journal of
Adolescent and Youth Psychological Studies
www.jayps.iranmehr.ac.ir

Spring and Summer 2022, Volume 3, Issue 1, 180-186

Modeling of students approaches to learning in virtual education based on perceived learning environment

Sharara. Khodabakhshi[1], Mohammad Agha. Delavarpour*[2], Shahab. Moradi[3], Ali Mohammad. Rezaei[4]

1. *Department of Psychology, Semnan Branch, Islamic Azad University, Semnan, Iran*
2. *Department of Educational Psychology, Semnan University, Semnan, Iran*
3. *Department of Psychology, Semnan Branch, Islamic Azad University, Semnan, Iran*
4. *Department of Educational Psychology, Semnan University, Semnan, Iran*

ARTICLE INFORMATION

Article type
Original research
Pages: 180-186

Corresponding Author's Info
Email: mdelavarpour@semnan.ac.ir

Article history:
Received: 2022/06/06
Revised: 2022/09/17
Accepted: 2022/09/19
Published online: 2022/10/10

Keywords:
Educational psychology, perceived learning environment, Causal explanation

ABSTRACT

Background and Aim: Assessing and understanding the educational status of students in the context of online education is important in the educational psychology field. Students may show different approaches to learning in different educational settings (online, in person). In this study, students' learning approaches (deep and shallow) in online education were examined based on perceived learning environment and academic emotions. **Method:** The current research is a descriptive-correlational type of research using structural equations. For this purpose, the Perception of Learning Environment (Roff et al., 2001) and the Two-Factor Revised Learning Approaches Questionnaire (Mokhtar et al., 2010) were distributed among 223 students from the University of Science Lorestan medicine. Structural equivalence method with AMOS software was used to analyze the research data. **Results:** The results showed that the dimensions of the online learning environment predict the learning approaches, positive and negative academic emotions of students (P<0.001). Findings also showed that the dimensions of the learning environment have a significant effect on deep and shallow approaches due to positive and negative emotions (P<0.001). **Conclusion:** It can be concluded that students' learning approaches in cyberspace along with accurate and specialized planning can have the desired result.

How to Cite This Article:
Khodabakhshi, Sh., Delavarpour, M.A., Moradi, Sh., & Rezaei, A.M. (2022). Modeling of students approaches to learning in virtual education based on perceived learning environment. *jayps*, 3(1): 180-186

Introduction

Due to the global pandemic's unique conditions, online education strategies are among the priorities and specific educational concerns. These strategies are superior to face-to-face classes by having features such as supporting social interactions and access anytime and anywhere, simplifying the possibility of exchanging information and sharing learning experiences (Kirschner & Karpinski, 2010). These networks are very flexible and provide users with rudimentary facilities that can provide all the requirements for implementing and creating learning environments (Grosseck, Bran, and Tiru, 2011). Online education is also one of the effective factors for identifying aspects of successful learning experiences of university students, which quickly changes the context of students' learning experience; this change includes their learning approaches as well (Ellis & Bliuc, 2019). Online education leads to the physical separation of the learner from the learning environment. The lack of interaction between the learner and the learning environment and other learners reduces the sense of belonging to the community and disconnects with other people, resulting in isolation, distraction, and reduced concentration, anger from the lack of control over the situation, and anxiety. This lack of control is one of the main reasons for the difference in the performance of learners in online and traditional environments (Firangi, 2016). Therefore, it can be said that the online education and learning environment, in addition to the cognitive aspect, also affects the emotional and motivational aspects of the learners (Stefan, Markus, and Gläser-Zikuda, 2019).

During the past three decades, researchers have emphasized the effects of the perception of the learning environment on various structures, including learning approaches, and the importance of these structures in the effort to understand learning from a practical perspective (Bustamante, White, and Greenfield, 2018). Khademi et al. (2014) showed in their study that the most used learning approaches among students are strategic, deep, and shallow approaches, respectively. In the statistical analysis of the relationship between these variables, it was found that there is a positive and significant correlation between learning approaches and the perception of the learning environment. Studies show that positive and active perception of the student about the learning environment, professor, and content is positively and meaningfully related to deep learning approaches. In this way, with active and dynamic perceptions of the learning environment, learning tendencies become deeper (Postareff, Mattsson, and Parpala, 2018). Cusolito et al. (2020) reported that learning in cyberspace created a situation where teachers and students feel they have to learn digital science experience by force from the online learning process, which was an accepted process in traditional education. Additionally, the differences between online and traditional educational environments affect the individual's progress by influencing various factors and variables of teaching-learning .

