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TETFLE also publishes review articles and book reviews. The journal currently appears once in a year, with an additional special edition from accepted biennial conference papers, as applicable. The journal is the official journal of the Distance Education and Teachers' Training in Africa (DETA) biennial conference, hosted by the Faculty of Education, University of Pretoria, South Africa.

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An Integrative Literature Review on students' experiences and preferences regarding modes of delivery in Higher Education

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Abstract

Research indicates that the mode of delivery chosen by higher education institutions (HEIs) during and after Covid-19 impacted students' academic experiences and preferences for a specific mode of delivery. Modes of delivery have changed considerably at most HEIs due to the challenges experienced during the Covid-19 pandemic, and the educational landscape is now finding itself in a rapidly changing digital world. An integrative literature review (ILR), employing the preferred reporting items for systematic meta-analysis (PRISMA) method, was used to explore published research on how students' experiences of different modes of delivery influence their preferences. The ILR provided the opportunity to access data and results from a wide range of recent (2021-2024) research studies. In analysing relevant research and academic articles, recurring themes regarding students' experiences with different modes of delivery were identified to inform decisions in higher education on an optimal mode that will address initial teacher education (ITE) students' needs and preferences. It is recommended that HEIs should align with technological advancements and the highly diverse student body. Therefore, the choice regarding the mode of delivery should be a critical determinant in structuring the quality of the student learning experience. From the ILR, it was clear that different aspects influence the students' preferences for modes of delivery, including flexibility, use of technology, and interaction. These findings underscore the necessity for HEIs to optimise academic outcomes by aligning contemporary student preferences with their instructional mode of delivery in a fluid digital landscape.

Keywords: face-to-face and blended modes of delivery; higher education; initial teacher education (ITE); integrative literature review; modes of delivery online; student experience and preference

Introduction

Successful learning should be a primary objective for initial teacher education (ITE) programmes in their efforts to foster an educated and employable teacher society. However, the assurance of successful learning for all ITE students is contingent upon a multitude of factors, including systemic issues, financial and infrastructural resources, and the level of student preparedness for academic life at a higher education institution (HEI) (Al-Maskari et al., 2022; Woldegiorgis, 2022). Moreover, integral to the aforementioned factors is the mode in which curricula are presented and delivered to ensure ITE students' academic success (Lim et al., 2023; Tuomainen, 2023). The term 'mode of delivery' encompasses various terminologies, such as 'method of delivery' and 'delivery models'. For the current study, the term 'mode of delivery' will be used. In higher education, 'mode of delivery' pertains to the method or strategy employed to convey educational content and enhance students' learning experiences (Garrison & Vaughan, 2008). Currently, the most used modes of delivery in higher education include: online, face-to-face, blended, and hybrid. These delivery modes can be defined as follows: Online delivery entails learning exclusively through digital platforms, enabling students to access materials, and participate in discussions remotely, which provides considerable flexibility (Hodges et al., 2020). In contrast, face-to-face refers to traditional in-person teaching, which promotes direct interaction between lecturers and students, thereby enhancing engagement and facilitating immediate feedback (Baker, et al., 2021). Furthermore, blended synchronous learning allows students to choose how they want to attend lectures: live or remotely with Internet streaming (Vale et al., 2020). The hybrid mode of delivery combines traditional classroom and digital learning, where the lecturer instructs students attending classes, complemented by web-based learning activities (Tyagi et al., 2021). Thus, the blended synchronous mode of delivery gives students the choice to attend lectures on campus or online. The hybrid mode of delivery is both on campus and online.

HEIs are required to broaden access and address issues related to diversity, which encompass demographic, socioeconomic, and educational variables (Boughey & McKenna, 2021). Currently, in contrast to traditional face-to-face delivery methods, various modes of delivery are being implemented across the global higher education landscape. Even before the COVID-19 pandemic, which compelled HEIs to reconsider their delivery methods, Ananga and Biney (2017) advocated for HEIs to provide diverse educational opportunities and expand their services to accommodate the increasing demand for flexible learning options.

It is, therefore, evident that research within the higher education context is essential to

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investigate how various modes of delivery can promote inclusivity and ensure that all ITE students have the opportunity for successful learning. In a systematic review of teaching and learning modalities, Imran et al., (2023) emphasised that HEIs must select delivery modes that are aligned with student needs and promote diverse learning approaches. In a study that specifically focused on ITE students, Adewale (2024) found a positive correlation between virtual learning platforms (VLP) such as Moodle, WhatsApp, Zoom, and Google Meet and student satisfaction. This might be an indication that high-quality VLPs can have a significant positive impact on ITE students' learning experience. Adewale (2024), however, asserts that HEIs should adopt an inclusive approach to VLPs to ensure that they meet the diverse needs of ITE students.

