JPAIR Institutional Research Volume 25 • October 2025
DOI: https://doi.org/10.7719/irj.v25i1.967

Adapting Flexible Learning in Health Education: Practical Skills Development, Engagement Strategies, and Mental Health Challenges

MARILOU M. SAONG[1], RHEY GREGORY Z. AQUINO[1]
[1]University of Baguio, Baguio City, Philippines

Corresponding author: marilousaong@e.ubaguio.edu

Originality 100% • Grammar Check: 95% • Plagiarism: 0%

ABSTRACT

Article history:

Received: 23 Mar 2025
Revised: 10 Sept 2025
Accepted: 22 Sept 2025
Published: 30 Oct 2025

Keywords — Education flexible learning, blended learning, health education, student perspectives, teacher perspectives, education resilience, qualitative descriptive, Philippines

This study explores the perspectives of Allied Health students and faculty at the University of Baguio on adopting flexible learning during the COVID-19 pandemic and the subsequent shift to limited face-to-face classes. With the increasing role of flexible educational models, this study aims to assess the challenges faced by stakeholders, including technology, student engagement, and the acquisition of practical skills. With a qualitative descriptive research design, the study utilized purposive sampling to choose 10 teachers and 10 students who experienced flexible learning during SY 2021-2022 and transitioned to limited face-to-face classes during SY 2022-2023. Thematic analysis revealed the following key themes: technological adaptation, engagement strategies, instructional approaches, and mental health concerns. Teachers employed hands-on supervision, iterative teaching, and additional exercises as strategies to address gaps in practical skill acquisition. Students utilized time management and goal-setting skills to adapt to the blended learning environment. This research highlights the need for an

adaptable and robust learning structure that combines online and face-to-face lecture delivery to provide continuity and quality of education, especially in fields that require practical skills. Recommendations include adopting a flexible learning framework that prioritizes experiential learning through simulation and hands-on exercises, investing in staff development to enhance technological competence, and implementing systems to support students' mental well-being. These recommendations and findings aim to inform the university's strategic planning efforts, enhancing teaching and learning practices to better adapt to future disruptions and improve the quality of education related to health.

INTRODUCTION

The closure of schools caused by the COVID-19 pandemic impacted 90% of the world's students (UNESCO, 2020). To address this, education systems worldwide have adopted flexible learning to reduce disruption and maintain learning continuity. Flexible learning combines synchronous and asynchronous methods, where live lectures enable real-time interaction and pre-recorded materials, along with independent activities, give students the freedom to work at their own pace. Flexible learning emerged as an international "cure-all" for addressing the pandemic's issues (Dhawan, 2020), encouraging learners' independence and responsibility in completing modular and online activities (Dangle & Sumaoang, 2020).

Modular and online learning have encouraged students to engage in independent study. Students developed a sense of responsibility for completing the tasks assigned to them in their modules (Dangle & Sumaoang, 2020). However, with this advantage, key problems such as a lack of school funding for module production and distribution, the struggle for students to self-study while simultaneously learning independently, and parents' lack of knowledge to guide their children to academic excellence were also identified.

Despite the advantages of modular and online learning, the pandemic has exposed the inadequacies and inequities in diverse educational systems across the globe (Gupta et al., 2020). Those with limited digital access, such as individuals who belong to a low-income family or who have poor accessibility to the Internet, were left at a learning disadvantage during the time when schools had no choice but to shift to an online or modular teaching mode, making distance learning the "new normal" during the pandemic era. According to Adnan and Anwar (2020), online learning cannot produce the desired results in underdeveloped countries like Pakistan, where the vast majority of students are unable to access the Internet due to technical and monetary issues. Among the other issues raised by higher education students were the lack of face-to-face interaction with the instructor, response time, and the absence of traditional classroom socialization.

Current research throughout Asia has considered moving from online to face-to-face learning in health-related courses, citing the advantages of

convenience and difficulties in maintaining motivation. A multi-country survey in Indonesia, Malaysia, and Thailand found the majority of dental students preferred blended learning, with 80.3% of students in those institutions that maintained some face-to-face activities reporting greater learning efficiency than students in purely online environments. This suggests that blended strategies are increasingly considered the desired method of health education in the area (Chang et al., 2021). In Malaysia, nursing students indicated that e-learning, although adaptable, blurred personal and academic limits, formed less effective learning environments, and introduced technical and motivational challenges. Both teachers and students took time to get accustomed, but pedagogy and learning proficiency were enhanced with growing experience (Romli et al., 2022). A larger meta-synthesis of Southeast Asian scholarship also revealed that cultural background, teaching approaches, and access to technology have considerable impact on the effects of flexible learning, highlighting post-pandemic studies as focusing on challenges with engagement and equity, in contrast to the more favorable views of pre-pandemic studies (Romli et al., 2022).

Several strategies have been found to facilitate a more seamless return to the classroom-based or blended formats. Blending online and in-person approaches has been found to promote knowledge gain, motivation, and student satisfaction, particularly when collaborative learning and social engagement are integrated into the framework (Chang et al., 2021; Westerlaken et al., 2019; Rohwer, 2017; Romli et al., 2022). Faculty readiness is also imperative. For instance, research in Singapore revealed the mixed readiness of health educators to deliver online classes, highlighting the need for training and institutional support in online pedagogy (Lee & Bello, 2022, 2023). Moreover, teacher-centered approaches, such as flexible class schedules, engaging coursework, and positive teacher-student relationships, result in improved learning outcomes (Westerlaken et al., 2019; Romli et al., 2022). However, ongoing barriers include, in large part, inadequate Internet connections and insufficient access to digital technology within less resourced environments, and they limit equitable engagement (Chang et al., 2021; Romli et al., 2022). In addition, online modalities have tended to lower motivation and interaction, rendering the transition to blended or face-to-face configurations necessary for the cultivation of clinical competencies and peer-based learning (Chang et al., 2021; Westerlaken et al., 2019; Romli et al., 2022).

According to Cardona et al. (2022), communication barriers and the integrity of student assessment were among the issues that science teachers encountered because flexible learning was new to our educational system. Baticulon et al. (2021) studied the barriers faced by medical students in the Philippines during the height of the pandemic. Barriers such as technological, individual, domestic, institutional, and community barriers were the primary challenges faced by medical students as they attempted to adapt to online learning. This proves that those with greater access to resources were at an advantage in accessing learning materials. Dayagbil et al. (2021) investigated the challenges and issues

in maintaining continuity of teaching and learning in public higher education in the Philippines due to the COVID-19 pandemic. It was found that during school lockdowns, teachers adapted their teaching and learning approaches in accordance with the institution's policies. Due to limited or no internet connectivity, most students struggled to complete the learning activities and requirements. The trajectory for flexible learning delivery, the role of technology, the teaching and learning environment, and the prioritization of safety and security were identified as emerging themes from the qualitative responses. Scenario analysis provided a context for strategic actions during and after the pandemic. It is concluded that higher education institutions must adopt flexible teaching and learning modes, recalibrate their curricula, capacitate their faculty, upgrade their infrastructure, implement a strategic plan, and assess all aspects of the plan to ensure continuity in teaching and learning.

While most Filipino teachers are products of face-to-face schools and their teaching practices, misconceptions about distance education are on the rise, such as their technical skills in integrating pedagogy and knowledge of different assessment approaches in this learning environment (Cardona et al., 2022). Hence, educational institutions must design appropriate and compelling content and effectively deliver it to their current faculty setups to achieve better learning outcomes (Adnan & Anwar, 2020; Diate & Mordeno, 2021). Rotas and Capahay (2020) found that the difficulties encountered by students stem from the ambiguity of the content itself. These threaten students' learning progression because teachers lack the necessary technical knowledge. Furthermore, because teachers provide and sustain the learning process, their perspectives are as important as those of the learners'. Teachers should approach current challenges effectively to facilitate learner differentiation and learner-centeredness, and be prepared to act as facilitators on remote-learning platforms (Dayagbil et al., 2021).

Rotas and Cahapay (2020) summarized several scholarly works that tackled the multidimensional implications of the COVID-19 crisis to the expected new normal period. Within the educational dimension, extensive research has been conducted on the adoption of online modalities for instructional implementation in the new normal post-COVID-19 era. Jamilah et al. (2022) documented and reviewed all articles related to post-pandemic learning design for the period from 2019 to 2021. Their systematic literature review demonstrated that online learning can be effectively integrated with offline learning to form a blended learning approach that can be adopted and utilized by schools following the COVID-19 pandemic.

