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Blended Learning Perceptions in First Time and Experienced Users – The Learning Curve Accumulation Approach

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Perceived ease of use;
Behavioral intention

Abstract: *The purpose of this paper is to analyze the learning curve of first-time users and experienced users of blended learning methodology and their perception of eLearning platforms. We investigate student relation with blended learning approach aggregated in first time users and experienced users, analyzing a multitude of factors with a sample size of 1021 students in university premises. Their approach is tested empirically through regression analysis by measuring the learning curve accumulation among two main categories of users. The implications of this study are practical for organizations and practitioners implementing innovative approaches in education. Data shows that first time users are more likely to share the experience, use the portal as an assisting tool in learning, and see blended learning as more helpful. While experienced users see it as a pure operational tool, spending more time on it, being more confident, and value the experience by perceiving satisfaction and usefulness.*

1. INTRODUCTION

Blended learning in the knowledge delivery industry and academia is a term being increasingly used (Anthony et al., 2020; Bruggeman et al., 2021; Nortvig, Petersen, & Balle, 2018; Singh & Reed, 2001; Vallee, Blacher, Cariou, & Sorbets, 2020). As a form of online learning, *mostly a combination of techniques using technology to deliver and assess knowledge*, authors see it more as complementary to traditional teaching methods (Prifti, 2020), rather than comparing it to whether it is better than traditional learning (Nortvig et al., 2018). The purpose of this study is not to make a comparison of face-to-face (traditional) learning, online learning, or blended learning, or even to compare their effects on student learning outcomes. We take a different path by looking at blended learning methodology as process innovation, thus analyzing the user learning path assessed by several components. Components include learning environment, the medium referring to the instrument through which content is delivered and its selection. Most important in this process is how all these components affect curse design and the outcome of learning objectives. There is a discussion in literature arguing that learning outcomes are not affected, since they are rather dependent on instructional strategies deployed (Holden & Westfall, 2006). In addition, there are other components such as instructional ones which depend on learning objectives and affect learning transfer (Kaur, 2013), synchronous instructional methods, the live classroom, the virtual classroom, and media used.

2. BLENDED LEARNING REVIEW

One definition of blended learning is that it is a combination of instructional modalities (Krismadinata et al., 2020; Maloloy-on, et. al., 2021; Matosas-López et. al., 2019). Another one is in

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line with this definition, but instead of modalities, a combination of methods (Driscoll, 2002; Rooney, 2003; Rossett, Douglis, & Frazee, 2003). A more practical definition refers to a combination of online and face-to-face instructions (Gide, 2019; Maloloy-on et al., 2021). Technically, the first two define blended learning broadly by taking into consideration media influences on traditional method learning thus blurring the lines by including any kind of system that is virtual. The third definition, which is closer to what the authors of this paper argue, provides a more precise understanding of what blended learning is. The third definition emphasizes the role of traditional learning and technology in the process, moreover, gives a historical perspective of the combination (Bonk & Graham, 2012).

Hrastinski (2019) draws on literature that research blended learning conceptualization. The vast research identifies several ways to conceptualize it. Inclusive conceptualization – emphasizing that it should be viewed as an inclusive way of a combination of modalities. Quality conceptualization – putting forward the overall quality and positive effects by integrating all modalities of face-to-face and online learning. Quantity conceptualization – emphasizing the quantity of the content delivered online regarding face-to-face. The synchronous conceptualization – arguing that is better for teaching and learning to happen in a synchronous way, both online and on campus. The conceptualization that an organization chooses depends on the strategy, resources, internal capabilities, and the objectives regarding quality, and most importantly as Derntl & Motschnig-Pitrik (2005a) put it, blended learning adds value when two main components are in place: educators with high interpersonal skills and easy to use technology.

Literature shows that for online education and blended learning, environmental factors that prove to be of considerable relevance are appropriate teaching and learning spaces for online and off-line purposes, learning communities that secure meaningful support for students' social relations and learning experience, and considerable and well-embedded sense of learner identity. Appropriate teaching is an umbrella terminology used to include several factors. Firstly, in order for blended learning to provide value added high interpersonal skills educators have to be engaged (Derntl & Motschnig-Pitrik, 2005). Secondly, strong educators' presence, associated with very good quality content, are substantial in student engagement (Nortvig et al., 2018; Swan & Shih, 2014). Thirdly, related with the technology factor literature argues that the element of technology per se does not provide much improvement in student achievement, however, it leads to considerable and significant improvements in student achievement while providing cognitive support such as stimulations or facilitating student-student and student-teacher contacts.

