Interprofessional Reflections On Effective Teaching And Learning Strategies That Promote Student Engagement And Academic Success Across Different Faculties In Higher Education: A Scoping Review

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ABSTRACT

Interprofessional collaboration in higher learning education is widely acclaimed as a critical prerequisite to achieving greater quality and coherence in the facilitation of teaching and learning. The COVID-19 pandemic not only presented higher education with challenges but also allowed all academics to rethink the assumptions about teaching and learning strategies that promote student engagement and academic success across the faculties. Interprofessional reflection is important because it provides opportunities for innovation and new teaching-learning strategies that meet the current climate of higher learning, which promotes student engagement and academic success. The aim is to explore and synthesise literature regarding effective teaching and learning strategies that encourage student engagement and academic success across faculties in higher education. Arksey and O'Malley's five-stage framework served as the basis for the scoping review adopted by the review. Three databases were searched for sources: CINHAL, Scopus, and Medline. Only English full-text written articles across various research designs published between 2016-2023 were part of the inclusion criteria for the review. As a result, four themes emerged: the use of technology as a teaching and learning modality, work-integrated learning for theory practice integration, university teacher-centric approach, and student-centric approach. In conclusion, across faculties, there is a focus on integrating technology in the teaching and learning process, using various pedagogies to meet the needs of different students. Moreover, there is a need to encourage educators to adopt a growth mindset, involving students actively in the learning process. This approach will encourage students to develop critical thinking, become self-directed learners, and fully engage within their academic communities.

KEYWORDS: Interprofessional Collaboration; Reflections; Teaching and Learning Strategies; Academic Success; Student Engagement; Faculties.

ABBREVIATIONS: HE: Higher Education; IPC: Interprofessional Collaboration; PICO: Population, Intervention, Comparator, and Outcome; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses; GRIT: Student Persistent Behaviours; PBL: Problem-Based Learning; ICT: Information and Communication Technology; IPE: Interprofessional Education; CPD: Continuous Professional Development.

1. INTRODUCTION

The changes that came with the COVID-19 pandemic exposed the need for and importance of not resisting change, but reinforced that academics and faculty should adapt to change willingly to meet the vision of higher education training. The central vision of higher education includes developing graduates who will provide solutions to the problems faced by the world, developing democratic principles, and instilling independent thinking in students [1,2]. HE leads efforts for social transformation. They assist societal transformation through students and academics; thus, they are the epicentre of change as they are the initiators. Hence, amidst the abrupt changes caused by the COVID-19 pandemic, the HE facilitated the rethinking of teaching and learning strategies and measures to promote student engagement and academic success [2]. Various teaching pedagogies for innovation, student engagement, and teaching and learning were adapted to meet the needs of the students and the faculty. Coupled with training for academics, higher education changed from operating in silos to working with various departments, such as information technology, centres of teaching and learning, etc. [2,3]. Therefore, a mindset change towards the virtual classroom and adoption of technology for the betterment of students in higher education [2,3] was critical to be effective and coherent with the emerging changes and adopted strategies. A mindset

towards the virtual classroom and adoption of technology for the betterment of students in higher education [2,3]. Literature encourages that after any other changes, it is always vital to reflect on what has worked and what can be used to fit the climate of the HE and the diversity of the students' needs. The efficiency of teaching and learning depends on student engagement for academic success [4,5].

However, beyond the pandemic, student engagement remains a constant challenge, whether in virtual classrooms or contact classes. Initially, faculty in HE had dissonance toward student engagement during the COVID-19 pandemic [2,3]. The number of students attending classes increased due to the need to keep abreast of the learning outcomes of their study programs. Resources that include E-library and eBooks were shared amongst the students either by the academics or the students to other students through social media, learning management systems, and instant messages [3]. However, the limited social interaction among students posed challenges as humans have social needs, and there is always a need to gravitate towards collaboration. Thus, an exchange of views, experiences, and ideas [3,6].

IPC is a channel for sharing evidence-based teaching and learning strategies and improving teamwork in HE to achieve a common goal. Thus, IPC is a process whereby relationships across faculties are developed and maintained between various professionals [2]. The collaboration enables the individuals to exercise their expertise in their practice areas and communicate their perspectives to other professionals overseeing the same outcome [6]. IPC skills are fundamental even in HE academics. Studies reveal that utilising IPC in HE improves a positive environment where academics strengthen their skills by learning from and with each other [7]. This study aims to explore the following research question:

1. What teaching and learning strategies across faculties promote student engagement and academic success in higher education?

