in their abilities to navigate online learning environments.

Research has shown a strong positive relationship between learners' motivation and self-efficacy and their language learning outcomes in virtual programs. Studies have found that learners with higher levels of motivation and self-efficacy tend to demonstrate better language proficiency, higher levels of task engagement, and increased persistence in their learning (Liem et al., 2008; Walker et al., 2006). Moreover, motivation and self-efficacy have been identified as predictors of learners' satisfaction and intention to continue participating in virtual language learning programs (Rabin et al., 2020).

Several factors have been identified as influential in shaping learners' motivation and self-efficacy in virtual language learning programs. These include the design and delivery of online materials and activities, the presence of social interaction and collaboration opportunities, the quality of feedback provided by instructors, and learners' perceptions of autonomy and control over their learning (Chapelle & Jamieson, 2008; Wang et al., 2012). Additionally, learners' individual characteristics, such as their language learning beliefs, goal orientations, and learning styles, can also impact their motivation and self-efficacy (Ushioda, 2011).

Research specifically examining the role of motivation and self-efficacy in master's virtual programs of English is limited. However, general findings in the field of online learning can be applied. For example, studies have indicated that students with higher levels of self-efficacy in technology use tend to exhibit greater motivation and engagement in online learning activities (Hung et al., 2010; Kao et al., 2014). Moreover, the presence of a supportive online learning community and peer feedback has been linked to increased motivation and self-efficacy (Hsia et al., 2016; Wang & Wu, 2008).

Numerous studies have been conducted on online instruction and virtual learning environments. However, the majority of these studies have primarily focused on learners' first language (Lawless & Brown, 1997; Mayer, 1997; Su & Klein, 2006; Yang, 2000). There is a relative scarcity of research examining English as a foreign language (EFL) learners in virtual settings (Ariew & Ercetin, 2004; Chun & Plass, 1997; Lomicka, 1998; Sakar & Ercetin, 2005). Some studies also suggest that embedded learner control in online modules can enhance learning, increase positive attitudes, and raise self-efficacy (e.g., Chang & Ho, 2009; Ebner & Holzinger, 2007). However, few studies have inspected the virtual program in an academic context and its effect on the self-efficacy and motivation of online learners in a natural online setting. Hence, such research studies are scarce in this regard.

The present research aimed to investigate the advantages and disadvantages of virtual programs in the English department of universities based on the master of art (MA) English students' perspectives on motivation and self-efficacy. The study also aimed to investigate factors related to teaching and learning and technology that could

contribute to and affect the online delivery of English courses with three research questions:

1. What are the merits and demerits of MA virtual programs in the English department of universities based on students' perspectives?
2. Does the MA virtual program of English department of universities have any significant influence on students' motivation?
3. Does the MA virtual program of English department of universities have any significant influence on students' self-efficacy?

2. Methodology

The present study was an exploratory design that utilized mixed-methods research (qual→Quan) to develop an instrument based on qualitative results.

2.1. Participants

In the qualitative phase, participants included 10 participants (8 students and 2 instructors of Imam Reza University). All students were studying Teaching English as a Foreign Language (TEFL) at Imam Reza International University in Mashhad. The quantitative participants consisted of 151 (118 female and 33 male) English language students, majoring in Teaching English as a Foreign Language (n = 69) and English Translation (n = 38). Participants were students at the Imam Reza International University of Mashhad, Ferdowsi University of Mashhad, and two other universities in Mashhad, Iran (Azad University and two private universities). The participants' age ranged from 20 to 45 years. Participation in this study was completely voluntary, and the participants chose through convenience and snowball sampling procedures. Convenience sampling was employed because the researchers did not have access to many English language students. The questionnaires first run at the Imam Reza University of Mashhad, and then distributed via a Google form to all the students in other universities. Some participants were also contacted via Telegram and WhatsApp.

