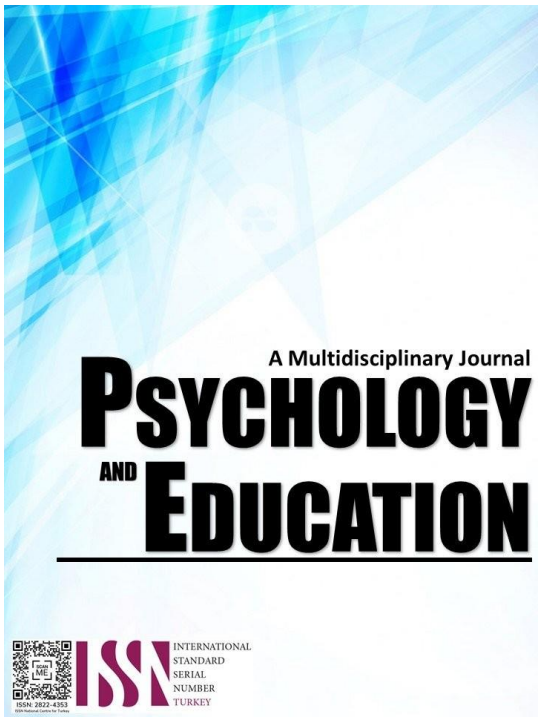
COMPLEMENTARY INSTRUCTION IN HYBRID LEARNING MODE: TRANSFORMING CLASSROOM PRACTICES THROUGH TECHNOLOGY



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Research Article

Complementary Instruction in Hybrid Learning Mode: Transforming Classroom Practices Through Technology

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Abstract

Education's globalization has already compelled the use of digital technologies. Internet systems were provided for conducting classes, exchanging resources, assessing students, and managing academic institutions' day-to-day operations. The main purpose of this descriptive study is to investigate how complementary instruction through digital technology realizes the goal of Hybrid learning. Challenges met by the teachers and students were also identified through open-ended survey form/questionnaire. Adopted instruments were used to shed light on the problems presented in this study. For the findings of the study, teachers were found moderately utilizing digital technology for instruction, where the majority of them utilized Powerpoint Presentations and that the skills of teachers in using digital media for instruction were noted at the basic user level. Among the 8 challenges met by the students, capacity to afford digital technology for learning got the highest mean. For the recommendations, teachers must explore other digital media resources for instruction to efficiently deliver quality instruction as complementary to Hybrid Learning. The school must support the skills enhancement of the teachers through Intervention program focusing on utilizing digital technology for teaching and learning by providing a capacity building for teachers on navigating the MS Office, Google Suites, Video Making, and Learning Management System.

Keywords: *complementary instruction, hybrid learning, digital technology, level of preparedness, utilization of digital technology*

Introduction

Education's globalization has already compelled the use of digital technologies. Internet systems were provided for conducting classes, exchanging resources, assessing students, and managing academic institutions' day-to-day operations (Runge, 2023). Since internet technology offers different educational learning applications and video conferencing for online instructions, the use of these platforms became significant to classroom instructions. The COVID-19 epidemic has pushed institutes to switch to online instruction in order to keep the education system running. Pandemic has caused significant changes in how instructors impart knowledge and how students interact with higher education (HE). Meanwhile, digital technology changes every day, it makes life easier to access information, to converse between teachers, students, parents and stockholders (United Nations, 2022). Hence, this will address the continuous operation of schools to account social exclusion. Thus, Verde (2021) and McKellar (2023) emphasized that school learning modality should conform to the society's situation.

Research Questions

The main purpose of this descriptive study is to investigate how complementary instruction through digital technology realizes the goal of Hybrid learning. Specifically, this study sought to answer the following questions:

1. What are the digital technology utilized by the teacher for instruction in hybrid learning?
2. How may the skills of teachers in utilizing the digital technology for instruction in hybrid learning be describe in terms of expertise?
3. What are the problems encountered by teachers on the use of digital technology for instructions?
4. What are the challenges encountered by the teachers in adapting hybrid learning modality?
5. What are the challenges encountered by the Students in adapting hybrid learning modality?
6. What intervention program may be propose to further capacitate teachers on the use of technology and digital media in classroom nowadays?

