



ENHANCING ENGAGEMENT AND PERFORMANCE THE ROLE OF HYBRID LEARNING MODELS IN POST-PANDEMIC HIGHER EDUCATION: REVIEW ARTICLE

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ABSTRACT The COVID-19 pandemic has brought about a seismic shift in the teaching practices of universities, necessitating a rapid transition to more flexible and inclusive educational models. This transformation has led to the emergence of numerous crucial tactics aimed at enhancing the quality of educational experiences and outcomes as educational institutions adapt to the post-pandemic environment. In recent years, hybrid education has grown in popularity as a way to increase educational access and enhance student learning results. The main concern is the integration of instructional strategies to support active learning within a specific learning context at a certain moment, not the type of education (online or on campus). As a result, learning is encouraged rather than just providing pupils with knowledge. University post-pandemic learning strategies strongly emphasize reassessing digital education methodologies with an eye toward fairness, accessibility, and pedagogical integrity. To ensure inclusive and successful online learning environments, schools are urged to implement evidence-based approaches, such as personalized learning plans and regular formative assessments, that address their students' varied requirements. As we navigate the post-pandemic educational landscape, it's clear that educators must engage in continuous professional development to keep pace with evolving teaching methods and technological advancements. While these advancements hold great potential for improving higher education, challenges such as maintaining student-teacher contact and ensuring equitable access to technology remain. However, with a commitment to ongoing learning, these challenges can be effectively addressed. **Objectives:** This review aims to draw attention to a valuable area of learning experiences, 'hybrid learning,' which affects student engagement. It provides useful tips for raising the efficacy of online instruction and increasing student learning outcomes. **Conclusion:** This review clarifies how hybrid learning modes affect academic performance, student engagement, and teacher effectiveness at different educational levels. Additionally, it provides more flexibility for students with various responsibilities and expands access to education by removing geographical barriers. This enables students to develop critical 21st-century skills like digital literacy, critical thinking, and problem-solving in a technologically advanced environment as they adjust to the educational landscape. These skills are increasingly important in today's digital world and can significantly enhance students' future prospects. Colleges must constantly improve and modify their hybrid and remote learning approaches to improve the quality of higher education by offering opportunities for professional development and lifetime learning.

KEYWORDS :

INTRODUCTION:

Medical students' education has been severely disrupted by the extraordinary COVID-19 epidemic, which also presented difficulties that necessitated quick adjustments to remote learning and enforced lockdowns. Additionally, the curriculum delivery method was shifted from in-person to online learning and virtual technologies (Azare et al. (2023). As a result, schools created a modified hybrid model that preserved educational equality and sufficient practical experience (Hsu et al., 2022).

Hybrid learning approaches, combining online and traditional instruction, are becoming increasingly popular among students. This method improves overall educational quality by providing flexibility to accommodate learning requirements and preferences. The quick shift to online education brought attention to digital literacy's importance for students and teachers, developing abilities necessary for a technologically advanced future (Ingabire, 2024).

Effective e-learning systems must prioritize active learning, quick feedback, and student-teacher interaction to increase student engagement and learning results. Enhancing these aspects has been shown to dramatically improve student performance, highlighting the necessity of planned pedagogical frameworks (Jahani et al., 2023).

Because teaching methods and technologies are evolving quickly, educators must continue professional development to stay current with the newest pedagogical strategies, technical developments, and educational research. To adapt to the shifting demands of the educational landscape and give students high-quality instruction, educators should acquire new skills in instructional design, online teaching, and educational technology (Gondwe, 2021 & La Fleur & Dlamini, 2022).

Institutions are urged to use technology and creative teaching methods to improve learning results and student engagement (Khalil et al., 2024). Even if these tactics offer chances to improve college education, issues remain to be resolved, such as guaranteeing fair access to technology and preserving the caliber of online communication. In the post-COVID environment, resolving these problems will be essential to the long-term development of higher education (Steven D'Agustino 2024).

According to (Baradwan and Al-Hanawi, 2023) medical schools have found telemedicine to be a valuable tool for ensuring educational continuity, facilitating exposure to telehealth technology, and providing access to various patient populations. It improves students' capacity for remote patient-centered care delivery and communication abilities. Notwithstanding the significant technological advances, there is still a research gap regarding the particular difficulties, prospects, and practical approaches for incorporating telemedicine, virtual reality (VR), and artificial intelligence (AI) into medical curricula in order to improve learning outcomes within the healthcare system (Mutair et al. 2023).