Due to the conditions of the corona epidemic, if it continues continuously or for a long time or similar conditions, the online education approach will replace the education system. Therefore, similar to the traditional education system, it is necessary to examine educational variables in the context of online classes. In this regard, the current research aimed to investigate the relationship between the perception of the learning environment in online classes and students' learning approaches. By using various internal and external approaches and structures in learning activities that will lead to specialized and detailed planning in online education conditions, more severe problems can be prevented .

Method

The current research is a descriptive-correlational type of research using structural equations. The research's statistical population included all Lorestan University of Medical Sciences students in the academic year 2020-2021, of which the population was approximately 2929 people. The required sample size for using the structural equation modeling method has been determined based on Norman and Streiner (2003), who believe that ten subjects for each estimated parameter provide sufficient statistical power for data analysis. Due to the restriction of access to students due to the quarantine of the corona epidemic and the number of parameters in the questionnaires, the number of students is 150, which was selected due to the possibility of

dropping out and the non-cooperation of students. Therefore, the participants in the research were 223 students of Lorestan University of Medical Sciences, who were selected by the available sampling method, and the questionnaires were distributed among them.

Tools

1. Dundee Ready Educational Environment Measure (DREEM): This is an internationally valid tool that helps researchers to measure the general state of affairs in the learning environment of their cases and has been translated into different languages, including Farsi (Miles et al., 2012). This questionnaire's main features include assessing students' perception of the learning environment's scientific, practical, social, and optimal content. This scale has 49 items and its purpose is to measure the perception of learning quality from different dimensions (student perception of learning, student perception of the professor, student perception of their academic ability, student perception of the educational atmosphere and student perception of their social conditions). A five-point Likert scale (very little = 0 and very much = 4) was used in the questionnaire design. Raff et al. (1997) reported the reliability of this questionnaire as 0.93. The factor analysis method was used to calculate the validity of this questionnaire, and Cronbach's alpha correlation coefficient was used to check its validity. The results showed that the validity of the test through Cronbach's alpha was 0.93. The validity of the test with KMO equals 0.91 and Bartlett's 60936.37, which is statistically significant even beyond the 0.001 level.

2. Revised two-factor questionnaire of the study process: This questionnaire, which is the revised version of the study process questionnaire, is the most up-to-date and simplest version of the study process questionnaire for evaluating learning approaches (Mokhtar al., 2011). This questionnaire included 20 questions with a scoring index of one to five based on a five-point Likert scale (from one meaning never to five meaning always) that measures shallow and deep learning approaches (every ten questions related to one approach). The score for each approach is obtained by adding the numerical value of the corresponding questions, and the minimum and maximum scores are 10 and 50, respectively. Cronbach's alpha coefficient for the two dimensions of this questionnaire was reported as 0.88 and 0.92, respectively, and the content validity of this questionnaire was also based on the approval of psychometric experts. This questionnaire has been investigated in Iran with the help of reliability evaluation methods and confirmatory factor analysis. The confirmatory factor analysis results also showed a good fit for the considered two-factor structure. The reliability coefficient of the questionnaire was obtained by Cronbach's alpha method for depth and shallow approach as 0.79 and 0.83. The validity of the questionnaire was also confirmed by the opinion of eight expert professors of psychometrics (Shokri et al., 2008).

Results

In this regard, out of the total number of sampled people (223 people), 66.8% of the sampled people were female and 33.2% were male. Also, 41% of the questioned people had a master's degree and 59% were studying at the bachelor's level. The obtained results show that the average perceived learning environment equals 127.6. While the average student's perception of learning is 53.56, the student's perception of the professor is 15.91, the student's perception of his academic ability is 20.04, the student's perception of the educational atmosphere is 19.14, and the student's perception of his social conditions is equal to 18.92. Based on the obtained results, the average shallow learning approach is 40.51, and deep approaches is 42.62.

Table 1. Correlation matrix of research variables

Variable	1	2	3	4	5	6	7
1. Student perception of learning	1						
2. The student's perception of the professor	**0.35	1					
3. Student's perception of his academic ability	**0.28	**0.43	1				
4. Student's perception of educational atmosphere	**0.40	**0.48	**0.42	1			

5. Students' perception of their social conditions	**0.19	*0.16	0.05	**0.38	1		
6. shallow approaches	**0.43	**0.53	**0.29	**0.34	0.10	1	
7. Deep approaches	**0.25	**0.40	**0.49	**0.39	**0.30	**0.53	1

*(P< 0.05) ** (P< 0.01)

The correlation matrix of research variables is presented in Table 1. The results have shown that the internal correlation of the research variables has been confirmed at the level of 0.01, which indicates the significant correlation of the research variables, which means that the statistical assumption is established for the subsequent analysis.