Literature Review

Hybrid Learning

Several teaching and learning approaches have been adopted to account for social exclusion, and learners' varied requirements. Hybrid is one such mode. Hybrid learning based on the integration of traditional face to face and online teaching-learning paradigms has become popular with the improvement of technology. This popularity creates a need for making a

reinterpretation of the findings of recent empirical studies conducted on the effectiveness of hybrid learning (Kazu, 2022). Creating a richer learning experience is the primary goal of hybrid learning. The students and teachers' adoption of digital technologies in the classroom is significant Neelakandan (2021) and Yu (2021). As cited by Funa (2023), the Philippines Educational System explored digital technology to provide instructions for students, the students will become more capable to utilize digital technology to attend classes and be able to always review recorded videos for mastery of the lesson. Hence, it provides a student center educational approach where the needs and demands of the students based on their status will be reached and no one will be left behind, especially working students. This is also where complementary instruction could happen. As a response to address the problem of schools due to the pandemic, Deped Order no. 50, series of 2022 allows K-12 private institutions to adapt blended learning or distance learning such as hybrid learning. By practice, the educational system in the Philippines utilized Hybrid Learning where technology and digital media mixed up with traditional instructor-led classroom activities to cater the needs of the students in times of pandemic (The Manila Times, 2023). However Sahar's (2020)articulated that despite students' positive feedback on hybrid learning as a tool for education, students are not satisfied with the kind of learning they receive from their instructors. Hence, students and teachers could still have challenges in adapting Hybrid Learning Modality. Nebrida (2022) emphasized that teachers and students are experiencing challenges in adapting hybrid learning.

Utilization of Digital Technology for Instruction

Digital technologies are a powerful instrument that can help improve education in various ways, such as making it easier for instructors to generate instructional materials and providing new methods for people to learn and collaborate (Haleem, 2022). Hybrid learning requires the teachers to adapt utilization of digital technology for instruction.Johnson (2016)emphasized that teachers used digital technologies with personal lives, however, when applied in classrooms, they encountered serious technical, logistical, and pedagogical problems, though Berrocoso (2021) revealed the most frequent types of teaching practice with ICT and the spaces where digital technologies are commonly used. Accordingly,Cuhadar (2018) implies that the technological competency level of teachers is intermediate or lower. Sevillano (2015)associates the problems stemming from the integration of digital technologies at the personal level with their underutilization or with their mechanical and educationally pointless use. WhileFalloon (2020)investigated that teachers understand the sort of competencies required to function productively, safely and ethically in diverse and increasingly in utilization of digital technologies for instruction in practice of Hybrid Learning. However, Mercader(2020) found out that teachers in higher education institutions do not use digital technologies for teaching where discipline influences their perception. The results suggest that professional barriers are the most prevalent and that the discipline of arts and humanities is where the most obstacles are perceived. Gairin (2020) concluded that there is a need for better professional development for teachers and more institutional involvement through strategic plans. The teachers utilize the most recent educational technologies. According to the University of Kansas (2021), in developed countries, the teachers' desks now frequently feature laptops, tablets, and cellphones, and the number of digital applications running learning-focused programs on these devices has soared. Over 63% of K–12 educators use technology daily in the classroom, up from 55% in 2016. Nowadays, social media is used by 41% of instructors, educational apps are used by 58%, and high-tech 3D printers are used by 21% of teachers. However, Shilpa (2021) highlighted that the teachers are experiencing challenges in the use of digital technology for instruction.

In the light of the above mentioned literature on hybrid learning in the classroom, this research explored on the following objectives: a) To determine the present practices of teachers with the utilization of digital technology for instruction in the classroom in terms of expertise level; b) To identify the challenges encountered by the teachers and students in adapting hybrid learning modality; and c) To propose an intervention program to further capacitate teachers and students on the use of technology and digital media in classroom nowadays. The assumption of this study was: Delivery of Instruction under Hybrid learning modality is complemented by digital technology, thus transforming the traditional practices in the teaching and learning process.