South African universities have returned to predominantly face-to-face teaching and learning after the pandemic, because they are mostly registered as contact universities (Atwa et al., 2022). However, they had to consider that the educational landscape has undergone significant transformation during and after the COVID-19 pandemic, impacting students' socioeconomic circumstances, resulting in shifts in students' learning needs and consequent preferences for teaching and learning modes (Moser et al., 2021). Furthermore, the rapidly evolving digital environment highlights the importance of critically assessing the quality and effectiveness of delivery modes in HEIs, as well as the rationale behind the selection of specific instructional methods (Azennoud, 2022). Thus, based on the aforementioned factors, the changing HEI domain requires a critical review. Since students are the clients and central in choosing an appropriate mode of delivery, it is important to determine their experiences, perceptions, and consequent preferences for a mode of delivery, which is the focus of this article.

To obtain comprehensive and accurate insights into student experiences, it was necessary to first acquire an international perspective and understanding of student experiences and preferences regarding various modes of delivery within the broader higher education environment. This broader higher education context provides a valuable foundation for informing teacher education practices more effectively.

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Theoretical framework

The theoretical framework considered most suitable to support the arguments of the current study is Bronfenbrenner's ecological systems theory (Bronfenbrenner, 2000). Bronfenbrenner's ecological theory underscores the significance of environmental interactions as a crucial factor influencing human development (Bronfenbrenner, 2000). Within the context of the current study, this theory was deemed particularly relevant to the developmental needs of higher education students from different socioeconomic backgrounds, especially in an increasingly digital educational landscape and concerning the challenges of inclusion in higher education. Learning and development do not occur in isolation, but are dependent on and influenced by the interactions within students' immediate home and academic milieus, thus micro- and mesosystems, as well as broader exo-, macro-, and chronosystems, that is, the transforming of educational and technological environments. Therefore, this theory was used as the foundation for the larger study to investigate the perception and experience of HEI students regarding modes of delivery and how they address their immediate environments and circumstances. The aim of the current study was to use the findings to suggest an optimal mode of delivery that could facilitate effective teaching and learning while considering students' needs and circumstances.

Research approach and process

This article reports on the first phase of a larger multiphase mixed-methods research project. Creswell and Clark (2007, p. 5) define a multiphase mixed-method research design as the "integration of qualitative and quantitative approaches across multiple phases of the research process." This could be conducted either sequentially or concurrently. For this article, it was conducted sequentially. Accordingly, data were collected from various sources for the larger project, after which the results were compared to identify potential answers to the primary research question. The study reported on in this article involved an integrative literature review (ILR). The aim was to provide a comprehensive review of the literature regarding HEI students' feedback on various modes of delivery in HEIs globally. The ILR served as the research method to examine published evidence and provide secondary data, to identify student experiences and preferences regarding modes of delivery during the COVID-19 pandemic, as well as the post-COVID-19 era.

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The preferred reporting items for systematic meta-analysis (PRISMA) method was employed to enhance the reporting of the research methodology by identifying specific limiters such as timeframe, publication type, language of publication, and the focus of the research question. PRISMA comprises four components: identification; screening; eligibility; and inclusion (Moher et al., 2009). Cowell (2012) noted that the PRISMA method is beneficial for all literature reviews, as it provides a detailed account of the literature search process. By employing the PRISMA methodology, the ILR concentrated on the keywords (mode of delivery, online, face-to-face and blended/hybrid modes of delivery, higher education, HEI students' perception, experience, and preference of modes of delivery) identified for this research and incorporated specific pre-selected inclusion and exclusion criteria. Only academic articles published in English from 2021 to 2024 were included. In order to respond to the research question, articles that addressed HEI students' perceptions and experiences regarding modes of delivery were the main focus of the sample selection. Articles that primarily addressed lecturers' experiences or those that pertained to education in secondary schools were excluded.

The preliminary search yielded 93 articles that were identified by using the keywords in combination. The combination of the keywords focused on modes of delivery, student experience, and higher education. Of these, 25 articles were excluded before the screening process due to the presence of duplicates and the inclusion of articles based solely on their titles, which were not relevant to this specific research. A total of 68 abstracts were then screened for pertinent content and research focus. Subsequently, 34 articles were removed for various reasons, including the unavailability of the full text on the library databases or the fact that they were written in a language other than English, with only the abstracts available in English. Additionally, some of these articles focused on education at secondary schools and did not pertain to HEIs. Furthermore, another eight articles were excluded because their content did not address the specific research question.

A graphic representation of the identification process is provided in Figure 1.