Appropriate teaching also pertains to course design. Course design influences student satisfaction (Pham, Limbu, Bui, Nguyen, & Pham, 2019) and perceived learning (Baber, 2020). Educators, while conceptualizing a blended learning system, should bear in mind that course design to be effective has to support knowledge transmission and skill acquisition (Gilboy et.al., 2015; Ikhwan & Widodo, 2019) and this can be arranged through blended learning intertwining technology and traditional teaching.

Learning communities are important in developing student engagement and their learning identity and go beyond appropriate teaching. Students' experience of the learning community and their own learner identity appears to be significantly affected by the online element of blended learning education (Baxter & Haycock, 2014). An important part of online learning activities is the "peer-to-peer" method of assessing knowledge. However, as peer to peer seems to have a different effect on students according to their learning levels, also the blended learning method-

ology should have a different set up based on the same criteria. Studies suggest that the impact of peer evaluation is considerable in low and average-achieving students, and less impactful on high-achieving students (Baxter & Haycock, 2014). Based on the same principle, we hypothesized that students should have a different approach and prioritize different methodology components according to their experience in usage.

In addition, among many dimensions and variables to be considered, blended learning reflects also on educators. It develops their capacities to use technology-related teaching approaches (Chigeza & Halbert, 2014) and adds pedagogical value (Rivers, Richardson, & Price, 2014). Bernard, Borokhovski, Schmid, Tamim, & Abrami, (2014) in a meta-analysis study of blended learning applied in higher education found that students achieved better in comparison with those in traditional classroom programs. Many studies, also, support these findings and despite that blended learning appears to arise from a technological factor, its value lies in the combination and organized influence of many factors.

The reason why we emphasize blended learning methodology is twofold. Firstly, it relates to a belief in the philosophy of teaching and learning. We believe that the process of knowledge transfer and knowledge gaining is most of all a social process and that technology is a complementary tool and not a substitute for the traditional one. Secondly, the literature suggests that students find web-based lectures to be an added value to the traditional way of learning, thus making it complementary and not a substitute (Martín-Rodríguez et al., 2014). A comprehensive literature review carried out by (Nortvig et al., 2018) finds out that the most relevant elements in relation to interactions are between online and offline activities, between campus-related and practice-related activities, and between students, teachers and content, thus the importance of seeing blended learning as complementary to traditional learning.

Online learning often poses a myriad of challenges for educators, trying to adapt traditional teaching methods and techniques to online learning activities. However, the most important factors affecting online learning from, and educators' perspective are strong educators' presence and fostering positive relations through online learning communities.

3. METHODOLOGY AND DATA ANALYSIS

This study analyses a multitude of factors in blended learning methodology implementation. A learning management system based on a highly customized Moodle platform was used and learners' attitudes and perceptions were measured concerning learning effectiveness. In sociology, the way people think, behave, feel and act represent attitudes. Attitude affects students' ability to learn, attitudes toward learning influence the motivation of learners by influencing the educational context (Gardner, 2006).

One of the approaches to analyze the comprehensive dataset, and the one this paper analyses, is the learning curve accumulation while using the methodology. An online five-scale Likert questionnaire (Cigdem & Ozturk, 2016; Liaw, 2008; Liaw & Huang, 2013), was used to measure several constructs such as: in-class behavior, online behavior, LMS self-efficacy, multimedia instruction, perceived satisfaction, interactivity in portal, perceived usefulness, perceived ease of use, behavioral intention and satisfaction. In addition, controlling variables were used such as gender, year of study, field of study and in several cases whether it was a private or public higher education institution. For this study, we have limited variables and dimensions in consideration.

The questionnaire was distributed among students on university premises. It was completed by 1021 Business Administration students; the study population consisted of 835 female students, representing 81.78% and 186 male students representing 18.22%.