Methodology

This descriptive-survey method study focused on determining the utilization and skills of the teachers in digital technology for instruction in adapting Hybrid Learning Modality, giving students more flexibility to customize their learning experiences. Using a descriptive method, a summary statistic that

quantitatively describes and summarizes features from the collected information can be analyzed (Mann, 1995).

Participants

This study used stratified-random sampling where 3 selected private schools participated in this study. From the total number of teachers and students in the 3 senior high school participants, 5% margin of error was computed separately for the two (2) groups, resulted to 73 teachers and 102 students who became the study participants.

Instruments of the Study

The instrument of the study is a self-made questionnaire. This was validated by three experts and practitioner in the field of hybrid learning and educational technology.

Ethical Considerations

Adhering to the five (5) basic ethical principles: a) avoidance of harm, b) avoidance of deception; c) respect to privacy; d) the practice of confidentiality; and e) the notion of informed consent, the anonymity of the participants' personal information were carefully treated with confidentiality. Proper consent was secured to the school administration, teachers and the students before the conduct of the study. Participant's convenient time preference was also considered. Ethical considerations were observed in this study which is also paralleled to the policy and guidelines of RA 10173 or the Data Privacy Law of 2012 that protects individuals from unauthorized processing of personal information that is private, not publicly available; and identifiable, where the identity of the individual is apparent either through direct attribution or when put together with other available information.

Results

Digital Technology Utilized by the Teacher for Instruction in Hybrid Learning

Table 1 presented the mean descriptive statistics on the utilization of digital technology resources by teachers for instruction. It can be seen in the results that the teachers' utilization of digital technology resources for instruction rated as 4.10 were verbally interpreted as moderately utilized in Hybrid Learning Modality, since Cartens (2021) found out that teachers believed in utilization of digital technology could effectively impact the students' performance. This result contradicts Ansayam and Tan (2021) qualitative study where the findings reported that teachers used few Digital Instructional Materials for discussion or lecture, pre discussion, class activity, assessment, as main references, and as supplementary resources. It indicates that teachers were still utilizing non-digital technology for instruction while hybrid learning requires utilization of digital technologies (Najar, 2021). Meanwhile, most of the teachers utilized Powerpoint Presentations 4.44 with verbal interpretation moderately utilized.

Table 1. *Digital Technology Utilized by the Teacher for Instruction in Hybrid Learning*

Digital Technology Resources	*Mean*	*Verbal Interpretation*
1. Images (pictures, photographs, including from the Web)	4.36	Moderately Utilized
2. Presentations (e.g. PowerPoint, including from online sources)	4.44	Moderately Utilized
3. Word files (activity sheets/handouts/notes)	4.34	Moderately Utilized
4. Digital films/video (e.g. from YouTube)	4.16	Moderately Utilized
5. Audio recordings	4.01	Moderately Utilized
6. Simulations and 2D/3D animation	3.95	Moderately Utilized
7. Learning Management System	4.08	Moderately Utilized
8. Vlogs	3.81	Moderately Utilized
9. Social bookmarking	3.86	Moderately Utilized
10. Blogs and Microblogging (Twitter, Facebook, etc.)	4.01	Moderately Utilized
11. Open textbook (e-books)	4.10	Moderately Utilized
12. Open access research papers	4.03	Moderately Utilized
General Mean	4.10	Moderately Utilized

Skills of Teachers in using Digital Media for Instruction

Table 2 presents the skills of teachers in using digital media for instruction. The mean statistics result 2.04 which described the teachers' skills in using digital media for instruction as basic user level. It was found that the teachers have *basic user level* skills only in navigation of MS Word, Google Docs, MS Excel, Google Sheets, Google Slides, MS Powerpoint, Livestreams application for instruction to facilitate in-person classes and live streams at the same time. Their skills in setting-up a learning management system, in operating the computer with camera, in checking the specifications of laptop/computer to support hybrid learning and in video editing were also appraised to a *basic user level* only.