2.2 Instruments

2.2.1. Interview

Open-ended questions are often used in qualitative research methods and exploratory studies. Five open-ended questions were designed and sent (because of the current situation) to participants via WhatsApp and emails so that the respondents could answer the questions in their own way and in their own words. The researchers employed the respondents' first language, Persian, in the interview to elude mistakes and misinterpretations. Most of the participants recorded their responses, and only three persons wrote their responses. To generate immediate rapport, the researcher helped them feel calm and encouraged them to open up by giving them a brief example and some more explanation about

it. Creswell (2002) comes to an agreement that an audio recorder is one of the most effective ways to record the reply of the applicant in the interview. Thus, because of the current situation, the interviews were audio recorded through WhatsApp and Telegram, except for two members who contacted email for three weeks.

2.2.2. Questionnaire

To measure students' motivation and self-efficacy toward virtual programs, a questionnaire was designed by the researcher. This scale consists of three sub-scales; virtual programs of the university (8 items), which were generated based on information collected from the triangulated qualitative phase, self-efficacy (6 items), and motivation (7 items) that the researcher designed after investigating and studying numerous scales which measured self-efficacy, and motivation in a virtual environment. Responses were scored based on a 5-point Likert-type scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*) with the virtual program, self-efficacy, and motivation. This scale consists of a total of 21 items. The reliability of this scale was measured in this project. The scale had a Cronbach's Alpha of .84, which was acceptable. The reliabilities of three subscales of virtual programs of university, self-efficacy, and motivation were .86, .78, and .78, respectively

2.3. Procedure

Data collection in the current study began by conducting semi-structured interviews (Appendix A). To collect reliable data, the respondents were relieved on the issue of privacy to facilitate a calm, non-threatening atmosphere. Additionally, the investigators revealed that their ideas would be used for the purpose of the study. In order to generate primary rapport, the researchers helped EFL learners feel calm and encouraged them to open up by giving them a brief example and explanation about the topic. In order to analyze the qualitative data in this study, the interviews were then transcribed and the main themes were extracted. The extracted themes led to the design of the questionnaire. This scale consists of three sub-scales, namely virtual programs of university, self-efficacy, and motivation. The designed questionnaire was then distributed online, which only took about 10 minutes to be answered. The data collection for the quantitative phase took about one month and a half. A series of Pearson correlations were performed using SPSS version 20 to find out whether there was a significant relationship between a virtual program and students' motivation and self-efficacy. Moreover, to ensure the validity and reliability of the designed questionnaire Exploratory Factor Analysis (EFA) was employed to examine the underlying structure.

Confirmatory Factor Analysis (CFA) performed to assess the fit of the model and the relationship between each sub-factor of the proposed model, was analyzed. AMOS software was used for Structural Equation Modelling (SEM) to assess the direct, indirect, and mediating relationships between constructs, as estimated in the proposed model.

3. Results

3.1. Learners' perspectives

Regarding students' perceptions about virtual learning, the obtained results of the interviews led the emergence of the following themes.

3.1.1. The quality and support of the university

Most participants agreed that the quality of the university's website was acceptable. Although initially there were problems, such as poor sound quality and frequent disconnections, the situation improved over time. Furthermore, both learners and instructors thought the system worked most of the time, but in some cases, it was unresponsive.

3.1.2. Positive aspects

Virtual programs attracted all learners. They all indicated that flexibility was the main reason they signed up for the program. Furthermore, several learners explained they were comfortable with the online mode since it diminished their anxiety, and more importantly, the material was accessible, regardless of any limitations. According to an instructor, the most positive aspect was the development of students' self-regulation and independence, which led to more incredible metacognitive skills. E-learning awareness is also imperative for effective performance today.

3.1.3. Online and offline learning perceptions

The interviewed learners emphasized a variety of points. Some of them opposed virtual education. Their main complaints were bandwidth limitations, internet costs, lack of internet access, and frequent internet interruptions in class. However, many learners believed offline classes were more beneficial, especially for statistical classes, and they preferred offline classes over online. An instructor believed that students were confused at first, but with persistence and effective planning, they could adapt to these unusual circumstances. The other instructor mentioned that these classes had the lowest level of interaction. Professors did not have complete control over

