

Exploring the factors making online learning attractive and enjoyable

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ABSTRACT

The pandemic forced the universities to go online and brought in front the online lectures as focal activities. A lot of effort has been put to move the teaching and learning resources on the online platform which became the main interaction space between students and between students and teachers. An exclusive online learning environment has both benefits and disadvantages, especially as regards the students' engagement with the online lectures. Maintaining students' interest is difficult and depends on several factors. The purpose of the paper is to explore the factors that make online learning attractive and enjoyable. A formatively measured model having as focal construct the intrinsic motivation has been tested on a sample of 354 Romanian university students. The results highlight the students' need for self-presentation and show that social learning features are key factors that make online learning attractive and enjoyable.

Keywords

Online learning, online lectures, online platform, learning motivation, intrinsic motivation.

ACM Classification

D.2.2: Design tools and techniques. H5.2 User interfaces.

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INTRODUCTION

Facing the pandemic crisis created by the Coronavirus COVID-19 in education is a challenge for more than a year. Because of the lockdown restrictions, universities have to shift to online teaching and learning. Maintaining students' interest in exclusively online education is an important issue since there is no face-to-face interaction and there are many distracting elements, thus making the attention, concentration, and engagement with the online lectures more difficult [17, 20]. By online lectures, we mean all kinds of activities supervised by a teacher, such as lectures (courses), seminars, or debates.

A lot of effort has been invested to move the teaching and learning resources on the online platform which became the

main interaction space between students and between students and teachers. Apart from the specific functional requirements related to online education activities, the online platform should be usable and accepted by students [21, 25].

Technology acceptance is driven by various factors, among which the most important are the perceived ease of use and the user's motivation [7]. In the context of the technology acceptance model (TAM), intrinsic motivation has been conceptualized as perceived enjoyment [7] which proved to be an influential factor in many web-based systems [13]. The intrinsic motivation is closely related to the user experience [11, 12].

Intrinsic motivation in online learning is increasing cognitive processing because motivated students are more likely to pay attention in the online environment [9, 21]. A positive learning experience with the online platform and online lectures will make learning activities stimulating and enjoyable per se, thus increasing intrinsic motivation [21].

The purpose of the work is to explore the factors that make online learning attractive and enjoyable. The analysis is done on a sample of 354 Romanian university students from two universities. The approach is based on formative measurement [3, 4] having as focal construct the intrinsic motivation and explores the role of social learning features as motivation factors. The model has two effect variables (outcomes): perceived attractiveness and perceived enjoyment.

The rest of the paper is organized as follows. In section 2, related work is discussed with a focus on the coronavirus crisis in education and learning motivation. The method and sample are presented in section 3. Then, the model estimation results are presented and discussed. The paper ends with a conclusion in section 5.

RELATED WORK

The pandemic has changed not only our perception of authentic values (health, family, friends) but also the dynamics of economic, cultural, educational processes, globally. The educational process in universities continued

synchronously or asynchronously, using platforms and communication channels between teachers and students. The learning autonomy of students, the developed digital skills of teachers and students, also infrastructure, equipment, and technological endowments facilitated the transition from traditional learning to virtual space, bringing advantages and disadvantages [6, 17, 20, 24].

According to Coman et al. [6], when you learn exclusively online, some of the benefits diminish in value, and the disadvantages become more obvious: concentration is more difficult, voluntary attention is focused for a shorter time, and distracting factors appear from the environment.

Motivation is a key factor that influences the success of an activity. In the educational context, motivation is the mental process that provides the impulse needed to initiate learning and the strength that sustains the effort required in the learning process.

Hassenzahl [11] distinguished between pragmatic (usefulness, usability) and hedonic attributes (stimulation, identification, and evocation) of a product. Stimulation is related to the need for personal development, novelty, and motivation. An enhanced learning experience will increase the students' intrinsic motivation.

Numerous studies have focused on the analysis of behaviors, perceptions, and motivation for learning in the online environment, especially in the last year, in the context of the pandemic [6, 23], to develop educational theory and practice.

