Exploring The Benefits and Challenges of Hybrid Teaching and Learning in Higher Education and Improving the Employability of Students

Rahul Sharma[1], Dr. Shampa Nandi[2]
[1]*Research Scholar International School of Management Excellence University of Mysore,*
[2]*Co- Author, Professor Analytics & Marketing International School of Management Excellence*

Abstract- The spread of the COVID-19 pandemic has had far-reaching effects, including on the educational system. As more and more universities invest in tech-enhanced classrooms, the issue of optimizing these settings for learning arises. The synchronous hybrid or hybrid learning environment is a new kind of classroom that allows students in different locations to participate simultaneously in the same classes. Due to its novelty, research on the efficacy of synchronous hybrid learning is limited. The purpose of this research was to compile the best available data from across the globe to provide a snapshot of where the field is in terms of knowledge about the advantages, disadvantages, and best practices for implementing synchronous hybrid learning environments.

Keywords: Hybrid learning; Blended learning; Challenges and Opportunities; higher education; employability

I. INTRODUCTION

It is a teaching and learning style that incorporates traditional classroom techniques and online, computer-based exercises. This kind of instruction involves combining in-person and digital interactions and synchronous and asynchronous learning tools to provide the best possible setting for productive educational processes. Hybrid learning is an approach to education that combines online and in-person instruction. Both the learner and the instructor should be in the same room for there to be a natural hybrid learning environment. Despite this, students should be able to utilize digital tools for learning to exert some influence over the pace or content of their education. Like this initiative, the flipped classroom concept seeks to use technology to reorganize the learning experience and make the most of crucial face-to-face time in the classroom. Students in a flipped classroom model would be given access to course materials online, through a cloud-based learning platform, at their convenience. The instructor can impart most of the essential information to the students before each lesson by providing materials like video lectures, podcasts, recordings, and articles. As a result, instructors will have more time to actively engage students in the class via activities, debates, and other means.

Fig. 1 Two models of synchronous hybrid learning

On the left is an example of a "Remote Classroom," while on the right is an example of a "Hybrid Virtual Classroom." Students physically present and those located elsewhere participate in both of these learning environments. It is also called "Here or There" (HOT) instruction [1] because of the binary nature of the choices involved in the learning and teaching process. Students' whereabouts during a lecture distinguish the Remote Virtual Classroom from the Hybrid Virtual Classroom. One group of students attends class on campus while a second group attends class from a distant location (and can be seen on the screen in the upper left corner of Fig. 1) in real-time [2]. Hybrid virtual classrooms allow for simultaneous participation by students on campus and online [3]. Adult students, as well as students who are overseas or unwell for an extended length of time, may take part in the actual session and engage at a distance with all the students and the instructor from whatever location they want, thanks to this teaching technique.

A. Employability and its measurement in higher education

Graduate employability has become more aligned with higher education policy in many nations due to economic uncertainties, growing graduate numbers, and rising costs associated with higher education studies (see [4]). Despite this, statistics on college grads focus on employment rather than employability. Most national censuses and collections of graduate destinations only inquire about the job respondents spend the most time in, which is at odds with the realities of the modern labour market, which comprises non-linear career paths and several concurrent employment. Nonetheless, the statistics are utilized as stand-ins for graduate employability and have far-reaching implications for municipal and regional policy [5]. Employability was characterized as having a "dynamic adaptive aspect" [6] in line with labour markets into which students transitioned, expanding the scope of the research beyond the issue of whether a graduate is employable.

This research was conducted in speech pathology, where Brumfitt notes that the job market requires graduates to be "oven-ready." McAllister [7] warns, however, that recent grads may find themselves in a position of leadership with little to no guidance from their superiors or colleagues. Workforce policies, such as the growing emphasis on student portfolios, should be grounded on complete and reliable data [8]. This is especially important because today's students face an increasingly competitive and uncertain job market.

The research tested a hybrid learning environment and a design-centric approach to employability development in higher education. In this manner, we sought a deeper understanding of how students' employability was shaped through time by mining student data for insights and presenting those findings in various formats helpful to students, teachers, and program planners.