2. IMPACT OF INTERPROFESSIONAL COLLABORATION IN HIGHER EDUCATION

In higher education, interprofessional collaboration is widely acknowledged as a critical factor in delivering optimal results in quality assurance. Literature reveals that collaboration has a shared purpose in pursuit of quality teaching and learning in higher education improvement; this provides a framework for interprofessional practice success [8,9]. Interprofessional collaboration in higher education further improves co-creation and cooperative partnerships [8]. The collaboration includes contributions from academics across different faculties and institutions, aiming to reach international audiences, speaking to the vital boundary and border crossing that builds movement for eco-social justice and also addresses the crisis faced by HE [8]. Moreover, collaboration in HE sets out to assist academics in discovering and developing positions and opportunities for critical collaborative practices to collectively locate and work within and expand and connect any identified gaps [8].

In this manuscript, academics from the faculties of health sciences, natural sciences, economics, and supply chain fields, all teaching at the same higher education institution, collaborated to review the literature and identify the best evidence-based practices in teaching and learning to promote student engagement and academic success. While the content they teach varies across disciplines, the nature of the students remains the same, with the common goal of preparing graduates to become adaptable, effective, and safe professionals in the workplace. Moreover, how students learn and comprehend new knowledge, the culture of the institution is the same, which makes authors from the different faculties curious to work in collaboration in mapping what could be the same practices, what is different, and what one can learn from the other to improve student engagement and academic success in their respective faculties.

3. IMPORTANCE OF STUDENT ENGAGEMENT FOR ACADEMIC SUCCESS IN HIGHER EDUCATION

Literature reveals a positive correlation between engagement in educational activities and academic performance [10]. According to Barkley and Major [11], student engagement refers to students' mental state when learning. This mental state is a connection between students' feelings and their thinking. When students are actively engaged, they succeed academically more [12]. Therefore, for students to achieve their learning goals, faculty can create an environment that promotes student learning through active engagement. In learning, "engagement" refers to various behaviours that learners demonstrate. Student engagement is seen as a key factor when predicting student success. By providing support and resources, students are more likely to be successful in their studies. In addition, Coates [13] adds that student engagement includes interactions between university teachers and students, a nurturing and supportive environment, and active student participation. When a university teacher creates a sense of belonging within the class, it promotes students' academic success [13]. Furthermore, Multan *et al*. [13] add that creating a supportive and positive learning environment is linked to improved performance in HE. Supportive and positive learning environments also contribute to a successful progression to graduation. Students' interactions with university teachers are essential since instructor and peer support have been demonstrated to improve students' academic achievement [14]. Therefore, university teachers must create an environment conducive to active learning and social interaction by providing high-quality instructional materials and experiences [15].

Higher education has been the subject of research, including teaching methods, learning settings, and strategies to improve student learning. Freeman *et al*. [16] conducted a meta-analysis of 225 studies on active learning in science, education, and mathematics lectures examining active learning. According to Freeman *et al*. [16], active learning improved exam performance by improving conceptual understanding. However, Jensen and Lawson [17] and Jensen *et al*. [18] found

that students learned significantly more when applying their knowledge in novel situations and solving problems outside the classroom. In addition, a student's perception of the learning environment, which includes aspects such as the classroom atmosphere and inclusivity within the learning community, can profoundly affect how they learn and ultimately succeed academically [18]. Students who feel secure and comfortable interacting with peers, university teachers, and the curriculum, in other words, their comfort, can also be more likely to engage in active learning and comprehend complex concepts [19].

4. FACTORS THAT INFLUENCE STUDENT ENGAGEMENT IN HIGHER EDUCATION

According to Fredricks *et al*. [20], engagement is influenced by behavioural, emotional, and cognitive factors. These facets are influenced by various factors, including educators, institutions, students, families, communities, curriculum, and resources. Table 1 summarises the three dimensions of student engagement and the five factors that affect it [21]. Recent empirical analyses have extended this concept in response to limitations in the framework, as seen in works such as Kahu [22] and others [23,24].

Table 1: The interconnected dimensions of engagement (Behavioral, Emotional, and Cognitive), adapted from Fredricks *et al*. [20].