Table 1. Aggregate

Contains data	
obs:	1,021
vars:	93
size:	96,995

Source: Own research

Table 2. Gender summary

Gender summary			
Obs		1021	
	Freq.	Percent	Cum.
F (1)	835	81.78	81.78
M (2)	186	18.22	100.00

Source: Own research

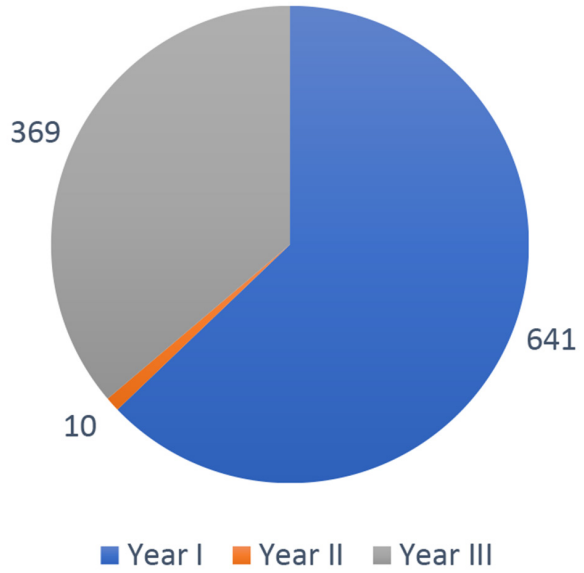

Figure 1. Years of study

Source: Own research

Approximately 82% of the respondents were female and 18% were male. Students were asked about their perceptions and attitude towards the blended learning methodology. The same questionnaire twice, once as first-time users and then as experienced users in that way to be able to build the knowledge and experience accumulation curve.

The analysis of mean and standard deviation shows the discrepancies that exist between first-time and experienced users. As shown in Table 3, the biggest discrepancies between first-time and experienced users are related to interactivity in the portal, ease of use, behavior intention and satisfaction. Looks like first-time users are more likely to share their e-learning experience, use the portal assisting their learnings, and also evaluate this course experience as helpful for them more than experienced users.

Table 3. Discrepancies

Variable	Comparison	
	Mean	**STD**
I would like to share my e-learning experience	-2.872	-0.430
I would find it easy to get to Portal to do what I want to do	-2.853	-0.213
I intend to use Portal to assist my learning	-2.858	-0.406
This course experience has improved my opportunity to access and use the class content	-2.848	-0.145
In-class meetings were well-organized	-2.793	0.140

Source: Own research

The knowledge and experience accumulation curve is presented in Figure 2. Experienced users are the ones that feel more confident with the online learning platform, have spent more hours online, feel more confident with the online platform they perceive satisfaction, usefulness, and ease to use more than first-time users. Asking about if the same course is being offered in different formats, which course format would you prefer, seems that experienced users are more likely to choose blended learning methodology than first-time users. According to behavior intention to use online learning platforms, experienced users intend to use the online platform as an autonomous learning tool more than first-time users.

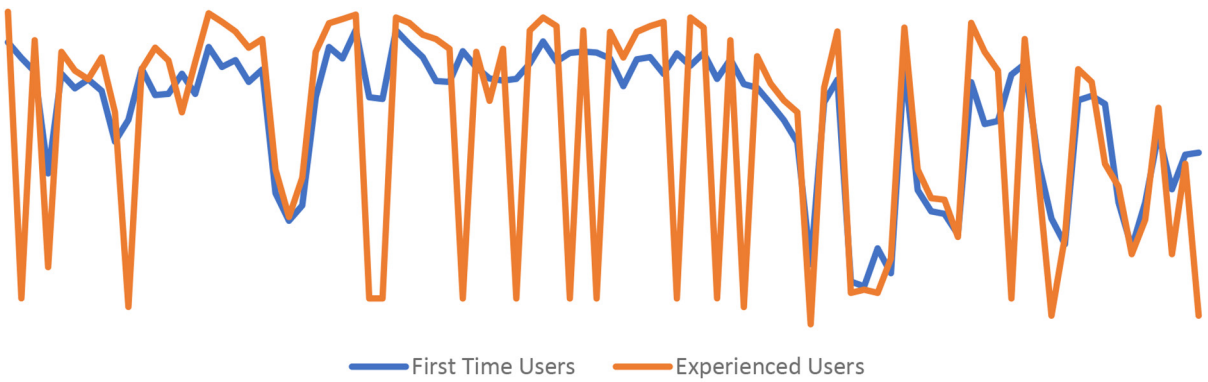

Figure 2. Knowledge and experience accumulation curve

Source: Own research

Before the regression analyses, the multicollinearity assumption was checked to see whether there was a multicollinearity problem among the variables involved in the analyses. In this regard, an Estat Vif analysis and Pearson correlation analysis are conducted.

