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Exploring the Students' Perceived Academic Value in an Exclusive Online Learning Environment

Vincentas LAMANAUSKAS¹,
Rita MAKARSKAITĖ-
PETKEVIČIENĖ²,
Gabriel GORGHIU³,
Elena-Ancuța SANTI⁴,
Costin PRIBEANU⁵

¹ Vilnius University, Siauliai, Lithuania,
vincentas.lamanauskas@sa.vu.lt

² Vilnius University, Vilnius, Lithuania,
rita.makarskaite-petkeviciene@fsf.vu.lt

³ Valahia University of Targoviste,
Romania, ggorghiu@gmail.com

⁴ Valahia University of Targoviste,
Romania, santi.anca@yahoo.ro

⁵ Academy of Romanian Scientists,
Bucharest, Romania,
costin.pribeanu@gmail.com

Abstract: The pandemic generated by the COVID-19 challenged the education system to face the constraints of exclusively online teaching and learning. Like many other areas of life, education required rapid adaptation and finding the best solutions to continue the instructional-educational process. Teachers and researchers, educational policymakers, the community, students, and even parents, have made efforts to minimize social, emotional, cognitive losses so that the current generation is not deprived of quality education and to benefits from the optimal conditions that influence their development as autonomous, creative, physically and mentally healthy personalities. In this context, unexpected challenges arose, which teachers had to face: how to achieve a quality education in an exclusively online environment (deprived of face-to-face interaction), how to communicate effectively and transmit not only words but attitudes, examples of conduct, principles, and values, how to motivate students and how to keep in touch with each of them. The research aims to explore the students' perceived academic value of online/distance lectures using online learning platforms (Microsoft Teams and Zoom). A model has been developed and tested on a sample of 298 university students from Lithuania and Romania. The results show that perceived enjoyment and perceived learning effectiveness are the main antecedents of the perceived academic value.

Keywords: *pandemic situation, online learning, perceived academic value, perceived enjoyment, learning effectiveness.*

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1. Introduction

The pandemic generated by the COVID-19 challenged the education system to face the constraints of exclusively online teaching and learning (Crawford et al., 2020; Makamure & Tsakeni, 2020).

In universities, the courses were conducted either synchronously, through educational platforms and online applications, or asynchronously, leaving students the freedom and autonomy to complete the courses at their own pace, adapted to their individual needs (Hodges et al., 2020). In this context, the specialists in the field of educational sciences but also in the tech area focused on identifying the optimal solutions for achieving distance education. By capitalizing on the expertise, ideas, resources, portals, tools, and e-learning platforms, they managed to create a favorable context for further learning, reflection, and permanent adaptation (Botnariuc et al., 2020).

As learning to be relevant in this new context, teachers needed to engage students in an active pedagogy oriented environment (Dumulescu & Necula, 2020), focused on students' cognitive and emotional needs, using strategies to stimulate their engagement and involvement, and assuming various roles that facilitate communication and interaction with formative values, and preventing demotivation and failure. The feedback received and the related reflections are important regulatory mechanisms, both in the didactic process carried out by face-to-face format, but also in the one carried out in the virtual environment (Dumulescu & Necula, 2020).

The efficiency of the online teaching process also depends on a series of students' competencies to engage autonomously and actively in the learning process, as self-regulated learning skills (Broadbent & Poon, 2015; Zimmerman, 2008) showing that metacognition, critical thinking, effort regulation are positively correlated with academic success in the online environment; organization, planning, management and control of actions, resources, time, stress, emotions being also variables that can influence learning outcomes.

Many types of research carried out in this period offered interest to the study of psychological mechanisms having an energizing and dynamizing role in online learning. This is especially important in an emergency teaching/learning mode (for example, during a pandemic situation).

Intrinsic motivation plays an important role in learning and is an important factor for the acceptance of e-learning systems (Alalwan et al., 2018; Cheng, 2011; Lee et al., 2005; Sheng et al., 2008). In an exclusive

online setting, motivation is even more important since students could be easily distracted from lectures (Coman et al., 2020; Schmidt, 2020). In this respect, an online platform should be both usable and attractive to maintain students' interest (Lee et al., 2005; Pal & Vanija, 2020).