Review

Post-COVID-19 educational methodologies within higher education institutions prioritize online formats to ensure educational continuity, address disparities in digital access, promote adaptability, cultivate digital competencies, and encourage innovative pedagogical practices to accommodate varied student requirements and equip students for a future characterized by technological advancements. (Musa & Adamu, 2023).

The exigencies of online pedagogy and scholarship within higher education institutions amid the COVID-19 pandemic involved

facilitating educational continuity, rectifying digital inequities, prioritizing health and safety measures, providing adaptability, enhancing digital literacy, and encouraging innovative practices. These exigencies have fundamentally transformed the higher education landscape, engendering enduring ramifications for the future of pedagogical and scholarly endeavors (Musa & Adamu, 2023).

Since the pandemic, the focus on digital literacy in academic contexts has drastically changed teaching methods, calling for a move towards more inclusive, robust, and technologically integrated pedagogies. The pressing need to adjust to remote learning settings and the understanding that digital literacy is an essential ability for teachers and students have fueled this shift. (Siani, A, 2024).

Hybrid learning is no longer just a response to the COVID-19 disruption but is now a strategic option for medical schools.

What are the key components of hybrid learning models adopted by universities post-COVID-19?

The hybrid learning model combines in-person and online training, allows for scheduling flexibility, integrates technology, increases student engagement through active learning, creates individualized learning experiences, and improves accessibility for a range of student requirements (Turdiev, 2024).

(Jahani et al., 2023) claimed that addressing infrastructure, resources, and educational quality while integrating traditional and e-learning techniques improves student-teacher interaction, active learning, and instant feedback, guaranteeing high-quality instruction and satisfying students' changing learning preferences.

(Monika and Kristanto, 2024) explained that students' active participation and social contact are encouraged in hybrid classrooms, creating a feeling of community. They said that including collaborative tools and platforms improves student engagement and critical thinking, which are necessary for a productive learning environment. The main elements of these models are as follows:

1. Flexible Learning Environment settings that give students freedom in learning, such as blended learning, which combines online and in-person activities. In a flipped classroom, students study the content online before applying it to in-person discussions and activities. Hyflex; students have the option of attending sessions in person or virtually, and both groups get the same training and content (Wang et al., 2024).

2. Robust Technology Learning Management System (LMS) platforms, such as Canvas, Blackboard, or Moodle, are examples of infrastructure that distribute online content, assignments, and tests. Tools for video conferences: Google Meet, Teams, or Zoom for synchronous online meetings and classes. Use Slack, Microsoft Teams, or Google Docs as collaboration tools for collaborative projects and conversations: dependable internet connectivity and high-speed internet access for teachers and students (Marshall & Sankey, 2023).

3. Developing faculty members through online teaching training and giving them the tools they need to create and present successful online courses. Technical support by offering guidance on the use of educational technology tools. Pedagogical innovation by motivating faculty to investigate cutting-edge teaching strategies that work in a hybrid learning environment (Niebuhret et al., 2024).

4. To increase student happiness and meet their welfare and development needs, **student support services (technical support)** assist students with any technological problems they may run into (Samarita et al., 2024). Students also require academic advice, which offers direction on choosing courses, advancing academically, and making career plans (Johnson et al., 2022). According to (Gentile and Roman, 2009), students require mental health services that provide guidance and assistance for their mental health.

5. Combining traditional assessments (papers, exams) with online tests, group projects, and presentations is an example of a **mix of assessment and evaluation techniques**. Flexible assessment allows students to select the format of their evaluations, such as a video presentation or written report. Along with ongoing evaluation, students' progress is routinely tracked to deliver prompt feedback and

assistance. There are helpful recommendations to help novice and seasoned online educators create assessment elements for their courses. Developing tests in a constructivist setting that prioritizes connections, investigation, creativity, and the building of knowledge via group projects and dialogue (Melo, 2022).

Student learning is assessed using various online assessment methods, such as projects, tests, and quizzes. In contrast to conventional approaches emphasizing memorization, authentic assessment provides students with the skills and work readiness they will need after graduation (Sotiriadou et al., 2019).