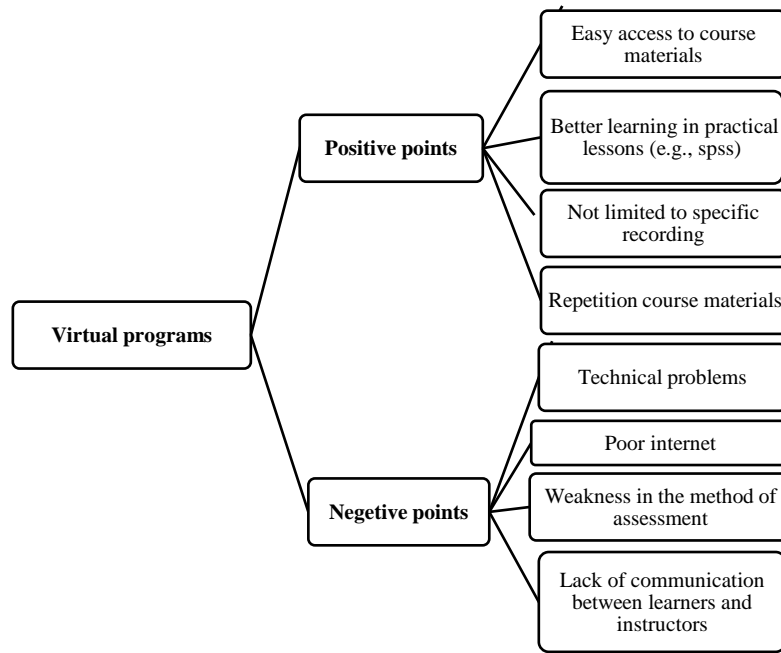


Figure 1.
Students' Perceptions of the Advantages and Disadvantages of Virtual Program

students. There were no questions and answers in these classes. Through an electronic and passive process, both the teacher and the student were restricted to a single computer screen.

3.1.4. Recommendations for improvement

Both learners and instructors were interviewed for recommendations on improving the virtual programs. According to learners, they needed initial meetings or clear directions from instructors on how to present the content to improve this method of teaching. This means that the instructors could provide students with helpful videos and slides to make the process easier, more specifically during the first sessions. The learners wanted to enhance the interaction between professor and student and added that some professors were not readily available, and they had to wait for most minor questions. Hence, having a specific time or day within the university system was preferable. Instructors similarly suggested intuitive communication between teachers and students. They emphasized that this could be enhanced using a system covering the images of all students in the class. In addition, it could facilitate the enhancement of the speed and bandwidth of a virtual system along with the addition of high-powered monitoring so that fraud can be minimized.

3.1.5. Negative aspects

Most students cited stress during exam time as the most significant disadvantage of the virtual education programs. Besides, a few learners complained that some professors took too long lectures in both offline and online classes. Additionally, instructors indicated that the performance of

online and offline systems caused some issues for both students and professors.

As Figure 1 indicates, the students' perceptions about the advantages and disadvantages of virtual programs were classified into positive and negative points, which were collected from semi-structured interviews.

3.2.1 Reliability of virtual program questionnaire

Table 1 indicates a report of corrected item-total correlation, alpha if the item deleted, and Cronbach's alpha for the eight items of the designed scale.

The analysis of the results showed an overall reliability of .86, and all the items in this questionnaire enjoyed acceptable requirement indexes.

3.2.2 Validity

To ensure the construct validity of attitude toward the virtual program, EFA was employed to examine the underlying structure. Principal axis factoring with varimax

Table 1.
Corrected Item, Alpha if Item Deleted, and Cronbach's Alpha of 8 Items Related to Attitude toward virtual Program

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q1	24.9404	36.896	.592	.848
Q2	24.5563	34.835	.703	.835
Q3	25.0265	37.079	.598	.847
Q8	24.9868	36.973	.558	.851
Q6	24.5497	36.836	.589	.848
Q4	25.3974	34.734	.652	.841
Q5	25.4834	36.531	.591	.848
Q7	25.5099	35.025	.602	.847