As argued by Naidu (2017), flexible learning is a value principle and not a mode of study. For learners, flexibility in learning may include choices regarding entry and exit points, the selection of learning activities, assessment tasks, and educational resources in exchange for different kinds of credit and costs. For teachers, it can involve choices related to the allocation of their time, the mode

and methods of communication with learners, and the educational institution.

Flexible learning is important not only for face-to-face and campus-based learning but also for e-learning, open and distance learning, and blended learning. Flexibility is closely associated with e-learning and the increasing use of technological applications in education (Li & Wong, 2018). The literature on flexibility has highlighted that flexible learning is multifaceted. From a technology-centered perspective, a variety of information and communication technologies should be provided to students to facilitate flexible learning, and learners should have access to alternative technologies (Chen et al., 2003). From a pedagogically student-centered perspective, students should be given flexibility in terms of time, space, and the ability to learn at their own pace, as well as the option to change learning strategies and choose learning resources and evaluation activities (Nikolov et al., 2018).

With the incorporation of flexible learning and the delivery of limited face-to-face classes in Allied Medical courses at the University of Baguio, there is a need to analyze this "new learning environment" to respond to the changing needs of stakeholders. As Rotos and Cahapay (2020) emphasize, given the approaching new normal post-COVID-19 period, rethinking education from the perspective of curriculum studies is critical. It offers glimpses of the opportunities and challenges in the future of education, particularly in terms of curriculum. As Dayagbil et al. (2021) emphasize, maintaining teaching and learning continuity in the midst of a pandemic necessitates an examination of the parameters under which the university operates from the stakeholders' standpoint, which includes students, faculty, curriculum, and external stakeholders. Higher education institutions must conduct strategic scenario analyses based on data for both best- and worst-case scenarios in curriculum and instruction, student engagement, and technology and infrastructure.

As pointed out by Illanes et al. (2020) and Smalley (2020), higher education institutions must develop a resilient learning system that utilizes evidence- and needs-based information, enabling the institution to implement responsive and proactive measures. Coping with the effects of COVID-19 in higher education institutions requires diverse perspectives from stakeholders. Consultation needs to include the administration that supports the teaching-learning processes, the students who are the core of the system, the faculty members or teachers who perform various academic roles, parents and guardians who share the responsibility of learning continuity, the community, and external partners who contribute to the completion of the educational requirements of the students.

FRAMEWORK

This study is based on several complementary theories of learning that provide a foundation for theorizing the challenges and strategies of flexible learning in health programs.

Constructivist Learning Theory

Constructivism emphasizes that students actively construct knowledge through their social environments and interactions with others (Piaget, 1970; Vygotsky, 1978). Flexible learning during the pandemic underscored the importance of students taking responsibility for their own learning by utilizing self-learning modules and online platforms to learn independently. However, as Vygotsky's model of sociocultural learning suggests, real learning also depends on social scaffolding and collaboration, which are often constrained in remote contexts.

Experiential Learning Theory

Health science education is experiential and requires the actual implementation of theories in clinical or laboratory practice. Kolb (1984) theorized that learning occurs in a cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation. The cycle highlights the challenges encountered when practical skills were transitioned to virtual simulations during the pandemic. Reverting to a face-to-face mode of instruction revives the entire experiential cycle, particularly for skill-intensive programs.

Community of Inquiry Framework

Successful online and blended learning, as proposed by the Community of Inquiry (CoI) framework, results from the co-interaction of cognitive, social, and teaching presence (Garrison et al., 2000). While undertaking flexible learning, technology problems negatively impacted social presence; however, returning to hybrid and face-to-face modes facilitated a more balanced presence, thereby improving collaboration and engagement between students and instructors.

Resilience Theory

Resilience theory highlights the adaptive capacity of teachers and students in the face of such disruptions. Masten (2014) defines resilience as positive adaptation in the face of adversity. Flexible learning was not a technological shift but a psychological and organizational adaptation in response to a crisis. These actions are manifestations of resilience at both the individual and institutional levels, facilitating persistence in learning in the face of adversity.

OBJECTIVES OF THE STUDY

To ensure learning continuity during the COVID-19 pandemic, the Commission on Higher Education (CHED) in the Philippines urged higher education institutions (HEls) to adopt flexible learning. CHED issued the "Guidelines on the Implementation of Flexible Learning" through CHED

Memorandum Order (CMO) No. 04, series of 2020, to further prepare HEls for AY 2020-2021. Although flexible learning was deemed the most appropriate and safest pedagogical approach during the pandemic, CHED recognized that in some cases, face-to-face delivery of certain courses may be required. In accordance with this, CHED issued last February 10, 2021, CHED-DOH Joint Memorandum Circular No. 2021-001 on the "Guidelines on the Gradual Reopening of Campuses of Higher Education Institutions for Limited Face-to-Face Classes During the COVID-19 Pandemic." According to the joint memorandum, "for the gradual reopening of HEls campuses for limited face-to-face classes, selected health-related degree programs regarded as vital in providing additional manpower support in the health system during the pandemic shall be prioritized." Degree programs mentioned include Medicine, Nursing, Medical Technology/Medical Laboratory Science, Physical Therapy, Midwifery, and Public Health.

Despite these efforts, research on the transition from flexible learning to face-to-face instruction, particularly in practical disciplines, remains limited. Most studies have focused on the initial shift to online learning during the pandemic, leaving a gap in understanding how educators and students navigate returning to in-person settings. This transition is particularly significant for Allied Health degree programs, where the reintroduction of face-to-face classes must address gaps in practical skills, refine hybrid learning strategies, and ensure the resilience of educational systems.

This study aimed to fill this gap by examining the perspectives and strategies of Allied Health students and educators at the University of Baguio during this critical transition. This study aimed to analyze the implementation of flexible learning in health-related programs during the COVID-19 pandemic and how students and educators navigated the shift back to limited face-to-face instruction. This study specifically addressed the following objectives (1) identify the perspectives of Allied Medical Health students and teachers on the implementation of flexible learning during the COVID-19 pandemic, (2) determine the strategies employed by students and teachers to address the challenges of implementing flexible teaching and learning during the COVID-19 pandemic, (3) explore the perspectives of Allied Medical Health students and teachers on the transition from online classes to limited face-to-face classes, and (4) identify the strategies used by students and teachers to address the challenges that arise when the learning environment shifts from online to limited face-to-face classes.

METHODOLOGY

Research Design

This study employed a qualitative descriptive research design to explore the perspectives, issues, challenges, and strategies of Allied Medical Health students

and teachers regarding flexible learning and the transition to limited, face-to-face classes. Descriptive research enables the exploration of personal views and coping strategies in response to the challenges of flexible learning. It also explores the pivotal shift between online classes and limited face-to-face learning, highlighting how teachers and students perceive and adapt to this shift.

Population and Locale of the Study

Ten teachers and ten students from the University of Baguio Allied Health programs were selected using purposive sampling. The students targeted were those enrolled in courses offered through flexible learning in SY 2021-2022 and in courses with limited face-to-face classes in SY 2022-2023. Similarly, teachers who taught courses through flexible learning in SY 2021-2022 and the same courses with limited face-to-face classes in SY 2022-2023 were chosen. Teachers with less than one year of experience at the university and those who did not consent to participate in the study were excluded from the study.

Data Gathering Tool

Interview questions developed by the researchers through a literature review were used to gather data. The use of open-ended questions enabled the researchers to capture participants' perspectives on flexible learning. The University of Baguio's Flexible Learning Primer and CHED's issued memoranda on flexible learning were reviewed to supplement the findings gathered from the interviews.

Data Gathering Procedure

The researchers personally approached the identified teachers to explain the purpose of the study and the interview process to them. Participants were asked to sign a consent form if they agreed to participate in the study. Before the interview, participants were asked if they wanted the interview to be audio recorded; otherwise, the researchers took notes of the interview. Face-to-face interviews were conducted at a time and location convenient for the participants. All interviews with teachers were conducted in vacant rooms to ensure privacy.

Interviews with students were conducted via Facebook Messenger, as the students were unable to find a convenient time for face-to-face interviews. The interview questions were sent to the students, allowing them to respond at their convenience.

Data Analysis

The data collected from the interviews were analyzed thematically. Thematic analysis was conducted in accordance with the six-step process of Braun and Clarke (2017): familiarization with the data, initial code generation, searching for themes, review of themes, defining and naming themes, and report generation.