Table 4. Estat Vif analysis

estat vif		
Variable	VIF	1/VIF
LM2	2,26	0.441783
LM1	2,19	0.456636
SK25	1,80	0.556409
SK27	1,53	0.655342
SK21	1,47	0.682200
SO1	1,21	0.825626
T11	1,12	0.895341
SK1	1,05	0.949736
Mean VIF	1,58	

Source: Own research

The values of all the questions above are less than 10 (Table 3) which indicates that all the variables are independent and there is no multicollinearity problem. This is also supported by the Pearson correlation analysis, where we see that all the correlations are less than .80.

Table 5. Pearson correlation

	G	SK1	SK21	SK25	SK27	SO1	SO21	SO22	T11	LM1	LM2
G	1.0000										
SK1	0.0572	1.0000									
	0.0675										
SK21	-0.0148	0.0958	1.0000								
	0.6364	0.0022									
SK25	-0.0292	0.1610	0.5144	1.0000							
	0.3509	0.0000	0.0000								
SK27	-0.0306	0.1586	0.3867	0.5646	1.0000						
	0.3282	0.0000	0.0000	0.0000							
SO1	-0.0907	0.1622	0.2052	0.2397	0.2335	1.0000					
	0.0037	0.0000	0.0000	0.0000	0.0000						
SO21	-0.0715	0.1264	0.3968	0.3589	0.2708	0.2450	1.0000				
	0.0222	0.0001	0.0000	0.0000	0.0000	0.0000					
SO22	-0.0672	0.1125	0.3787	0.3838	0.2653	0.3261	0.5992	1.0000			
	0.0318	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000				
T11	-0.0992	0.1003	0.2106	0.2525	0.2043	0.2334	0.2028	0.2128	1.0000		
	0.0015	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
LM1	-0.0712	0.0305	0.2987	0.2317	0.1547	0.2890	0.3776	0.3470	0.1185	1.0000	
	0.0229	0.3297	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001		
LM2	-0.0821	0.0355	0.3150	0.2929	0.2053	0.3076	0.3798	0.3419	0.1390	0.7304	1.0000
	0.0087	0.2571	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Source: Own research

Pearson analysis table shows that the strongest correlation exists between engagement in class and the understanding of learning materials, organization of online learning materials and the attractiveness of online learning, also between the organization of portal functions and the confidence of learners to use the portal as an instrument of blended learning.

However, there is almost no correlation between gender and in-class behavior construct, also between the confidence of learners with the online portal and hours spent in class. Further, the analysis shows a negative correlation, even though it is low, between almost all the variables and gender.

To be able to analyze and understand the relationship that exists between the numbers of in-class meetings and the characteristics of in-class learning materials and activities it looks like the organization of the class meetings does not have any effect on students' attendance. Meanwhile, the engagement and integration in class discussions and activities do affect the attendance of students in class meetings.

Table 6. In-class behavior construct

regress SK1 SK21 SK25 SK27						
Source	SS	df	MS	**Number of obs.**	1021	
				F(3, 1017)	11,44000	
Model	48.82289	3	16.274299	**Prob > F**	0,00000	
Residual	1446.656	1017	1.4224739	**R-squared**	0,03260	
				Adj R-squared	0,02980	
Total	1495.478	1020	1.4661558	**Root MSE**	1,19270	
How many in-class meetings did you attend?	**Coeff.**	**Std. Err.**	**t**	**P>t**	**[95% Conf.**	**Interval**
In class meetings were well-organized	.0064987	.0500045	0.13	0.897	-.0916251	.1046225
I felt like being called upon in class challenged me to integrate the course material in meaningful ways	.1296587	.0511623	2,53	0.011	.029263	.2300544
I was actively engaged in the in-class activities and discussion	.1242877	.047499	2,62	0.009	.0310806	.2174949
_cons	3.165645	.2029921	15,59	0.000	2.767314	3.563976

Source: Own research

Regarding the relation between numbers of the online lessons completed and the attractiveness of online learning materials, also the variable of numbers of the online lessons completed and organization of the online learning materials, students have evaluated both variables as important determinants that affect their attitude to use this kind of learning methodology and completed more lessons online.