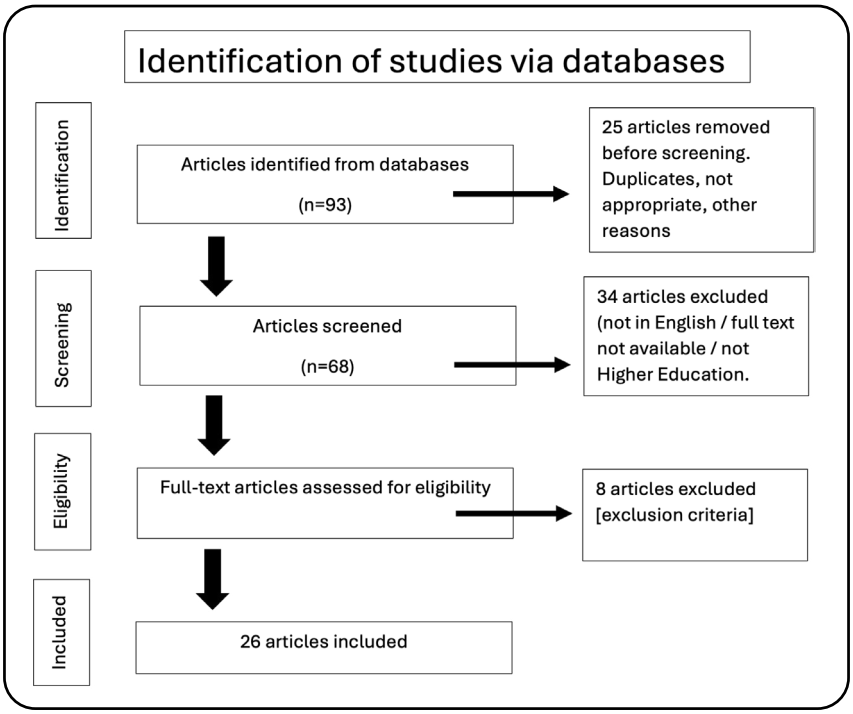


Figure I: Identification process of applicable research articles via the PRISMA method

By rigorously applying the inclusion and exclusion criteria, a total of 26 studies were retained for this review (see Table 1)]. Only the titles and year of publication are included. All the articles are referenced in the reference list.

Table I: 26 identified articles according to the exclusion and inclusion criteria

Title		Year
1.	Higher education students' perceptions of online learning during COVID-19—A comparative study	2021
2.	Hybrid perspectives in higher education	2021
3.	COVID-19 as an enabler for enhancing online learning and teaching skills for nurse educators at the University of Namibia: Prospects and challenges	2021
4.	Priorities for reorienting traditional institutions of higher education toward online teaching and learning: Thinking beyond the COVID-19 experience	2021

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Title		Year
5.	Changes that should remain in higher education post COVID-19: A mixed-methods analysis of the experiences at three universities	2021
6.	Contactless higher education: A SWOT analysis of emergency remote teaching and learning during COVID-19	2021
7.	COVID-19 and online learning experiences of Solomon Islands students at the University of the South Pacific	2021
8.	Online teaching and learning through the students' eyes. Uncertainty through the COVID-19 lockdown: A qualitative case study in Gauteng province, South Africa	2022
9.	Online, face-to-face, or blended learning? Faculty and medical students' perceptions during the COVID-19 pandemic: A mixed-method study	2022
10.	The antecedents and consequences of study commitment to online learning at higher education institutions (HEIs) in Cambodia	2022
11.	Blended learning: An effective approach for online teaching and learning	2022
12.	COVID-19 and the key digital transformation lessons for higher education institutions in South Africa	2022
13.	Impact of the COVID-19 pandemic on the academic life of higher education students: A rural South African perspective from a global study	2022
14.	Technology literacy as a post-COVID-19 survival competence in higher education: A narrative analysis of students' experiences and prospects	2022
15.	Teaching and learning delivery modes in higher education: Looking back to move forward post-COVID-19 era	2023
16.	Digitalisation of the teaching and learning for international students in higher education: A systematic review	2023
17.	'A freedom of students to choose': Student and staff perspectives on the future role of online learning in higher education	2023
18.	Students' satisfaction with quality of synchronous online learning under the COVID-19 pandemic: Perceptions from liberal arts and science undergraduates	2023
19.	University students' perceptions of teaching quality before and after the COVID-19 pandemic	2023
20.	A study on students' perspectives towards online learning and face-to-face learning in post-pandemic context	2023
21.	Beyond emergency remote teaching: Did the pandemic lead to lasting change in university courses?	2023

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Title		Year
22.	Students' preferences for teaching and exam delivery modes in accounting education post-COVID-19 pandemic	2024
23.	Social support, computer self-efficacy, online learning engagement and satisfaction among undergraduate hospitality students	2024
24.	Perspectives on disruptive change in higher education. A critical review of digital transformation during COVID-19	2024
25.	F2F, zoom, or asynchronous learning? Higher education students' preferences and perceived benefits and pitfalls	2024
26.	Online learning, perceived difficulty and the role of feedback in COVID-19 times	2024

In Tables 2 and 3, a depiction is given of the number of articles used from each year, as well as the continent where the research was conducted, affirming that the study included a global perspective.

