

EFFECTIVENESS OF BEHAVIORIST LEARNING THEORY IN COVID-19 E-LEARNING SETTINGS: FOCUSING ACCOUNTING IN HIGHER EDUCATION ARENA

Munshi Samaduzzaman, School of Business and Law, Central Queensland University

ABSTRACT

This study examines accounting students' intentions to use a university online learning environment using the Behaviorist philosophy of learning and the application recognition paradigm/Technology Acceptance Model (TAM). As a result, the aim of this research is to see how the Behaviorist Hypothesis of Learning can be combined with the Technology Adoption Paradigm to forecast and clarify accounting students' willingness to use an online learning framework.

Keywords: Behaviorist Philosophy, Online Learning, Accounting, Education, Technology

INTRODUCTION

It is not unusual for teachers and students in most countries to have difficulty participating in practical conventional teaching processes. Students' lack of confidence and enthusiasm may be one of these issues (Alshurafat et al., 2020; Bidabadi et al., 2016). Similarly, providing information content and evaluating students' success *via* an online learning environment are difficult processes, particularly when instructors and students are unprepared (Aisbitt & Sangster, 2005; Barnard-Brak et al., 2010; Litherland et al., 2013). The massive effects of the COVID-19 pandemic, which impacted critical industries (e.g., the educational and economic sectors), overwhelmed universities around the world in March 2020 (Gruszczynski, 2020; Torsello & Winkler, 2020). As a result, universities have chosen to use an online learning method to continue their studies. Instructors and students had mixed responses to the sudden introduction of an online learning system. Any students were not sure of its benefits or unable to deal with the online learning system's implementation. As a result, certain people's learning processes were altered, while others' learning was briefly halted, due to various obstacles to their ability to access and implement the online learning structure. The aim of this research is to learn more about the factors that influence students' acceptance of online learning systems. Online learning applications proponents claim they have the ability to increase faculty efficiency while lowering instructional costs without jeopardizing institutional credibility (Bacow et al., 2012). Despite the advantages of online learning programs, Means, et al., (2009) contend that they are less productive at conventional colleges and universities. Universities are no exception. Prior to the coronavirus epidemic, most universities around the world have not completely implemented online learning services. As a result, the accounting and business divisions' ongoing implementation of an online learning system may have a negative impact on the educational process. Prior literature has concentrated on the barriers to online learning method acceptance and usage in the absence of exceptional circumstances (Abdekhoda et al., 2016; Al-Rahmi et al., 2019; Bacow et al., 2012; Gómez-Ramirez et al., 2019; Moore et al., 2011; Yadegaridehkordi et al., 2019). There is a strong gap in understanding of the significant factors in the usage of online learning systems during the COVID-19 pandemic, and there is a lack of

consensus among educators about the determinants of effective implementation and use of these systems during this pandemic. As a result, studies have been carried out to determine the main reasons that encourage the current use of online learning services during the COVID-19 pandemic. This research has practical consequences for transforming the implementation process of online learning environments by presenting guidance for addressing the obstacles of rapid adoption and the usefulness of the behaviorist philosophy of learning. Learning is described as the output of an adequate response to a particular stimulant, according to behaviorist learning theories (Ertmer & Newby, 2013). As the shape or occurrence of an observed behavior changes, learning happens (Schunk, 2014). This study aids faculty and staff in their comprehension of the conditions that influence accounting students' actual use of the online learning environment, thus improving the instructional experience during the COVID-19 epidemic. The rest of this article is laid out as follows.

Behaviorist Learning Theories

Learning is described as the output of an adequate response to a particular stimulant, according to behaviorist learning theories (Ertmer & Newby, 2013). As the shape or occurrence of an observed behavior changes, learning happens (Schunk, 2014). Behaviorist philosophies are uninterested in the knowledge systems or neural functions that students do have. Instead, they concentrate on the development of measurable behaviors that are openly and specifically stated in the educational objectives. In this regard, it is critical in behaviorist learning to specifically explain and schedule all steps of a project as if it were a clock, ensuring that education is achieved effectively and target behaviors are learned for the achievement of the goals (Mechlova & Malcik, 2012).

Learning is caused by a measurable and consistent link between the stimulant and the reaction (Zhou, 2004), and learning is believed to have occurred when a shift in behavior occurs as a result of the stimulant and the resulting reaction being repeated (Mechlova & Malcik, 2012; Schunk, 2014). There should be no doubt about what the stimulant contributing to the behavior is in this approach, which describes learning as enhancing the stimulant-reaction bond. The primary function of education in the learning process is to establish the stimulus-reaction relationship (Ertmer & Newby, 2016). As a result, starting the procedure with a single normal, context-free stimulant is suggested (McKenna & Laycock, 2004).