According to Bailey, Almusharraf, Hatcher [2] intrinsic motivation is the natural, inherent drive to seek out challenges and new possibilities and influences students' decisions to start, continue and return to learning tasks.

Motivated students are more attentive, begin working on tasks immediately, ask questions and give volunteer answers, and appear to be more happy and enthusiastic to learn [21]. Intrinsically motivated students engage in academic activities because they are interested in learning and they enjoy the learning process [5].

METHOD

Research model and measures

The factors influencing the intrinsic motivation for online learning (ML) have been conceptualized as a formatively measured construct influencing two variables: attractive learning (ML1) and enjoyable learning (ML2).

The research model presented in Figure 1 has been operationalized as a MIMIC model [16]. MIMIC model is the simplest formative model having multiple indicators (reflectively measured) and multiple causes (formatively measured) of a single latent variable.

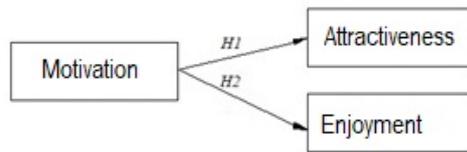


Figure 1. The research model

The following two hypotheses are tested in this study:

[H1] The intrinsic motivation factors have a positive influence on the perceived attractiveness of learning (ML → ML1).

[H2] The intrinsic motivation factors have a positive influence on the perceived enjoyment of learning (ML → ML2).

The variables used in this study are presented in Table 1.

Table 1. Variables

ML1	Online lectures make learning more attractive
ML2	Online lectures make learning more enjoyable
OL1	Online lectures enhance my communication skills
OL2	Online lectures improve the interaction with the teacher
OP1	The online platform is suitable for group work
OP2	With the online platform, I can better demonstrate my knowledge
OP3	With the online platform, I can better present my work
PEU	The online platform is easy to use

Three factors are related to the online lectures, four factors to the online platform, and one to the perceived ease of use of the online platform. Except for OL2 and PEU, the rest of the indicators are pointing to social learning features.

Formative measurement models

In structural equation modeling, two types of models are used: measurement models and structural models. The measurement model describes the relationships between the construct and its measures (indicators) while the structural model describes the relationships between constructs. Before estimating the structural model, the measurement model has to be correctly specified [1, 15].

According to the direction of the causal relationship between construct and indicators, two types of measurement models are distinguished: reflective and formative. In the reflective measurement model, the direction is from the construct to its indicators. In the formative measurement model, the direction is from the indicators to the construct (latent variable).

Validation criteria

The following criteria have been used to assess the validity of the model: coverage of the domain of content, correct sign and significance of γ -coefficients, significant influence on the

outcome variables (λ -coefficients), and an acceptable fit of the model with the data [3, 4, 8].

Based on the recommendations from the literature [10, 14], the following goodness-of-fit measures were used to assess the structural model: chi-square (χ^2), normed chi-square (χ^2/df), comparative fit index (CFI), goodness-of-fit index (GFI), standardized root mean square residual (SRMR), and root mean square error of approximation (RMSEA).

The model was analyzed with Lisrel 9.3 for Windows [19], using the maximum likelihood estimation method.

EMPIRICAL STUDY

Sample

The questionnaire has been administrated in 2021 to university students from two Romanian universities. The students have been asked to answer general questions such as demographics (age, gender) and enrollment (university, faculty, year of study), then to evaluate items on a 5-points Likert scale.

The working sample has 354 observations (159 male and 195 female). Most of the students are enrolled in bachelor's programs.

Model estimation results

The model estimation results are presented in Figure 2.