Analysis commenced with verbatim recording of audio interviews and the researcher's field notes to ensure that spoken contextual information and nuances

were captured. The transcripts were imported into NVivo 12, and coding was performed inductively. Data segments were marked and coded to reflect the main ideas or patterns rather than preconceived categories. Node matrices and queries in NVivo were used to compare coding patterns across student and teacher interviews, highlighting the similarities and differences in viewpoints.

In the next phase, the researchers organized similar codes into initial themes based on NVivo's visualization tools. The initial themes were successively developed by consolidating overlapping codes, distinguishing wider categories into more subtle subthemes, and eliminating items with insufficient support. To enhance credibility, the themes were peer-reviewed by the research team. Finally, the researchers wrote narrative representations of each theme, supplemented with direct quotes from the participants. The narratives connected the findings to the overall research questions and theoretical frameworks of constructivism, experiential learning, and resilience, thus ensuring that the analysis summarized participant viewpoints while also providing interpretative understanding.

Ethical Consideration

This study was conducted in accordance with the ethical standards of the University of Baguio Research Ethics Review Committee. The participants were provided with an informed consent form stating the purpose of the study and the interview process. The form also emphasized that participation was voluntary, allowing teachers and students to opt out at any time. Participants could withdraw from the study at any stage of the study. Only the researchers knew the participants' identities and personal information, ensuring confidentiality. To maintain anonymity, codenames were assigned: five female teachers from the School of Natural Sciences (AF1-AF5), three male teachers from the same school (AM1, AM2, and AM3), and two female teachers from the School of Nursing (BF1 and BF2). The ten student interviewees were coded S1 to S10.

The consolidated responses were objectively reported, and the study results were communicated to participants via email. Teachers and students who agreed to participate signed consent forms before the interviews. The researchers personally transcribed and analyzed the data, using pseudonyms to present the findings. Any documents or audio recordings containing respondents' personal information were securely stored and accessible only to the researchers.

RESULTS AND DISCUSSION

Perspectives of Allied Health Teachers and Students on the Implementation of Flexible Learning during the COVID-19 Pandemic

Technological Adaptation

The shift towards flexible learning amid the COVID-19 pandemic necessitated significant technological adjustments on the part of both teachers

and students, especially in Allied Health programs such as Medical Technology, Physical Therapy, and Nursing. Teachers faced the dual challenge of quickly adapting to online learning environments while maintaining the quality of delivery of laboratory-based courses. As AF1 shared, "I*nitially, it was really challenging to adjust, especially because I'm not very skilled with technology."* Similarly, BF2 noted, "*We had to adapt to new platforms like Canvas after getting used to Google Classroom."* Educators employed creative approaches to navigate these challenges in their teaching. AF3, who handled Physical Therapy courses, explained, "*It was difficult to transition to online learning, especially for subjects with laboratory components. I needed to apply innovative methods, such as taping demonstrations using family members as subjects, to allow students to grasp the classes*." For BF1, a Medical-Surgical Nursing and Psychiatric Nursing instructor, the transition to online learning was especially challenging due to her limited technical knowledge. "*I personally struggled a lot because I am not tech-savvy. The technical changes were really difficult for me.*" Likewise, AM3, the teacher of Clinical Chemistry and Bacteriology, also used recorded lectures to facilitate student learning, commenting, "*To ensure students could follow the lessons, I recorded lectures and uploaded them to YouTube for them to access at their convenience."*

In the same manner, students struggled with connectivity problems, inadequate gadgets, and the sheer number of recorded lectures, with S1 contributing, "*Internet connection and availability of gadgets were a big problem, particularly in my first semester*." S2 also mentioned "*Internet connection problems introduced yet another level of difficulty*." *Having my internet go out in the middle of virtual classes or when uploading assignments was really frustrating, considering that I was using data at the beginning of the pandemic."* S6 reflected similar challenges, citing the erratic nature of Internet connectivity in rural settings. Such issues added to the pressures of online education, especially for time-constrained quizzes and exams, which amplified academic anxiety.

These challenges have been documented in several studies, focusing on the awareness, experimentation, and coherence phases that teachers go through as they adapt to new technological environments (Deed et al., 2020). Studies also note that teachers were initially challenged by issues of poor connectivity and limited resources, but as time progressed, they adapted to the flexibility and ongoing learning required to incorporate technology into their teaching practices (Pambuena & Yango, 2023; Amin, 2023). Technological problems, including weak Internet connectivity and a lack of important devices, also impeded students' learning (Chiner et al., 2021).

Changes in Teaching Methods

Despite these challenges, teachers showed resourcefulness. They recorded lab demonstrations, utilized interactive resources such as Kahoot and Mentimeter, and adopted a combination of synchronous and asynchronous strategies to interact with the students. Research supports these strategies, with Handoko

and Ayumi (2022) noting that the use of a combination of synchronous and asynchronous methods, improves student engagement and learning outcomes. Moreover, Tsai et al. (2021) emphasized the importance of interactive tools in fostering collaboration and student engagement, even in online learning conditions. This new strategy not only bridged the learning gap but also paved the way for incorporating technology as a future mode of teaching. AF5 averred, "*Technology is a big help, especially now that flexible learning practices are becoming more common worldwide."*

Challenges to Student Engagement and Academic Integrity

Students' reliance on technology uncovered shortcomings. Although asynchronous material facilitated flexible learning, AF3 noted it also promoted procrastination. The absence of hands-on activities in laboratory subjects further highlights the irreplaceable value of face-to-face instruction for skill development. AF2 commented, "*Technology cannot substitute for hands-on experience for laboratory subjects."* Forde and O'Brien (2022) and Heng et al. (2022) corroborate this observation, noting that although video demonstrations are useful, they cannot substitute the depth of learning achieved through in-person practice, especially in skill-based disciplines.

The shift also exposed more fundamental issues, including upholding academic integrity in online examinations and ensuring focused student engagement. Teachers created flexible lesson plans, incorporated modular tasks, and used collaborative approaches to address these issues. Interactive teaching resources, frequent feedback, and regular communication were crucial in maintaining students' engagement despite the isolation caused by e-learning. These approaches correlate with the work of Villanueva (2024) and Camara et al. (2021), who emphasized that promoting active communication and utilizing multiple platforms serve to reduce disengagement and ensure an effective learning community.

Mental Health and Well-Being

The shift to online learning during the COVID-19 pandemic also impacted the mental well-being of students and teachers due to the added workload, connectivity issues, and time-constrained assessments. For students, the sheer number of recorded lectures and assignments was stressful and led to their burnout. AF4 remarked, "*Students feel more stressed and anxious due to the changes and stress of online learning."* S1 commented, "*It becomes difficult to catch up, and it can be burnout-causing when that's all you do all day.*" Likewise, Franco et al. (2023) and Oktawirawan (2020) emphasized the emotional fatigue resulting from excessive tasks and few breaks in between. Connectivity problems, as explained by S2, caused more frustration and disrupted the learning process.

For teachers, expanded workloads and diminished boundaries between home and work lives were major stressors. AF4 noted, "*The workload rose substantially*

because we had to prepare more material and check on the students all the time." Female teachers, in particular, experience higher stress levels due to increased childcare demands (Leo et al., 2022). Maintaining work-life balance was a common challenge, with over 60% of teachers experiencing high stress during the pandemic (Vargas Rubilar & Oros, 2021).

To address such challenges, teachers adjusted deadlines, provided flexibility, and prioritized mental health assistance through webinars and counseling. AF3 taught time management skills to help students avoid burnout, whereas BF2 emphasized the importance of self-care and adherence to a routine. Such interventions enabled students like S3 to develop skills for balancing life and studies, thereby enhancing their overall well-being despite online pressure.

The sudden transition to flexible learning required Allied Health students and teachers to adapt quickly to online platforms under limited resources and skill constraints. Informed by Constructivist Learning Theory, the process centered on self-directed learning via modules and online platforms, but the absence of regular scaffolding and peer interaction—due to connectivity and resource constraints—undermined its potential. Teachers responded with pre-recorded lectures and innovative demonstrations, indicative of attempts to replicate social scaffolding. These innovations also fit within the Community of Inquiry model, where teaching presence was built through guided instruction and interactive apps built cognitive and social presence, even as technical issues prevented full collaboration.

From the Experiential Learning Theory perspective, health sciences education was interrupted because online classes could not adequately offer the hands-on practice necessary for finishing the experiential learning cycle. This resulted in disengagement, procrastination, and decreased practical skills, which were tried to be countered by interactive and feedback-based approaches. Both teachers and students, however, showed resilience in overcoming these challenges by changing strategies, reconstructing routines, and helping each other. This mirrors Resilience Theory with its focus on withstanding and learning from adversity, highlighting the flexibility, peer assistance, and mixed approaches with respect to maintaining effective learning in health programs.