B. Learning and hybrid learning spaces

Hybrid learning models often describe educational environments that blend ICT applications with face-to-face learning. Also applicable here is the educational strategy known as "hybrid learning," which blends traditional classroom lecturing with online tutorials [9]. A careful balancing act between tried-and-true and forward-thinking pedagogical approaches is required when considering technology's place in the classroom, where the student's presence ultimately determines success. The innovative property that activities inside hybrid learning environments create data is made possible by combining several modalities to establish effective synergy. Individual and group learning processes may both be tracked using this information. They might also facilitate "double loop learning" by providing helpful information for both students and teachers.

Typically, a student's study is in a private area. Students use the engagement tactics they have found to be most effective for them within the confines of the learning space, whether it is a classroom, an online forum, or any other kind of educational environment. There is agreement that conducive learning environments facilitate productive learning activities and that positive learning experiences lead to positive results. It is not always obvious, but deep and significant ties are often between where you are and what you learn. Complex, "changing assemblages including human people and things: material, digital, and hybrid" [10] entail an appreciation for complexity if you want to comprehend them. As may be expected, qualitative research dominates in such in-depth endeavours.

Educators at all levels are now debating the best approach to pairing students with classrooms, and many of them are looking to innovation as a means to enhance the teaching and learning process. Therefore, some authors define the learning area as a location of interaction [11] because it moderates pedagogical activity. The relationship between the physical environment and the instructional strategy yields mutually beneficial results. This has implications for developing critical thinking and problem-solving skills among students.

Contemporary learning environments, both within and outside of traditional classrooms, take several forms as a result of the evolution of many pedagogical approaches. In this regard, technology is a critical transforming force, as proven every day by the effect of digital literacy on a teacher's pedagogical practice. Examples of such places include electronic portfolios (e-portfolios), which may be used for various purposes, including "showcasing" one's work to future employers or serving as a tool for self-improvement and feedback from teachers and peers. For professionals, reflective practice is the process of being conscious of their implicit knowledge and learning from their experiences, as described by Schön [12]. Students are prompted to contemplate their education, identity, and future via the use of a reflective tool such as an e-portfolio or online self-reflection embedded in a unique learning environment [11]. This underscores the opportunity for students actively participating in hybrid learning environments to adopt reflective behaviours early in their studies in order to "test on" numerous personas as they establish identity salience and participate proactively in employability development.

Hybrid classrooms may also include student-teacher-researcher interactions to improve education further. The student is both the "researched" and a vital element of the research design in this case. Participation in research-based education creates a hybrid learning environment in which students and instructors may experience learning in novel ways. Students are at the centre of the collaborative acts detailed in this research, which opens the door to increased innovative actions by curricular managers. A flexible learning environment is one in which students work autonomously in learning settings where the conventional lecture has been abandoned, such as via more instances of collaborative and self-directed work. A learning area may facilitate the transition away from reliance on teacher-led instruction as material becomes accessible on demand.

II. LITERATURE REVIEW

To succeed in the modern world, education must use technology. Educators' roles have shifted from information disseminators to facilitators of student engagement and learning due to the widespread use of technology in the classroom [13]. In addition, as Shadiev & Sintawati [14] proposed, technology facilitates intercultural education in various ways. Technology may also play a supporting role in individualized learning, which improves students' classroom performance [15]. E-Learning is a forward-thinking approach to education because it can be tailored to meet the needs of a wide range of individuals [16]. This is achieved by allowing for the use of a wide variety of educational technology approaches, rethinking traditional approaches to education, and improving efficiency and efficacy. As Strydom [17] points out, incorporating eLearning courses within existing university systems is only possible with the buy-in of teachers and students. According to Volery and Lord [18], the rapid acceleration of technological progress has enabled higher education institutions to improve the quality of their student's learning through the introduction of eLearning courses, which are in direct opposition to social requirements and permit the efficient use of available resources. However, current eLearning tools still need to be improved. This deficiency might hamper globalization by preventing colleges from educating a larger population. The most challenging part of the COVID-19 dilemma was figuring out how well existing higher education systems would handle the sudden introduction of new technologies.

Raes et al., 2019 presented a comprehensive assessment of the literature on what is known about synchronous hybrid instruction. From 2003-2017, 47 scholarly articles were reviewed, all of which focused on the advantages and disadvantages of synchronous learning spaces, in which students from various locations at the same time engage in learning activities. A closer inspection of the prospects

highlighted in their analysis reveals that most of the prior research was focused on qualitative studies and restricted educational experiments assessed over short periods (typically a single course) [19].