This research aims to explore the students' perceived academic value of online lectures using an online learning platform. A structural model has been developed that explores the relationships between four constructs: *perceived ease of use*, *perceived learning effectiveness*, *perceived enjoyment*, and *perceived academic value*. The model has been tested on a sample of 298 university students from two countries: Lithuania and Romania. The work is part of a larger study dedicated to educational issues during the pandemic, that has been carried on by researchers from Lithuania and Romania.

2. Theoretical background

According to Appana (2008), *online learning* refers to “the learning experiences based on the Internet, as the main means to deliver communication and presentation” (Appana, 2008, p. 5), in “synchronous or asynchronous environments, using different devices (e.g., mobile phones, tablets, laptops, etc.)” (Singh & Thurman, 2019).

The related terminology that refers to online learning includes notions such as computer-based learning, distance learning, e-learning, Internet-based learning, resource-based learning, technology-based learning, Web-based learning (Anohina, 2005), their main feature being oriented on the mediation of the fulfilling of interpersonal communication and facilitating the delivery and access to educational content. Their functions are multiple and can be explored and exploited in the educational field.

Although some colleges and universities have used e-learning courses for over two decades (Hodges et al., 2020; Sadiku et al., 2018), however, in the pandemic, online education was the globally agreed solution for continuing the educational process. In this unique and unanticipated context, online teaching and learning was not an option, but a necessity (Dhawan, 2020).

Online teaching and learning allow the student access to learn and interact with instructors and other students individually and independently, anywhere and anytime (Sadiku et al., 2018; Singh & Thurman, 2019).

Online education reveals great opportunities and great challenges for teachers, students, but also educational institutions (Dhawan, 2020; Sadiku et al., 2018).

According to Dhawan (2020), there are many problems associated with online teaching and learning, so it is necessary for teachers to rethink

how they design and conduct the entire educational process, to assume different roles, to be more creative and open to the new, to reflect and to find strategies that motivate students and ways to conduct an objective assessment.

According to Blakey and Major (2019), given the increasing number of students who choose to study online, teachers/lecturers should understand the conditions necessary for student success in this environment. Previous research has confirmed that student engagement is essential for student learning, perseverance, and satisfaction. The descriptive qualitative study (40 students participated) sought to understand what elements of involvement they perceive. Student engagement in general is students' desire to be successful in the learning process, leading them to a higher level of thinking and long-term understanding. It is a mental state in which students experience the unity of feeling and thinking while learning. Engagement requires the learner's psychological investment and perseverance in the learning task. Cognitive engagement includes students' motivation, skills, and attitudes toward improving their performance. This study showed that to achieve "student engagement", communication must be encouraged and accessible to all course members. And in the case of distance learning, it is necessary to provide opportunities for students to communicate, solve problems, critique, and create. Those methods are familiar to students from face-to-face learning modality (regular study mode), so they cannot be ignored.

Recent reports from the Australian higher education sector have highlighted the continued growth of students studying online, with online study methods being on par with the university environment in terms of students' academic performance. Online learning poses certain challenges not only for students but also for teachers (Roddy et al., 2017). In both contexts, both direct/regular and distance learning, teacher and student communication methods, learning materials and methods, assessment principles, and skills testing are similar.

The results of a study by Granjon (2021) involving more than 7,000 students from the University of Lorraine showed that for most students, interactivity in online courses did not seem so effective. For one-third of students, distance learning, implemented during the first period of the pandemic by transferring studies from a traditional environment to online, remains a form of pedagogical interaction. More than half of them believe that teachers did not take on enough responsibility after presenting the course online. Some teachers online seemed less "interesting" than working directly.