Learning is explained in a behaviorist teaching context or content by the stimulant, response, and reward/punishment loop associated with the reaction. The pupil must respond to an ambient stimulant in order to complete a behaviorist learning session, and the student is required to react (Kay & Kibble, 2016). The subject is one of the most powerful stimulants that forces people to react and allows them to respond. Other stimulants should be used as they contribute to the response, but questions are a major stimulant in educational environments and resources. According to Bognar (2016), teaching manuals provide a system of fractured and elaborated sequence in the behaviorist method. Statements and concerns make up this structure. If a student correctly answers a question, the process would encourage them to move on to the next step. The student's correct answer is seen as a result of good conditioning, and the behaviorist approach continues the behavioral improvement by encouraging correct responses (Boghossian, 2006).

There can be only one correct answer to the question used in the behaviorist environment or content. The answer must be straightforward enough that the learner may determine if their response is right or incorrect. There should be no delay in deciding on prizes and fines.

Furthermore, since students are non-reflective learners (Boghossian, 2006), open-ended questions requiring explanation should be avoided, and multiple-choice questions should have as few options as possible. For questions with few options, it is not a challenge for the student to find the right answer by trial and error (Aliakbari et al., 2015). Learning will occur as a result of a reward obtained as a result of a correct answer discovered by chance (Kay & Kibble, 2016; Aliakbari et al., 2015).

Once the stimulant-reaction relationship is formed, the behaviorist approach requires repetitions and the use of the reward/punishment loop to improve the behavior. After the behavior is shown, incentive or penalty is offered, with reward aiming for permanence if the behavior is right and punishment aiming for an improvement in the behavior if it is incorrect (Kay & Kibble, 2016; Aliakbari et al., 2015). There is only one accurate response to the stimulant that is rewarded, and all other responses are deemed incorrect and require penalty (Burton et al., 2004). The incentive is the feedback, which makes the response lasting or guarantees understanding. The student becomes inspired when he is praised for his actions, and repeated incentives stimulate the intrinsic incentive function that results from achievement. When it comes to punishment, it is used in the event of a bad response (Kay & Kibble, 2016; Aliakbari et al., 2015). In addition to specific incentives and consequences to be provided as guidance during the learning process, informative feedback stating whether the behavior in question is right or incorrect is also available (Burton et al., 2004).

The pupil responds to the stimulant presented in a behaviorist learning environment or content. The pupil is rewarded or punished depending on how he or she reacts. The pupil exhibits a behavior in the classroom environment, provides input, and learns at his own pace as a result. As a result, learning environments or materials based on behaviorist learning philosophies can be designed around one-to-one learning and organized around the self-study theory (Bognar, 2016; Kay & Kibble, 2016; Burton et al., 2004). Furthermore, in his total learning philosophy, Bloom presented this principle as a complete performance metric (Wong & Kang, 2012).

Learning tasks or contents all at once is not always possible. Skinner (1986) suggested the small steps theory as a solution to this problem. If the behavior is troublesome or complex, the material can be broken down into the smallest components and implemented in a sequential manner (Clemons, 2006). The pupil is not permitted to move on to the next assignment until all prior learning tasks have been completed successfully (Bognar, 2016). According to some scholars, in the behaviorist approach, tasks for the realization of measurable behaviors can be ordered in a simple-to-complex and easy-to-difficult sequence (Deubel, 2003). It may be argued that Skinner's programmed learning process's minor steps theory applies to this progression from basic to complicated or quick to difficult (Akgün & Akgün, 2011).

Education takes place in an orchestrated way of testing in a behaviorist learning setting or content (Tamim & Grant, 2016). Since the procedure is focused on achieving the desired measurable behaviors, progress is defined as the student completing the assignment, while failure is defined as the student unable to complete the task. Both sequenced assignments should be assessed separately in order to be efficient (Mechlova & Malcik, 2012). Any of the sequenced tasks acts as the stimulant for the next challenge in a learning environment or content based on a behaviorist approach, and students are compelled to respond to these stimulants. As a result, since learning occurs in the stimulant, reaction, and reward/punishment system, and the pupil cannot advance to the next task without providing a reasonable response to a stimulant in the sequenced tasks, it can be argued that learning can only progress by learning. Only the extent of recall can be checked

whether an appraisal task is performed at the conclusion of an unblocked phase. To put it another way, the same or very close questions should be used, and students should be evaluated by the same criterion. It should not be forgotten that the aim is to create a clear stimulant-reaction connection. Although Khalil & Elkhider (2016) claimed that in addition to multiple-choice questions, education recall exercises can be used as evaluation instruments, Ertmer & Newby (2013) concluded that role analysis, behavioral targets, and criteria-based assessment are the forms of assessment that can be included in behaviorist education systems.

