





Research Paper

Psychometric Analysis of the University Alienation Scale and Factors Affecting it in E-Learning during COVID-19 Pandemic

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Abstract

Aim: The aim of this study was to investigate the psychometrics of the university alienation scale and factors affecting it in e-learning during the COVID-19 pandemic. The study population in this descriptive-analytic research comprised all undergraduate students of Lorestan University in the academic year 2022-2023. Convenience sampling was used to select 215 students to complete the University Alienation Scale, Community of Inquiry Framework and Generalized Self-efficacy Scale online. The data were analyzed through exploratory factor analysis, principal component analysis and confirmatory factor analysis. The results showed that the scale has a one-factor structure that explains 66.94% of the variance. Confirmatory factor analysis also confirmed this structure. The internal consistency of the scale was confirmed with Cronbach's alpha of 0.93 and a test-retest reliability of 0.89. The results of multiple regression analysis showed that 17% of the variance of university alienation can be explained through the components of the community of inquiry framework. There was also a significant negative relationship between the self-efficacy and university alienation.

Keywords: University Alienation, Community of Inquiry Framework, Self-Efficacy, Psychometric properties.

Introduction

Current advances in information and technology have led to changes in social, economic and cultural structures in developed and developing

countries. Hence, the concept of individual has been redefined in modern world structures. With technology developments in the information era, access to information has accelerated, and while gaining power over nature, human has been enslaved by what he has produced. Individuals as the subject have turned away from themselves and turned into someone who strives for their own unhappiness for the sake of the happiness of others and is adversely affected by the social and cultural environment. This situation led to the emergence of alienation as a historical and social phenomenon (Yılmaz & Sarpkaya, 2009). Alienation is currently a widely discussed concept for a variety of reasons including the fact that individuals are experiencing alienation toward themselves and many social institutions in modern societies, e.g. family, parents, spouses, organizations and professions. One of the areas that alienation affects the most is education (Çelik, 2020). However, despite the importance of alienation in learning and its impact on various aspects of education, few studies are found in this field. This shortage may have several reasons, one of which is the focus of the present research: the lack of valid and reliable tools. Furthermore, it is important to determine the factors affecting academic alienation. We considered two of such factors: the community of inquiry framework and self-efficacy. Research results indicated that individuals with low self-efficacy experience higher levels of alienation (Çelik, 2020; Polat, Dilekmen & ve Yasul, 2015). In addition to self-efficacy, it appears that another important variable affecting university alienation during e-learning is the community of inquiry framework (educational, social and cognitive online presence) (De Gagne & Walters, 2009). Therefore, the current research seeks to answer the question whether the Persian version of the University Alienation Scale is reliable and valid, and whether university alienation can be predicted through community of inquiry framework and self-efficacy.

Methodology

The statistical population of this applied descriptive-correlational research included 7500 undergraduate students from Lorestan University in the academic year 2022-2023. Using rules-of-thumb, 215 people entered the study by voluntary sampling method (due to special health conditions and corona restrictions) and respond to Alienation Scale (AS; Kurtulmuş, Kaçire, Karabıyık and Yiğit, 2015), Community of Inquiry Framework (CIF; Arbaugh, Cleveland-Innes, Diaz, Garrison & Richardson, 2008) and Generalized Self-Efficacy Scale (GSES; Schwarzer and Jerusalem, 1995). The link of the questionnaires was posted in a WhatsApp channel of the participating students who completed the questionnaires online. Ten experts assessed and confirmed face and content validity of the items. Face validity was determined qualitatively through criteria of relevance,

ambiguity, and misconceptions. As per face validity, if each item scored more than 1.5, that item was considered appropriate. For content validity, the researcher asked experts to provide the necessary feedback, after a qualitative review of the tool for grammar, use of appropriate words, and appropriate placement of the items, according to which the items were corrected. To check the content validity in a quantitative way, two content validity ratios were used to check the necessity of the item, and the Content Validity Index was used to check the relevance of the item. CVI score above 0.79 indicated the appropriateness of the item. The obtained CVR value was also compared with Lawshe's table (1975). For ten evaluators, a CVR value greater than 0.62 was considered appropriate. After confirming the face and content validity of the questionnaire, SPSS statistical software version 22 was used for exploratory factor analysis, obtaining sub scales, and data analysis. To measure sampling adequacy and justifiability of factor assessment, Kaiser-Mayer-Olkin (KMO), and Bartlett's Sphericity tests were used.