Cuerrier et al. (2020) analyzed the impact and consequences of a pandemic for university graduate students, highlighting the advantages and

challenges of distance learning. Three main axes are identified: psychological health, working conditions, and tasks. Psychological health: stress, uncertainty, and life in postgraduate studies. A global pandemic can be a major stress for everyone, given the uncertainties surrounding the personal and professional spheres. Students combined these uncertainties with the academic field (e.g., cancellation of courses, their transfer to the Internet, changes in academic achievements on the rating scale, etc.). Herrador-Alcaide et al. (2019) explored whether students were satisfied with their studies by distance learning. When analyzing students' perceptions of satisfaction with studies, the learning process, the perception of the learning environment was also taken into account. An interesting aspect was found that students whose satisfaction with studies was higher during contact learning also had higher satisfaction with distance learning. Andrew et al. (2021) conducted a case study on student engagement in asynchronous virtual learning environments highlighted the need for lecturers to improve their online teaching practices. In the current environment of social isolation and uncertainty, activities that protect the student, well-being, and equal opportunities in higher education are particularly important. Pellas (2014) analyzed online courses at the university level that were developed at the "Second Life" platform. Learning effectiveness was found to be related to value, usefulness, and positive emotional response. Hence, there is a relationship between self-efficacy and academic performance.

3. Method

3.1 Research model and hypotheses

The research model is presented in Figure 1. In this study, it has been hypothesized that the perceived academic value (PV) is positively influenced by the perceived ease of use (PEU), perceived learning effectiveness (LE), and perceived enjoyment (PE).

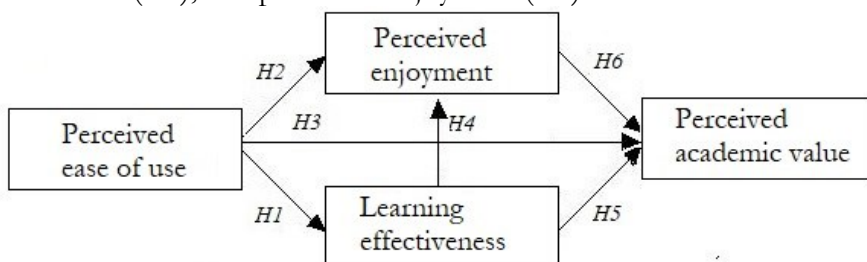


Fig. 1. Research model
Source: Authors' own conception

The following hypotheses are proposed and tested in this research:

(H1) Perceived ease of use has a direct positive influence on the learning effectiveness (PEU → LE)

(H2) Perceived ease of use has a direct positive influence on the perceived enjoyment (PEU → PE)

(H3) Perceived ease of use has a direct positive influence on the perceived academic value (PEU → PV)

(H4) Perceived learning effectiveness has a direct positive influence on the perceived enjoyment (LE → PE)

(H5) Perceived learning effectiveness has a direct positive influence on the perceived academic value (LE → PV).

(H6) Perceived enjoyment has a direct positive influence on the perceived academic value (PE → PV).

Perceived ease of use (PEU) is a key determinant of technology acceptance and refers to the user's belief that using the online platform would be free of effort (Davis et al., 1992). The ease of use refers to both the ease of learning how to use the platform and the ease of operating the platform. If the online platform is easy to use then students will take full advantage of its features which in turn will reflect on better and easier learning, enjoyable learning experience, and improved academic performance (Aguilera-Hermida, 2020; Renner et al., 2014).

Perceived enjoyment (PE) is an intrinsic motivation that has been defined as "the extent to which the activity of using a specific system is perceived as enjoyable in its own rights" (Davis et al., 1992). In this case, is the degree to which the online lectures are perceived as attractive, interesting, and enjoyable. Motivation to learn is an important issue in education that has a positive influence on learning outcomes (Lamanauskas & Makaraskaite-Petkeviciene, 2021; Pânisoară et al., 2020; Swan, 2003).

Learning effectiveness (LE) refers to better understanding, easier and better learning. In this respect, it includes both effectiveness (understanding/learning better) and efficiency (learning easier). Understanding better maintains students' interest and enhances their motivation and engagement with the online courses which, in turn, will lead to better outcomes (Renner et al., 2014; Swan, 2003). Also, if students are confident that by using the platform they could learn better, they will be more motivated to learn (Yarborough & Fedesco, 2020). Therefore, learning effectiveness is a factor that influences both the perceived enjoyment and the perceived academic value.

The perceived academic value (PV) refers to the usefulness of the online platform to improve academic performance and thus to give an advantage to the student.

The model constructs and items are presented in Table 1.