Still, Raes et al. found that the organizational benefits of synchronous hybrid teaching stood out above all others. The number of pupils who stopped attending school decreased, and kids in remote locations had improved access to education as a result [20]. This would help schools with dwindling youth populations accommodate disadvantaged kids and expand their educational prospects [21]. Students benefitted significantly from online learning since they were allowed to take classes and research subjects that were not available at their local institution. Experts and guest lecturers may be more easily integrated into hybrid courses, they said, adding an essential dimension to students' exposure to global issues in the classroom [22].

Several articles highlight the increased autonomy and more robust social relationships felt by in-person students compared to those of their online counterparts and between the lecturer and the students. As studies have shown, the possibility for planning and the feeling of control are both improved in a synchronous hybrid learning environment [23]. Some sources highlight the importance of having skills typical of jobs in the Fourth Industrial Revolution, such as the ability to learn on the job and hands-on familiarity with the tools and technology of the modern workplace. Raes et al. lament the paucity of research on the differences between in-person and online learning environments. Despite this, they conclude that hybridizing the learning environment's pedagogical and administrative effects are manageable.

Many studies have examined the implications of online education for educators and shown how remote education necessitates a new kind of classroom. Amid a global pandemic like the one caused by COVID-19, the availability of a wide variety of eLearning tools helps bridge the knowledge gap and ensure everyone gets the information they need. Findings from previous studies have shown both good and negative aspects of online learning from the perspectives of students and instructors. The ability to study at one's own pace and in one's environment is highly appreciated by previous research on e-learning. Time savings, the ability to accommodate more students without scheduling issues, and lower overall faculty expenses are cited as the key advantages of the eLearning process by Wheatley & Greer [24]. Results from an analysis of students' attitudes toward E-assessment conducted by Romeu Fontanillas et al. [25] showed that students were very pleased with the course's e-assessment activities and found that they facilitated a more fruitful learning experience. Alhefnawi [26] studied how active lectures with accompanying online handouts (blackboard papers) impacted the grades of first-year engineering students. Students preferred dynamic lectures, which led to more ideal replies, even though both presentation methods had positive effects. The time and money saved by not having to travel particularly valuable in professions where knowledge is constantly evolving, as Bisciglia & Monk Turner [27] point out. Other researchers have pointed out that learners' satisfaction and, by extension, their motivation for eLearning may be affected by their participation in a community, even in eLearning-based education [28]. Research by Richardson et al. [29] indicated that students' social presence in an online learning environment significantly predicted their satisfaction with LMS-based courses. However, other studies suggest that eLearning courses had drawbacks in terms of the absence of clear and specific face-to-face interaction between learners and instructors or with other students; as a result, students might lose track of a learning process [30], while more technical difficulties might cause distress to users. Online course satisfaction may be increased by providing enough training to instructors and students in using the technology [31]. However, it takes time for everyone to adjust to the introduction of new technology and the inevitable disruptions in communication that accompany it. Teacher inexperience with eLearning (p. 32), a lack of instructional assistance [33] and improper course preparation are all noted as drawbacks in the research. The benefits of eLearning may be improved if these concerns are addressed. Course content that is technical, mathematical, or scientific may be too difficult for certain users to grasp, resulting in inefficient delivery of learning results. Students also cited technical issues as significant roadblocks to eLearning. Similar research was undertaken by Ibrahim et al. [33] on online learning, particularly architectural design and foundational design courses. Results showed that

almost all (94.4% in the design courses and 48.8% in the introductory design courses) students had technological difficulties at some point throughout the semester. Problems with their computers and slow internet were among those they experienced. These results coincide with research on the pandemic's effects on higher education in Afghanistan by Noori [34]. According to Noori's qualitative research, virtually all students have technical and Internet-related worries, such as needing more money to upgrade their Internet package or access to constant electricity. In addition, students' poor impressions of online learning are primarily attributable to the need for instant feedback [35]. One of the goals of education is to foster positive relationships between teachers and students, but the conditions of eLearning and working or learning from home could be tough for many, especially those who have difficulties in areas like accessibility, obtainability, and the use of technology in learning [36].

III. BENEFITS OF HYBRID LEARNING

A number of recent studies detail the specifics of how to use the HL method in a variety of settings, the benefits and drawbacks of doing so, and how to evaluate HL and its layout. Multiple studies have shown the superiority of hybrid learning over either traditional classroom settings or digital-only alternatives (e,g, [37]). Several investigations have shown that students who participated in hybrid learning courses outperformed their counterparts in either face-to-face or online formats. In this setting, students can choose their study schedules and pace themselves according to their individual needs.