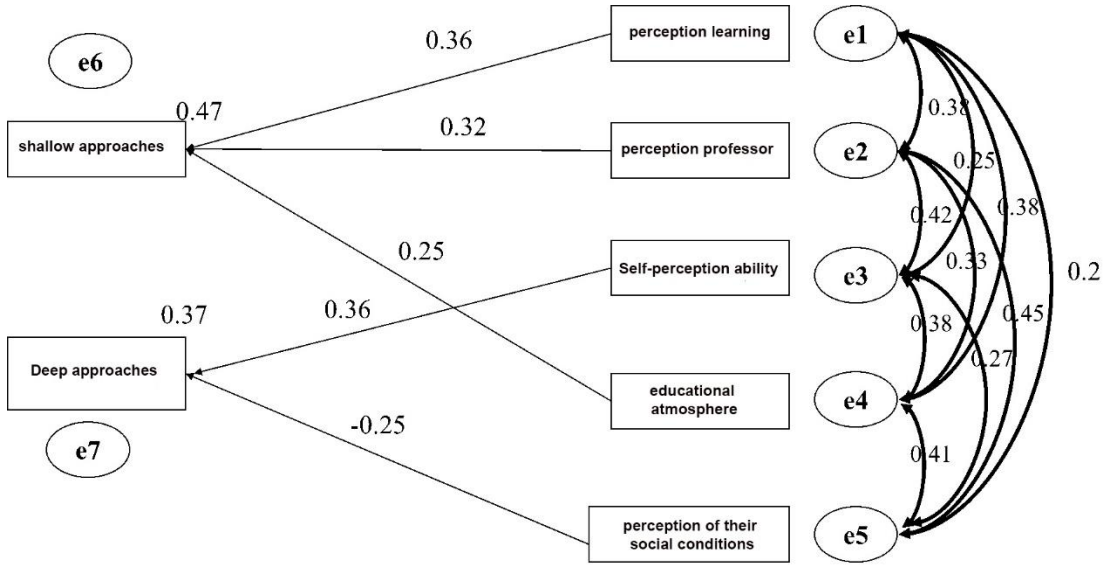

Figure 1. Standard coefficients of the research model. (The numbers are the amount of explained variance)

As seen in Figure 1, the highest coefficient (0.48) is related to the teacher's perception and the educational atmosphere, and the weakest coefficient (0.13) is related to the teacher's perception and social conditions. As the output of AMOS shows, 32% of the variance of the surface approach and 36% of the deep approach is explained by the proposed model. The results showed that the dimensions of the online learning environment predict students' learning approaches. Among the dimensions of the learning environment, the student's perception of the professor predicts students' shallow approach (β=0.32) and the student's perception of their academic ability predicts students' in-depth approach (β=0.36). The dimensions of the online learning environment predict students' learning approaches. The results showed that the direct path of the student's perception of learning towards the deep approach is significant according to the significance level of 0.01 and the direct path of the student's perception of learning towards the shallow approach is significant at the significant level of 0.01.

Conclusion

Statistical data analysis showed that the modified structural relationship between the perceived learning environment and learning approaches is suitable. This result is consistent with the findings of other studies (Heckel & Ringeisen, 2019; Liu et al., 2019; Postareff et al., 2019). In explaining this research finding, it can be stated that it will be more effective when academic activities are considered valuable and controllable from the side of knowledge learners (Zaccoletti et al., 2020). The research results showed a significant difference between the direct path of the student's perception of the professor, learning, and the educational atmosphere toward the deep approach and the path of the student's perception from his conditions and his scientific ability toward the shallow approach. In general, the results indicate that the dimensions of the learning environment significantly affect deep and shallow approaches, which is consistent with the results of other studies (Heckel & Ringeisen, 2019; Liu et al., 2019; Postareff et al., 2019). In order to explain this result, it can be stated that