Teachers' and Students' Perspectives on Transitioning to Limited Face-to-Face Classes

As institutions navigate the return to in-person learning, understanding the perspectives of teachers and students provides valuable insights into optimizing hybrid education. These insights reflect how teaching practices, assessment methods, and student engagement have evolved as educators adapt to a new learning environment

Teachers' and Students' Perspectives on Transitioning to Limited Face-to-Face Classes

As institutions transition back to in-person learning, understanding the perspectives of both teachers and students is essential to gather valuable insights into optimizing hybrid education. These insights reflect how teaching practices, assessment methods, and student engagement have evolved as educators have adapted to new learning environments.

Teaching Strategies

The shift to limited face-to-face classes presented both opportunities and challenges for students and teachers, necessitating adjustments to teaching strategies to ensure effective learning. From utilizing recorded materials to allow asynchronous access to incorporating hands-on lab activities for skill acquisition, teachers adopted a range of methods to bridge the gap between online and in-class instruction during the pandemic. Instructors also relied on course-based self-learning activities to promote autonomy and blended approaches that combined online and face-to-face elements, allowing for flexibility and a richer learning experience. Interactive tools such as Kahoot, Mentimeter, and Google Apps played a crucial role in promoting student engagement and sustaining attention during sessions. Such strategies demonstrate the collective efforts of teachers to combine the availability of online learning with the spontaneity and engagement of regular classrooms, thereby addressing the various needs of students during this transition period.

Instructional strategies during the transition to limited face-to-face classes demonstrated high levels of flexibility, as teachers navigated the issues of flexible learning. The utilization of recorded materials has become a support for instruction, enabling instructors to offer learners the convenience of studying at their own pace and convenience. AF1 identified the worth of such resources, saying, "*Recorded videos, followed by online discussions… now that we're in the face-to-face era, at least we can discuss in person*." AF4 also described how video-recorded demonstrations "*proved particularly helpful to students who needed to review experiments they were unable to fully grasp in real-time.*" This twofold method allowed for improved retention and understanding, with students able to review difficult material before participating in more extensive discussions in live sessions. BF1 highlighted how Google Classroom and other digital tools aided this approach, stating, "*Since I already know how to use Google Classroom, we have been uploading documents, assignments, and quizzes there*". These technologies filled gaps in communication and resource allocation, providing continuity and availability in learning. Online platforms were unable to completely substitute for hands-on experiences, but they were utilized to supplement laboratory work. Recorded practicum sessions and interactive features such as simulations helped reduce the gap during online learning. The teachers, such as AM1, however,

stressed the importance of interactivity for skills development and argued that "*blending video tutorials with supervised activities created a balanced approach."*

The management of structured activities also contributed to addressing the intricacies of shifting between modalities. Teachers rearranged their schedules to effectively accommodate hybrid approaches. BF2 commented on this necessity of careful planning, explaining, *"We had to plan hands-on activities carefully in limited face-to-face classes."* Similarly, BF1 reflected on how the nursing program achieved a balance, citing, *"In nursing, lectures were online, but associated learning activities, such as skills lab and hospital responsibilities, were face-to-face."* These measures provide students with opportunities to practice the key skills necessary for their development. By incorporating transparent timelines and scheduling crucial hands-on exercises, teachers were able to fill gaps that online teaching alone could not.

The incorporation of blended learning models, which combine online software with on-site interaction, has also enhanced the effectiveness of instruction. AF1 recognized the significance of this blended strategy, saying, "*Now that we're in the face-to-face era, at least we can have discussions in person."* This balance enabled students to take advantage of the convenience of asynchronous learning and benefit from the depth of their comprehension through real-time interaction. BF1 mentioned the long-term advantages of such integration, adding, "*Even in limited face-to-face classes, we continued using online platforms for instructions and reminders."* Such methods highlight the flexibility of teachers, the long-term significance of digital tools, and the need for in-person interaction for comprehensive learning. The strategies implemented during this shift have future implications for education, highlighting the promise of blended learning to efficiently address various educational needs.

Another notable instructional approach during the transition was the strong emphasis on course-based self-learning activities. These activities were structured to develop student autonomy and responsibility by allowing independent learning. AF2 captured this method, noting the way "*course-based tasks permitted students to investigate topics at their own pace, particularly in theoretical courses*." This method was especially helpful in overcoming the limitations of synchronous courses, where time was often limited for in-depth investigations. AM1 noted, *"Self-paced activities provided students with the opportunity to explore the content further, something that was needed due to the hybrid schedule of ours."* By providing them with clear directions and resources, teachers helped students become more autonomous in their learning, an ability critical to both academic and professional development.

Interactive tools further enriched student participation, keeping learning active and dynamic. Applications such as Kahoot, Mentimeter, and Google Apps were often used to develop interactive quizzes, surveys, and discussions in the classroom. BF2 explained how these applications were incorporated into lessons, saying, *"I began using interactive tools like Kahoot and Mentimeter to make*

online classes interesting and engage students." These sites not only made learning fun but also forced students to participate actively, even virtually. AF3 noted, *"Interactive tools played a key role in keeping students engaged throughout virtual lessons and allowed for instant feedback on their comprehension."* Utilizing these tools, instructors can create a more engaging and interactive learning space, bridging the gap between traditional and modern teaching methods.

Ardito (2024) describes the shift from blended to the traditional mode of delivery, highlighting how online materials can facilitate learning without adding workload. Turnbull et al. (2021) cite the challenges institutions face in adopting online learning due to the COVID-19 pandemic, calling for a blended strategy that combines synchronous and asynchronous components. Finally, Imran et al. (2023) find that blended instruction has proven to be a viable strategy following the pandemic, emphasizing the need for flexibility in learning modes and ongoing investment in technology to address diverse student needs. Collectively, these works highlight the flexibility of teachers in improving the quality of education in times of transition.

Assessment Approaches

Face-to-face assessment preferred. A strong preference for face-to-face assessment is evident from the interviews, where teachers highlight its strengths in assessing students' understanding and maintaining academic integrity. As AF1 puts it, "*Because during the pandemic, we just showed videos of the procedures, and they were left to imagine. Now, they can physically handle the tools and reagents we mention".* This emphasizes the tangible benefits of face-to-face tests, where learners can physically interact with, see, and feel materials to gain a more realistic learning experience.

AF2 highlights the disparity in student performance when transitioning from web-based to face-to-face testing: *"Now, we do face-to-face comprehensive exams, and you can really see the difference in the scores." They scored well online, but their score fell when we did it in person.*) This suggests a concern that online tests may not accurately measure students' skills, while in-person tests reveal performance gaps. AF5 also holds a similar opinion: "*For my professional subject, which accounts for 20% of the board exam, I no longer administer online quizzes. I just administer seatwork online, which they can't research."* Quizzes and exams are done in person. This indicates that AF5 places importance on the genuineness and control in face-to-face assessments, particularly for key subjects with a lot at stake, such as board exams. In the same manner, AM3 agrees, stating, "*I stopped using online tools for assessments, quizzes, and tests when we transitioned back to face-to-face. For me, it's more effective to establish the students' understanding when they are tested in person."* This supports the notion that face-to-face exams provide a more accurate reflection of a student's understanding and abilities.

BF1 also underscores the benefit of face-to-face evaluation: *"Under the limited face-to-face arrangement, all important exams were held in person because we*

observed that students performed better with face-to-face supervision. It guaranteed the integrity of their responses." BF1 also noted that face-to-face evaluations enable teachers to have direct supervision, which can improve student performance and guarantee fairness. BF2 also highlights the importance of face-to-face evaluation in upholding academic integrity: *"Face-to-face evaluations allowed for greater control over cheating, as opposed to online, where you cannot know if students are honest. In-person evaluations provide reliability."* Such an opinion supports the argument that face-to-face environments are necessary for maintaining the authenticity of the evaluation process.

Combining asynchronous and synchronous testing. Contrary to the inclination towards face-to-face testing, both asynchronous and synchronous approaches are also described as flexible and viable options for meeting different learning demands. AF2 explains, *"There were asynchronous activities…synchronous activities, for example, consolidation of learning plans, during the online setup.". Now that it's adaptive, describing how things work in the UB Clinical laboratory section prior to beginning is cumbersome.*" This statement reflects the balancing act instructors have in describing the mechanics of integrating the two types of learning activities.