These findings are consistent with those of the United States Department of Education (2010), which found that "on average, students in online learning environments did better than those getting face-to-face teaching" (p. ix). Overall, students received hybrid learning courses more positively than typical lecture courses [38]. It is speculated that one of the reasons HL mode is more desirable and practical is the requirement to engage students in active learning through a variety of learning approaches, such as active peer communication, the processing of information gained through constant self-reflection, and "checking their understanding, organizing their knowledge, and making connections between what they've learned and what they already know." Hybrid learning can "recapture the values of higher education" since it is thought to reorganize pedagogical processes. Interaction, adaptability, and appropriate evaluation are the hallmarks of the hybrid approach to teaching and learning. Hybrid education may occur in various institutional, programmatic, and curricular settings. There is a wide variety of possibilities for implementing hybrid learning in the classroom:

- Skillfully combine in-person and virtual instruction.
- Completely rearranging the structure of the course to better facilitate student participation.
- Altering and substituting conventional meeting times for classes.

IV. OPPORTUNITIES FOR HYBRID LEARNING

Although the Hybrid learning approach does have its drawbacks, it also presents many promising new avenues for exploration. The following are some examples -

1. Adaptability: Students may decide whether they prefer online or classroom instruction. You may choose the learning method that works best for you. People who are unable to physically attend classes owing to other commitments have easy access to hybrid learning. Flexibility was also discovered in hybrid learning by Ilga [39] and Jun and Ling [40].
2. Self-Study: Whether it comes from inside or outside, motivation is the most critical aspect of a student's success in a self-study program. The key components of this approach are self-motivation and self-regulation. The flexibility of the hybrid approach allows pupils to study more effectively at their own speed. Improved innate drive and self-control are among the benefits of this approach. As both Ilga [39] and Jun and Ling [40] have noted, the hybrid learning strategy puts students in charge of their own education and allows them to go through the material at their own speed.
3. Easy to record data: Keeping tabs on every kid might be daunting, but with the right system in place, you can capture critical information quickly

and easily. The Hybrid method makes it simple to track students' grades, attendance, and other metrics.

4. Self-Discipline: Self-Control (or Self-Discipline) is a Crucial Component of Self-Regulated Learning. We develop our internal sense of discipline via the process of self-discipline. Students in a hybrid class still have to be responsible and stay in their seats throughout class time. Therefore, every student must exercise self-discipline to engage in effective learning. If you are not paying attention in class, you may as well not be there. The hybrid learning environment aids Independent study.
5. Helpful (Access to Worldwide Materials): Since we utilize a virtual mode of instruction while using a hybrid approach to learning, we have ready access to materials on the internet that pertain to our course material at any time. There is a fantastic chance to tap into a wide variety of worldwide resources. The instructor may instantly use digital resources to deepen their knowledge of the issue.
6. Better Student Retention: Regular classroom attendance is mandated for all studec or private schools. Tho, students who have trouble coming to class in person owing to other commitments may still participate frequently using a hybrid learning approach. The hybrid learning technique may be used to cut down on student absences and boost retention.
7. Development of Soft Skills: Learning and Practicing "Soft Skills" (Communication, Writing, Messaging, Emailing, Problem Solving, Time Management, Independence, Teamwork, Adaptability, etc.)
8. EdTech: EdTech, or "Education and Technology," refers to integrating new methods and tools into the classroom. The hybrid learning approach is a teaching strategy in which technology and traditional classroom instruction are combined significantly. Technology-mediated education describes this kind of blended approach to education.
9. Various Learning Strategies: The Hybrid Learning Approach Supports Both Synchronous and Asynchronous Strategies. Visual, verbal, aural, tactile, logical, social, and solitary learning is the focus of the seventh and final section. Hybrid courses combine traditional classroom instruction with online resources to accommodate students with varying learning preferences.