people with learning approaches consider challenging learning environments manageable because they rely on effort and consider the effort a controllable process. Taking an active approach to learning will also make the learning environment controllable and programmable. (Heckel and Ringeisen, 2019). The results of the research of Postareff et al. (2018) showed that the positive and active perception of the student about the learning environment, the professor, and the content is positively and meaningfully related to deep approaches to learning. In this way, with active and dynamic perceptions of the learning environment, the learning tendencies become deeper because the person, as a conscious learner with metacognitive and self-monitoring strategies, does not act in line with the ineffective environment and will adjust the learning environment according to the learning goals. In connection with the causal explanation of students' learning approaches in virtual education based on the perceived learning environment, they showed that deep and superficial learning approaches are related to the dimensions of the educational and classroom environment. By identifying and strengthening the effective factors in learning and academic progress, it is possible to obtain an accurate prediction of effective educational events. This method can be used to prevent possible problems and eliminate risk factors. In this regard and considering the importance of the dimensions of learning approaches and perception of the learning environment in the conditions of online education in the learning performance of learners, emphasis has been placed on providing a platform for acquiring positive experiences for the learner such as dynamic learning, teamwork, and cooperative learning, facilitating The process of mutual communication, information sharing, assignments appropriate to the educational environment and attention to the role of learners to increase educational productivity in the context of online facilities (Roblyer & Ekhaml, 2000). Of course, in the process of virtual education, learners have less opportunity to attend school and have interpersonal interactions (Martin & Bolliger, 2020). In contrast, Britt (2015), according to this structural difference, confirms the importance of student interaction in online learning and believes that interactions and the way a person perceives the learning environment lead to higher levels of student success in online education. Because the presence of interaction in the learning environment is the psychological investment of learners and their efforts to learn, understand, and master knowledge, skills, and academic assignments, which is less in online classes, and this reduces the level of academic activity of learners (Martin & Bolliger, 2020). If it does occur, it is forced and does not have sufficient learning quality (Cusolito et al., 2020). In general, the results showed that the data fit the model and that the modified structural relationship of the perceived learning environment and learning approaches fit. In this regard, using different internal and external approaches and structures in learning activities will lead to specialized and detailed planning in online education conditions. In this way, more severe problems can be prevented. It is suggested to use the random sampling method in the larger community to increase the generalizability of the findings to neutralize the effect of limitations such as the lack of cooperation of students and access to the target community.

Conflict of Interest

According to the authors, this article has no financial sponsor or conflict of interest.

References

Banna, J., Lin, M. F. G., Stewart, M., & Fialkowski, M. K. (2015). Interaction matters: Strategies to promote engaged learning in an online introductory nutrition course. *Journal of online learning and teaching/MERLOT*, *11*(2), 249.

Bustamante, A. S., White, L. J., & Greenfield, D. B. (2018). Approaches to learning and science education in Head Start: Examining bidirectionality. *Early Childhood Research Quarterly*, *44*, 34-42.

Cheraghikhah, Z., Arabzadeh, M., & Kadivar, P. (2015). The Role of Academic Optimism, Academic Emotions and School Well-Being in Mathematical Performance of Students. *Positive Psychology Research*, *1*(3), 11-20.

Cheraghikhah, Z., Arabzadeh, M., & Kadivar, P. (2015). The Role of Academic Optimism, Academic Emotions and School Well-Being in Mathematical Performance of Students. *Positive Psychology Research*, *1*(3), 11-20. (Persian)

Cheraghmollaei, L. (2019). Instructional Design Based on Social Network and its effect on

Learning Approach and Student's Perception of Learning Environment. *New Educational Approaches* , *13*(2), 54-76.

Cheraghmollaei, L. (2019). Instructional Design Based on Social Network and its effect on Learning Approach and Student's Perception of Learning Environment. *New Educational Approaches*, *13*(2), 54-76. (Persian)

Cusolito, A. P., Lederman, D., & Peña, J. (2020). The Effects of Digital-Technology Adoption on Productivity and Factor Demand.

Ellis, R. A., & Bliuc, A. M. (2019). Exploring new elements of the student approaches to learning framework: The role of online learning technologies in student learning. *Active Learning in Higher Education*, *20*(1), 11-24.

Gerritsen-van Leeuwenkamp, K. J., Joosten-ten Brinke, D., & Kester, L. (2019). Students' perceptions of assessment quality related to their learning approaches and learning outcomes. *Studies in Educational Evaluation*, *63*, 72-82.

Grosseck, G., Bran, R., & Tiru, L. (2011). Dear teacher, what should I write on my wall? A case study on academic uses of Facebook. *Procedia-Social and Behavioral Sciences*, *15*, 1425-1430.

Heckel, C., & Ringeisen, T. (2019). Pride and anxiety in online learning environments: Achievement emotions as mediators between learners' characteristics and learning outcomes. *Journal of Computer Assisted Learning*, *35*(5), 667-677.

Ketonen, E. E., Dietrich, J., Moeller, J., Salmela-Aro, K., & Lonka, K. (2018). The role of daily autonomous and controlled educational goals in students' academic emotion states: An experience sampling method approach. *Learning and Instruction*, *53*, 10-20.