Since digital tools boost interest and involvement in the job, they can support genuine assessments like case studies, simulations, and problem-based learning. Examining and assessing various responses and strategies is far more engaging for teachers (and can be an educator for the instructor). Because the assessment is new, establishes a clear link between it and the "real" world, and makes it evident to the learner how much they have learned and where they still need to improve, learners are more motivated to complete it (i.e., authentic assessments are much more transparent to the learner) (Wesson & Roux, 2024).

6. Strategies for engaging students in interactive online activities that use discussion boards, quizzes, and polls to promote involvement. Use online group projects to foster peer learning and teamwork in the implementation of joint projects (Venton & Pompano, 2021).

In order to develop engaging, adaptable, and successful hybrid learning experiences that satisfy the demands of various student populations, colleges must prioritize personalized learning by customizing instruction to each student's needs and learning preferences (Makhambetova et al. 2021). Unfortunately, because personalized learning requires highly customized and tailored instructional modules to fit the needs of each student, colleges currently struggle to adopt such a strategy. Studying an institution's structure, evaluating its educational programs, and conducting courses using **personalized learning strategies** are all important in implementing personalized tactics in the educational process.

7- To guarantee that every student has an equal chance to thrive in a digital learning environment, **universities should create policies** that prioritize digital equality (Matsieli & Mutula, 2024).

8-Community involvement can assist in creating solutions that successfully close the digital gap by **working with local communities** to understand their requirements (Amjad et al., 2024).

How Can Universities Ensure Equitable Access To Technology For All Students In The Post-pandemic Environment?

Universities can guarantee fair access to technology for all students in the post-pandemic setting by using a multipronged approach that tackles digital inequalities and fosters inclusivity. This entails implementing all-encompassing plans that emphasize training, infrastructure, and legislative changes to establish a fair educational environment.

1. Technology Infrastructure and Support:

Make sure all campus parts, including resident halls, libraries, and common areas, have strong and dependable Wi-Fi connectivity. Offer free or reasonably priced device choices, such as rental or purchase programs for laptops or tablets. Provide specialized technical support services to help students with device problems and debugging (Ohei & Brink 2021).

2. Digital Literacy Training:

Include courses on digital literacy in the curriculum to give students the tools they need to succeed in online learning settings. Organize frequent workshops and tutorials to instruct students in efficiently using various digital tools and platforms. Teach instructors how to help students with various technical demands and how to teach effectively online (Chanda et al., 2024).

3. Flexible Learning Options:

Provide a combination of in-person and online courses to meet your students' varied requirements and preferences. To let students learn at their own pace, offer flexible learning choices like asynchronous assignments and recorded lectures. Make sure that online courses are made with accessibility in mind by utilizing appropriate font sizes, succinct and clear language, and alternative text for images in

(Santiago 2022).

4. Financial Assistance:

Students who cannot afford technology or an internet connection can receive financial aid through technology grants and scholarships. Provide adjustable payment schedules for rental or technology purchases (Amjad et al., 2024).

5. Collaboration with Community Partners:

Higher education should prioritize budgetary resources for the purchase of digital resources, ensuring that enough money is set aside for modernizing and growing its technological infrastructure. Work with neighborhood organizations to offer students support services and technology resources. Collaborate with nearby companies and community centers to set up open Wi-Fi hotspots in (Gqwabaza and Maqoqa, 2024).

6. Regular Assessment and Adaptation:

Survey students frequently to get their opinions on their technology requirements and difficulties. Examine student technology usage data to pinpoint areas that need work. Continually assess and modify technology rules and procedures to guarantee all students have fair access (Albinson et al., 2020).

By employing these measures, colleges may create a more inclusive and equitable learning environment for all students, regardless of their socioeconomic background or technology skills.

What challenges do students and educators face in maintaining student-teacher interaction in hybrid learning models?

Maintaining student-teacher contact in hybrid learning models poses a number of difficulties for both students and teachers, especially when juggling the demands of both in-person and online instruction.

Students:

The first of these problems is the difficulty of accessing digital infrastructure, including computers, cell phones, and the Internet, particularly in remote or rural areas. Additionally, in hybrid learning models, technological problems like unsupported devices and poor signals make interaction ineffective (Schuetze, 2024).