V. CHALLENGES OF HYBRID LEARNING

Some barriers to HL's smooth implementation stem from a lack of adequate resources and facilities. "lack of policy, faculty support, technology and computer skills, big class sizes, and insufficient technological resources," Smith and Hill [41]. These factors all work against the widespread adoption of hybrid learning (p. 108). The need for well-defined goals and objectives is only one of the many disadvantages of hybrid learning that Smith and Hill [41] pointed out (p. 389). As Mirriahi, Alonzo, and Fox [42] pointed out, the absence of staff capability to interact with HL raises the likelihood of misinterpreting the HL principles and practices, and the need for an institutional definition of hybrid learning presents its own set of difficulties. For instance, Mirriahi, Alonzo, and Fox [42] did a case study in South Africa to determine how professors and instructors feel about hybrid learning and to pinpoint any problems that could arise. "the lack of a policy on hybrid learning; insufficient training for staff; restricted access to the computer laboratory for students" were identified as obstacles to the implementation of BL. In addition, Smith and Hill [41] argue that, before using hybrid education, further training for the staff should be performed. An institution's governance and strategic leadership might play a role in achieving this goal.

VI. HYBRID LEARNING AS A FUTURE SOLUTION

However, 75% of respondents believe that a combination of online and face-to-face tactics would be advantageous, so a hybrid model may be the answer to the next stage. Rather than describing hybrid learning as a novel concept, Russell et al. (2018) define it as a paradigm for providing education that mixes traditional classroom teaching with online learning. As defined by Welker and Berardino [43], hybrid learning utilises both online and face-to-face learning methods. According to the results of their research, teachers reported feeling overburdened by implementing a hybrid model, which also needed several elements of the conventional classroom setting. Students liked the

freedom, ease of access, and objectivity but disliked the lack of assurance, fewer opportunities for social interaction, and increased workload. Hannay and Newvine [44] researched why students opted for online education and how they rated the quality and difficulty of their classes compared to those taught traditionally. They imply that eLearning is insufficient on its own. The research integrated the best parts of online education with more conventional classroom instruction to create a "hybrid" education model. According to the data, students choose online learning since it is easier to fit into their busy schedules. The institution in the case study has already begun implementing online education, having approved a hybrid model to be implemented beginning in the 2020–2021 academic year. The program's goal is to enhance student-instructor communication, student-student interactions, and active learning to promote deeper involvement with course material and more thorough formative evaluation feedback. To reconcile the gaps in the educational system due to the transition process leading up to and following the COVID-19 pandemic, governments must guarantee access to consistent communication tools, high-quality digital academic involvement, and endorsement of technology-enabled learning for students. The institution also intends to provide a more adaptable and resilient strategy by offering all theoretical courses online and practical courses hybrid based on the lab/studio set up and the course needs. There is a need for more research to analyze the hybrid-learning model, as well as testing of the hypothesis that the use of technology in classrooms makes the transition from the traditional educational structure to a blend-based model more effective (Lau, Yang, and Dasgupta (2020); Open University (2020); Ross (2020); Sanger (2020).

VII. CONCLUSION

A blended approach to education is still in the testing phase. Difficulties prevented it from being acceptable to all of us. It is still in its early stages, but the potential benefits to education worldwide are clear. It is time to start breaking down those walls. We have many issues now because of Covid-19. In such a climate, it isn't easy to maintain order inside educational institutions. The classroom instructor uses a web-based course to address student needs. However, many educators and students need to be used to learning in a technologically-based environment, and this presents challenges. Thus, both instructors and students need to be familiar with and capable of using hybrid learning strategies. If so, it has a good chance of being widely used as a teaching strategy. Hybrid learning is effective for self-regulation and might be used globally if all necessary resources are made available.

REFERENCE

[1] Zydney, J. M., McKimm, P., Lindberg, R., & Schmidt, M. (2019). Here or There Instruction: Lessons Learned in Implementing Innovative Approaches to Blended Synchronous Learning. TECHTRENDS, https://doi.org/10.1007/s11528-018-0344-z

[2] *Szeto, E., & Cheng, A. Y. N. (2016). Towards a framework of interactions in a blended synchronous learning environment: What effects are there on students' social presence experience? Interactive Learning Environments, https://doi:10.1080/10494820.2014.881391

[3] Butz, N. T., & Stupnisky, R. H. (2016). A mixed methods study of graduate students' self-determined motivation in synchronous hybrid learning environments. The Internet and Higher Education, https://doi: 10.1016/j.iheduc.2015.10.003

[4] Bennett, D. (2019). Graduate employability and higher education: Past, present and future. *HERDSA Review of Higher Education*, 5, 31–61. Retrieved from http://www.herdsa.org.au/herdsa-review-higher-education-vol-5/31-61

[5] NOMIS—Official Labour Market Statistics. (2015). *WP6112EW—Occupation by age (workplace population)*. Durham, UK: NOMIS. Retrieved from http://www.nomisweb.co.uk/census/2011/wp6

[6] Williams, S., Dodd, L. J., Steele, C., & Randall, R. (2016). A systematic review of current understandings of employability. *Journal of Education and Work*, 29(8), 877–901. https://doi.org/10.1080/13639080.2015.11022

[7] McAllister, L. (2005). Issues and innovations in clinical education. *Advances in Speech Language Pathology*, 7(3), 138–148.