Table 7. Online behavior construct

regress SO1 SO21 SO22						
Source	**SS**	**df**	**MS**	**Number of obs.**	1021	
				F(2, 1018)	63,01	
Model	110.6691	2	55.33457	**Prob > F**	0	
Residual	894.0301	1018	.878222	**R-squared**	0,1102	
				Adj R-squared	0,1084	
Total	1004.699	1020	.9849993	**Root MSE**	0,93714	
How many of the online lessons did you complete?	**Coeff.**	**Std. Err.**	**T**	**P>t**	**[95% Conf.**	**Interval]**
Online lessons were interesting and engaging	.0777265	.03710	2,09	0.036	.0049148	.1505381
Online lessons were divided into manageable segments	.2997823	.03957	7,57	0.000	.2221178	.3774468
_cons	2.702047	.14436	18,72	0.000	2.418762	2.985332

Source: Own research

In a further analysis the numbers of the learning materials completed, confidence using portal and confidence on operating functions of the portal were checked to see whether there is any relation with the variable of hours that learners spend on the online module. It revealed a significant result, $R^2 = 0.059$, $F(3,1017) = 21,45$ $p < .001$, which turned out that the number of learning

materials students completed exerted positive significant relation with scores related to hours spent on the online learning. Variables confidence using the portal and confidence operating functions of the portal do not have any relation with hours that students spend on the online learning platform.

Table 8. Online learning platforms

regress T11 SO1 LM1 LM2						
Source	**SS**	**df**	**MS**	**Number of obs.**	1021	
				F(3, 1017)	21,45	
Model	113.293	3	37.764536	**Prob > F**	0	
Residual	1790.66	1017	1.7607328	**R-squared**	0,0595	
				Adj R-squared	0,0567	
Total	1903.95	1020	1.8666263	**Root MSE**	1,3269	
How many hours per week did you spend on online modules?	**Coeff.**	**Std. Err.**	**t**	**P>t**	**[95% Conf.**	**Interval]**
How many of the online lessons did you complete?	.289176	.0442128	6,54	0.000	.2024179	.375935
I feel confident using Portal.	.011319	.0677259	0,17	0.867	-.1215786	.144218
I feel confident operating functions of Portal	.106693	.0696734	1,53	0.126	-.0300265	.243413
_cons	.837850	.2475473	3,38	0.001	.3520884	1.32361

Source: Own research

The final analysis was performed to examine the relationship between gender and constructs of attendance in class, organization of class activities, integration of students in class, engagement in class, number of online lessons completed, the confidence of learners using the online learning platform and confidence operating functions of online learning platform. Attendance in-class meetings, online lessons completed, and hours spent on online learning seemed to have a significant relationship with gender construct.

Table 9. Gender construct

regress G SK1 SK21 SK25 SK27 SO1 T11 LM1 LM2						
Source	**SS**	**df**	**MS**	**Number of obs.**	1021	
				F(8, 1012)	3,14	
Model	3.68941021	8	.4611762	**Prob > F**	0,0016	
Residual	148.426163	1012	.1466661	**R-squared**	0,0243	
				Adj R-squared	0,0165	
Total	152.115573	1020	.1491329	**Root MSE**	0,38297	
Gender	**Coeff.**	**Std. Err.**	**t**	**P>t**	**[95% Conf.**	**Interval]**
How many in-class meetings did you attend?	.0246474	.0101619	2,43	0.015	.0047066	.0445881
In class meetings were well-organized	.0143779	.0165154	0,87	0.384	-.0180305	.0467864
I felt like being called upon in class challenged me to integrate the course material in meaningful ways	.001957	.0167453	0,12	0.907	-.0309025	.0348165

I was actively engaged in the in-class activities and discussion	-0,0047508	.0154054	-0,31	0.758	-.034981	.0254794
How many of the online lessons did you complete?	-0,0264368	.013297	-1,99	0.047	-.0525298	-.0003439
How many hours per week did you spend on online modules	-0,0248814	.0092756	-2,68	0.007	-.043083	-.0066798
I feel confident using Portal.	-0,0073283	.0196604	-0,37	0.709	-.0459081	.0312514
I feel confident operating functions of Portal	-0,0212152	.0204379	-1,04	0.300	-.0613206	.0188902
_cons	1,329586	.0873533	15,22	0.000	1.158172	1.501001

Source: Own research

4. CONCLUSION

In this research paper, we analyze how learners' attitudes and perceptions toward blended learning methodology change between first-time users and experienced users. It helps us to create a learning curve and to better understand which factors students valuate the most while knowing more about the online environment. From the analysis, it looks like first-time users are more likely to share their e-learning experience, use the portal assisting their learnings and also evaluate this course experience as helpful more than experienced users. From this result we can conclude that experienced users have become familiar with the platform and do not see that as a new methodology but as a learning instrument where they can find what is useful for them; this assumption is supported also by the fact that experienced users have spent more hours in the online platform, they feel more confident with the online platform and perceive satisfaction, usefulness and ease to use more than first time users. Also, by the fact that experienced users intend to use the online platform as an autonomous learning tool more than first-time users. For the first time users look like the e-learning experience is more attractive and they are more willing to share this experience; on the other hand, the experienced users go through the novelty of this methodology and they evaluate options like the attractiveness of the online platform, organization of the online learning materials, etc.