Data analyses were conducted with a confidence level of 95%. Mean±SD was used to describe the quantitative data and frequency (percentage) to describe the qualitative data.

Results

The face validity and the content validity were evaluated using qualitative and quantitative approaches. Throughout assessment of face and content validity, minor changes were made according to the participants and the educational experts, without changing the content of the items. Then the items were reviewed and finally approved by the research team. For quantitative face validity, the item impact score was calculated, with the minimum score of 3.45. Therefore, all the items were confirmed. For quantitative content validity, CVR and CVI were calculated. The minimum score was reported to be 0.88 for CVI, and 0.66 for CVR. Thus, all the items were confirmed.

Table 1: demonstrates a cumulative percentage of variance of 66.95% and one component (factor) with an eigenvalue > 1.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	6.025	66.946	66.946	6.025	66.946	66.946
2	.688	7.647	74.593			
3	.540	5.996	80.590			

4	.433	4.816	85.406
5	.376	4.174	89.580
6	.272	3.026	92.606
7	.271	3.008	95.614
8	.211	2.342	97.955
9	.184	2.045	100.000

The results showed that the scale has a one-factor structure that explains 66.94% of the variance. Confirmatory factor analysis also confirmed this structure. Considering the goodness of fit indices (GFIs) such as the CFI, NFI, TLI, IFI, SRMR, RMSEA, and χ^2/df , it can be concluded that the model properly fits the data.

The internal reliability of the above instrument was obtained using Cronbach's alpha coefficient of 0.93, and since it was greater than 0.70, the internal reliability of the present instrument was confirmed. The results of test-retest and the correlation among the obtained answers were studied and the coefficients were reported to be above 0.89, indicating the moderate reliability of the questionnaire.

Relationships between variables were tested by Pearson's correlation test. The correlation results are shown in Table 2.

Table 2. The correlation matrix, mean, standard deviation, skewness and kurtosis of research variables

	1	2	3	4	5	6
1. University alienation	1					
2. Community of inquiry framework	0.39**	1				
3. Educational presence	0.37**	0.86**	1			
4. Social presence	0.25**	0.84**	0.55**	1		
5. Cognitive presence	0.37**	0.91**	0.64**	0.73**	1	
6. Self-Efficacy	-0.18*	0.32**	0.30**	0.25**	0.30**	1
Mean	2.59	3.54	3.7	3.44	3.45	3
Standard deviation	1.06	0.67	0.79	0.81	0.73	0.61
Skewness	0.28	-0.20	-0.50	-0.26	-0.11	-0.30
Kurtosis	-0.62	0.46	0.49	-0.20	0.28	-0.18

The results of multiple regression analysis showed that 17% of the variance of university alienation can be explained through the components of the

community of inquiry framework. There was also a significant negative relationship between the self-efficacy and university alienation.

Discussion and conclusion

The results confirmed the appropriate validity and reliability of the university alienation scale as well as the impact of self-efficacy and online educational and cognitive presence on this variable. Among the limitations of the present study, we can mention the limitation of sampling due to traffic restrictions, maintaining social distance, and closing universities. To accurately generalize the findings, further studies are required with larger sample sizes because we recruited only students. Research findings should be cautiously generalized to other people and age groups because we did not have access to different age groups.

Due to the proper validity and reliability of the university alienation scale, it can be used to determine and improve alienation. Given that online educational and cognitive presence is related to alienation, it is suggested that professors optimally utilize online and electronic classes in order to enhance the educational presence and cognitive presence of learners and to provide participatory learning in the classroom. Cognitive and emotional engagement helps to better understand and motivate learners and facilitate reducing alienation. Overall, it can be said that the university alienation scale is valid and reliable for Iranian students. Furthermore, a sense of online presence in the classroom as well as believing in one's abilities has a significant effect on reducing students' university alienation.

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