Table 2.
Rotated Component Matrix Items of Attitude toward Virtual Program

	Component	
	1	2
Q1	.607	
Q2	.723	
Q3	.609	
Q6	.809	
Q8	.786	
Q4		.746
Q5		.820
Q7		.822

rotation was also run for this questionnaire. In addition, the Kaiser-Meyer-Olkin (KMO) statistic was used to assess sample adequacy. The obtained results indicated that the KMO statistic was .84, representing that the sample selected in this research and the factor analysis utilized would most likely provide the best typical factors. The significant Bartlett's Tests of Sphericity for attitude toward virtual programs ($X^2 = 478.08$, $df = 28$, $p < .05$) revealed that their correlation matrices were not identity matrices. Subsequently, to determine the number of latent variables, the extraction method was used by adopting eigenvalues greater than 1 and factor loadings greater than .40 (Table 2). The obtained results indicated a two-factor solution for attitude toward virtual program (AVP).

Five items (1, 2, 3, 6, and 8) were loaded on Factor 1, which was related to the positive attitudes of the students towards AVP. On the other hand, three items were loaded on Factor 2 (4, 5, and 7), which represents the negative attitudes of the students towards AVP.

Following these procedures, confirmatory factor analysis (CFA) was performed to find out whether the two-factor solutions obtained in EFA can be substantiated; it was employed to assess the fit of the model. Based on the CFA analysis, the relationship between each sub-factor of the proposed model was analyzed, and the findings can be seen in Figure 2.

To check the model fit, the goodness of fit indices were utilized. To this end, χ^2/df , goodness of fit index (GFI), comparative fit index (CFI), and root mean square error of

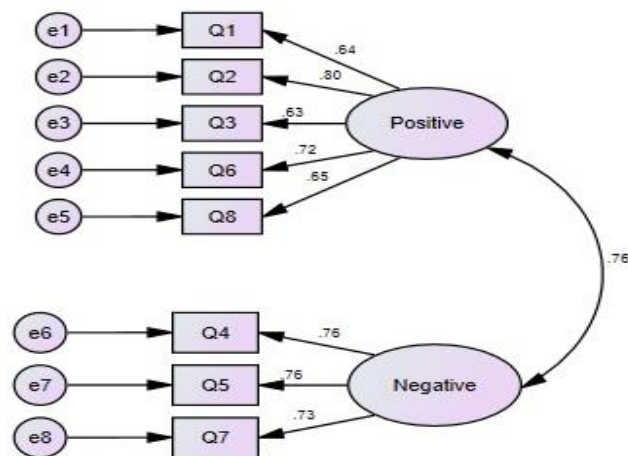


Figure 2.
CFA model of Attitude toward Virtual Program

Table 3.
Goodness of Fit Indices for Attitude toward Virtual Program Questionnaire

	X^2/df	GFI	CFI	TLI	RMSEA
Acceptable fit	<3	>.90	>.90	>.90	<.08
Model 1	2.63	.926	.933	.901	.05

Note. GFI = Goodness of fit index; CFI = Comparative fit index; TLI = Tucker-Lewis index; RMSEA = Root mean square error of approximation

approximation (RMSEA) were employed. To have a fit model, χ^2/df should be less than 3, GFI and CFI should be above .90, and RMSEA should be less than .08.

According to Table 3, no modification was needed and all the goodness of fit indices were within the acceptable range. Thus, the scale enjoyed perfect validity.

3.3.1 Reliability of self-efficacy questionnaire

Cronbach's alpha index was used to check the reliability of the self-efficacy questionnaire.

The results indicated an overall reliability of 0.84 and that all items in this scale meet acceptable requirements (Table 4). Therefore, no item needed repair or elimination.