Table 2. Variables

Source: Authors' own conception

Item	Statement	<i>M</i>	<i>SD</i>
PEU1	It is easy for me to learn how to use the online platform	4.48	0.77
PEU2	The online platform is easy to use	4.48	0.71
LE1	I could better understand the lecture by using the online platform	3.16	1.03
LE2	I find it easier to learn by using the online platform	3.23	1.10
LE3	I learn better by using the online platform	3.33	1.42
PE1	Online lectures make learning more attractive	3.37	1.12
PE2	Online lectures make learning more enjoyable	3.25	1.22
PE3	Online lectures make learning more interesting	3.17	1.29
PV1	The online platform could enhance my school performance	3.54	1.03
PV2	Using the online platform would improve my school work	3.53	1.22
PV3	The use of the online platform would give me an advantage	3.69	1.14

All mean values are over the neutral value of 3.00 which shows that students have a positive perception of online learning. The online platform has been perceived as easy to use since the mean values are almost 4.50. The perceived learning effectiveness and perceived enjoyment are relatively low, a little bit over the neutral value. The perceived academic value is moderate, ranging from 3.53 to 3.69.

3.2 Analytical procedures

Model validation has been carried out following the two-step approach that includes the validation of the measurement and structural models (Anderson & Gerbing, 1988; Fornell & Larcker, 1981).

The fit between the model and the data has been assessed by using the goodness of fit (GOF) measures recommended in the literature (Hair et al., 2006): chi-square (χ^2), normed chi-square (χ^2/df), comparative fit index (CFI), the goodness of fit index (GFI), standardized root mean square residual (SRMR), and root mean square error of approximation (RMSEA).

The model has been tested with Lisrel 9.3 for Windows (Mels, 2010).

3.3 Sample

The sample of research consists of 298 university students from Vilnius University in Lithuania and Valahia University of Targoviste, in Romania. The Lithuanian subsample consists of 158 students (6 males, 152 females). Most of them being enrolled in various study programs of primary and childhood education, and also in science education. The Romanian subsample consists of 140 students (22 males, 118 females), enrolled in study programs that prepare students for the teaching profession, in various areas. Students have been asked to answer some general questions then to evaluate the statements on an interval 5-point Likert scale.

4. Results and Discussion

4.1 Measurement model

The measurement model has been analyzed for unidimensionality, construct reliability (Cronbach's alpha), convergent, and discriminant validity. Unidimensionality was assessed by examining the factor loadings, which are over the threshold of 0.6. As it could be seen in Table 2, Cronbach's alpha is over 0.7 for all constructs, which shows acceptable reliability.

Table 2. Reliability, convergent, and discriminant validity
Source: Authors' own conception

Item	Cronbach alpha	CR	AVE	PEU	LE	PE	PV
PEU	0.792	0.793	0.658	0.811			
LE	0.864	0.879	0.785	0.338	0.886		
PE	0.924	0.925	0.806	0.459	0.691	0.898	
PV	0.796	0.842	0.641	0.541	0.665	0.702	0.801

The convergent validity has been assessed by comparing the composite reliability (CR) and average variance extracted (AVE) with the thresholds of 0.7 respectively 0.5, based on the recommendations from the literature (Hair et al., 2006).

Discriminant validity has been assessed with the squared correlation test (Fornell & Larker, 1981), by comparing the square root of AVE with the correlations between constructs. For all, constructs, the square root of AVE is higher than the correlations between constructs, which shows adequate

discriminant validity. The results of assessing the reliability, the convergent and discriminant validity are presented in Table 2.

4.2 Structural model

The structural model estimation results are presented in Figure 2. The GOF indices are acceptable, according to the cut-off values recommended in the literature (Schermelel-Engel et. al., 2003; Hair et al., 2006): ($\chi^2 = 112.31$, $df=38$, $\chi^2/df = 2.95$, $RMSEA = 0.091$, $CFI=0.966$, $GFI = 0.937$, $SRMR = 0.0458$)