In a virtual environment, some students can be reluctant to join in conversations or ask questions (Wut & Xu, 2021). Second, students cannot wholly clarify their uncertainties due to the transition from in-person to online instruction, making reading tone and body language more difficult (Gao & Shi, 2023).

Additionally, shutting off their video cameras when learning online causes them to lose attention and become less committed to their studies because they will not be subject to as many restrictions from higher authorities (Al Hajar, 2022).

Additionally, it could be challenging for distant learners to concentrate on the lesson due to interruptions from family members, housework, or other activities. Once more, a lack of social engagement with peers can result in emotions of isolation and loneliness, which can affect the learning process as a whole (Wang et al., 2021).

Due to several obstacles, students may not always have timely access to the university's inadequate course materials, which fall short of their expectations (Maffea, Juliana, 2020).

As with the classroom education method, which relies on physical contact, it also affects students' self-esteem. Additionally, students working at the same time do not prioritize their academics as they would (Khan, Shamsher, 2024).

Not every student does well in a hybrid classroom. While some would prefer totally online learning, others might prefer in-person education (Nikolopoulou, 2022). Addressing these issues requires a team effort from educators and students.

EDUCATORS

Despite its advantages, technology integration frequently makes teaching more difficult and might require teachers to do more work.

Teachers in hybrid situations frequently have heavy workloads and little agency, especially if they are inexperienced (Martin et al., 2023).

Rethinking class frameworks to enable interaction across various forms is a significant challenge for educators who want to equally engage in-person and online students (Overton, 2022) & (Woolfitt, 2023). Therefore, by integrating the students' favorite online learning environments into the curriculum, medical educators can adapt their courses to medical students' learning requirements (Azer, 2023). Additionally, unclear exams and how to conduct student assessments have been considered by (Jayanta et al., 2022).

Due to physical distance, varying engagement tactics, and the requirement for specialized training, educators may find it challenging to sustain productive student-teacher interactions in virtual environments, which might impair their capacity to reproduce fruitful in-person interactions (Aydin, 2013).

Problems with audio-visual technology can interrupt classes, making it challenging to continue having productive conversations and interactions (Woolfitt, 2023).

Sufficient pedagogical and technical support is necessary for educators to successfully traverse these difficulties, as some teachers may struggle to keep up with the rapid technological advancements (Woolfitt, 2023). Because academic labor is now undervalued, academic employment has become less desirable. However, obstacles to successful online learning included a lack of social connection, technical difficulties, and self-discipline (Kamraju et al., 2024).

What Benefit Do Students Access In Hybrid Learning Models?

Flexibility And Convenience:

With flexible scheduling, hybrid learning enables students to manage their career, family, and other obligations in addition to their academic obligations. Remote access to lectures and course materials increases accessibility and convenience for students. Students can learn at their own pace because hybrid models frequently include the self-paced learning components of (Kamraju et al. 2024).

Improved Learning Experience:

Hybrid learning can provide personalized learning experiences catered to each learner's requirements and preferences. Combining online and in-person activities can make learning more dynamic and engaging. Hybrid models that combine lectures, conversations, and practical exercises can promote deeper learning (Ingabire, 2024). While online resources like chat rooms can increase engagement, it must be done carefully to ensure that all students feel included (Overton, 2022).

Skill Development:

Universities encourage students to develop digital literacy abilities through hybrid learning, which includes critical thinking, information evaluation, online collaboration, and communication.

(Hasanah & Malik, 2020). Additionally, as students may need to overcome technical obstacles or adapt to changes in the learning environment, this instruction can help them build their problem-solving and adaptability abilities (Lima, 2023). Last but not least, time management and self-discipline teach students how to efficiently manage their time and take ownership of their education (Susan, 2015).

Social and Emotional Benefits:

Even if students are not constantly physically present, hybrid models can help them develop a feeling of community. Like traditional classroom settings, hybrid learning can create and maintain a sense of community (Huizinga et al., 2022).

Hybrid learning's flexibility can promote mental health by lowering stress and anxiety. Additionally, making mental health education a top priority in the curriculum helps improve students' social, emotional, and academic performance in the changing educational landscape. Students can develop their self-confidence by taking charge of their education and conquering obstacles (Conwi et al., 2024).

Hybrid learning provides an adaptable, interesting, and successful instruction method with numerous advantages for students. Finally, because enrolment fees are lower than for traditional classroom-based education, higher education will be more affordable for all students.