Kirschner, P. A., & Karpinski, A. C. (2010). Facebook® and academic performance. *Computers in human behavior*, *26*(6), 1237-1245.

Liu, Z., Yang, C., Rüdian, S., Liu, S., Zhao, L., & Wang, T. (2019). Temporal emotion-aspect modeling for discovering what students are concerned about in online course forums. *Interactive Learning Environments*, *27*(5-6), 598-627.

Martin, F., & Bolliger, D. U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning*, *22*(1), 205-222.

Martinez, J. (2020). Take this pandemic moment to improve education. *EdSource. June*, *22*.

Noroozi, Rasool, and Ghasemi, Hamid (2014). Laser application in practice. Tazamani Publications, Certain Publications & Partners, Tehran. (Persian)

Norouzi, R., & Ghasemi, H. (2014). *Application of Lisrel in practice.* Tehran: Hatmi.

Pekrun, R., & Linnenbrink-Garcia, L. (Eds.). (2014). *International handbook of emotions in education* (Vol. 16). New York, NY: Routledge.

Pekrun, R., Goetz, T., Titz, W., & Perry, R. P. (2002). Academic emotions in students' self-regulated learning and achievement: A program of qualitative and quantitative research. *Educational psychologist*, *37*(2), 91-105.

Phirangee, K. (2016). Students' Perceptions of Learner-Learner Interactions that Weaken a Sense of Community in an Online Learning Environment. *Online Learning*, *20*(4), 13-33.

Polujanski, S., Schindler, A. K., & Rotthoff, T. (2020). Academic-associated emotions before and during the COVID-19-related online semester–a longitudinal investigation of first-year medical students. *GMS Journal for Medical Education*, *37*(7).

Pourkamali, A., Mohammadi, A., & Haghighat, S. (2021). The effect of education based on Fernald's multisensory approach on improving visual memory and fluency of students with learning disabilities. Jayps, 2 (2): 290-298 (Persian)

Postareff, L., Mattsson, M., & Parpala, A. (2018). The effect of perceptions of the teaching-learning environment on the variation in approaches to learning–Between-student differences and within-student variation. *Learning and Individual Differences*, *68*, 96-107.

Rezae, A. (2013). *A step-by-step guide to data analysis using SPSS.* Tabriz: Foruzesh.

Rezaee, A (2013). Step-by-step guide to analyzing data using the SPSS app. Forozesh Publications, Tabriz. (Persian)

Rim, K. H., Shin, J. M., & Lee, S. (2019). A study on development of customized education and training model using online learning platform. *Journal of Practical Engineering Education*, *11*(1), 75-86.

Roblyer, M. D., & Ekhaml, L. (2000). How interactive are your distance courses? A rubric for assessing interaction in distance learning. *Online Journal of Distance Learning Administration*, *3*(2), 1.

Roff, S., McAleer, S., Ifere, O. S., & Bhattacharya, S. (2001). A global diagnostic

tool for measuring educational environment: comparing Nigeria and Nepal. *Medical teacher*, *23*(4), 378-382.

Shafiee, N., behroozi, N., shehni Yailagh, M., & Abolghasemi, M. (2019). The causal relationship between perception of constructive learning environment and Individual systemic thinking with tendency to lifelong learning, mediated by intrinsic motivation in undergraduate students of Shahid Chamran University of ahvaz.. *Journal of Educational Scinces*, 25(2), 109-130.

Shafiee, N., behroozi, N., shehni Yailagh, M., & Abolghasemi, M. (2019). The causal relationship between perception of constructive learning environment and Individual systemic thinking with tendency to lifelong learning, mediated by intrinsic motivation in undergraduate students of Shahid Chamran University of Ahvaz..*Journal of Educational Sciences*, 25(2), 109-130. (Persian)

Soffer, T., & Nachmias, R. (2018). Effectiveness of learning in online academic courses compared with face-to-face courses in higher education. *Journal of Computer Assisted Learning*, *34*(5), 534-543.

Stephan, M., Markus, S., & Gläser-Zikuda, M. (2019). Students' achievement emotions and online learning in teacher education. In *Frontiers in Education* (p. 109). Frontiers.

Zaccoletti, S., Altoe, G., & Mason, L. (2020). Enjoyment, anxiety and boredom, and their control-value antecedents as predictors of reading comprehension. *Learning and Individual Differences*, *79*, 101869.

Zhou, L., Wu, S., Zhou, M., & Li, F. (2020). 'School's out, but class' on', the largest online education in the world today: Taking China's practical exploration during the COVID-19 epidemic prevention and control as an example. *Best evidchin edu*, *4*(2), 501-519.