[8] Speech Pathology Australia. (2016). *Speech pathology 2030—Making futures happen*. Melbourne: Australia.

[9] O'Byrne, W. I., & Pytash, K. E. (2015). Hybrid and Blended Learning. *Journal of Adolescent & Adult Literacy*, 59(2), 137–140. https://doi.org/10.1002/jaal.463.

[10] Ellis, R. A., & Goodyear, P. (2016). Models of learning space: Integrating research on space, place and learning in higher education. *Review of Education*, 4(2), 149–191. https://doi.org/10.1002/rev3.3056.

[11] Rowley, J., Bennett, D., & Dunbar-Hall, P. (2015). Creative Teaching with Performing Arts Students: Developing Career Creativities through the Use of ePortfolios for Career Awareness and Resilience. In Pamela Burnard, & Elizabeth Haddon (Eds.), *Activating Diverse Musical Creativities: Teaching and Learning in Higher Music Education* (pp. 241–259). London: Bloomsbury Academic.

[12] Schön, D. (1987). *Educating the reflective practitioner* (p. 355). San Francisco: Jossey-Bass Publishers.

[13] E.M. Onyema, E.C. Deborah, Potentials of Mobile Technologies in Enhancing the Effectiveness of Inquiry-based learning. Int J Educ (IJE), 2 (1) (2019), p. 1, 10.5121/IJE.2019.1421

[14] R. Shadiev, W. Sintawati, A review of research on intercultural learning supported by technology. Educ Res Rev, 31 (2020), p. 100338, 10.1016/j.edurev.2020.100338

[15] L. Zhang, J.D. Basham, S. Yang, Understanding the implementation of personalized learning: A research synthesis. Educ Res Rev, 31 (2020), p. 100339, 10.1016/j.edurev.2020.100339

[16] H. Hamidi, A. Chavoshi. Analysis of the essential factors for the adoption of mobile learning in higher education: A case study of students of the University of Technology, Telematics Inform, 35 (4) (2018), pp. 1053-1070, 10.1016/j.tele.2017.09.016

[17] F. Strydom Higher education learning outcomes assessment: international perspectives. Assessm Eval Higher Educ, 42 (3) (2016), pp. 492-494, 10.1080/02602938.2016.1139097

[18] T. Volery, D. Lord, Critical success factors in online education. Int J Educ Manage, 14 (5) (2000), pp. 216-223, 10.1108/0951354001034473

[19] Raes, A., Detienne, L., Windey, I., & Depaepe, F. (2020). A systematic literature review on synchronous hybrid learning: Gaps identified. Learning Environments Research, 23(3), 269–290. https://doi.org/10.1007/s10984-019-09303-z

[20] Amarin, N. Z. (2020). The Art of Teaching in Fusion Classroom Learning Situations. International Journal of Innovation, Creativity and Change, Volume 14, Issue 11, 2020(11). https://www.ijicc.net/index.php/volume-14-2020/214-vol-14-iss-11

[21] Ørngreen. (2015). Reflections on Design-Based Research: In Online Educational and Competence Development Projects. In J. Abdelnour Nocera, B. R. Barricelli, A. Lopes, P. Campos, & T. Clemmensen (Eds.), Human Work Interaction Design. Work Analysis and Interaction Design Methods for Pervasive and Smart Workplaces (Vol. 468, pp. 20–38). Springer International Publishing. https://doi.org/10.1007/978-3-319-27048-7_2

[22] Bell, J., Sawaya, S., & Cain, W. (2014). Synchromodal Classes: Designing for Shared Learning Experiences Between Face-to-Face and Online Students. International Journal of Designs for Learning, 5(1). https://doi.org/10.14434/ijdl.v5i1.12657