Results also show that learners' attitude to use eLearning platforms is affected by the attractiveness of online learning materials and the organization of the online learning materials. The more organized and attractive the learning materials and the online platform functions the better the engagement, understanding, and learners' confidence in using the online platform as an instrument of blended learning. Both first-time users and experienced users evaluate the quality and organization of the online learning materials as important elements that affect the attractiveness of the online platform and the confidence of users to use this kind of learning platform. Talking about the impact that gender has on class behavior construct, online behavior construct and confidence of learners to use the portal, results show that there is no correlation between these variables.

REFERENCES

Anthony, B., Kamaludin, A., Romli, A., Raffei, A. F. M., Phon, D. N. A. L. E., Abdullah, A., & Ming, G. L. (2020). Blended Learning Adoption and Implementation in Higher Education: A Theoretical and Systematic Review. *Technology, Knowledge and Learning*. https://doi.org/10.1007/s10758-020-09477-z

Baber, H. (2020). Determinants of students' perceived learning outcome and satisfaction in online learning during the pandemic of COVID19. *Journal of Education and E-Learning Research*, *7*(3), 285–292. https://doi.org/10.20448/JOURNAL.509.2020.73.285.292

Baxter, J. A., & Haycock, J. (2014). Roles and student identities in online large course forums: Implications for practice. *International Review of Research in Open and Distance Learning*, *15*(1), 20–40. https://doi.org/10.19173/irrodl.v15i1.1593

Bernard, R. M., Borokhovski, E., Schmid, R. F., Tamim, R. M., & Abrami, P. C. (2014). A meta-analysis of blended learning and technology use in higher education: From the general to the applied. *Journal of Computing in Higher Education*, *26*(1), 87–122. https://doi.org/10.1007/s12528-013-9077-3

Bonk, C. J., & Graham, C. R. (2012). The Handbook of Blended Learning: Global Perspectives, Local Designs Memorial. *John Wiley & Sons.*, *33*(1). https://doi.org/10.21225/d51g6h

Bruggeman, B., Tondeur, J., Struyven, K., Pynoo, B., Garone, A., & Vanslambrouck, S. (2021). Experts speaking: Crucial teacher attributes for implementing blended learning in higher education. *Internet and Higher Education*, *48*. https://doi.org/10.1016/j.iheduc.2020.100772

Chigeza, P., & Halbert, K. (2014). Navigating E-learning and blended learning for pre-service teachers: Redesigning for engagement, access and efficiency. *Australian Journal of Teacher Education*, *39*(11), 133–146. https://doi.org/10.14221/ajte.2014v39n11.8

Cigdem, H., & Ozturk, M. (2016). *Factors Affecting Students' Behavioral Intention to Use LMS at a Turkish Post-Secondary Vocational School l sis (SNA) in OnlineCourses*. *17*(3). https://doi.org/10.19173/irrodl.v17i3.2253

Derntl, M., & Motschnig-Pitrik, R. (2005). The role of structure, patterns, and people in blended learning. *Internet and Higher Education*, *8*(2), 111–130. https://doi.org/10.1016/j.iheduc.2005.03.002

Driscoll, M. (2002). Blended learning: Let's get beyond the hype. *E-Learning*, 54. Retrieved from http://www-07.ibm.com/services/pdf/blended_learning.pdf

Gardner, R. C. (2006). Motivation and Attitudes in Second Language Learning. In K. Brown (Ed.), *Encyclopedia of Language & Linguistics (Second Edition)* (Second Edi, pp. 348–355). https://doi.org/https://doi.org/10.1016/B0-08-044854-2/00625-8

Gide, A. (2019). Blended Learning: A New Hybrid Teaching Methodology. *Online Submission*, *3*(13), 5–24.