Table 2: Year of publication

2021	2022	2023	2024
7 articles	8 articles	6 articles	5 articles

Table 3: Research included from different continents

Africa	Europe	Asia	Americas	Oceania
9 articles	8 articles	7 articles	2 articles	2 articles

Notes: Some studies were done on more than one continent simultaneously

Table 4: Three of the academic articles reviewed in this study included results from several studies in their literature reviews

Teaching and learning delivery modes in higher education: Looking back to move forward post-COVID-19 era. (2023)	Included 68 studies
Digitalisation of the teaching and learning for international students in higher education: A systematic review. (2023)	Included 35 studies
Perspectives on disruptive change in higher education. A critical review of digital transformation during COVID-19. (2024)	Included 22 studies

Notes: The data is, therefore, not focused on the results of only one research study

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Data analysis

Narrative and thematic analyses were conducted using a descriptive and qualitative synthesis approach. A narrative and thematic analysis involves the researcher identifying narrative threads, such as commonalities across texts and significant emerging themes (Maree, 2007). The qualitative data collected and analysed were also utilised to generate basic quantitative measures. The quantitative analysis of the qualitative data was done to provide informative and supportive evidence, thereby enhancing the validity of the findings. It included information on the various countries where the research was conducted, as well as the overall number of positive and negative experiences reported in the studies included in the ILR.

Ethical considerations

All ethical standards were meticulously adhered to. Ethical clearance was sought and subsequently granted by the institution under whose auspices this research was conducted. The Bassrec ethical approval number granted for this study is NWU-00965-24-A7.

Findings and discussion

The data analysis detected a main trend during the ILR, namely that students' experiences and preferences were mainly divided into positive and negative tendencies related to the different modes of delivery. To effectively develop a new integrated mode of delivery, it is essential to identify and examine these tendencies. The proposed mode of delivery should prioritise the elimination of negative experiences while enhancing the positive experiences of students. It is important to mention that since the ILR used articles focusing on student perceptions and experiences during and after COVID-19, the online mode of delivery was a distinctive feature in most of the reviewed studies.

In Table 5, information is provided about the reported positive and negative experiences identified in the 26 articles.

Table 5: Student experience on mode of delivery

Article	Mode of Delivery	Positive Experience	Negative Experience
1	**Online**	Improved. Independence. Improved digital skills.	Missed in-person interactions and preferred face-to-face delivery of classes. Challenging to engage with lecturers and peers. Struggled to concentrate during longer online sessions. Lack of engagement.
2	**Hybrid/ blended**	Flexibility. Increased access. Enhanced. interaction. Cost-Effectiveness. Diverse learning opportunities.	Accountability issues. Psychological barriers. Sense of belonging. Integration challenges.
3	**Online**	Increased access. Flexibility. Adaptation over time.	Lack of preparedness for online learning. Insufficient access to necessary technology. Technical difficulties: Poor Internet connectivity and unfamiliarity with online platforms. Emotional and psychological impact.
4	**Online**	Increased accessibility. Flexibility. Collaboration among students and interactive learning experiences.	Digital divide: Some students lack access to reliable internet and technology. Technical challenges: including navigating online platforms and troubleshooting issues. Isolation and well-being.

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Article	Mode of Delivery	Positive Experience	Negative Experience
5	**Remote emergency delivery/ online**	High satisfaction levels. Flexibility and convenience. Access to recorded lectures. Increased attendance. Supportive faculty. Digital interaction.	Lack of face-to-face interaction. Hands-on learning limitations: In fields requiring practical experience. Connectivity issues. Engagement levels: 57% of students indicated that online classes were less engaging. Variability in student performance: Those less adept at digital learning struggle more in the online environment.
6	**Online**	Flexibility and convenience: Such as re-watching lectures, at their own pace. Upskilling Opportunities. Increased use of technology.	Technology inaccessibility. Loss of interaction.
7	**Online**	Independence and focus. Support from the University. New learning tools.	Confusion over assessment instructions. Lack of face-to-face interaction with lecturers Issues related to Internet access.

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Article	Mode of Delivery	Positive Experience	Negative Experience
8	**Online**	Students acknowledged the efforts of their lecturers and appreciated the support provided during the transition to online learning.	Issues with network connectivity. Lack of access to devices. Difficulties in adapting to online learning environments. Feelings of distraction at home, anxiety, and a sense of being overwhelmed by additional responsibilities which negatively impacted their learning experience.
9	**Face-to-face, online, and blended**	1. **Face-to-face learning:** Engagement and interaction. Hands-on experience. 2. **Online learning:** Flexibility and accessibility. Adaptation to technology. 3. **Blended learning:** Combination of strengths.	1. **Face-to-face learning:** Health concerns. 2. **Online learning:** Limited interaction. Technical issues. Engagement challenges. 3. **Blended learning:** Complexity in implementation.
10	**Online**	Academic support. Adaptation to online learning Institutional efforts.	Technical and psychological challenges. Lack of interaction. Inadequate support systems: The insufficient capacity of psychological support services.