Table 4.
Corrected Item, Alpha if Item Deleted and Cronbach's Alpha of 6 Items Related to Self-efficacy

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
s1	17.3642	19.393	.668	.808
s2	17.5099	20.532	.625	.817
s3	17.5563	18.675	.659	.810
s4	17.6159	20.718	.567	.827
s5	17.4768	20.584	.594	.822
s6	17.1788	19.641	.622	.817

3.3.2 Validity of self-efficacy questionnaire

To ensure the construct validity of the self-efficacy questionnaire, EFA was employed to examine the underlying structure. To begin, KMO statistics used to measure sampling adequacy were applied. The KMO statistic, which should be above .80 for self-efficacy, was found to be 0.84, representing that the sample selected in this research and the factor analysis utilized would most likely provide the best typical factors. The significant Bartlett's Tests of Sphericity for attitude toward virtual programs ($X^2 = 332.760$, $df = 15$, $p < .05$) revealed that their correlation matrices were not identity matrices. Subsequently, to determine the number of latent variables, the extraction method was used by adopting eigenvalues greater than 1 and factor loadings greater than .40. The obtained results indicated a one-factor solution for self-efficacy, meaning that all items fit onto a single theoretical construct of self-efficacy. To check the model fit, the goodness of fit indices were used (Table 5). The model with all

Table 5.
Goodness of Fit Indices for Self-efficacy Questionnaire

	X^2/df	GFI	CFI	TLI	RMSEA
Acceptable fit	<3	>.90	>.90	>.90	<.08
Model 1	2.92	.933	.919	.865	.038

Note. GFI = Goodness of fit index; CFI = Comparative fit index; TLI = Tucker-Lewis index; RMSEA = Root mean square error of approximation

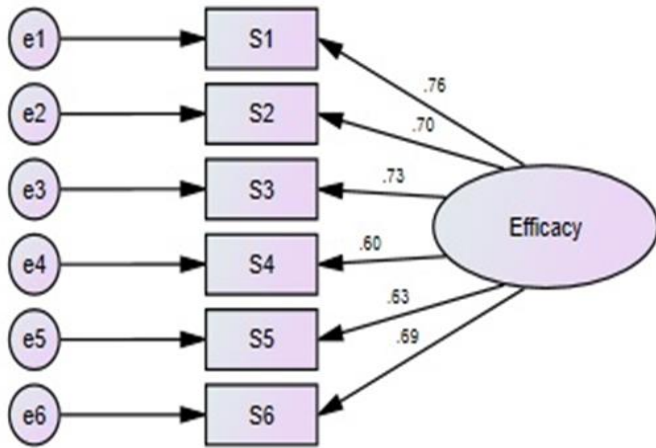


Figure 3.
CFA model of the self-efficacy questionnaire

factor loadings can be seen in Figure 3.

3.4.1 Reliability of motivation questionnaire

Cronbach’s alpha index used to check the reliability of the motivation questionnaire.

The obtained results indicated the overall reliability of 0.78, and all the items in this scale enjoyed acceptable requirement indexes (Table 6).

3.4.2 Validity of motivation questionnaire

The KMO statistic of motivation questionnaire was found to be 0.81 showing that the sample selected in this research and the factor analysis utilized would most likely provide the best typical factors. The significant Bartlett’s Tests of Sphericity for attitude toward virtual programs ($X^2 = 259.456$, $df = 21$, $p < .05$) indicated that their correlation matrices were not identity matrices. Subsequently, to determine the number of latent variables, the extraction method was used by adopting eigenvalues greater than 1 and factor loadings greater than .40. The obtained results indicated a one-factor solution for motivation which shows the questionnaire is a one-dimension scale. To assess the model fit, we used goodness of fit indices. The model with all factor loadings can be seen in Figure 4.

All factor loadings were statistically significant at $p < 0.05$. Therefore, the final model showed a good fit for the

Table 6.
Corrected Item, Alpha if Item Deleted and Cronbach’s Alpha of 6 Items Related to Motivation

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach’s Alpha if Item Deleted
M1	24.8940	29.882	.552	.748
M2	24.7351	30.289	.483	.763
M3	24.9272	31.321	.522	.754
M4	25.1656	30.606	.551	.748
M5	24.8808	32.812	.337	.792
M6	24.8477	31.797	.547	.751
M7	24.7881	30.528	.611	.738