Dimensions of Engagement	Description	Factors Influencing Engagement
Behavioural Engagement	Involvement of students in academic, social, and extracurricular activities.	- **University teacher factors**: Interaction with students [e.g., communicative, supportive, verbal praise]. - **Expectations**: Teachers' behavioural and academic standards.
Emotional Engagement	Belonging or connection to the university or the classroom.	- **University factors**: Physical environment [e.g., layout, sensory factors, noise levels, lighting] and consistent support for students.
Cognitive Engagement	Self-regulation and motivation of students during learning.	- **Student factors**: Behavioral, physical, and emotional states, including medical conditions and peer relationships. - **Curriculum**: Availability of resources and tasks.
Cross-Dimensional Factors	Factors influencing multiple dimensions of engagement.	- **Family and community factors**: Living conditions, family involvement in education, and relationships. - **Resources**: Technology and learning materials.

5. ROLE OF FACULTIES IN PROMOTING STUDENT ENGAGEMENT IN HIGHER EDUCATION

Providing students with opportunities for active learning improves their engagement, regardless of the learning environment [in-person or online]. As part of active learning, students seek out relevant information, organise it meaningfully, and explain it to others [15]. Students' engagement in active learning is characterised by behavioural, emotional, and cognitive dimensions [25]. Although active learning pedagogies are classified into five categories [19], designing an environment based on these pedagogies is often challenging, even within the five categories: project-based, problem-based, inquiry-based, case-based, and discovery-based. These pedagogies all emphasise learner-centeredness, in which students construct their own personal and social goals through a certain level of self-direction, aligned with constructivism and constructivist learning environments [10,26]. Learning models such as Bloom's Taxonomy [27] are essential to develop active learning strategies. Based on Bloom's Taxonomy, educational activities and expertise can be classified into three domains: cognitive, affective, and psychomotor, measured by knowledge-based, emotional, and skills-based goals. Despite this, there is a gap between student engagement and academic success. To bridge this gap, active/collaborative learning techniques are likely most effective when combined with efforts to cultivate high-quality relationships with students [28].

Abbas *et al*. [29] highlighted that faculty in HE institutions may encourage student engagement among students by creating social connections with their instructors and peers. Creating connections may reduce their isolation and improve their sense of belonging. According to Salas-Pilco *et al*. [30], to achieve student engagement and success goals, faculty need to transform the HE landscape by providing adequate training to faculty members, prioritising student well-being, and improving internet access and connectivity. Almarghani and Mijatovic [31] purport that staff engagement always leads to student engagement. Wimpenny and Savin-Baden [32] also emphasise that faculty members can raise student engagement only if they have an activating influence on the students. Therefore, the role of faculty in HE is to equip faculty members with teaching and learning strategies that promote active learning. With the increase in technology in teaching and learning and the need for robust assessment strategies, faculty need to invest in new technologies promoting student engagement and the upskilling of faculty members.

Beasley [33] highlights the importance of student-faculty relationships in promoting student engagement and success. Positive student-faculty relationship influences student engagement and student success. Hence, the role of faculty

in HE is to build strong student-faculty relationships. Faculty will provide positive support and enable a flexible teaching and learning environment for staff and students, resulting in effective teaching and learning. Deng [34] highlighted that faculty in HE should provide appropriate educational input and a supportive classroom environment that enables learning and active engagement with the curriculum for students. Although online learning has the benefit of flexibility and allows for individual student learning, it can inhibit collaborative learning, student-to-faculty interaction, and cooperative learning, and it may be a deterrent to other student engagements [35]. Faculty in HE should consider a blend of delivery methods to ensure optimum student engagement. According to Setiyani *et al*. [36], blended learning improved students' learning experiences and engagement.

Glapaththi *et al*. [37] investigated the relationship between student engagement and academic achievements for business management students. A positive link was found between student engagement and academic achievement for students. Heilporn and Lakhal [38] emphasise that a blended course increases student engagement and success. The study highlights the following blended learning engagement strategies: socio-affective, design, and organisational. Blended learning offerings may be synchronous online, asynchronous online, or a combination of both. Therefore, faculty may design curricula to offer blended offerings to engage students and improve student achievement actively.