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Article	Mode of Delivery	Positive Experience	Negative Experience
11	**Blended**	Flexibility and convenience: Learn at their own pace. Increased engagement Synchronous support. Positive feedback: 82% of students expressed satisfaction with blended learning.	Challenges in implementation. Initial adjustment period: Particularly if they are not accustomed to self-directed learning or using digital platforms for education. Technical issues.
12	**Online/ blended**	Adaptability and flexibility. Blended learning opportunities. Access to resources. Performance outcomes: the rapid shift did not lead to a significant decline in student performance.	Technical challenges. Learning environment: Not all students had conducive spaces for studying at home. Social interaction: The lack of face-to-face interaction negatively impacted the student experience. Support systems: Gaps identified indicated a need for better training and resources to facilitate online learning.

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Article	Mode of Delivery	Positive Experience	Negative Experience
13	**Online**	Confidence in technology: Students were able to adapt to the technological demands of online learning. Flexibility of online learning. Engagement with lecturers: Some students agreed that lecturers responded to questions in a timely manner.	Dissatisfaction with the organisation of online lectures and tutorials. Increased workload: Contributed to stress and challenges in managing their studies. Lack of support: Students were largely dissatisfied with support systems, including teaching staff (47% dissatisfied), IT services (49%), and library services (60%). Concerns over academic life: Feelings of isolation and concern about missing the academic environment. Performance issues: Mosy of the students (70%) felt that their academic performance worsened since the transition to online classes, and 73% found it more challenging to concentrate during online teaching.

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Article	Mode of Delivery	Positive Experience	Negative Experience
14	**Virtual/ online**	Excitement: About the shift to online learning, indicating a high level of intrinsic motivation at the beginning of the transition. Opportunities for interaction: Technology provided interactivity and the ability to work in groups.	Technological barriers: Unstable Internet connections, lack of familiarity with online platforms, and inadequate technical support from instructors. Emotional strain: Including stress, fear, disappointment, and feelings of isolation Learning outcomes: Negatively impacted, with many expressing that they were not adequately prepared for remote learning.
15	**Online/ blended**	Flexibility and convenience. Access to resources: Increased access to digital resources. Enhanced technological skills: Students have developed greater digital proficiency. Blended learning benefits: Can enhance student engagement.	Isolation and lack of interaction. Challenges with online learning: Issues with understanding content and receiving timely feedback. Academic integrity concerns: Online assessments and a higher propensity for cheating among students in online courses. Digital divide: Not all students have equal access to the necessary technology and internet connectivity.

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Article	Mode of Delivery	Positive Experience	Negative Experience
16	**Online/ digital learning**	Flexibility and autonomy. Interactive learning opportunities: Digital platforms facilitate interactive real-life experiences.	Disconnectedness: Isolation and disconnection due to the lack of face-to-face interaction in online learning environments. Language and cultural barriers pose challenges for international students, making it difficult for them to fully participate in discussions and express their ideas, which can lead to frustration and a sense of exclusion
17	**Online**	Allows students struggling with mental health to escape from stressful environments. Provides a platform for reserved students to express themselves more freely, suggest participation, and engagement.	Barriers to engagement. Competing responsibilities: Widening participation students often face competing responsibilities, which can create conflicts and stress.
18	**Syn-chronous online learning**	Quality of instruction. Interaction with instructors and peers.	Challenges with engagement: Lack of engagement in online classes, noting that traditional lecture formats were less effective in a virtual setting. Social presence: Crucial for effective learning, was perceived as lacking. General discontent: Students indicated a desire to end synchronous online learning altogether, reflecting dissatisfaction with the format.

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Article	Mode of Delivery	Positive Experience	Negative Experience
19	**Online**	Flexibility and accessibility. Clarity in communication: Enhanced students' learning experience. Engagement through online tools: Facilitated engagement through various interactive tools, such as discussion forums and virtual group work.	Lack of interaction: Students expressed dissatisfaction with the lack of interaction in online classes. Unclear instructions and structure: Students reported negative experiences when they encountered unclear instructions or poorly structured online material. Emotional disconnection: Students missed the personal interactions with peers and lecturers.
20	**Online and face-to-face**	Flexibility of online learning. Comfort with interaction: Comfortable interacting with lecturers and peers in both online and face-to-face settings. Experiential learning in face-to-face settings.	Indecisiveness in learning preference: Students were grappling with the benefits and drawbacks of both modes, indicating a lack of clear preference. Frustrations related to motivation and engagement, difficulties in staying focused, and feeling disconnected from peers and instructors. Limitations of virtual learning in fostering meaningful connections.