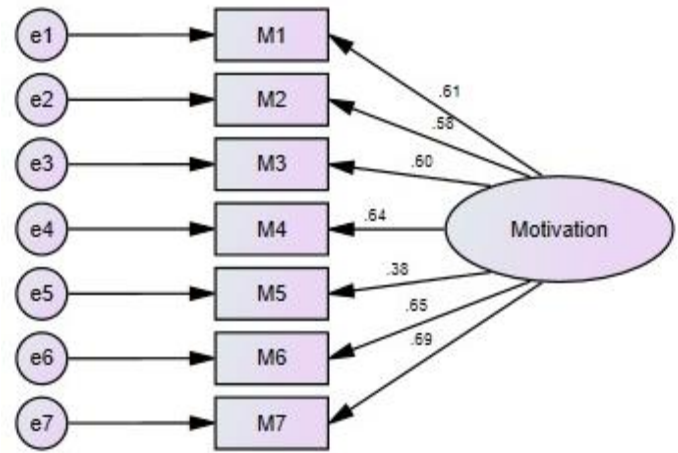


Figure 4.
CFA model of the motivation questionnaire

data. The goodness of fit indices can be seen in Table 7.

3.5. Results of SEM for Interrelationships among Attitude toward Virtual Program, self-efficacy, and motivation

To investigate the valid model of interrelationships among AVP, self-efficacy, and motivation.

As indicated in Figure 5, an estimate is displayed on each path. This standardized estimate is the standardized coefficient or beta coefficient (β) resulting from an analysis carried out on independent variables that have been standardized. It explains the predictive power of the independent variable and the effect size. The closer the magnitude to 1.0, the higher the correlation and the greater the predictive power of the variable.

Table 7.
Goodness of Fit Indices for Motivation Questionnaire

	X2/df	GFI	CFI	TLI	RMSEA
Acceptable fit	<3	>.90	>.90	>.90	<.08
Model 1	2.34	.943	.923	.884	.078

Note. GFI = Goodness of fit index; CFI = Comparative fit index; TLI = Tucker–Lewis index; RMSA = Root mean square error of approximation

As can be seen in Figure 5, motivation is a significant positive predictor of a positive attitude toward virtual program ($\beta = 0.38$, $p < .05$) and a negative significant predictor of a negative attitude toward a virtual program ($\beta = -.14$, $p < 0.05$). Moreover, a positive attitude toward the virtual program can positively predict motivation and efficacy ($\beta = 0.38$ and 0.20 , respectively). However, a negative attitude toward the virtual program affects self-efficacy ($\beta = -.10$, $p < 0.01$). Finally, positive attitude behaviors negatively predict a negative attitude toward the virtual program. ($\beta = -.81$, $p < .01$) and positively predicted by motivation ($\beta = .36$, $p < .01$).

Regarding results from the goodness of fit indices, Table 8 shows that all the fit indices lie within the acceptable fit thresholds. Hence, it can be concluded that the proposed model had an acceptable fit with the empirical data.