[23] Lakhal, S., Bateman, D., & Bédard, J. (2017). Blended Synchronous Delivery Modes in Graduate Programs: A Literature Review and How it is Implemented in the Master Teacher Program. Pre-print to appear: Bülow, M. W. (forthcoming). Designing synchronous hybrid learning spaces: Challe Collected Essays on Learning and Teaching, 10, 47–60. https://doi.org/10.22329/celt.v10i0.4747

[24] B. Wheatley, E. Greer, Interactive television: a new delivery system for a traditional reading course. J Technol Teacher Educ, 3 (4) (1995), pp. 343-350

[25] T. Romeu Fontanillas, M. Romero Carbonell, M. Guitert Catasús E-assessment process: giving a voice to online learners. Int J

Educ Technol Higher Educ, 13 (1) (2016), 10.1186/s41239-016-0019-9
[26] M.A.M. Alhefnawi Assessing the efficacy of online handouts and active lectures in learning outcomes at the engineering undergraduate level, Ain Shams Eng J, 12 (3) (2021), pp. 3375-3380
[27] M. Bisciglia, E. Monk-Turner Differences in Attitudes between On-Site and Distance-Site Students in Group Teleconference Courses, Am J Distance Educ, 16 (1) (2002), pp. 37-52, 10.1207/s15389286ajde1601_4
[28] K.D. Strang Measuring online learning approach and mentoring preferences of international doctorate students, Int J Educ Res, 48 (4) (2009), pp. 245-257
[29] J. Richardson, E. Hollis, M. Pritchard, J. Novosel -Lingat, Shifting Teaching and Learning in Online Learning Spaces: An Investigation of a Faculty Online Teaching and Learning Initiative. Online Learning, 24 (1) (2020),
[30] A. Yazici, I. Altas, U. Demiray, Distance education on the Net: A model for developing countries.Turkish Online Journal of Distance Education-TOJDE, 2 (2) (2001), pp. 24-35
[31] P. Ice, L. Kupczynski, R. Wiesenmayer, P. Philli p. Student perceptions of the effectiveness of group and individualized feedback in online courses, First Monday (2008),
[32] L. Zhang, From conceptions of effective teachers to styles of teaching: Implications for higher education. Learning and Individual Differences, 19 (1) (2009), pp. 113-118,
[33] A.F. Ibrahim, A.S. Attia, A.M. Bataineh, H.H. A li, Evaluation of the online teaching of architectural design and basic design courses case study: College of Architecture at JUST, Jordan. Ain Shams Eng J, 12 (2) (2021), pp. 2345-2353
[34] A.Q. Noori, The impact of COVID-19 pandemic on students' learning in higher education in Afghanistan. Heliyon, 7 (10) (2021), p. e08113, 10.1016/j.heliyon.2021.e08113
[35] R. Strong, Investigating Students' Satisfaction with eLearning Courses: The Effect of Learning Environment and Social Presence. J Agric Educ, 53 (3) (2012), pp. 98-110, 10.5032/jae.2012.03098
[36] B.J. Fraser, H.J. Walberg, Research on teacher–student relationships and learning environments: Context, retrospect and prospect. Int J Educ Res, 43 (1-2) (2005), pp. 103-109
[37] 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.
[38] Martínez-Caro, E. & Campuzano-Bolarín, F., (2011). Factors affecting students‟ satisfaction in engineering disciplines: traditional vs. blended approaches. European Journal of Engineering Education, 36(5), 473- 483.
[39] Ilgu, A. K. (2015). Faculty perspectives on benefits and challenges of hybrid learning. age, 26, 1.
[40] Jun, L., & Ling, Z. (2011) (2008). Student views of hybrid learning: A one-year exploratory study. Journal of Computing in Teacher Education, 25(2), 57-66.
[41] Smith, K., & Hill, J. (2019). Defining the nature of blended learning through its depiction in current research. Higher Education Research & Development, 38(2), 383-397
[42] Mirriahi, N., Alonzo, D., & Fox, B. (2015). A blended learning framework for curriculum design and professional development. Research in Learning Technology, 23(1), 28451.
[43] J. Welker, L. Berardino, Blended Learning: Understanding the Middle Ground between Traditional Classroom and Fully Online Instruction. J Educ Technol Syst, 34 (1) (2005), pp. 33-55, 10.2190/67fx-b7p8-pyux-tdup
[44] M. Hannay, T. Newvine, Perceptions of distance learning: A comparison of online and traditional learning. Merlot J Online Learn Teaching, 2 (1) (2006)