LITERATURE REVIEW

Online Learning Systems and the Use of Technology in Teaching and Assessment

Many comprehensive reviews on the efficacy and drawbacks of online learning systems for university students have been written. According to the literature, an online learning environment is “access to learning opportunities through the use of technology” (Moore et al., 2011). With the introduction of the internet and the rapid advancement of technology, online learning programs, e-learning, and other types of distance learning dependent on technical solutions have become more common (Bacow et al., 2012a; Moore et al., 2011; Yadegaridehkordi et al., 2019). Some colleges, for example, have created courses that combine the advantages of online learning with conventional Face-To-Face (F2F) learning (Fortin et al., 2019). Online learning programs are extremely important and have many advantages, including expanded technological knowledge, enhanced instructional efficiency, improved learning outcomes, accessibility, and power (Fortin et al., 2019; Turnbull et al., 2021). According to Chugh (2010), “e-learning is a placed phenomenon that occurs in various contexts and, if implemented appropriately, can provide an optimal platform for peer participation while also providing educational, social, and psychological benefits”. Accounting curricula are especially reliant on technology, and many innovations are important to these programs. Blogs, wikis, bulletin board services, electronic mail, audio podcasting (podcasts), video podcasting (vodcasts), chat rooms, audio conferencing, and video conferencing, for example, are all important technologies for accounting curricula, according to Chugh (2010). According to Kotb, et al., (2019), IT is an important topic that should be discussed in accounting curricula to counter business changes and improve graduates' employability. Uwizeyemungu, et al., (2020) found that one of the seven basic competencies needed by accountant recruiters is technology. Students value the use of technologies and an online learning environment in evaluation (Helfaya, 2019), and accounting students' success increases as they take online tests (Aisbitt & Sangster, 2005). The amount of time students spent using online instructional tools and their final exam results in accounting courses have a favorable and meaningful connection (Perera & Richardson, 2010). Duncan, et al., (2012) found that accounting students' performance is improved during online exams, especially in courses that provide synchronous and asynchronous interactions between students. Many advantages are claimed for online learning programs, including lower educational costs, more accessible access to instructional resources, and the ability to respond to space constraints (Bacow et al., 2012; Means et al., 2009; Moore et al., 2011). Prior research, on the other hand, has pointed out the drawbacks to online learning programs. The high cost of introducing online learning programs may be one of these barriers (Turnbull et al., 2021). Furthermore, an online learning environment necessitates close collaboration between students and teachers. Furthermore, formal university teaching and online learning programs are not supported by

accrediting bodies (Bacow et al., 2012; Moore et al., 2011; Perera & Richardson, 2010). Almaiah, et al., (2020) identified a number of barriers to online learning system acceptance, including a lack of financial resources, a lack of confidence, administrative issues, and technical issues.

E-learning is seen as a platform that assists students in preparing for courses by allowing them to practice from anywhere at any time. The majority of studies that track students' use of online services in the learning process focus solely on self-reported use. Although this method is understandable and helpful, students' opinions cannot be considered fully reliable proof of their learning (Potter & Johnston, 2006). As a result, little is understood about the relationship between how teachers use instructional tools and student learning outcomes. According to Huon, et al., (2007), research in the 1980s centered on the relationship between note taking and exam scores. While lecture notes were found to be useful, students who supplemented their lecture notes with notes taken from handouts and prescribed readings received the highest grades. According to Norton & Hartley (1986), the greater the number of references used by students, the better their exam score. With the advancement in instructional technologies, recent focus has shifted to the use of e-learning as a medium for facilitating the distribution of course materials (e.g., e-notes, PowerPoint presentations, videos) to students, as well as their participation in using them. Carroll's (1963) model is mentioned by Baragash & Al-Samarraie (2018) in their report. According to the research, students' engagement time is usually linked to their results. Previous studies (Bos & Brand-Gruwel, 2016) have confirmed this hypothesis, and the researchers conclude that the amount of time students spent actively participating in teaching will stimulate their learning. Questionnaires and evaluation are popular methods for assessing participation in conventional educational environments, according to Li & Baker (2018). Researchers have also used other available approaches to explore the connection between student participation and success in web-based courses (Hussain et al., 2018). Several research on online learning, according to Li & Baker (2018), used comprehensive log data from online learning sites to assess both behavioral and cognitive interaction (Crossley et al., 2016). Log data can be used to measure interaction which has several benefits. This method can be extended to a vast number of people in ways that polls or observations would be impractical or inefficient to do. Furthermore, the information can be retrieved easily and frequently. Researchers also use a range of frequency-type metrics to operationalize online interaction, such as the number of clicks and page visits or chat room entrances (Cocca & Weibelzahl, 2011), the number of tasks or evaluations completed (Thompson et al., 2012), and the number of discussion platform views, new posts generated, and comments provide (Thompson et al., 2012). The most widely used metrics of behavioral participation in large open online courses (MOOCs) are measurements of the amount or proportion of lectures viewed and assignments submitted by participants, since these are the most important behaviors in MOOCs (Crossley et al., 2016). Prior study has also shown a strong positive association between commitment and achievement across a wide range of testing studies and environments (Li & Baker, 2018). Participants that demonstrate greater levels of participation, such as further website visits (Cocca & Weibelzahl, 2011), video viewing (Crossley et al., 2016), task or appraisal completion (Thompson et al., 2012), debate site views and article contributions (Morris et al., 2005), are more likely to receive higher ratings, according to the literature. Bonafini, et al., (2017), for example, look at students' participation in a debate group (measured by the number of posts submitted) and when viewing videos (measured by the number of videos watched) and discover that it is linked to student achievement in the course. Students with high levels of interest in quizzes and materials received

higher grades on the final test, according to Mutahi, et al., (2017); as quoted by Hussain, et al., (2018). According to Atherton, et al., (2017), there is a connection between the use of course materials and student performance; students who consumed course content more often performed higher on exams and tests.