Gilboy, M. B., Heinerichs, S., & Pazzaglia, G. (2015). Enhancing student engagement using the flipped classroom. *Journal of Nutrition Education and Behavior*, *47*(1), 109–114. https://doi.org/10.1016/j.jneb.2014.08.008

Holden, J., & Westfall, P. (2006). Instructional Media Selection for Distance Learning: A Learning Environment Approach. *Distance Learning*, *3*(2), 1.

Hrastinski, S. (2019). What Do We Mean by Blended Learning? *TechTrends*, *63*(5), 564–569. https://doi.org/10.1007/s11528-019-00375-5

Ikhwan, E. J., & Widodo, P. (2019). Attitude Conception: The Role of Blended Learning in Environmental Education. *Online Submission*, *2*(6), 53–62. https://doi.org/10.32996/ijllt.2019.2.6.7

Kaur, M. (2013). Blended Learning – Its Challenges and Future. *Procedia – Social and Behavioral Sciences*, *93*, 612–617. https://doi.org/10.1016/j.sbspro.2013.09.248

Krismadinata, Verawardina, U., Jalinus, N., Rizal, F., Sukardi, Sudira, P., … Novaliendry, D. (2020). Blended learning as instructional model in vocational education: Literature review. *Universal Journal of Educational Research*, *8*(11B), 5801–5815. https://doi.org/10.13189/ujer.2020.082214

Liaw, S.-S. (2008). Investigating students' perceived satisfaction, behavioral intention, and effectiveness of e-learning: A case study of the Blackboard system. *Computers & Education*, *51*(2), 864–873.

Liaw, S.-S., & Huang, H.-M. (2013). Perceived satisfaction, perceived usefulness and interactive learning environments as predictors to self-regulation in e-learning environments. *Computers & Education*, *60*(1), 14–24.

Maloloy-on, M., Arnado, A., Aviles, G., Solania, N., & Ventura, R. (2021). Teacher's Responses on the New Normal Learning Delivery Modalities: Prospective Lifelong Learning Pathway. *SMCC Higher Education Research Journal*, *8*(1). https://doi.org/10.18868/sherj8j.08.010121.02

Martín-Rodríguez, Fernández-Molina, Óscar, Montero-Alonso, Uan-Carlos, González-Gómez, … Francisco. (2014). The main components of satisfaction with e-learning. *Technology, Pedagogy and Education*, *24*, 1–11. https://doi.org/10.1080/1475939X.2014.888370

Matosas-López, L., Aguado-Franco, J. C., & Gómez-Galán, J. (2019). Constructing an instrument with behavioral scales to assess teaching quality in blended learning modalities. *Journal of New Approaches in Educational Research*, *8*(2), 142–165. https://doi.org/10.7821/naer.2019.7.410

Nortvig, A. M., Petersen, A. K., & Balle, S. H. (2018). A literature review of the factors influencing e-learning and blended learning in relation to learning outcome, student satisfaction and engagement. *Electronic Journal of E-Learning*, *16*(1), 45–55.

Pham, L., Limbu, Y. B., Bui, T. K., Nguyen, H. T., & Pham, H. T. (2019). Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam. *International Journal of Educational Technology in Higher Education*, *16*(1). https://doi.org/10.1186/s41239-019-0136-3

Prifti, R. (2020). Implementation of blended learning in a higher education institution in Albania: An analysis of factors that affect students' learning experience. *International Journal of Innovation and Learning*, *27*(3), 233–253. https://doi.org/10.1504/IJIL.2020.106809

Rivers, B. A., Richardson, J. T. E., & Price, L. (2014). Promoting reflection in asynchronous virtual learning spaces: Tertiary distance tutors' conceptions. *International Review of Research in Open and Distance Learning*, *15*(3), 215–231. https://doi.org/10.19173/IRRODL.V15I3.1777

Rooney, J. E. (2003). Blended Learning Opportunities to Enhance Educational Programming and Meetings. *Association Management*, *55*, 26–32.

Rossett, A., Douglis, F., & Frazee, R. V. (2003). *Strategies for Building Blended Learning.*

Singh, H., & Reed, S. (2001). A white paper: Achieving success with blended learning. *Leerbeleving.Nl*, 1–11.

Swan, K., & Shih, L. (2014). *On the nature and development of social presence in online course discussions.*

Vallee, A., Blacher, J., Cariou, A., & Sorbets, E. (2020). Blended learning compared to traditional learning in medical education: Systematic review and meta-analysis. *Journal of Medical Internet Research*, Vol. 22. https://doi.org/10.2196/16504