The correlations among the three factors were then

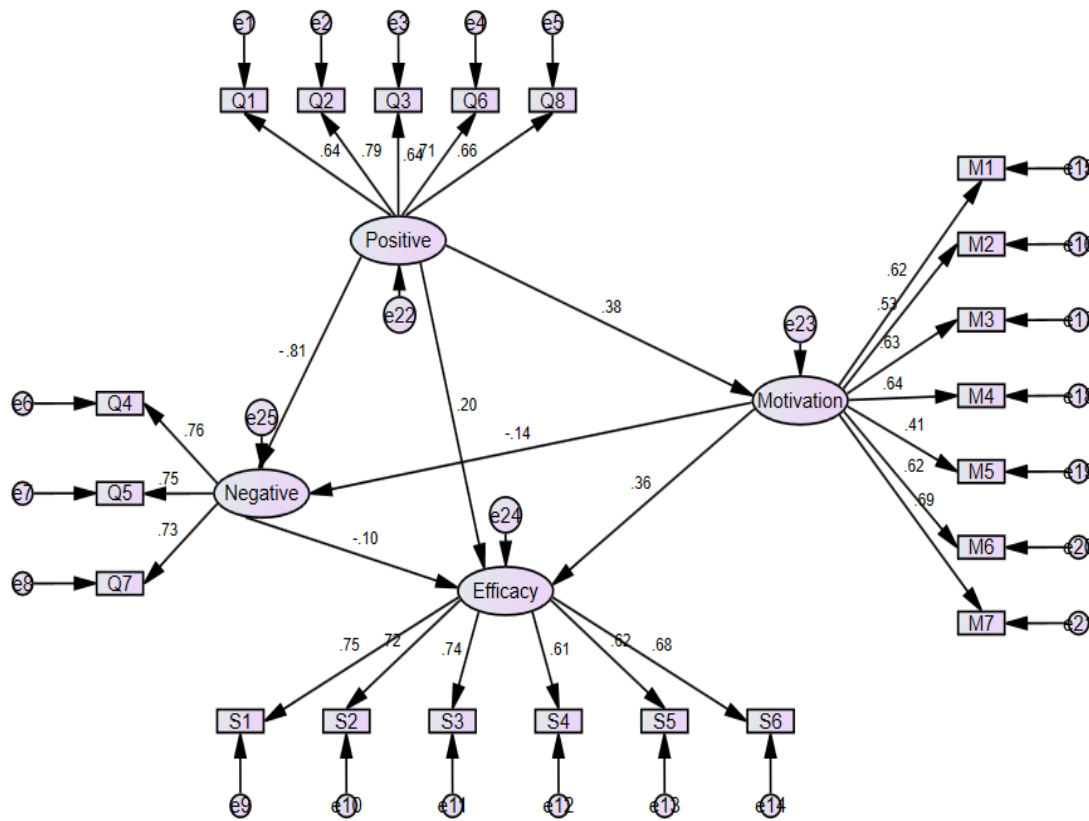


Figure 5.
SEM model of Interrelationships among Attitude toward Virtual Program, self-efficacy, and Motivation

Table 8.

Goodness of Fit Indices for the Proposed Model

	X ² /df	GFI	CFI	RMSEA
Acceptable fit	<3	>.90	>.90	<.08
Model	1.87	.91	.86	.07

Note. GFI = Goodness of fit index; CFI = Comparative fit index; RMSA = Root mean square error of approximation

computed. As indicated in Table 9, all the sub-factors correlated with each other, meaning that virtual program and self-efficacy ($r = 0.17, p < .05$), virtual program and virtual program and motivation ($r = 0.26, p < 0.5$) and motivation and virtual program ($r = 0.26, p < 0.5$) and motivation and self -efficacy ($r = 0.35, p < .05$).

Table 9.

The Correlation Coefficient between Virtual, Self-efficacy, and Motivation

		Virtual	Self-efficacy	Motivation
Virtual	Pearson Correlation	1	.174*	.260**
	Sig. (2-tailed)		.032	.001
	N	151	151	151
Self-efficacy	Pearson Correlation	.174*	1	.350**
	Sig. (2-tailed)	.032		.000
	N	151	151	151
Motivation	Pearson Correlation	.260**	.350**	1
	Sig. (2-tailed)	.001	.000	
	N	151	151	151

* $p < .05$

** $p < 0.01$

4. Discussion

When it comes to discussing virtual courses, especially in an academic context such as a college and a university, it is apparent that this new environment requires new abilities and capabilities from educational designers, course developers, and educational programmers to instructors.

According to previous studies, teaching and learning a lesson virtually is not the same as teaching it traditionally.

Regarding the first research question, the researcher tried to shed light on the advantages and disadvantages of virtual education programs in academic circumstances. Consequently, when it comes to the advantages of virtual learning or programs, the most dynamic and education

techniques are the most typical topics. Unlike the traditional system of classes, online learning permits autonomy to flourish, and different ways of providing students with information without time pressure via having access to internet are possible. It can also allow students to access learning materials without constraints in place or context.

As previous findings indicated, online courses are place and time-independent (Harasim, 1989). An individual learning pace is one of the main factors. According to recent findings of the present study, students can study at their own pace. They can review video lectures or performances, playback and go over them again, or move quickly to speed up perceptions of their preferred course. In addition, learners exercise self-study which is dynamic these days in the modern world.