According to the findings, there is a favorable association between students' e-learning participation and their academic success. Many of the previous study, as Li & Baker (2018) point out, inferred similar relationships between participation and accomplishment in the whole population of participants (Balakrishnan & Coetzee, 2013) or a comparatively homogeneous sample, such as participants who commented on the website or who persevered to the end (Crossley et al., 2016). These broad conclusions can obscure more subtle variations in participants' motives and backgrounds, such as gender or nationality. Gender gaps in the use of the internet and computers, as well as in education, have been identified as an important topic for study, according to Chang, et al., (2014); Peng, et al., (2006), for example, show that there are gender gaps in university students' views and expectations of the internet. They say that male students have more positive feelings about the internet than female students. Durndell & Haag (2002) found that male students had a slightly more optimistic outlook toward the internet than female students, as well as higher internet self-efficacy. Males have higher computer self-efficacy and lower computer fear than females, according to Durndell & Haag (2002). Female students have a more optimistic outlook toward online education than male students, according to Dabaj (2009). Sullivan (2001) found substantial variations in male and female college students' interactions in an online learning atmosphere, as well as shy and silent college students' experiences in terms of versatility, face-to-face contact, self-discipline, and self-motivation. In an on-line programming course, Yukselturk & Bulut (2009) discovered that there were no statistically meaningful mean discrepancies between motivation and accomplishment in terms of gender. Similarly, Busch (1995) found no gaps between men and women in computing expectations or self-efficacy for simple computer tasks. However, in both word processing and spreadsheet applications, such variations were found while completing complex tasks. Liu & Chang (2010), who looked at how gender affected student blogging, found no substantial differences between male and female students. Another relationship studied by the researchers is how the relationship between student interest in e-learning and academic success varies by gender. Because of the highly globalized nature of education, Abeysekera (2008) argues that knowledge about the attitudes and learning habits of students from various societal cultures is crucial. About 4.6 million students' study in countries other than their own. According to forecasts, this number will double by 2020 (Study in Poland, 2018). If the experience is short-term, such as a few months in another country to achieve intercultural awareness and/or learn the language, or long-term, such as relocating to another country to complete a degree, studying abroad is a normal occurrence. The drive to expand higher education options for international students is driven by a variety of reasons, the most evident of which is economic. International students contribute to intercultural learning and greater awareness of diversity and global problems, in addition to generating much-needed income (Andrade, 2006). With mixed findings, researchers have looked at the variations in learning styles among students from various cultures. Many of the researchers focused on foreign students who are educated in Western countries. They emphasize the impact of their cultural experience or socio-cultural transition to a new social environment on their learning process (Abeysekera, 2008). The research shows that foreign students have a tough time adjusting to their new environment. Hechanova-Alampay, et al., (2002) discovered that they received less

social assistance than domestic students, owing to the absence of family and friends. Just a limited number of foreign students had strong friendships with domestic students, according to the report. This was attributed to a lack of opportunities and/or a desire for friendships with people from the same country. Zhao, et al., (2005) assess the rate of participation in educational programs of international and domestic students. International students are more engaged in some areas than American students, especially in their first year of college, and less engaged in others, according to the findings of the report. In terms of learning sophistication and student–faculty engagement, first-year international students outperformed their American counterparts. Computer technology was also used more commonly by first-year international students in course learning events. By their final year, international students' academic participation rates are close to those of American seniors. Ramsay, et al., (1999) discovered that first-year international students at an Australian university struggled to grasp lectures due to a lack of vocabulary and volume, as well as tutors who talked too quickly or offered insufficient feedback. Local applicants, on the other hand, considered a variety of courses and teachers to be problematic. International students identified the acquisition of critical thinking skills and guidance on writing skills as essential to learning, while local students mentioned joint research and peer support as helpful learning support structures. Tutors and lectures were beneficial to both. Similarly, according to the results of a recent study, the majority of foreign students enrolled in technology-mediated MBA programs face "extreme limitations" that prevent them from communicating effectively in an online world (Xiaojing et al., 2010). However, Butz & Askim-Lovseth (2015) found no statistically relevant variations in oral communication efficiency between domestic and international students. In Australia, international students blamed their lack of attendance on language barriers and their inability to comprehend lectures (Robertson et al., 2000). Ladd & Ruby (1999) found that they tend to work alone, corroborating the widely held belief that foreign students despise group work (Sarkodie-Mensah, 1998). International students did not take responsibility for their own studies, according to a report by Robertson, et al., (2000).