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Article	Mode of Delivery	Positive Experience	Negative Experience
21	**Online**	Increased flexibility. Students felt more comfortable participating in discussions and asking questions during online lectures. Structured learning: Catering to online students' needs.	Loss of traditional learning environments: Not all students thrived in the new online formats. Challenges with online learning: Lack of in-person engagement could have negatively impacted their learning experience and social interactions.
22	**Online**	Flexibility and accessibility Interactivity and engagement: Well-planned course content and advanced technology contributed positively to the learning experience.	Challenges with online learning: Feelings of isolation and difficulties in engaging with peers and instructors compared to face-to-face interactions. Preference for on-campus learning: Particularly students who value direct interaction with peers and instructors. This indicates that not all students found online learning to be satisfactory.
23	**Online**	Social support: The presence of social support from family and friends was found to enhance students' self-efficacy in online communication. Engagement: Higher levels of emotional and behavioral engagement.	Challenges in online learning: Adapting to new technologies and maintaining motivation. Some students experienced anxiety and uncertainty, which could detract from their overall satisfaction. Limited interaction: Insufficient student-teacher interaction could negatively impact online learning satisfaction.

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Article	Mode of Delivery	Positive Experience	Negative Experience
24	**Digital transformation**	Opportunities for transformation: Within the traditionally change-resistant higher education sector. Enhanced digital engagement.	Threats to equality and inclusion: Challenges related to inadequate technology, lack of access, and poor connectivity, which could exclude less privileged students from fully participating in online education. Concerns over teaching quality.
25	**Face-to-face (F2F), zoom or asynchronous online learning**	Flexibility and control. Engagement with online resources: Lesson recordings allowing students to review content and reinforce their learning outside of live sessions.	Initial preference for F2F: Despite the positive aspects of online learning, many students initially preferred F2F learning, indicating a potential struggle with the transition to online formats. This aligns with findings from pre-COVID studies, where F2F was favored over online learning. Challenges with online learning: Feelings of isolation and decreased motivation. Adjustment period: Students had to adapt to new learning environments, which could lead to stress and anxiety.

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Article	Mode of Delivery	Positive Experience	Negative Experience
26	**Online**	Constructive feedback: Timely and constructive feedback helped students to improve their performance and self-regulate their learning. Adaptation to online learning: Students could manage their studies effectively and engage with the content despite the challenges. Access to resources: The availability of digital platforms provided learning opportunities that may not have been accessible in traditional settings.	Lack of concentration: A significant number of students struggled with concentration due to distractions at home, which diminished the effectiveness of their learning. Emotional and physical strain: Many students reported increased levels of anxiety, stress, and physical discomfort from extended periods of screen time. Feelings of isolation and lack of social interaction were also prevalent, leading to emotional challenges. Time management issues: Students faced difficulties in managing their time effectively, often feeling overwhelmed by the workload and the demands of online learning. Motivation challenges: The transition to online learning led to decreased motivation for some students, who felt disconnected from the learning process and struggled to engage with the material.

The primary goal of the larger project is to propose a mode of delivery that can address the different themes that were identified in the ILR and also in the second phase (surveying students' perceptions and experiences), which will be reported in another article. Consequently, the discussion of the current article will be structured around the recurring themes identified during the ILR that students experienced as either positive or negative. These themes include flexibility, the use of technology, and interaction.

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Table 6: Identified recurring themes

	Flexibility	Use of Technology	Interaction
Positive experience	16 of 26 articles [2, 3, 4, 5, 6, 9, 11, 12, 13, 15, 16, 19, 20, 21, 22, and 25] 61,5%	11 of 26 articles [1, 2, 5, 6, 13, 14, 15, 16, 19, 24, and 25] 42.3%	9 of 26 articles [2, 4, 9, 14, 15, 17, 18, 19, 21] 34,6%
Negative experience	No negative experiences identified	11 of 26 articles [3, 4, 5, 6, 8, 10, 11, 12, 14, 15, 24] 42.3%	18 of 26 articles [1, 2, 4, 5, 6, 7, 9, 12, 15, 16, 18, 19, 20, 21, 22, 23, 25, and 26] 69,2%

A significant observation derived from the analysis is that the themes were perceived positively in one study, while being viewed negatively in another. This underscores the notion that students' contexts, along with the mode of delivery, can influence their preferences substantially. This finding aligns with Bronfenbrenner's (2000) ecological systems theory, which posits that students are shaped by dynamic interactions across different levels of their ecological environment. Consequently, it is essential to consider these factors in an integrated and holistic manner when exploring and developing optimal modes of delivery that cater to the diverse learning needs of students.

Flexibility

A consistently positive theme identified in 16 of the 26 articles highlighted the advantages of flexibility associated with online and blended modes of delivery. The F2F mode of delivery seems not to provide the same level of flexibility; consequently, students expressed a preference for alternative modes of delivery.