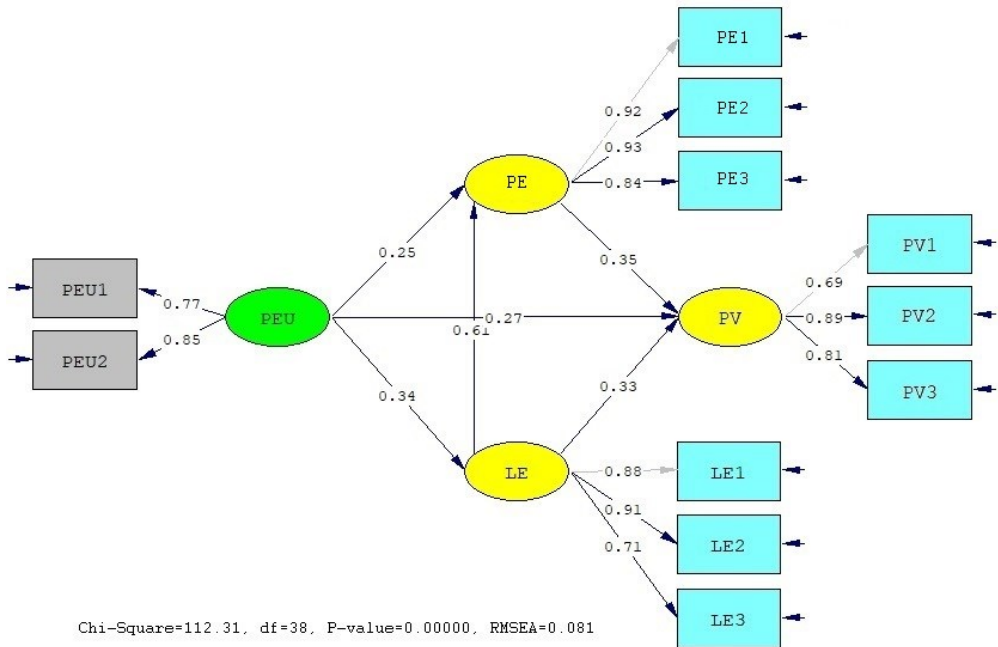


Fig. 2. Model testing results
Source: Authors' own conception

All paths between constructs are significant at $p < 0.001$ level, therefore all six hypotheses are accepted. The perceived enjoyment has a slightly larger direct effect on the perceived academic value. The largest influence of the perceived ease of use is on the perceived learning effectiveness.

The model explains 11.4% variance in learning effectiveness, 53.5% variance in perceived enjoyment, and 61.1% variance in the perceived academic value.

4.3 Discussion

This exploratory study contributes with a validated model explaining the relationships between the perceived academic values of the online learning platform and three key antecedents: perceived ease of use, perceived learning effectiveness, and perceived enjoyment. The results show that the perceived enjoyment and the perceived learning effectiveness have a quasi-similar contribution to the perceived academic value.

Perceived enjoyment and perceived learning effectiveness have been scored relatively low, a little bit over the neutral value which is explained by the distracting factors when learning from home, that in turn leads to loss of attention and concentration, as well as by the lack of face-to-face interaction, that in turn is reducing the motivation to learn. This is not surprising and is consistent with other findings from the literature (Coman et al., 2020; Lamanauskas & Makaraskaite-Petkeviciene, 2021; Mese & Sevilen, 2021).

Students' perception of the ease of use of the online platform is a factor that can influence their motivation and engagement in content exploration, facilitating learning. The high mean value of items suggests that usability is not an issue. The satisfaction felt by students, generated by the successful completion of teaching tasks, influences their perception of the academic value of online learning, as positive emotions are important in achieving educational goals.

Perceived enjoyment in accomplishing a task contributes to the increase of intrinsic motivation, thus, the online lectures perceived by the students as attractive, interesting and pleasant generate involvement and support the cognitive effort necessary for learning. Simultaneously with these, the feeling of self-efficacy and self-confidence develops, which are important bases in the success of the activity.

The students' perceived academic value of online platforms as a key variable for educational institutions that want to integrate the online component in the classical educational process. Self-regulation in learning, autonomy, and student engagement are dependent on the degree of perceived ease of using online platforms, perceived enjoyment, and perceived learning effectiveness. According to Ahmed et al. (2013), the positive emotions associated with learning lead to academic performance, have important implications in supporting self-regulated learning and in acquiring acquisitions.