It can be seen in the table that items 11 and 13 got the same weighted mean of 1.95, the lowest mean scores in the results interpreted as with *basic user level* only. This could be interpreted that teachers are not that

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familiar in navigating the different functionalities of video editing applications that they are using in making ready-made videos to support hybrid learning. They have also limited knowledge in the production of their own instructional videos through the use of Video editing tools to support hybrid learning as manifested in the mean score of 1.95, interpreted as with *basic user level.*

Table 2. *Skills of Teachers in using Digital Media for Instruction*

Skills of Teachers in using Digital Media for Instruction	*Mean*	*Verbal Interpretation*
1. Navigation of MS word for instruction to facilitate in-person classes and live streams at the same time.	1.99	Basic User Level
2. Navigation of Google Docs online for instruction to facilitate in-person classes and live stream at the same time.	1.99	Basic User Level
3. Navigation of MS Excel for instruction to facilitate in-person classes and live streams at the same time.	2.04	Basic User Level
4. Navigation of Google Sheets online for instruction to facilitate in-person classes and live streams at the same time.	1.96	Basic User Level
5. Navigation of Google Slides for instruction to facilitate in-person classes and live streams at the same time.	2.01	Basic User Level
6. Navigation of MS PowerPoint Presentation for instruction to facilitate in-person classes and live stream at the same time.	2.14	Basic User Level
7. Utilization of Live streaming applications like Open Broadcast System for instruction to facilitate in-person classes and live stream at the same time.	2.12	Basic User Level
8. Setting-up a Learning Management System for instruction (e.g. moodle)	2.30	Basic User Level
9. Setting-up computer with camera for instruction to students who will attend livestream	2.01	Basic User Level
10. Checking the specifications of my laptop/computer if compatibility to support live streaming discussion the same time with in-person attendees	1.99	Basic User Level
11. Navigation of video editing applications to make ready-made instructional videos	1.95	Basic User Level
12. Production of instructional videos through the use of Video editing tools like Filmora etc. to support hybrid learning.	1.99	Basic User Level
13. Production of my own instructional videos through the use of Video editing tools to support hybrid learning.	1.95	Basic User Level
14. Production of instructional videos through the use of Video editing tools like OBS to support hybrid learning.	2.14	Basic User Level
15. Utilization of my computer/laptop in support for Hybrid Learning	1.99	Basic User Level
General Mean	2.04	Basic User Level

Problems Encountered by Teachers on the use of Technology for Instructions

Table 3 could be interpreted that teachers are lacking of training on technology-enabled learning, lacking of technical support in school, lacking of support, maintenance and repair ICTs, lacking of institutional policy for Technology-Enabled Learning, lacking of professional prestige, lacking of incentives to use Technology Enabled Learning, lacking of credit towards promotion, intimidated by technology, concerned about security issues on the Internet, inadequate availability of hardware and software, poor Internet access and networking in school, lacking of time to develop e-courses, lacking of instructional design to support for Technology-Enabled Learning, and the school has no role models to follow.

Table 3. *Problems Encountered by Teachers on the use of Technology for Instructions*

Problems Encountered by Teachers on the use of Technology for Instructions	*Mean*	*Verbal Interpretation*
1. Lack of training on Technology-Enabled Learning	3.48	Moderately Agree
2. Lack of technical support in the university	3.45	Moderately Agree
3. Lack of support, maintenance and repair ICTS.	3.40	Moderately Agree
4. Lack of institutional policy for Technology-Enabled Learning	3.42	Moderately Agree
5. Lack of professional prestige	3.33	Moderately Agree
7. Lack of incentives to use Technology Enabled Learning	3.42	Moderately Agree
8. Lack of credit towards promotion	3.45	Moderately Agree
9. Intimidated by technology	3.40	Moderately Agree
10. Concern about security issues on the Internet	3.49	Moderately Agree
11. Inadequate availability of hardware and software	3.47	Moderately Agree
12. Poor Internet access and networking in the university	3.56	Moderately Agree
13. Lack of time to develop e-courses	3.49	Moderately Agree
14. Lack of instructional design support for Technology-Enabled Learning	3.44	Moderately Agree
15. No coaching from school to effectively use Digital Technology for instructions	3.34	Moderately Agree
General Mean	3.44	Moderately Agree