The researchers are looking into the behavior and success of students taking the international accounting course. The course is finished during the second semester of the first year of college. The primary goal of the international accounting course is to provide students with a foundational understanding of accounting principles and their global variations. The course delves into other areas of interest to accounting in the light of globalization, such as integration of accounting standards, International Financial Reporting Standards (IFRS), accounting harmonization in the European Union, comparative accounting, and other subjects. Over the last ten years, it has been delivered using the Moodle platform in the style of blended learning. The course is web-based for 40% of the time, with standard classes for the remaining 60%. Students are expected to familiarize themselves with the instructional resources, which include e-notes, PowerPoint slides, animations, and business correspondence, which are all available on the course's website. They are encouraged to complete mandatory and non-mandatory quizzes on the topics covered. Obligatory quizzes are calculation-based e-exercises that students must complete and submit using the Moodle online framework. Multiple choice e-tests are used in non-obligatory quizzes. Students perform tasks (calculation-based) and a necessary community project during typical courses. Team activities are done in groups of four students during typical courses. The composition of classes is left up to the students' choice. The number of points earned by students on the final (written) exam, mandatory quizzes (e-exercises), community assignment, and non-compulsory quizzes determines the final score for the course (e- tests).

DISCUSSIONS & CONCLUSIONS

The researchers reviewed the recent literature on online learning system adoption in the accounting education sense, identifying the key factors that contribute to the active use of online learning systems during the COVID-19 pandemic. This study provides useful information on the implementation and use of online learning programs in a variety of countries. As indicated in previous research (Almaiah et al., 2020; Turnbull et al., 2021; Uwizeyemungu et al., 2020; Yadegaridehkordi et al., 2019), reasons that improve the use of online learning systems include not only operational problems, but also individual-related factors and technology-related issues. These studies provide useful guidance for governments, educators, and scholars, allowing them to have a better understanding of the core characteristics of effective online learning system adoption. During the COVID19 timeframe, universities can improve the efficiency of their online learning systems while also taking into account the variables that have been discovered to affect the use of online learning systems. Controlling students' social exposure and attitude toward learning would, first and foremost, improve their understanding of the benefits and convenience of using the online learning system, while improving students' attitude toward using the online learning system. Second, professors and educators are urged to clarify the benefits of the online learning environment in order to increase students' awareness of its use. Students must also be taught how to use the online learning system's resources to make the transition go more smoothly. Third, creators of online learning systems should create systems that are user-friendly, simple to use, and manageable, and if users (students and instructors) find the online learning framework simple to use, they would be able to successfully enforce it. Fourth, university policymakers must embrace current legislation and laws in order to increase the implementation and use of online learning systems. Fifth, universities should allow students to use online learning systems by offering training courses that demonstrate the benefits of online learning systems and help students improve their IT skills. Sixth, successful use of the online learning system would be achieved if students have sufficient technical capabilities and a favorable experience of engaging with the online learning system. Overall, the findings of the studies provide new lessons and consequences for decision-makers who want to ensure that online learning platforms are adopted and used effectively during the COVID-19 pandemic. Any restrictions apply. First, self-reporting bias can be a problem, particularly when students are questioned about their academic accomplishments. As a result, prospective scholars may perform a qualitative analysis to learn more about the variables that influence online learning systems, independent of participant self-reporting bias. Second, when applying the findings of the studies to the background of a developing economy, some restraint should be exercised. As a result, prospective scholars will be able to base their study on the contexts of developing countries. 'E-learning is part of the current dynamic that characterizes educational environments at the beginning of the twenty-first century,' according to Sangra, et al., (2012). Like society, the concept of e-learning is continuously evolving. 'In higher education, e-learning is increasingly affecting educational processes, especially in the form of blended learning' (Nortvig et al., 2018). The impact of gender on student participation and success was another subject under review. Similarly, to Liu & Chang (2010); Yukselturk & Bulut (2009), the researchers found no substantial discrepancy between gender and students' use of online teaching materials. According to Bretag, et al., (2002), international students are less likely than local students to receive a higher score. They believe that socio-cultural and linguistic influences are to blame for the current situation. According to the

researchers, the number of their logs and points has a statistically significant, optimistic, and moderate linear relationship. The international students' subsample has a closer relationship than the domestic students' subsample. According to various studies, the association between students' e-learning participation and academic success varies by nationality. It's also a powerful motivation to keep developing and improving on-line courses, particularly if they're aimed at international students. They might not be able to get as much from face-to-face classes as domestic students due to language, cultural, or other reasons. It could be more comfortable and less distracting for them to engage with the instructor and the rest of the community using instructional tools, on-line quizzes, and forums.