What benefit do educators access in hybrid learning models?

Educators can benefit from hybrid learning models in several ways:

Improved Work-Life Balance (flexible scheduling): By eliminating

daily commutes, hybrid models enable educators to save time and energy while juggling their teaching duties with their personal and professional lives (Cusipag et al., 2023).

Enhanced Professional Development, various online resources, and professional development opportunities are accessible through hybrid learning. Educators can work with colleagues worldwide through online platforms, exchanging creative instructional methods and best practices (Kamraju et al., 2024). Educators adopt hybrid learning models to promote cutting-edge teaching techniques like virtual reality (VR), adaptive learning platforms, and artificial intelligence (AI). Additionally, pedagogical changes like competency-based education and flipped classrooms are becoming essential to hybrid learning environments, focusing on student-centered approaches and optimizing active engagement. This viewpoint emphasizes the potential advantages of hybrid learning despite its difficulties. Technological improvements can increase learning flexibility and improve student engagement (Mulenga & Shilongo, 2024) if adequately managed.

Increased Efficiency: By simplifying the preparation and delivery of lessons, hybrid models can assist teachers in better time management. Improved learning results can result from teachers using technology to customize instruction to each student's unique needs (Ingabire, 2024).

Enhanced Job Satisfaction: Teachers, through hybrid learning, are encouraged to try out new technology and teaching strategies, which makes their work more exciting and fulfilling. Teachers may feel delighted to witness children flourishing in a hybrid learning environment (positive impact) (Nurgaliyeva et al., 2023).

According to (Hsu et al., 2022), hybrid models that combine **adaptability and resilience** can assist educators in anticipating and addressing unforeseen obstacles like pandemics or natural catastrophes. In today's quickly changing environment, educators must be able to embrace new technology and adjust to changing conditions (Mulenga & Shilongo, 2024).

Finally, Digital Literacy Programs that offer training for students and faculty on digital tools and platforms can empower users and enhance their learning experiences (Olawale, 2024).

How can continuous professional development for learners and educators enhance the effectiveness of hybrid learning strategies?

- **Establishing clear communication** channels through discussion forums, virtual office hours, and frequent check-ins can facilitate interaction and feedback.
- **Clearly define expectations and structure** to maintain uniformity, reduce misunderstandings, and define rules for online participation, assignments, and due dates.
- **Promoting active participation** through interactive tools, group activities, and polls can engage both in-person and remote learners.
- **Utilizing practical technological tools** by adopting interactive tools like video conferencing, screen sharing, and collaboration platforms can boost engagement and facilitate communication.
- **Providing technical support** helps reduce disruptions by guaranteeing access to dependable technology and providing technical assistance.
- **Provide sufficient technical assistance** to teachers and students in order to handle any problems that may come up.
- Establishing a **supportive learning environment**, promoting active involvement, allowing peer interaction, and providing timely feedback can improve the overall learning experience. This can be achieved through virtual social events and collaborative learning.
- **Implement flexible teaching tactics** that accommodate a range of learning preferences and styles to enhance student engagement and results. Use various teaching strategies, such as project-based learning, group projects, and active learning approaches, to accommodate various learning styles and maintain student interest.
- **Give students' well-being priority**, pay attention to their mental health, and offer them opportunities for emotional support and social interaction.

Teachers can design successful and interesting learning experiences for every student by implementing these tactics and constantly adjusting to the changing hybrid learning environment.

Virtual Learning And Traditional

The university-wise comparisons elaborated significant differences in the feasibility, reality, usefulness, preference, and perfectness of virtual dissection applications in lecturing.

Technology can be an efficient complementary, not a replacement, resource to support the educational process. Students' perceptions are also valuable in maximizing the educational benefits of curricula.

CONCLUSION

The review emphasizes how online learning can raise the standard of higher education. This important argument implies that online education can provide unique benefits above regular in-person training. The prospects for professional growth and lifetime learning that online education can offer are mainly mentioned in the evaluation. This is a significant advantage since it allows people to further their education and careers throughout their lives and offers hope for the future of online learning in higher education. In order to help educators decide what kinds of online resources should be developed to enhance students' learning even after the pandemic, medical institutions should embrace the efficient use of Internet resources and draw on their experience and lessons learned.

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