Challenges encountered by the Teachers in adapting Hybrid Learning Modality

Table 4. *Challenges encountered by the Teachers in adapting Hybrid Learning Modality*

Challenges encountered by the Teachers in adapting Hybrid Learning Modality	*Mean*	*Verbal Interpretation*
1. Internet Connection	4.21	Strongly Agree
2. Personal Financial Capacity	4.04	Strongly Agree
3. Poor specifications of my Laptop/PC	3.99	Strongly Agree
4. No official orientation in Hybrid Learning Modality	3.90	Strongly Agree
5. Navigation on Digital technologies for Instruction	3.93	Strongly Agree
6. Personal Dedication to adapt Hybrid Learning Modality	3.81	Strongly Agree
7. Professional Dedication to engage in Hybrid Learning Modality	3.84	Strongly Agree
8. Time Management	3.92	Strongly Agree
9. Lesson Preparations for Varieties of Digital Instructional Materials	3.99	Strongly Agree
10. Students' capacity to afford digital technology for instruction.	4.15	Strongly Agree
General Mean	3.98	Strongly Agree

Table 4 presents the challenges encountered by the Teachers in adapting Hybrid Learning Modality. Among the 10 challenges met by teachers, *Internet Connection* got the highest mean score of 4.21, with *Strongly Agree* interpretation. Item 10, *"Students' capacity to afford digital technology for instruction"* is the second highest among the other challenges

encountered by teachers with a computed mean score of 4.15, interpreted as *Strongly Agree*. This means that the teachers have difficulties in connecting with the internet for an efficient implementation of hybrid learning modality. Teachers are also concerned with the capability of students to avail or afford to buy mobile devices like cell phones/Tablets and personal computers (PC). Most of the students also have difficulties in connecting with the internet.

Challenges encountered by the Students in Adapting Hybrid Learning Modality

Table 5 presents the challenges encountered by the Students in adapting Hybrid Learning Modality. Among the 8 challenges met by students, Capacity to afford digital technology for learning got the highest mean score of 4.86, with Strongly Agree interpretation. This indicated support on Flores (2021) 4 out of 10 Filipino Students lack distance learning technology. This result revealed that students are low in economic status and limited resources to avail digital technology for learning. Delfino (2019) emphasized the significance of students' personal dedication to learning. However, the data above indicated that the second to the highest challenges of students in adapting Hybrid learning Modality was the personal dedication to adapt hybrid learning modality with the mean score of 4.72 as strongly agreed.

Third to the highest was the financial capacity to afford attending hybrid learning modality with the mean score of 4.70 as strongly agreed. This agrees with Brillembourg (2023), that students are struggling to manage their finances to attend classes of Hybrid Learning Modality. Items 4 and 8 have the same mean score of 4.60 as strongly agree on the poor teachers' feedback on activities submitted and navigation on digital technologies for learning. Students rated also agree on difficulties of internet connection, poor specifications of laptop/PC, and Time Management. A proposed intervention program may be implemented to further capacitate teachers on the use of technology and digital media in todays' classroom and students to cope up with challenges in adapting Hybrid Learning Modality.

Table 5. *Challenges encountered by the Students in Adapting Hybrid Learning Modality*

Challenges encountered by the Students in adapting Hybrid Learning Modality	*Mean*	*Verbal Interpretation*
1. Internet Connection	3.57	Agree
2. Financial Capacity to afford attending hybrid learning modality	4.70	Strongly Agree
3. Poor Specifications of my Laptop/PC	3.45	Agree
4. Navigation on Digital technologies for learning	4.60	Strongly Agree
5. Personal Dedication to adapt hybrid learning modality	4.72	Strongly Agree
6. Time Management	3.50	Agree
7. Capacity to afford Digital technology for learning	4.86	Strongly Agree
8. Poor Teachers' Feedback on Activities Submitted	4.60	Strongly Agree
General Mean	4.25	Agree

Discussion

With the data presentedit was found out that teachers are moderately utilizing digital technology for instruction. Most of the teachers utilized Powerpoint Presentations and that the skills of teachers in using digital media for instruction were found at the basic user level. This indicates that teachers should attend training to enhance their skills in utilizing digital technology in support for hybrid learning modality. Most of the teachers were lacking training on Technology-Enabled Learning.