AM1 describes incorporating interactive features: "*What I did was I added online research, and so on. I added it to make it more interactive." Therefore, I did provide research activities.* This indicates an effort to maintain students' engagement through a combination of online research assignments and increased flexibility in testing. Likewise, AM3 relays how they still utilize online platforms for certain activities: *"I still utilize online platforms for some lab activities, such as Questions for Research (QFRs) and drawings, for submission. It is even flexible in a face-to-face arrangement."* This is an example of how online resources can supplement face-to-face learning, providing students with greater flexibility without jeopardizing the quality of assessments.

Both BF1 and BF2 further illustrated their blended method of assessments. BF1 shared, *"We employed blended strategies during limited face-to-face classes. While lectures were conducted online, concurrent learning activities, such as skills labs and hospital responsibilities, were held face-to-face. It guaranteed the application of what they learned online."* This demonstrates how blending online and face-to-face learning optimizes the strengths of both modalities, providing students with both theoretical lessons and practical experience. BF2 further adds, "*We blended asynchronous and synchronous approaches in flexible learning, employing platforms such as Canvas for quizzes and assignments but lecturing in real time through Google Meet."* This hybrid approach enables both autonomous learning and live interaction, providing learners with flexibility without omitting live engagement with the content.

AM3 also shared using the digital platform for quizzes even in face-to-face sessions: *"Fridays were for quizzes on Canvas, even with face-to-face classes. This combination of strategies minimized paperwork and made reminders more effective."*

This yet again demonstrates how a combination of digital and physical means streamlines the teaching and assessment process, making it more effective and less stressful.

The use of face-to-face assessments indicates a need for control, dependability, and a more accurate assessment of student knowledge. As the interviewees demonstrate, face-to-face assessments ensure students' active participation in learning, provide opportunities for hands-on experiments, and enhance the reliability of assessments. These facts collectively suggest that in-person assessments are considered the most reliable method for evaluating student performance.

However, the combination of synchronous and asynchronous testing techniques reflects a shift towards greater flexibility, with hybrid models that aim to serve a diverse array of students. Instructors are increasingly combining these approaches to provide a balance of structure and freedom. The two-pronged method of face-to-face and blended testing provides for a more comprehensive system of evaluation, where online flexibility supports the nuance and dependability of in-person testing. This hybridization ensures that students are assessed in a manner that accommodates diverse learning styles, while upholding academic integrity and relevance. The findings of the current study align with other research that recommends hybrid approaches in teaching. Combining synchronous and asynchronous approaches maximizes flexibility and participation in diverse settings, such as language teaching (Rofi'i & Herdiawan, 2024) and medical education (Saxena & Carnewale, 2023). At the postgraduate level, the implementation of hybrid assessment strategies has led to the refinement of evaluation measures, whereby instructors personalize test sites and adopt new strategies to enhance both online and classroom testing (Neacsu et al., 2023).

Challenges Faced

Challenge of student engagement. Adapting to flexible and limited face-to-face learning had a significant impact on student engagement, with both teachers and students citing difficulties in sustaining participation and interest. AF2 pointed out, *"Keeping students engaged was difficult because many were passive during online discussions,"* which captured the extent to which the virtual environment tended to diminish student involvement. AM1 noted a discernible disparity between in-person and online participation, reporting, *"Students appeared not to be engaged during online lectures, but face-to-face, I noticed more reaction."* This discrepancy highlights the shortcomings of virtual communication in creating active engagement. AF1 also highlighted the absence of accountability, telling us, "*When I ask the students, 'Did you watch the recorded videos?' and then have them do the task in the classroom, they still can't do it because they didn't actually watch the videos.)* These testimonies demonstrate how passive participation in online learning hindered students' readiness for classroom activities. Instructors attempted to mitigate this by implementing measures such as compulsory

attendance quizzes, as AM3 noted: *"We managed to deal with students missing classes by making attendance quizzes compulsory."*

Students, too, had difficulty adapting to traditional face-to-face routines. S7 concurred, *"It was hard adjusting back to waking up early for face-to-face classes,"* highlighting the difficulty of adjusting to rigid schedules after the flexibility of online learning. Additionally, S10 testified that "*lessons did not retain during flexible learning,"* resulting in challenges when applying theory in lab work. These observations highlight a discrepancy between theoretical instruction and practical application, particularly in health science programs where hands-on practice is crucial.

Adjusting to the new learning and teaching environment. The shift to a hybrid learning format necessitated drastic changes in teaching timetables to properly harmonize online and in-class aspects. AF3 explained, *"We had to constantly reorganize teaching timetables to accommodate both online and face-to-face modalities,"* which underscores the logistical difficulty instructors experienced in coordinating seamless delivery on multiple venues. For most instructors, balancing the dual roles of synchronous classes and preparation time was difficult, as AM3 reported, *"I found it difficult to balance synchronous classes with my own preparation time."* Students also experienced challenges in adapting to the structured routines of limited face-to-face classes after the flexibility of online learning. S7 reflected, "*After the flexibility of online learning, adapting to fixed schedules for limited face-to-face classes felt overwhelming."* These transitions required careful time management, as noted by BF2 noting, "*Shifting between online lectures and in-person sessions required careful time management, which was new for all of us."*

Health sciences courses posed unique challenges in this new environment. Overlapping timetables were a specific problem, as S6 described, *"When the face-to-face classes began. It was difficult for me to go to both because the lab classes were done in the morning face-to-face, and we had an hour to go to the online class after our lab."* The conflicting scheduling not only created organizational stress but also posed health issues. S6 contributed, *"We were worried because we could be infected with the disease,"* capturing the ever-present conflict between upholding academic obligations and responding to personal safety amid the pandemic. Such challenges highlight the intricacy of coping with hybrid schedules, particularly in theoretical and practice-based courses.

The new learning and teaching environment also highlighted the limitations of physical contact in hybrid contexts. AF4 opined, *"The reduction of face-to-face interaction made it difficult to gauge students' non-verbal signals and level of engagement,"* highlighting the problem in overseeing and supporting students. The development of practical skills was the most severely impacted, with S6 observing, *"Without direct supervision, developing practical skills was more difficult and less effective."* Courses taught in the laboratory, which are more dependent on practical learning, were worst affected. S1 opined, *"I found laboratory topics*

difficult during face-to-face classes because there were no practical demonstrations in online classes," emphasizing the lack of theoretical know-how in skill learning.

Gap in students' practical skills. The transition from flexible to limited face-to-face classes exposed the biggest gap in the practical skills among students. Many students reportedly found it difficult to complete hands-on activities due to the absence of physical contact during online instruction. AF1 noted, *"In face-to-face classes, students can concentrate more on hands-on activities. But in online learning, they hardly have any understanding of how to do the procedures properly",* stressing the value of physical contact in learning technical skills. Students seconded this, as S1 pondered, *" It's still different when you can actually do the lab activities personally,"* and S9 confessed, *"We were not that sure with skill work activities because we've just been sitting during online classes and restricted to online simulations."* These observations highlight the limitations of virtual settings in replicating hands-on learning, underscoring the need for in-person practice in skill-based fields. The return to in-person learning highlighted theoretical retention gaps and practical competency deficits, as students lacked online practice.

Logistical challenges associated with hybrid schedules and the absence of in-person interaction further exacerbated these issues. Both students and educators emphasized the importance of in-person learning in developing practical competencies. Forbes et al. (2023) supported this, noting that although hybrid environments can accommodate some pragmatic learning, disproportionate attention is usually focused on theoretical content in online classes, and students are consequently not adequately prepared for practical tasks.

Strategies Implemented by Teachers and Students to Address the Challenges in Transitioning from Online to Limited Face-to-face Classes

Strategies implemented by teachers

In response to the issue of students' skill gaps, teachers adopted **more intensive supervision strategies** to guide students in relearning and mastering practical skills. AF2 noted, *"We're more hands-on now. We can't leave the students unattended in the lab anymore because there's so much they don't know anymore"*, reinforcing the greater effort needed to supervise the students. AF1 elaborated on their process, saying, *"Now, you have to fill up the quota first [internship requirement], with explanations attached, so there's room for practice",* reinforcing a more explicit and iterative learning process. Students recognized these efforts and appreciated them. As S3 noted, *"Including limited face-to-face classes enables us students to practice techniques under direct supervision, which is important for our skill development."* Still, the hybrid nature of learning introduced complexity, as AM3 elaborated, *"Due to the hybrid setup, time and attention must be split between two groups, online and face-to-face, mirroring the dual demands put on teachers."*

The return to limited face-to-face classes revealed the need for students to

rebuild basic skills they had lost or failed to acquire while learning remotely. Instructors observed that some basic skills, particularly those requiring hands-on experience, were not adequately addressed in the virtual environment. AF5 explained, *"Flexible learning was challenging because the students moved from solely online learning. Even if you anticipated that they should know particular things, they didn't."* The gap illustrates the disadvantage of flexible learning in the case of practical disciplines. AM1 reinforced this, saying, *"In Physical Therapy, it's great for students to observe how assessments and procedures are done through video demonstrations. But if they observe only once, they tend to have a hard time fully getting the concept".* These observations highlight the deficiency between theory and practice, an issue that is especially marked in disciplines such as health sciences and physical therapy.