Perceived academic value has been scored higher than its main antecedents - the perceived learning effectiveness and the perceived enjoyment. The fact that students perceived advantage in online learning

during the pandemic is explained in part by the mix of positive and negative perceptions of students (Rahiem, 2020; Lamanauskas & Makaraskaite-Petkeviciene, 2021) and by specific advantages in terms of time flexibility and money savings that have been perceived as beneficial especially by students that are working and/or are coming from other localities/ countries (Manea et al., 2021). Learning content is enriched by easier access to information and its persistence, freedom of choice in choosing learning tools increases, thus encouraging students to creativity and learning become more learner-centred. Technology makes it easier to provide personalized learning and quick feedback. Technology also enables the creation of shared content. Communication with the help of technology gains flexibility, freedom, independence. The exchange of information is much faster owing to technology.

This study has also several limitations: (a) the sample is not a large one: it includes 298 participants from two universities (one from Romania and one from Lithuania), which makes the degree of representativeness not very high; (b) the gender structure of the sample is not balanced, which can lead to gender-specific perceptual distortions, influencing the research results; (c) the conclusions cannot be generalized.

5. Conclusions and Implications

The results of the research show that the perceived ease of use, perceived learning effectiveness, and perceived enjoyment have a direct positive influence on the perceived academic value. The perceived ease of use and the perceived learning effectiveness have also an indirect positive influence on the perceived academic value that is mediated by the perceived enjoyment. These variables play an important role in creating an optimal level of motivation, which energetically supports learning and generates the autonomous engagement of students in this process.

The holistic understanding of the factors that can facilitate the acquisition of knowledge and performance in the online environment is a concern of many teachers and researchers in education, especially during a pandemic context. The positive or negative experiences related to online learning acquired during this period are important resources not only for the educational actors directly involved - teachers and students - but can be starting points in the process of optimizing post-pandemic education. The “lessons” learned now must be decoded and capitalized to increase the quality of education. Distance/online learning tools can certainly find their purpose and become useful in an academic sense. It is important to improve the teaching/learning materials and the corresponding study procedure. It is

necessary to explore the possibilities of making a greater impact on student development through a distance learning model. It is obvious that distance learning also opens up new opportunities to search for new forms of study organization, encourages the use of technology and digital tools. The need to learn from each other and share with others becomes apparent.

References

- Aguilera-Hermida, A.P. (2020). College students' use and acceptance of emergency online learning due to COVID-19. *International Journal of Educational Research*, 1, 100011. <https://doi.org/10.1016/j.ijedro.2020.100011>
- Ahmed, W., van der Werf, G., Kuyper, H., & Minnaert, A. (2013). Emotions, self-regulated learning, and achievement in mathematics: A growth curve analysis. *Journal of Educational Psychology*, 105(1), 150-161. <https://psycnet.apa.org/doi/10.1037/a0030160>
- Alalwan, A.A., Baabdullah, A.M., Rana, N.P., Tamilmani, K., & Dwivedi, Y.K. (2018). Examining adoption of mobile internet in Saudi Arabia: Extending TAM with perceived enjoyment, innovativeness and trust. *Technology in Society*, 55, 100-110. <https://doi.org/10.1016/j.techsoc.2018.06.007>
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411-423. <https://doi.org/10.1037/0033-2909.103.3.411>
- Andrew, L., Wallace, R., & Sambell, R. (2021). A peer-observation initiative to enhance student engagement in the synchronous virtual classroom: A case study of a COVID-19 mandated move to online learning. *Journal of University Teaching & Learning Practice*, 18(4). <https://ro.uow.edu.au/jutlp/vol18/iss4/14>
- Anohina, A. (2005). Analysis of the terminology used in the field of virtual learning. *Educational Technology and Society*, 8(3), 91-102. <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.103.7742&rep=rep1&type=pdf>
- Appana, S. (2008). A review of benefits and limitations of online learning in the context of the student, the instructor and the tenured faculty. *International Journal on E-Learning*, 7(1), 5-22. <https://www.learntechlib.org/primary/p/22909>
- Blakey, C. H., & Major, C. H. (2019). Student perceptions of engagement in online courses: An exploratory study. *Online Journal of Distance Learning Administration*, 25(4). <https://www.westga.edu/~distance/ojdla/winter224/blakeymajor224.html>