Conclusion

The researcher conclude that the internet connection was the highest mean score in terms of challenge encountered by the teachers in adapting Hybrid Learning Modality. Among the 8 challenges met by students, Capacity to afford digital technology for learning got the highest mean. This concludes that teachers are not that familiar with the other available digital technology for classroom instruction and learning to adapt hybrid learning modality and be able to completely transform classroom practices through technology, however, an intervention program was proposed to address the challenges and low skills in utilizing digital technology for learning.

For the recommendations, teachers must explore using other digital media for instruction to efficiently deliver quality instruction as complementary to Hybrid Learning. The school must support the skills enhancement of the teachers in utilizing digital technology for teaching and learning by providing a capacity building for teachers on navigating the MS Office, Google Suites, Video Making, Learning

Management System and livestreaming at the same time, to support Hybrid Learning Modality. Also, the institution should upgrade the internet connection. Students should apply for scholarships to afford the minimum requirement to access digital technology in support for learning. Future research may focus on the assessment of teaching methodology of teachers in Hybrid Learning and correlation between utilization of digital technology for instruction and Teachers' Demographics.

References

Ansayam, D., & Tan. (2021). Investigating The Utilization Of Digital Instructional Materials And Digital Tools For Online Learning In Teacher Education Courses. International Journal of Scientific & Technology Research, 10(9). https://www.ijstr.org/final-print/sep2021/Investigating-The-Utilization-Of-Digital-Instructional-Materials-And-Digital-Tools-For-Online-Learning-In-Teacher-Education-Courses.pdf

Berrocoso, J., Fernández-Sánchez, M. R., Revuelta Dominguez, F. I., & Sosa-Díaz, M. J. (2021). The educational integration of digital technologies preCovid-19: Lessons for teacher education. Plos One, 16(8), e0256283. https://doi.org/10.1371/journal.pone.0256283

Brillembourg, A. (2023). Does Hybrid Learning Support Financial Wellness for Students. https://www.meadowfi.com/resources/does-hybrid-learning-support-financial-wellness-for-students

Cuhadar, C. (2018). Investigation of Pre-Service Teachers' Levels of Readiness to Technology Integration in Education. Contemporary Educational Technology, 9(1), 61–75. https://eric.ed.gov/?id=EJ1166420

Delfino, A. P. (2019). Student Engagement and Academic Performance Of Students Of Partido State University. Asian Journal of University Education, 15(3), 42–55. https://doi.org/10.24191/ajue.v15i3.05

Falloon, G. (2020). From digital literacy to digital competence: the teacher digital competency (TDC) framework. Educational Technology Research and Development, 68(5), 2449–2472. https://doi.org/10.1007/s11423-020-09767-4

Flores, H. (2021). Four of 10 Filipino students lack distance learning tech. Philstar.com; Philstar.com. https://www.philstar.com/headlines/2021/03/03/2081545/four-10-filipino-students-lack-distance-learning-tech

Funa, A. A., Gabay, R. A. E., Deblois, E. C. B., Lerios, L. D., & Jetomo, F. G. J. (2023). Exploring Filipino preservice teachers' online self-regulated learning skills and strategies amid the COVID-19 pandemic. Social Sciences & Humanities Open, 7(1), 100470. https://doi.org/10.1016/j.ssaho.2023.100470

Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. Sustainable Operations and Computers, 3, 275–285. https://doi.org/10.1016/j.susoc.2022.05.004