The flexibility of online and blended learning emerged as a significant positive theme in 61.5% (16 of 26) of the articles reviewed. In a strengths, weaknesses, opportunities, and threats (SWOT) analysis conducted by Calonge et al. (2022), flexibility was specifically identified as a key benefit and strength of the online mode of delivery. Consistent findings of the ILR include students mentioning the ability to attend virtual classes from any location and the flexibility of time and space (see Lim et al., 2023; Shlomo & Rosenberg-Kima, 2025). Another possible reason for the positive experiences could be that online

learning allows students to access lectures and course material asynchronously (Turner et al., 2024). The asynchronous format allows students to review resources multiple times, as pre-recorded lectures can be re-watched to aid in information retention (Azennoud, 2022). This is confirmed by the research of Fabriz et al. (2021), who characterised the asynchronous online mode of delivery as more individualised and self-paced, enabling students to rely less on teaching that is temporally and geographically dependent. Thus, the flexibility of unrestricted access to course content and lectures, the possibility of learning at one's own pace, and the reduction of physical constraints associated with traditional learning environments appear to be key advantages of an online or blended mode of delivery (Huynh & Tran, 2023).

Further advantages of the flexibility of online and blended modes of delivery found in the ILR include convenience such as less commuting, cost effectiveness, and integrating studies with other commitments, for instance part-time or full-time employment (Benito et al., 2021; Huynh & Tran, 2023; Imran et al., 2023; Tuomainen, 2023). .

Use of technology

Another recurring theme that emerged was the dual nature of technology use, which was experienced both positively and negatively by students. The positive and negative experiences of students regarding technology were primarily centred on the online and blended mode of delivery. Of the 26 articles reviewed, 11 (42,3%) reported negative experiences related mainly to technical challenges encountered by students in online and blended modes of delivery. These challenges pertained to a lack of devices, insufficient data for Internet access, and inadequate training to work and learn via digital platforms. Conversely, an equal number of articles highlighted positive experiences, with students providing feedback on the advantages of integrating technology into curriculum delivery, especially with online and blended modes of delivery, but also the effective use of technology in the F2F mode of delivery. Four of the articles did not mention the use of technology as a positive or negative experience.

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Majewska and Zvobgo (2023) emphasise the importance of incorporating technological components into curriculum delivery, including the F2F mode of delivery. Turner et al. (2024) presented findings from a study involving 600 students, which indicated that, despite a return to F2F instruction, students maintained positive perceptions of online learning, attributing this to the benefits of technology, including enhanced accessibility of content and the development of digital skills.

A noteworthy finding is students reported that their digital skills and competencies were enhanced and consequently improved when they were forced to work online during Covid-19 (see Cranfield et al., 2021; Shindjabuluka et al., 2022). Importantly, the increase in digital competency added to them becoming more independent learners (Cranfield et al., 2021). Furthermore, Mhlanga et al. (2022) argue that the COVID-19 pandemic accelerated the adoption of digital technologies in HEIs and asserted that HEIs should adapt to new technologies that complement teaching and learning. As a result of the rapid rise of technology in all modes of delivery, Azennoud (2022) affirms the necessity of technological literacy as a prerequisite for higher education in the post-COVID era to ensure that students evolve into digital citizens and thus, achieve more successful learning and integration into a technological working world. However, a study conducted by Dorovolomo et al. (2021) reported that students asserted that online learning must be responsive to their specific contextual requirements. The ILR also revealed several negative experiences associated with technology use. These negative experiences were mostly attributed to insufficient access to technology, difficulties with Internet connectivity, and inadequate technical support, resulting in a lack of preparedness to fulfil the academic requirements (Azennoud, 2022; Gumede & Badriparsad, 2022; Shindjabuluka et al., 2022). This emphasises the digital divide for students who have the means and resources to use technology and those who do not (Gumede & Badriparsad, 2022). Scholkmann et al., (2024) assert that the digital transformation and challenges associated with technology use have marginalised less privileged students. Thus, the inaccessibility of technology can be regarded as an important weakness of the online mode of delivery (Calonge et al. 2022; Sharadgah & Sa'di, 2022).

Interaction

In contrast to the seemingly large advantages that technology holds for more online learning, a significant third theme that emerged was the students' desire for in-person interaction, not only with lecturers, but also with their peers (see Cranfield et al., 2021). However, F2F engagement was experienced in both positive and negative ways. Of the 26 articles

reviewed, 18 (69,2%) indicated that the absence of in-person interaction constituted a negative experience for students. Conversely, nine articles reported positive experiences, highlighting the opportunities for F2F interaction available on online platforms, for example, real-time interactive sessions, online chat opportunities, etcetera.

Negative student feedback included feelings of disconnection (see Tyagi et al., 2021), isolation (Azennoud, 2022; Huynh & Tran, 2023; Imran et al., 2023; Sharadgah & Sa'di, 2022; Shlomo & Rosenberg-Kima, 2025), and insufficient personal interaction (see Chet et al., 2022; Mhlanga et al., 2022; Mistry et al., 2025; Tuomainen, 2023).