To fill these gaps, instructors developed techniques to reteach and reinforce essential skills. AF2 highlighted the additional effort needed: "*Previously, everything was done face-to-face with no recorded materials. Now, with the flexible arrangement, giving comprehensive explanations on how things operate in the section [referring to the UB Clinical Laboratory sections] has become more tiresome before commencement*". This highlights how instructors had to shift their teaching methods to reach the students where they were in terms of readiness for skills. Some schools included extra exercises to help students catch up. BF2 opined, "*We gave supplemental exercises to enable them to recover their foundational knowledge*". These targeted interventions are indicative of an active response to the learning gaps resulting from the sudden switch to online learning.

Even so, skill reconstruction has not been without its problems. The teachers frequently found themselves having to revisit topics that should have been mastered earlier. AM3 said, "*When we went back to limited face-to-face classes, we needed to reteach things that were supposedly taught during online learning."* Likewise, AF5 noted, *"We found that the students couldn't proceed without fixing the fundamental skills they lost in online learning."* Such comments reflect the ripple effect of the pandemic's learning interruptions. While the return to face-to-face instruction has provided an opportunity to fill these gaps, it has also necessitated considerable extra effort on the part of teachers to ensure students are well-prepared to move forward with their academic and professional paths.

Teachers employed a range of strategies to meet the challenges of shifting from online to limited face-to-face classes, with a priority on filling skill gaps and rebuilding fundamental competencies. They implemented more hands-on monitoring, iterative pedagogies, and complementary exercises to help students reacquire practical skills that had been lost during online classes. The blended arrangement introduced added complexity, requiring teachers to strike a balance between online and face-to-face instruction while compensating for the weaknesses of flexible learning in developing hands-on proficiency. Reteaching fundamental concepts and providing detailed guidance became essential to help students recover and move forward. Although requiring more effort, these

measures demonstrated teachers' flexibility and dedication to preparing students for academic and professional success. The results concur with the observations of Rahman et al. (2021) and Bâcă (2023), highlighting the need for flexibility in transitioning from online to limited face-to-face lectures. Rahman et al. (2021) emphasized the need to adapt to new technologies, logistics, and teaching approaches, along with enhancing teacher competence to support students. The shift entailed adjusting to new technologies and logistics, enhancing teacher competence, and assisting students. Despite challenges, the alternative teaching experience was worthwhile, and the pandemic's impact on students' academic future plans was less pronounced than expected (Bâcă, 2023).

Strategies implemented by students

The shift from online classes to limited face-to-face classes posed significant difficulties for Allied Medical students and necessitated that they implement diverse strategies to manage the transition successfully.

Academic strategies played a crucial role in helping students adapt to the demands of face-to-face learning. Effective time management was a major highlight, as the students formulated routines to keep them organized and productive. One of the students articulated (S1) *"My learning became more systematic, where I had clear goals to make sure I get my study work done within a set time."*. In the same manner, study habit adjustments streamlined the learning process; for example, another student remarked, *"I changed to taking down only the key points and side notes in class, then studying them afterwards."* (S2). Developing practical skills also took center stage, with students fully utilizing hands-on learning opportunities through internships and other experiential learning experiences. One said, *"During our internship year, where we've been able to immerse ourselves in the field, I maximized the opportunity to learn about how to do them in practice."* (S9).

Outside of academics, **social and emotional strategies** were crucial in addressing the interpersonal and mental health challenges of returning to face-to-face interactions. Social adjustment, such as interacting with classmates and participating in group work, enabled students to overcome their introversion. As a student said, "*Becoming friends with new people became simpler by chatting with classmates, asking them questions regarding the lessons, and sitting down with them to discuss, particularly before quizzes."* (S2). Emotionally, gradual adjustments and confidence-building were key to facilitating the transition. One of the students commented, "*I thought to move gradually to adjust, to listen and take notes again, and be a part of a friend group according to the rules."* (S4). These strategies emphasize the importance of maintaining a welcoming and inclusive atmosphere during such changes.

Physical and practical strategies were equally crucial in dealing with logistical and health-related issues. Organizational strategies, including advanced preparation of materials, assisted students with better time management. *"I had*

to prepare everything the evening before and set an alarm clock in the morning," reported one student (S7). Health and safety protocols were high on the list, with students going out of their way to minimize COVID-19-related anxiety. One clarified, *"I make sure to wear my mask correctly, I do not touch objects, and practice hand hygiene."* (S6). Furthermore, changes in sleeping patterns helped students maintain their energy and concentration levels on extended class days. One student commented, *"I'd regulate my sleep schedule, and if I could, stay off excessive napping as it reduces productivity."* (S9).

Ultimately, **technology continued to be a vital resource** in bridging the gap between the two learning methods. Students used online sites to take notes and work together, as demonstrated by one student's strategy: *"Originally, I took notes on everything my instructor said, then typed them out in Google Docs, printed them, and studied them."* (S2).

The shift toward limited face-to-face for Allied Medical students reflects larger post-pandemic education trends, as students struggled and employed a range of strategies to adjust. Time management, goal-setting, and systematic learning were essential academic strategies for sustaining productivity (Tobar et al., 2021). Focusing on developing practical skills through internships aligns with findings that emphasize the value of hands-on learning (Jayawardena et al., 2024). Social and emotional strategies, such as group discussions, enabled students to transcend interpersonal challenges, echoing findings on the importance of gradual adjustment (Atwa et al., 2021). Physical strategies, such as preparation and health protocols, were critical to addressing logistical issues (Jayawardena et al., 2024). Lastly, ongoing use of technology for collaboration and note-taking captured the long-term relevance of hybrid models of learning (Atwa et al., 2021). These strategies collectively demonstrate students' resilience in adapting to a post-pandemic educational environment.

The shift from remote to limited face-to-face education in health programs underscored challenges and coping mechanisms that can be mapped through various theoretical frameworks. Constructivist Learning Theory details how instructors and students needed to recreate knowledge through different spaces, with video lectures, interactive applications, and hybrid sessions as scaffolding during periods of no face-to-face interaction. The Community of Inquiry framework also explains how teaching presence was sustained through guided instruction, cognitive presence through interactive tasks and problem-solving, and social presence through restricted but purposeful collaboration. The absence of real, experiential encounters, however, created the break in the cycle mentioned in Experiential Learning Theory, where concrete practice and active experimentation are necessary for learning in health sciences. This gap led to decreased motivation, disengagement, and challenges maintaining academic integrity in the context of fully online learning.

In the face of these challenges, students and faculty alike employed the adaptive characteristics at the heart of Resilience Theory by coping, redesigning

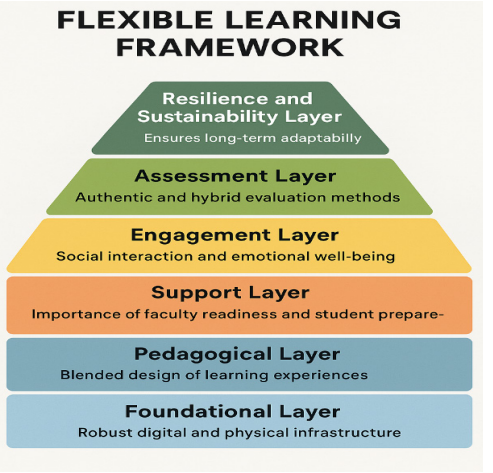
assessments, and adapting routines to maintain learning despite challenging conditions. Gradual restoration of in-person and hybrid formats not only revived experiential opportunities but also underscored supportive teacher-student relationships, adaptive strategies, and institutional preparedness. Combined, these results demonstrate that though online learning underscored inequities in access and participation, anchoring instructional practices in constructivist, experiential, and community-oriented frameworks—fostered by resilience—provides a route toward sustaining health education that is effective and inclusive after the pandemic.