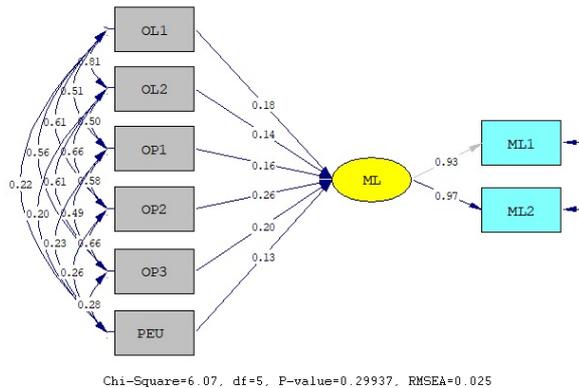


Figure 2. Model estimation results

The goodness of fit indices (GOF) indicate an excellent level of fit of the proposed model with the data: $\chi^2=6.071$, $DF=5$, $p=0.299$, $\chi^2/DF=1.214$, $CFI=0.999$, $GFI=0.996$, $SRMR=0.0042$, $RMSEA=0.025$.

The descriptive statistics, γ -coefficients, and the influence of the focal construct on the outcomes (λ) are presented in Table 2.

Table 2. Descriptive statistics, γ -coefficients, and loadings(λ)

Item	M	SD	γ	λ	R ²
ML1	3.31	1.38		0.93	0.87
ML2	3.22	1.41		0.97	0.94
OL1	3.19	1.39	0.18		
OL2	3.15	1.43	0.14		
OP1	3.33	1.45	0.16		
OP2	3.27	1.42	0.26		
OP3	3.81	1.33	0.20		
PEU	4.62	0.70	0.13		

All observed scores are over the neutral value of 3.00.

The influence of ML on ML1 ($\lambda=0.93$) and ML2 ($\lambda=0.97$) is significant at $p<0.001$ level, which supports the two hypotheses H1 and H2. The error term (error variance of ML) is only 0.319 which shows acceptable coverage of the domain of content.

One γ -coefficient (OL2) is significant at $p=0.015$ level and the rest are significant at $p=0.001$ level. The formative indicators having the largest γ -coefficients are OP2 ($\gamma=0.26$, $p=0.000$) and OP3 ($\gamma=0.20$, $p=0.000$).

Overall, the model explains 68.1% variance in the motivation for learning, 87.4% in the perceived attractiveness, and 93.8% in the perceived enjoyment.

DISCUSSION

This work contributes to a better understanding of factors that make learning attractive and enjoyable. As it could be noticed, the intrinsic motivation in online learning during the pandemic is not too high. The mean value for the two manifest variables (attractive and enjoyable) is relatively low, a little bit over the neutral value. Although the perceived ease of use has been scored high, suggesting that usability is not an issue, its influence on intrinsic motivation is relatively low.

The results of the study show that students are valuing the opportunities to better demonstrate their knowledge and better present their work on the online platform. This suggests the importance of satisfying students' need for self-presentation. Next in the order of the contribution to the focal construct are the interest to improve the communication skills (personal development) and the group work. Overall, the social learning features have been perceived as key factors that contribute to making learning more attractive and enjoyable in the context of exclusive online education.

The results are similar to the findings of other researchers [18, 20, 26], who identified that students generally believe that online education has a negative impact on their motivation due to lack of social interaction and communication, inconsistencies between their expectations and the delivered content, due to organizational problems, teachers' feedback and how learning environments have been managed.

The results have several educational implications: teachers need to understand students' needs, promote social learning, and introduce new, diverse and attractive elements in their presentations, to make online learning attractive and enjoyable.

There are inherent limitations of an exploratory study. First, the sample of the research is not representative since it includes students from only two universities so that the results cannot be generalized at the national level. Second, there are many factors (intrinsic, extrinsic, objective, subjective, direct, indirect, etc.) that influence students' motivation to learn and that must be taken into account, as, to a greater or lesser extent, they can be important variables in this context.

CONCLUSION AND FUTURE WORK

It is expected that the investments in moving online will favor a transition in the near future towards blended learning to combine the benefits of traditional and online learning. This makes motivation for learning online an important issue.

Understanding the factors that have an impact on students' intrinsic motivation for learning can contribute to making important decisions about the design and effective delivery of online courses, capitalizing on the positive elements, proven to be effective, and at the same time integrating innovative methods and approaches specific to the new paradigm that is shaping the horizon.

Future research directions could focus on the study of certain personality factors (of students or teachers) concerning the motivation for learning in the online environment.

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