- Botnariuc, P., Cucuș, C., Glava, C., Iancu, D. E., Ilie, M. D., Istrate, O., Labăr, A. V., Pânișoară, I.-O. Ștefănescu, D., & Velea, S. (2020). *Școala online. Elemente pentru inovarea educației. Raport de cercetare evaluativă* [Online school. Elements for educational innovation. Evaluative research report]. Editura Universității din București.
- Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review. *The Internet and Higher Education*, 27, 1-13.
<http://dx.doi.org/10.1016/j.iheduc.2015.04.007>
- Cheng, Y.-M. (2011). Antecedents and consequences of e-learning acceptance. *Information System Journal* 21(3), 269-299. <https://doi.org/10.1111/j.1365-2575.2010.00356.x>
- Coman, C., Țîru, L. G., Meseșan-Schmitz, L., Stanciu, C., & Bularcă, M. C. (2020). Online teaching and learning in higher education during the Coronavirus pandemic: Students' perspective. *Sustainability*, 12(24), 10367.
<https://doi.org/10.3390/su122410367>
- Crawford, J., Butler-Henderson, K., Rudolph, J., Glowatz, M., Burton, R., Magni, P.A., & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Teaching and Learning (JALT)*, 3(1), 9-28. <https://doi.org/10.37074/jalt.2020.3.1.7>
- Cuerrier, M., Aubin, A.-S., & Tremblay-Gagnon, D. (2020). Influences et répercussions de la pandémie sur les apprentissages et le parcours universitaire des étudiant·e·s aux cycles supérieurs en sciences de l'éducation: retour d'expérience de trois doctorantes [Influences and repercussions of the pandemic on the learning and university pathways of graduate students in education sciences: experiential accounts of three doctoral students]. *Formation et profession*, 28(4 hors-série), 1-8. <http://dx.doi.org/10.18162/fp.2020.698>
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, 22(14), 1111-1132.
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5-22.
<https://doi.org/10.1177%2F0047239520934018>
- Dumulescu, D., & Necula, C. V. (2020). Educația online - prieten sau dușman al învățării autoreglate? [Online education - Friend or enemy of self-regulated learning?] *Research and Education*, 4.
<http://researchandeducation.ro/2020/07/16/educatia-online-prieten-sau-dusman-al-invatarii-autoreglate.html>

- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. <https://psycnet.apa.org/doi/10.2307/3151312>
- Granjon, Y. (2021). La perception de l'enseignement à distance par les étudiants en situation de confinement: premières données [Perception of distance education by students in lockdown situation: first data]. *Distances et médiations des savoirs*, 33. <https://doi.org/10.4000/dms.6166>
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th Ed.). Prentice-Hall.
- Herrador-Alcaide, T.C., Hernández-Solis, M., & Galván, R. S. (2019). Feelings of satisfaction in mature students of financial accounting in a virtual learning environment: An experience of measurement in higher education. *International Journal of Educational Technology in Higher Education*, 16(20), 1-19. <https://doi.org/10.1186/s41239-019-0148-z>
- Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *EDUCAUSE Review*. <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>
- Lamanauskas, V., & Makaraskaite-Petkeviciene, R. (2021). Distance lectures in university studies: advantages, disadvantages, improvement. *Contemporary Educational Technology*, 13(3), 309. <https://doi.org/10.30935/cedtech/10887>
- Lee, M. K., Cheung, C. M., & Chen, Z. (2005). Acceptance of Internet-based learning medium: The role of extrinsic and intrinsic motivation. *Information & Management*, 42(8), 1095-1104. <https://doi.org/10.1016/j.im.2003.10.007>
- Makamure, C., & Tsakeni, M. (2020). Covid-19 as an agent of change in teaching and learning STEM subjects. *Journal of Baltic Science Education*, 19(6A), 1078-1091. <https://doi.org/10.33225/jbse/20.19.1078>
- Manea, I.V., Macavei, T., & Pribeanu, C. (2021). Perceived benefits of online lectures during the pandemic: A case study in engineering education. *Pro Edu International Journal of Educational Sciences*, 3(1), 35-41. <https://doi.org/10.26520/peijes.2021.4.5.65-41>
- Mels, G. (2006). *LISREL for Windows: Getting started guide*. Scientific Software International.
- Meşe, E., & Sevilen, Ç. (2021). Factors influencing EFL students' motivation in online learning: A qualitative case study. *Journal of Educational Technology & Online Learning*, 4(1), 11-22. <https://doi.org/10.31681/jetol.817680>
- Pal, D., & Vanijja, V. (2020). Perceived usability evaluation of Microsoft Teams as an online learning platform during COVID-19 using system usability scale and technology acceptance model in India. *Children and Youth Services Review*, 119, 105535. <https://doi.org/10.1016/j.childyouth.2020.105535>