Proposed Flexible Learning Framework

Figure 1 illustrates the Flexible Learning Framework, which integrates the results of this study with established learning theories. The framework is presented as a model with layers to emphasize that each layer is built upon the one preceding it, forming a comprehensive and sustainable approach to health-related education.

Figure 1

Flexible Learning Framework



At the base of the framework is the Foundational Layer, which reflects the need for robust digital and physical infrastructure. The research identified that many students struggled with unreliable internet access and inadequate devices, whereas teachers faced challenges in replicating laboratory-based learning remotely. Therefore, stable connectivity, functional learning management systems, and upgraded laboratories comprise the essential foundation of successful flexible learning.

Above this is the Pedagogical Layer, stressing the blended model of learning

experiences. Results showed that asynchronous lectures and video recordings encouraged self-study, while synchronous discussions facilitated collaboration and provided immediate feedback. Meanwhile, guided laboratory and clinical work met the unreplaceable need for hands-on practice. This aligns with Kolb's experiential cycle, where learning progresses from experience to reflection, abstraction, and application.

The Support Layer emphasizes the necessity of faculty readiness and student preparedness. Faculty members initially grappled with digital tools but eventually developed proficiency, highlighting the necessity of continuous professional development. While students established time management skills and digital literacy, their self-directed learning adaptation was evident. The layer ensures that both teachers and learners are well-prepared to succeed in hybrid modalities.

The next layer, the Engagement Layer, meets social interaction and emotional well-being. The research indicated that students usually felt disconnected from online courses and reported feeling stressed and burned out. Social support, in the form of peer collaboration, mentoring, and class discussions, as well as emotional support through counseling and wellness programs, reinforces the social presence noted in the Community of Inquiry framework and fosters resilience in both learners and teachers.

The Assessment Layer prioritizes authentic and hybrid evaluation methods. Results indicated online assessments compromised academic integrity and did not adequately gauge practical capabilities. Educators noted that students who succeed in online assessments often struggle with face-to-face testing. This highlights the necessity of authentic, experiential evaluations in clinical and laboratory courses, coupled with hybrid approaches such as online reflections and research assignments, to ensure flexibility and adaptability.

Lastly, the Resilience and Sustainability Layer, situated at the apex of the framework, provides long-term adaptability and resilience. The COVID-19 pandemic has shown the value of planning for contingencies in education. Institutionalizing feedback mechanisms and preparedness measures allows health-related programs to maintain continuity of learning even in the face of disruptions. This aligns with resilience theory (Masten, 2014), positioning education not merely as a means of crisis survival but as a potential site of growth and transformation.

Taken collectively, the framework illustrates that flexible learning is most efficient if it incorporates infrastructure, pedagogy, readiness, engagement, assessment, and resilience. The hierarchical structure highlights that lasting learning outcomes in health-related education rely not on single interventions but on the interaction of these six layers.

CONCLUSION

Shifting from online to limited face-to-face learning introduced both relief and new challenges to Allied Health students and teachers. As much as flexible learning ensured continuity of education during the pandemic, it exposed wide gaps, particularly in practical, hands-on skills necessary for health-related fields. Teachers compensated by increasing supervision and hands-on practice to fill the gaps, and students adapted by enhancing study habits and time management. Yet, the experience unequivocally showed that, although flexibility was provided by digital means, face-to-face interaction was necessary to build competence and confidence.

TRANSLATIONAL RESEARCH

Educational institutions need to develop resilient blended learning models that integrate theoretical knowledge transmission with structured, guided practical training. Curricula need to be reimagined in order to encourage balanced growth in knowledge and skills. Additionally, professional development for faculty members is essential, enabling them to become proficient in digital pedagogy, hybrid learning measures, and engagement strategies. Equipping students with digital literacy, autonomous learning, and time management skills will also position them for success in adaptive learning environments. Strong infrastructure investments in stable internet access and up-to-date laboratories by institutions should be accompanied by increased mental health and wellness resources to provide a holistic learning environment. Ongoing assessment will be crucial for tracking the efficacy of these efforts and providing long-term academic and professional success for students.

LITERATURE CITED

Adnan, M., & Anwar, K. (2020). Online learning amid the COVID-19 pandemic: Students' perspectives. *Online Submission*, *2*(1), 45-51.

Amin, A. J. A. (2023). Profiling Teachers' Readiness and Competence for Flexible Learning. *International Journal for Multidisciplinary Research. https://doi. org/10.36948/ijfmr*, v05i06. https://doi.org/10.36948/ijfmr.2023.v05i06.8773.

Ardito, C. G. (2024). Zero waste: leveraging blended learning materials in traditional teaching. *MSOR Connections*, *22*(3).

Atwa, H., Shehata, M. H., Al-Ansari, A., Kumar, A., Jaradat, A., Ahmed, J., & Deifalla, A. (2022). Online, face-to-face, or blended learning? Faculty and medical students' perceptions during the COVID-19 pandemic: a mixed-method study. *Frontiers in medicine*, *9*, 791352.

Bâcă, E. (2022). Adjusting and (Re) Adapting from Online to Face-To-Face Systems–A Case Study. *Ovidius University Annals, Series Economic Sciences*, *22*(1).

Baticulon, R. E., Sy, J. J., Alberto, N. R. I., Baron, M. B. C., Mabulay, R. E. C., Rizada, L. G. T., ... & Reyes, J. C. B. (2021). Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines. *Medical science educator*, *31*(2), 615-626.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

Camara, D. J. S., Cuison, A. T., C Dalisay, C. M., Salazar, J. M., & Valdez, M. (2021). Implementation of Flexible Learning in PSU Lingayen, Philippines–Initial Assessment for Sustainability Measures.

Cardona, M. C., Buan , A. T. ., & Inutan, E. D. . (2022). Teachers' Perspective of Science Flexible Learning. *Asia Research Network Journal of Education*, *2*(1), 1–16. https://so05.tci-thaijo.org/index.php/arnje/article/view/257219

Chang, T., Hsu, M., Kwon, J., Kusdhany, M. S., & Hong, G. (2021). Effect of online learning for dental education in asia during the pandemic of COVID-19. *Journal of Dental Sciences*, *16*(4), 1095–1101. https://doi.org/10.1016/j.jds.2021.06.006

CHED-DOH Joint Memorandum Circular No. 2021-001. Guidelines on the Gradual Reopening of Campuses of Higher Education Institutions for Limited Face-to-Face Classes During the COVID-19 Pandemic. https://tinyurl.com/895xezbn

Chen, Y. S., Kao, T. C., & Sheu, J. P. (2003). A mobile learning system for scaffolding bird watching learning. *Journal of computer assisted learning*, *19*(3), 347-359. https://doi.org/10.1046/j.0266-4909.2003.00036.x

Chiner, E., Gómez-Puerta, M., García-Vera, V. E., & Cardona-Moltó, M. C. (2021). University students' struggles with online learning during the COVID-19 pandemic lockdown. *Education and New Developments*, *12*(2), 265-269.

Clarke V, Braun V. (2017). Thematic analysis. *J Posit Psychol. 12*(3): 297–298

Dangle, Y. R. P., & Sumaoang, J. D. (2020, November). The implementation of modular distance learning in the Philippine secondary public schools. In *3rd International Conference on Advanced Research in Teaching and Education* (Vol. 100, No. 1, p. 108). https://www.doi.org/10.33422/3rd.icate.2020.11.132

Dayagbil, F. T., Palompon, D. R., Garcia, L. L., & Olvido, M. M. J. (2021, July). Teaching and learning continuity amid and beyond the pandemic. In *Frontiers in education* (Vol. 6, p. 678692). Frontiers Media SA.

Deed, C., Blake, D., Henriksen, J., Mooney, A., Prain, V., Tytler, R., ... & Fingland, D. (2020). Teacher adaptation to flexible learning environments. *Learning Environments Research*, *23*(2), 153-165.

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of educational technology systems*, *49*(1), 5-22.

Diate, K., & Mordeno, I. C. (2021). Filipino Physics Teachers' Teaching Challenges and Perception of Essential Skills for a Supportive Learning Environment. *Asia Research Network Journal of Education*, *1*(2), 61-76. https://so05.tcithaijo.org/index.php/arnje/article/view/251765

Forbes, D., Gedera, D., Brown, C., Hartnett, M., & Datt, A. (2023). Practical learning in hybrid environments: Can remote learning be active, authentic, and real? *Distance Education*, *44*(2), 362–379. https://doi.org/10.1080/01587919.2023.2198487

Forde, C., & OBrien, A. (2022). A literature review of barriers and opportunities presented by digitally enhanced practical skill teaching and learning in health science education. *Medical education online*, *27*(1), 2068210. https://doi.org/10.1080/10872981.2022.2068210.