REFERENCES

- Abdekhoda, M., Dehnad, A., Mirsaeed, S.J.G., & Gavvani, V.Z. (2016). Factors influencing the adoption of E-learning in Tabriz University of Medical Sciences. *Medical journal of the Islamic Republic of Iran*, 30, 457.
- Abeysekera, I. (2008). Preferred learning methods: Comparisons between international and domestic accounting students. *Accounting Education*, 17(2), 187–198.
- Aisbitt, S., & Sangster, A. (2005). Using internet-based on-line assessment: A case study. *Accounting Education: An international journal*, 14(4), 383–394
- Akgün, M., & Akgün, İ.H. (2011). Historical development of computer assisted instruction in the world and Turkey. *2nd International Conference on New Trends in Education and Their Implications*, 27-29
- Almaiah, M.A., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Education and Information Technologies*, 25, 5261–52
- Aliakbari, F., Parvin, N., Heidari, M., & Haghani, F. (2015). Learning theories application in nursing education. *Journal of Education and Health Promotion*, 4(2), 3-11.
- Al-Rahmi, W.M., Yahaya, N., Aldraiweesh, A.A., Alamri, M.M., Aljarboa, N.A., & Aljeraiwi, A.A. (2019). Integrating technology acceptance model with innovation diffusion theory: An empirical investigation on students' intention to use E-learning systems. *IEEE Access*, 7, 26797–26809
- Alshurafat, H., Beattie, C., Jones, G., & Sands, J. (2020). Perceptions of the usefulness of various teaching methods in forensic accounting education. *Accounting Education*, 29(2), 177–204.
- Andrade, M.S. (2006). International students in English-speaking universities. *Journal of Research in International Education*, 5(2), 131–154.
- Atherton, M., Shah, M., Vazquez, J., Griffiths, Z., Jackson, B., & Burgess, C. (2017). Using learning analytics to assess student engagement and academic outcomes in open access enabling programmes. *Open Learning: The Journal of Open, Distance and e-Learning*, 32(2), 119–136.
- Bacow, L.S., Bowen, W.G., Guthrie, K.M., Lack, K.A., & Lon, M.P. (2012). *Online learning systems in US higher education*. ITHAKA
- Balakrishnan, G., & Coetzee, D. (2013). *Predicting student retention in massive open on-line courses using hidden Markov models*. Electrical Engineering and Computer Sciences, University of California at Berkeley.
- Baragash, R.S., & Al-Samarraie, H. (2018). Blended learning: Investigating the influence of engagement in multiple learning delivery modes on students' performance. *Telematics and Informatics*, 35(7), 2082–2098.
- Barnard-Brak, L., Paton, V.O., & Lan, W.Y. (2010). Profiles in self-regulated learning in the online learning environment. *International Review of Research in Open and Distributed Learning*, 11(1), 61–80
- Bidabadi, N.S., Isfahani, A.N., Rouhollahi, A., & Khalili, R. (2016). Effective teaching methods in higher education: Requirements and barriers. *Journal of advances in medical education & professionalism*, 4(4), 170
- Boghossian, P. (2006). Behaviorism, constructivism, and Socratic pedagogy. *Educational Philosophy and Theory*, 38(6), 713-722.
- Bognar, B. (2016). Theoretical backgrounds of e-learning. *Croatian Journal of Education*, 18(1), 225- 256.
- Bonafini, F.C., Chae, C., Park, E., & Jablockow, K.W. (2017). How much does student engagement with videos and forums in a MOOC affect their achievement? *Online Learning*, 21(4), 223–240.
- Bos, N., & Brand-Gruwel, S. (2016). Student differences in regulation strategies and their use of learning resources: Implications for educational design. *In Proceedings of the Sixth international Conference on learning Analytics & knowledge*, 344–353. New York.