Johnson, L., Adams Becker, S., Cummins, M., Estrada, V., Freeman, A., and Hall, C. (2016). NMC Horizon Report: 2016 Higher Education Edition. Austin, Texas: The New Media Consortium. https://www.sconul.ac.uk/sites/default/files/documents/2016-nmc-horizon-report-he-EN-1.pdf

Kazu, İ., Cemre, K., & Yalçın. (2022). Investigation of the Effectiveness of Hybrid Learning on Academic Achievement: A Meta-Analysis Study. International Journal of Progressive Education, 18, 2022. https://doi.org/10.29329/ijpe.2022.426.14

The Manila Times. (2023). Hybrid education: The best of both worlds. The Manila Times; The Manila Times.https://www.manilatimes.net/2023/02/21/opinion/editorial/hybrid-education-the-best-of-both-worlds/1879566

Mann, Prem S. (1995). Introductory Statistics (2nd ed.). Wiley. ISBN 0-471-31009-3.

McKellar, S. E., & Wang, M.-T. (2023). Adolescents' daily sense of school connectedness and academic engagement: Intensive longitudinal mediation study of student differences by remote, hybrid, and in-person learning modality. Learning and Instruction, 83, 101659. https://doi.org/10.1016/j.learninstruc.2022.101659

Mercader, C., & Gairín, J. (2020). University teachers' perception of barriers to the use of digital technologies: the importance of the academic discipline. International Journal of Educational Technology in Higher Education, 17(1). https://doi.org/10.1186/s41239-020-0182-x

McCarthy, J. (2018). Tech Integration in Blended Learning. Edutopia; George Lucas Educational Foundation. https://www.edutopia.org/article/tech-integration-blended-learning#:~:text=Teachers%20can%20deepen%20student%20learning%20by%20making%20the%20most%20of%20classroom%20technology.&text=Blended%20learning%20continues%20to%20grow,other%20devices%20into%20student%20hands.

Najar, A. (2021). What is Hybrid Learning: How can countries get it right. Education for Global Development. https://blogs.worldbank.org/education/what-hybrid-learning-how-can-countries-get-it-right

Neelakandan, N. (2021). Hybrid Learning In Education. ELearning Industry; eLearning Industry. https://elearningindustry.com/hybrid-learning-in-education

Runge, I., Lazarides, R., Rubach, C., Richter, D., & Scheiter, K. (2023). Teacher-reported instructional quality in the context of technology-enhanced teaching: The role of teachers' digital competence-related beliefs in empowering learners. Computers & Education, 198, 104761. https://doi.org/10.1016/j.compedu.2023.104761

Sahar, N.. (2020). COVID-19 Pandemic and Hybrid Learning System. ResearchGate; unknown. https://www.researchgate.net/publication/348061100_COVID-19_Pandemic_and_Hybrid_Learning_System

Sevillano, L. (2015). Dispositivos digitales móviles en educación: el aprendizaje ubicuo. Dialnet. https://doi.org/978-84-277-2100-5

Shilpa, B., Radha, R., & Movva, P. (2021). Comparative Analysis of Wireless Communication Technologies for IoT Applications. Artificial Intelligence and Technologies, 383–394. https://doi.org/10.1007/978-981-16-6448-9_39

University of Kansas (2021). How Teaching With Technology Has Transformed Education. .School of Education and Human Sciences, University of Kansas. https://educationonline.ku.edu/community/how-teaching-with-technology-has-transformed-education

Nations, U. (2013). The Impact of Digital Technologies. United Nations. United Nations; United Nations.

https://www.un.org/en/un75/impact-digital-technologies

Verde, A., & Valero, J. M. (2021). Teaching and Learning Modalities in Higher Education During the Pandemic: Responses to Coronavirus Disease 2019 From Spain. Frontiers in Psychology, 12. https://doi.org/10.3389/fpsyg.2021.648592

Yu, C.H. (2022). Hybrid teaching mode including physical, online, and flipped classroom learning for dental education in Taiwan. Journal of Dental Sciences, 17(1), 624–625. https://doi.org/10.1016/j.jds.2021.09.026

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