Students enrolled in modules with practical or laboratory components, and subjects involving calculations, such as accounting, seem to strongly advocate for 100% F2F in-person learning (Imran et al., 2023; Mistry et al., 2025). The reason for this appears to be that direct engagement enhances concentration (Mistry et al., 2025).

However, online platforms that facilitate participation and collaboration were also perceived as positive (Sharadgah & Sa'di, 2022; Turner et al., 2024). Azennoud (2022) confirms that technology has the means to create opportunities for interactivity and group work. Online tools have been found to enable engagement through various interactive features, such as discussion forums and virtual group activities (Tuomainen, 2023). Findings by Broadbent et al. (2023) demonstrated that students perceived online interaction, including discussions and posing questions, as more comfortable than in-person.

Upon reviewing the articles, it became evident that no single mode of delivery could be universally identified as suitable for all students when it comes to student-lecturer interaction, as well as with peers. This emphasises that student contexts should always be considered. However, after analysing 68 articles, Imran et al. (2023) concluded that blended teaching emerged as the most effective mode of delivery in the post-pandemic context, as it integrates the advantages of both online and F2F instruction and interaction, thereby enhancing student engagement. It must be noted that in the description of the findings by Imran et al. (2023), it appears that the authors are rather referring to the hybrid mode, although they call it the blended mode. It is essential to clarify that blended and hybrid modes of delivery are not synonymous, and there are instances where they are mistakenly conflated. The distinction between the two can be articulated as follows: the hybrid mode of delivery encompasses both F2F and online teaching and learning, integrating both modalities in a complementary manner. In contrast, the blended mode of delivery also incorporates both approaches; however, in this model, students have the option to engage

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with lecturers either in person or online, allowing for greater flexibility in their learning preferences (Vale et al., 2020).

The importance of flexibility provided by online learning, but also the value of interaction during in-person instruction, aligns well with blended and hybrid learning (Lim et al., 2023). Benito et al. (2021) reinforced this notion, indicating that students involved in their research believed that F2F learning should be complemented by online or digital components. For example, students expressed a need for the option to view recorded lectures at their convenience, describing this flexibility as a significant advantage when combined with in-person interaction (Benito et al., 2021). Atwa et al. (2022), who conducted research on delivery modes within a medical faculty, found that blended learning is well-suited for theoretical instruction, illustrating that course-specific requirements and students' need for different levels of interaction are also important to contemplate.

Conclusion

The objective of this ILR was to examine published research to understand students' perceptions, experiences, and preferences regarding different modes of delivery in HEIs in order to inform the development of an optimal mode of delivery for HEIs, including ITE institutions. The findings indicate that flexibility, technological integration, and opportunities for in-person interaction are pivotal factors influencing students' perceptions, both positively and negatively.

From the perspective of Bronfenbrenner's (2000) ecological systems theory, students' experiences with in-person interactions, particularly with peers and lecturers, at the micro and meso levels underscore the significance of their immediate environment. These interactions highlight the importance of considering the impact of nearby microsystems on students' experiences. At the macro level, students' socio-economic status, including challenges related to access to digital devices and Internet connectivity, as well as the chosen mode of delivery, further shaped their experiences. Additionally, at the chrono level, the increasingly changing effects of the pandemic, expecting HEIs to consistently adjust to lockdown requirements, resulted in a stronger move to online teaching, but also forced institutions to rethink and transform their modes of delivery to accommodate the fast-developing technological opportunities.

It seems essential to recognise that students' needs have evolved in the digital age. As such, there is an urgent need to critically assess the quality and appropriateness of delivery modes for HEI students, who present varied needs and circumstances.

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Implications and recommendations:

While the COVID-19 pandemic has had a profound impact on daily life and academic practices, it has also presented opportunities for the advancement of teaching and learning within higher education and ITE. In analysing the results from the ILR, it has become apparent that currently there is no single mode of delivery that appears to adequately address the diverse needs, circumstances, and preferences of students in HEIs. However, it is essential for HEIs and specifically ITEs, to consider these needs and preferences and to critically evaluate the effectiveness of their chosen modes of delivery, especially in an increasingly dynamic digital landscape. Therefore, HEIs should adapt to the changing digital environment and the modern student, who presents a range of diverse needs and socioeconomic backgrounds, while still prioritising personal interaction and meaningful engagement with their students. It seems that the mode of delivery is crucial in shaping students' positive learning experiences and contributes to their academic success.

Competing interests

There are no financial or personal relationships that may have unduly influenced the writing of this article.

Disclaimer

The views and opinions expressed in this article are solely those of the author and do not necessarily represent the official policy or position of any affiliated institution, funding body, agency, or the publisher.

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