- Bretag, T., Horrocks, S., & Smith, J. (2002). Developing classroom practices to support NESB students in information systems courses: Some preliminary findings. *International Education Journal*, 3(4), 57–69.
- Burton, J.K., Moore, D.M., & Magliaro, S.G. (2004). Behaviorism and instructional technology. In D.H. Jonassen. *Handbook of Research for Educational Communications and Technology*, (2nd edition). Mahwah, NJ: Lawrence Erlbaum.
- Busch, T. (1995). Gender differences in self-efficacy and attitudes toward computers. *Journal of Educational Computing Research*, 12(2), 147–158.
- Butz, N.T., & Askim-Lovseth, M.K. (2015). Oral communication skills assessment in a synchronous hybrid MBA programme: Does attending face-to-face matter for US and international students? *Assessment & Evaluation in Higher Education*, 40(4), 624–639.
- Carroll, J. (1963). A model of school learning. *Teachers College Record*, 64(8), 723–733.
- Chang, C.S., Liu, E.Z.F., Sung, H.Y., Lin, C.H., Chen, N.S., & Cheng, S.S. (2014). Effects of on-line college student's internet self-efficacy on learning motivation and performance. *Innovations in Education and Teaching International*, 51(4), 366–377.
- Chugh, R. (2010). *E-learning tools and their impact on pedagogy*. In K. J. Editors: Ubha DS (Ed.), *Emerging Paradigms in Commerce and Management Education*, 58–81. Khalsa College Press, Patiala, India: GSSDGS.
- Clemons, S.A. (2006). Constructivism pedagogy drives redevelopment of CAD course: A case study: Rather than feeding information to the student through direct instruction, the teacher is maintaining the role of facilitator in the learning process. *The Technology Teacher*, 65(5), 19-22.
- Cocca, M., & Weibelzahl, S. (2011). Disengagement detection in on-line learning: Validation studies and perspectives. *IEEE Transactions on Learning Technologies*, 4(2), 114–124.
- Crossley, S., Paquette, L., Dascalu, M., McNamara, D.S., & Baker, R.S. (2016). Combining clickstream data with NLP tools to better understand MOOC completion. In *Proceedings of the Sixth international Conference on learning Analytics & knowledge*, 6–14, New York: ACM.25-2.
- Dabaj, F. (2009). The role of gender and age on students' perceptions towards on-line education. Case study: Sakarya university, vocational high school. *The Turkish Online Journal of Educational Technology*, 8, 120–123.
- Deubel, P. (2003). An investigation of behaviorist and cognitive approaches to instructional multimedia design. *Journal of educational multimedia and hypermedia*, 12(1), 63-90.
- Durndell, A., & Haag, Z. (2002). Computer self-efficacy, computer anxiety, attitudes towards the internet and reported experience with the internet, by gender, in an East European sample. *Computers in Human Behavior*, 18(5), 521–535.
- Duncan, K., Kenworthy, A., & McNamara, R. (2012). The effect of synchronous and asynchronous participation on students' performance in on-line accounting courses. *Accounting Education*, 21(4), 431–449
- Ertmer, P.A., & Newby, T.J. (2013). Behaviorism, cognitivism, constructivism: Comparing critical features from an instructional design perspective. *Performance Improvement Quarterly*, 26(2), 43-71.
- Ertmer, P.A., & Newby, T.J. (2016). *Learning theory and technology*. In *The Wiley Handbook of Learning Technology* (Eds. N. Rushby & D.W. Surry) Chichester: John Wiley & Sons.
- Fortin, A., Viger, C., Deslandes, M., Callimaci, A., & Desforges, P. (2019). Accounting students' choice of blended learning format and its impact on performance and satisfaction. *Accounting Education*, 28(4), 353–383
- Gómez-Ramírez, I., Valencia-Arias, A., & Duque, L. (2019). Approach to m-learning acceptance among university students: An integrated model of TPB and TAM. *International Review of Research in Open and Distributed Learning*, 20(3).
- Gruszczynski, L. (2020). The Covid-19 pandemic and international trade: Temporary turbulences or paradigm shift? *European Journal of Risk Regulation*, 337 - 342.
- Hechanova-Alampay, R., Beehr, T.A., Christiansen, N.D., & Van Horn, R.K. (2002). Adjustment and strain among domestic and international student sojourners: A longitudinal study. *School psychology international*, 23(4), 458–474.
- Helfaya, A. (2019). Assessing the use of computer-based assessment-feedback in teaching digital accountants. *Accounting Education*, 28(1), 69–99
- Huon, H., Spehar, B., Adam, P., & Rifkin, W. (2007). Resource use and academic performance among first year psychology students. *Higher Education*, 53(1), 1–27.
- Hussain, M., Zhu, W., Zhang, W., & Abidi, S.M.R. (2018). Student engagement predictions in an e-learning system and their impact on student course assessment scores. *Computational Intelligence and Neuroscience*.
- Kay, D., & ve Kibble, J. (2016). Learning theories 101: Application to everyday teaching and scholarship. *Advances in Physiology Education*, 40, 17-25.