- Pânisoară, I. O., Chirca, R., & Lazăr, I. (2020). The effects of online teaching on students' academic progress in STEM. *Journal of Baltic Science Education*, 19(6A), 1106-1124. <https://doi.org/10.33225/jbse/20.19.1106>
- Pellas, N. (2014). The influence of computer self-efficacy, metacognitive self-regulation, and self-esteem on student engagement in online learning programs: Evidence from the virtual world of Second Life. *Computers in Human Behavior*, 35, 157-170. <https://doi.org/10.1016/j.chb.2014.02.048>
- Rahiem, M. D. (2020). The emergency remote learning experience of university students in Indonesia amidst the COVID-19 crisis. *International Journal of Learning, Teaching and Educational Research*, 19(6), 1-26. <https://doi.org/10.26803/ijlter.19.6.1>
- Renner, D., Laumer, S., & Weitzel, T. (2014). Effectiveness and efficiency of blended learning - A literature review. In *IS in Education, IS Curriculum, Education and Teaching Cases (SIGED), Twentieth Americas Conference on Information Systems*, Savannah, 1-13. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.667.5220&rep=rep1&type=pdf>
- Roddy, C., Amiet, D.L., Chung, J., Holt, C., Shaw, L., McKenzie, S., Garivaldis, F., Lodge, J.M., & Mundy, M.E. (2017). Applying best practice online learning, teaching, and support to intensive online environments: An integrative review. *Frontiers in Education*, 2, 59. <https://doi.org/10.3389/educ.2017.00059>
- Sadiku, M. N. O., Adebo, P. O., & Musa, S. M. (2018). Online teaching and learning. *International Journals of Advanced Research in Computer Science and Software Engineering*, 8(2), 73-75. <http://dx.doi.org/10.23956/ijarcsse.v8i2.549>
- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, 8(2), 23-74. <https://psycnet.apa.org/record/2003-08119-003>
- Schmidt, S.J. (2020). Distracted learning: Big problem and golden opportunity. *Journal of Food Science Education*, 19(4), 278-291. <https://doi.org/10.1111/1541-4329.12206>
- Sheng, Z., Jue, Z., & Weiwei, T. (2008). Extending TAM for online learning systems: An intrinsic motivation perspective. *Tsinghua Science and Technology*, 13(3), 312-317. [https://doi.org/10.1016/S1007-0214\(08\)70050-6](https://doi.org/10.1016/S1007-0214(08)70050-6)
- Singh, V., & Thurman, A. (2019). How many ways can we define online learning? A systematic literature review of definitions of online learning (1988-2018). *American Journal of Distance Education*, 33(4), 289-306. <https://doi.org/10.1080/08923647.2019.1663082>

- Swan, K. (2003). Learning effectiveness: what the research tells us. In J. Bourne & J. C. Moore (Eds), *Elements of quality online education, practice, and direction* (pp. 13-45). Sloan Center for Online Education.
- Yarborough, C. B., & Fedesco, H. N. (2020). Motivating students. *Vanderbilt University Center for Teaching*. <https://cft.vanderbilt.edu/guides-sub-pages/motivating-students/>
- Zimmerman, B. J. (2008). Investigation self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal*, 45(1), 166-183.
<https://doi.org/10.3102%2F0002831207312909>