Franco, Z. I., Go, J. A., & Iniego, J. (2023). Stress experiences and coping mechanisms of science and mathematics students on online learning amidst COVID-19 pandemic. *International Journal of Research Studies in Education*, *12*(3). https://doi.org/10.5861/ijrse.2023.1004

Garrison, D., Anderson, T., & Archer, W. (1999). Critical inquiry in a Text-Based Environment: Computer Conferencing in Higher Education. *The Internet and Higher Education*, *2*(2–3), 87–105. https://doi.org/10.1016/s1096-7516(00)00016-6

Gupta, M. M., Jankie, S., Pancholi, S. S., Talukdar, D., Sahu, P. K., & Sa, B. (2020). Asynchronous environment assessment: A pertinent option for medical and allied health profession education during the COVID-19 pandemic. *Education Sciences*, *10*(12), 352.

Handoko, H., & Ayumi, A. (2022). Designing synchronous and asynchronous activities for interactive learning. *JURNAL ARBITRER*, *9*(2), 164–177. https://doi.org/10.25077/ar.9.2.164-177.2022

Heng, Z. S., Koh, D. W., Yeo, J. Y., Ooi, C., & Gan, S. K. (2022). Effects of different delivery modes on teaching biomedical science practical skills in higher education during the 2021 pandemic measures. *Biochemistry and Molecular Biology Education*, *50*(4), 403–413. https://doi.org/10.1002/bmb.21637

Illanes, P., Law, J., Sarakatsannis, J., Sanghvi, S., and Mendy, A. (2020). *Coronavirus and the Campus: How Can US Higher Education Organize to Respond?*. Chicago, Illinois: McKinsey and Company. https://www.mckinsey.com/industries/public-and-social-sector/our-insights/coronavirus-and-the-campus-how-can-us-higher-education-organize-to-respond

Imran, R., Fatima, A., Salem, I. E., & Allil, K. (2023). Teaching and learning delivery modes in higher education: Looking back to move forward post-COVID-19 era. *The International Journal of Management Education*, *21*(2), 100805. https://doi.org/10.1016/j.ijme.2023.100805

Jamilah, J., & Fahyuni, E. F. (2022). The future of online learning in the Post-COVID-19 era. KnE Social Sciences, 497–505. https://doi.org/10.18502/kss.v7i10.11251

Jayawardena, A., Kahandawa, G., Hewawasam, H.S., Piyathilaka, L., & Sul, J. (2024). Navigating the New Normal: Student Perspectives on Transitioning from Online to Face-to-Face Learning After COVID-19 Lockdowns. *2024 IEEE World Engineering Education Conference (EDUNINE)*, 1-6.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall.

Lee, J. W. Y., & Bello, F. (2023). Readiness of health care professionals in Singapore to teach online and their Technology-Related Teaching needs: quantitative cross-sectional pilot study. *JMIR Medical Education*, *9*, e42281. https://doi.org/10.2196/42281

Lee, J., & Bello, F. (2022). Readiness to teach online and software needs of Singapore healthcare professionals: A pilot study (Preprint). *JMIR Medical Education*. https://doi.org/10.2196/42281

Leo, A., Holdsworth, E.A., Wilcox, K.C., Khan, M.I., Ávila, J.A., & Tobin, J. (2022). Gendered impacts of the COVID-19 pandemic: a mixed-method study of teacher stress and work-life balance. *Community, Work & Family, 25*, 682 - 703.

Li, K. C., & Wong, B. Y. Y. (2018). Revisiting the definitions and implementation of flexible learning. *Innovations in open and flexible education*, 3-13.

Masten, A. S. (2014). *Ordinary magic: Resilience in development*. Guilford Press.

Naidu, S. (2017). How flexible is flexible learning, who is to decide and what are its implications? Distance Education, 38, 269- 272. https://doi:10.1080/01587919.2017.1371831

Neacsu, M.G., Bucuroiu, F., Țibrian, M., & Samarescu, N. (2023). OPTIMIZING EVALUATION PRACTICES THROUGH RECONSIDERATION OF STUDENT ASSESSMENT STRATEGIES IN THE HYBRID UNIVERSITY ENVIRONMENT. *Journal Plus Education*.

Nikolov, R., Lai, K. W., Sendova, E., & Jonker, H. (2018). Distance and flexible learning in the twenty-first century. In *Second handbook of information technology in primary and secondary education* (pp. 1-16). Springer, Cham.

Oktawirawan, D. H. (2020). Faktor Pemicu Kecemasan Siswa dalam Melakukan Pembelajaran Daring di Masa Pandemi Covid-19. *Jurnal Ilmiah Universitas Batanghari Jambi*, *20*(2), 541. https://doi.org/10.33087/jiubj.v20i2.932

Pambuena, E., & Yango, A. (2023). The Lived Experience of the Faculty of Polytechnic University of the Philippines in the Implementation of Flexible Technology- Enhanced Learning (Flextel). *Technium Social Sciences Journal*. https://doi.org/10.47577/tssj.v44i1.8960.

Piaget, J. (1970). *Science of education and the psychology of the child*. Orion Press.

Rahman, M.M., Watanobe, Y., Kiran, R.U., Thang, T.C., & Paik, I. (2021). Challenges and Exit Strategies for Adapting Interactive Online Education Amid the Pandemic and its Aftermath. *2021 IEEE International Conference on Engineering, Technology & Education (TALE)*, 595-602.

Rofi'i, N. A., & Herdiawan, R. D. (2024). The optimization of hybrid technology in synchronous and asynchronous speaking class. *Journal of Information System Technology and Engineering*, *2*(1), 142–152. https://doi.org/10.61487/jiste.v2i1.59

Rohwer, A., Motaze, N. V., Rehfuess, E., & Young, T. (2017). E-learning of evidence-based health care (EBHC) to increase EBHC competencies in healthcare professionals: a systematic review. *Campbell Systematic Reviews*, *13*(1), 1–147. https://doi.org/10.4073/csr.2017.4

Romli, M. H., Foong, C. C., Hong, W., Subramaniam, P., & Yunus, F. W. (2022). Restructuring education activities for full online learning: findings from a qualitative study with Malaysian nursing students during Covid-19 pandemic. *BMC Medical Education*, *22*(1). https://doi.org/10.1186/s12909-022-03587-1

Rotas, E. E., & Cahapay, M. B. (2020). Difficulties in remote learning: voices of Philippine university students in the wake of COVID-19 crisis. *Asian Journal of Distance Education, 15*(2), 147-158. https://tinyurl.com/668chf

Saxena, R., & Carnewale, K. (2023). Exploring the synergy of synchronous and asynchronous learning approaches in medical education. *Journal of Educational Research*. https://doi.org/10.53555/er.v9i8.5869

Smalley, A. (2020, July). Higher education responses to coronavirus (COVID-19). In *National conference of state legislatures* (Vol. 6, No. 1, pp. 15-27).

Tobar, C., Garcés, M. S., Crespo-Andrade, M. C., & Sisa, I. (2021). The Impact of Strengthening Study Habits for Medical Students During COVID-19 Academic Transition: a Mixed-Methods Study. *Medical Science Educator*, *31*(3), 1083–1090. https://doi.org/10.1007/s40670-021-01277-z

Tsai, C., Ku, H., & Campbell, A. (2021). Impacts of course activities on student perceptions of engagement and learning online. *Distance Education*, *42*(1), 106–125. https://doi.org/10.1080/01587919.2020.1869525

Turnbull, D., Chugh, R., & Luck, J. (2021). Transitioning to E-Learning during the COVID-19 pandemic: How have Higher Education Institutions responded to the challenge? *Education and Information Technologies*, *26*(5), 6401–6419. https://doi.org/10.1007/s10639-021-10633-w

UNESCO (2020). *COVID-19 Educational Disruption and Response* Beirut,

Lebanon.

Vargas Rubilar, N., & Oros, L. B. (2021). Stress and burnout in teachers during times of pandemic. *Frontiers in psychology*, *12*, 756007.

Villanueva, J. (2024). Exploring flexible learning experiences. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4701136

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Westerlaken, M., Christiaans-Dingelhoff, I., Filius, R. M., De Vries, B., De Bruijne, M., & Van Dam, M. (2019). Blended learning for postgraduates; an interactive experience. *BMC medical education*, *19*(1), 289.