- Khalil, M.K., & Elkhider, I.A. (2016). Applying learning theories and instructional design models for effective instruction. *Advances in Physiology Education*, 40, 147-156.
- Kotb, A., Abdel-Kader, M., Allam, A., Halabi, H., & Franklin, E. (2019). Information technology in the British and Irish undergraduate accounting degrees. *Accounting Education*, 28(5), 445-464
- Ladd, P.D., & Ruby, R. (1999). Learning style and adjustment issues of international students. *Journal of Education for Business*, 74(6), 363-367.
- Litherland, K., Carmichael, P., & Martínez-García, A. (2013). Ontology-based e-assessment for accounting education. *Accounting Education*, 22(5), 498-501
- Li, Q., & Baker, R. (2018). The different relationships between engagement and outcomes across participant subgroups in massive open On-line courses. *Computers & Education*, 127, 41-65.
- Liu, E.Z.F., & Chang, Y.F. (2010). Gender differences in usage, satisfaction, self-efficacy, and performance of blogging. *British Journal of Educational Technology*, 41(3), E39-E43.
- McKenna, P., & Laycock, B. (2004). Constructivist or instructivist: Pedagogical concepts practically applied to a computer learning environment. *ACM SIGCSE Bulletin*, 36(3), 166-170.
- Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). Evaluation of evidence-based practices in on-line learning: A meta-analysis and review of on-line learning studies.
- Mechlova, E., & Malcik, M. (2012). ICT in changes of learning theories. *2012 IEEE 10th International Conference on Emerging eLearning Technologies ve Applications (ICETA)*, 253-262.
- Moore, J.L., Dickson-Deane, C., & Galyen, K. (2011). e-Learning, on-line learning, and distance learning environments: Are they the same? *The Internet and Higher Education*, 14(2), 129-135
- Morris, L.V., Finnegan, C., & Wu, S.S. (2005). Tracking student behavior, persistence, and achievement in on-line courses. *The Internet and Higher Education*, 8(3), 221-231.
- Mutahi, J., Kinai, A., Bore, N., Diriye, A., & Weldemariam, K. (2017). Studying engagement and performance with learning technology in an African classroom. In *Proceedings of Seventh International Learning Analytics & Knowledge Conference* (148-152), Vancouver.13-17.
- Norton, L.S., & Hartley, J. (1986). What factors contribute to good examination marks? The role of notetaking in subsequent examination performance. *Higher Education*, 15(3-4), 355-371.
- 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. *The Electronic Journal of e-Learning*, 16(1), 46-55.
- Peng, H., Tsai, C.C., & Wu, Y.T. (2006). University students' self-efficacy and their attitudes toward the internet: The role of students' perceptions of the internet. *Educational Studies*, 32 (1), 73-86.
- Perera, L., & Richardson, P. (2010). Students' use of on-line academic resources within a course web site and its relationship with their course performance: An exploratory study. *Accounting Education: An international journal*, 19(6), 587-600
- Potter, B.M., & Johnston, C.G. (2006). The effect of interactive on-line learning systems on student learning outcomes in accounting. *Journal of Accounting Education*, 24(1), 16-34.
- Ramsay, S., Barker, M., & Jones, E. (1999). Academic adjustment and learning processes: A comparison of international and local students in first-year university. *Higher Education Research & Development*, 18(1), 129-144.
- Robertson, M., Ine, M., Jones, S., & Thomas, S. (2000). International students, learning environments and perceptions: A case study using the Delphi technique. *Higher Education Research & Development*, 19(1), 89-102.
- Sangra, A., Vlachopoulos, D., & Cabrera, N. (2012). Building an inclusive definition of E-learning: An approach to the Conceptual framework. *The International Review of Research in Open and Distributed Learning*, 13(2), 145-159.
- Sarkodie Mensah, K. (1998). International students in the US: Trends, cultural adjustments, and solutions for a better experience. *Journal of Education for Library and Information Science*, 39 (3), 214-222.
- Schunk, D.H. (2014). *Learning theories: From an educational perspective* (M. Şahin, Trans.). Ankara: Nobel Yayıncılık.
- Skinner, B.F. (1986). Programmed instruction revisited. *Phi Delta Kappan*, 68(2), 10-103.
- Tamim, S.R., & Grant, M.M. (2016). Exploring instructional strategies and learning theoretical foundations of e-health and m-health education interventions. *Health promotion practice*, 1524839916646715.
- Thompson, J.R., Klass, P.H., & Fulk, B.M. (2012). Comparing on-line and face-to-face presentation of course content in an introductory special education course. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 35(3), 228-242.

- Torsello, M., & Winkler, M. (2020). Coronavirus-infected international business transactions: A preliminary diagnosis. *European Journal of Risk Regulation*, 396 - 401.
- Turnbull, D., Chugh, R., & Luck, J. (2021). *Issues in learning management systems implementation: A comparison of research perspectives between Australia and China*. Education and Information Technologies.
- Uwizeyemungu, S., Bertrand, J., & Poba-Nzaou, P. (2020). Patterns underlying required competencies for CPA professionals: a content and cluster analysis of job ads. *Accounting Education*, 29(2), 109–136.
- Xiaojing, L., Shijuan, L., Seung-hee, L., & Magjuka, R.J. (2010). Cultural differences in online learning: International student perceptions. *Journal of Educational Technology & Society*, 13 (3), 177–188.
- Yadegaridehkordi, E., Shuib, L., Nilashi, M., & Asadi, S. (2019). Decision to adopt on-line collaborative learning tools in higher education: A case of top Malaysian universities. *Education and Information Technologies*, 24(1), 79–102
- Yukselturk, E., & Bulut, S. (2009). Gender differences in self-regulated online learning environment. *Educational Technology & Society*, 12(3), 12–22.
- Wong, B.S., & Kang, L. (2012). Mastery learning in the context of university education. *The Journal of the NUS Teaching Academy*, 2, 206-22.
- Zhao, C.M., Kuh, G.D., & Carini, R.M. (2005). A comparison of international students and American student engagement in effective educational practices. *The Journal of Higher Education*, 76(2), 209–231.