The interviewees identified some cons to online education despite its benefits. These cons included poor internet, insufficient communication with instructors, weak assessment methods, and long lectures by some professors, whether online or offline. Developing methods for testing all elements of the course before distribution helps instructors decrease latent areas of error that lead to students' disappointment and complaints.

Communication is vital to online situations; without collaboration, online courses might not be operative and successful (Moore, 1989). Moreover, creating suitable communications systems for the online course helps learners and instructors confirm a safe and protected environment for course-related accomplishments.

Osterlind (2002) determined that there is literature on examination, measurement principle, and analysis with little detail on planning, improvement, and exam items written by instructors. In online education, assessments often take place virtually, and instructors are limited to the management of students, so it would be critical to control and regulate cheating (Arkorful & Abaidoo, 2015). On the other hand, providing learning materials like 1-hour-long video lectures or planned activities with long reading materials was found to have decreased some students' attention spans. (Cicekci & Sadik, 2019; Geri et al. 2017; Rosegard & Wilson, 2013; Selvi, 2010). Besides, attention span is not only the solitary feature that is affected in online education but also the student's motivation (Selvi, 2010).

The present study found a significant correlation between motivation and virtual program scores among students who answered the motivation questions of the scale in response to the second research question. Hence, virtual programs affect students' motivation positively. Consequently, it is beneficial for learners who are motivated learners and know how to acquire the best from this learning method.

This finding is in harmony with another study revealing a positive relation between virtual programs and motivation. In addition, learners' motivation has also declined during online education (Brouse et al., 2010; Chen & Jang, 2010). Furthermore, poor motivation has been identified as a factor in the growing failure rates during

online learning resulting in motivation as one of the vital aspects of achievement in the online learning environment. (Hegarty, 2010; Lucey, 2018).

The third research question asked whether the virtual program of universities influences students' self-efficacy. As was mentioned earlier, self-efficacy is an influential variable in learning. It affects our actions, behaviors, and attempts when facing challenges, as indicated by (Ghonsooly et al., 2012). Findings suggested that self-efficacy beliefs were positively related to academic performance. In the same context, Ames (1984) and Nichols and Miller (1994) suggested that students' self-perceptions of ability are positively related to achievement and student motivation. The results of this study seem to go in the same way as the other studies that reported a statistically significant relationship between performance and self-efficacy (Bates & Khasawneh, 2007; Cascio et al., 2013).

5. Conclusion

Based on the present research findings, it can be concluded that virtual education still needs new expertise and more developed skills from educational designers and programmers to learners and instructors. Online education is used by schools, colleges, organizations, and institutes to decrease undesirable antecedents and consequences. As a result, online education has become more accessible due to increased accessibility, financial concerns, and the popularity of the Internet as a platform for providing education. Moreover, a higher number of participants would be helpful for future research, and the results could be generalized. Additionally, all the participants in this study were English language students studying in a higher education environment. Future investigations can be conducted with students from other majors to improve outcomes in the Iranian context. Moreover, it would be interesting to compare the perspective of males and females in virtual education as well.

Declarations

Competing interest

The authors declare no competing financial interests to influence the present work.

Authors' contribution

Zahra Fakour Rashid collected data performed data analysis and contributed to the drafting, editing, and production of the final draft. Behzad Ghonsooly conceptualized the idea and supervised the research. Afsaneh Ghanizadeh designed the experiment. All authors read and approved the manuscript.

Funding

The research was not funded by any internal/external funding institutions/agencies.

Availability of data and materials

All data are available upon request.

Ethical considerations

Ethical issues (including plagiarism, consent to publish, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancy) have been checked by all the authors.

Acknowledgments

The researchers would like to thank all participants who take part in the study.

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Appendix A.

Interview questions

Interview Questions	
1	Do you think the university's website or virtual education system was supported well?
2	Please, state some positive points of the university's virtual education program?
3	Do you think that the university's virtual education has sufficiently covered the scientific needs of students? (Means running online and offline classes planned by the university)
4	What suggestions do you have for improving the quality of the university's virtual education program?
5	What is the most crucial system weakness in terms of learning?