Karabchuk and Roshchina [39] developed four indices to measure student engagement based on behavioural approaches: class engagement, learning engagement, research engagement, and extracurricular engagement. Results of this study showed that student engagement is related to mothers' higher education, High school achievements are related to further student engagement, and the motivation and career ambitions of students are related to student engagement, and the plan to enrol in higher postgraduate studies is positively associated with student engagement. Therefore, faculty in HE need to develop an academic environment that increases student engagement and stimulates students' motivation to pursue further HE studies. To increase student engagement, faculty in HE need to encourage educators to develop student-centred activities that promote group work, group discussions, individual learning, and critical thinking skills. Pandita and Kiran [40] highlight the importance of student engagement as a vehicle through which Technology Interface results in Student Satisfaction. Student engagement is a mediating variable. Although the use of technology in teaching and learning has increased exponentially, student engagement still plays a pivotal role in realizing academic success. Faculty in HE need to put in place faculty and student leaders structured support systems. These systems could be peer-led team learning sessions and student clubs to promote student engagement, especially in remote or rural settings such as South Africa [41].

The role of faculty in higher education involves improving connections between university teachers and students as well as among students, providing training to lecturers and faculty staff, promoting positive relationships, providing an active teaching and learning environment, and adapting to technological advancements to improve student engagement and student success. Higher education institutions significantly shape people's intellectual and professional development, and encouraging student engagement and achieving academic success depends heavily on the efficacy of teaching and learning strategies [42,43]. Within HE, teaching and learning strategies are the dynamic framework that facilitates the transfer and acquisition of knowledge. These meticulously developed strategies go beyond traditional pedagogical paradigms to become the cornerstone of academic success. Their importance is the customised development of critical thinking, problem-solving abilities, and a thorough comprehension of difficult subjects. These tactics serve as students' navigational aids in a time of swift technological advancement and a constantly changing global environment.

Active learning classrooms replace traditional classrooms in HE by supporting student-centred instruction [44]. The development of active learning in the classroom is a component of a larger educational movement aimed at getting students involved and engaged in their studies [45]. It describes the results of a teacher's deliberate effort to promote student participation in a lesson. Student participation and interaction in a group setting, relationship management, and content development are all part of collaborative learning [43]. A collaboratively rich environment has been suggested to improve students' cognitive performance, social interactions, and metacognition [46]. Students act as one another's learning resources in an interactive learning environment by conversing, observing one another's work, exchanging ideas, and making decisions as a group [42]. The student's interest in collaborative learning is also heightened and stimulated by instructor interaction. It gives students more chances to participate in class discussions.

Additionally, instructors provide timely feedback to students, which improves performance. Ahmad *et al*. [47] assert that two-way communication between students and instructors significantly influences academic performance. According to Chan *et al*. [48], there are significant correlations between interaction, collaborative learning, and learning performance. Additionally, interactive learning enables teachers to respond to student input during lessons, encouraging student collaboration, participation, and engagement.

Despite the advancements in these areas, there is still a persistent gap in the successful implementation of methods for student engagement and success in higher education across many institutions, especially in developing nations. Although modern pedagogical strategies have improved student engagement and academic success, including student-centred and collaborative learning, their implementation has been unequal. Many educational systems still use outdated, teacher-driven approaches that discourage students from actively participating in their education [49]. Teaching strategies that engage students and improve critical thinking and innovation are crucial for developing nations to adopt to ensure their educational systems are both current and prepared for the future. This is because education is becoming more and more

recognised on a global scale as a vital component of social and economic advancement. However, education quality is declining in some developing nations, such as Pakistan. Afzal *et al*. [50] identify several contributing factors, including low enrolment rates, insufficient funding, poor-quality textbooks and curricula, rapid population growth, poverty, unemployment, and inadequate physical infrastructure, all of which hinder the ability to provide a high standard of education.

Adopting the modern educational system is necessary to raise the standard of instruction [51]. University teachers are essential to the teaching-learning process, but students rarely get to participate actively in class activities. The current educational system must be updated to provide students with a quality education while utilising their abilities and positively contributing to their development. Since the conventional classroom learning activities have not successfully developed thoughtful and reflective learners, the current teaching practices need to be changed. To generate interest and encourage active involvement in learners that improves their learning success and inspires students, the collaborative learning strategy must be implemented in educational institutions where traditional teaching methods are in use.

An egalitarian approach to teaching can help address and ameliorate the conflicting desires of teachers and students to feel like they have some control throughout learning, despite its value in improving a sense of belonging and connectivity [52]. Given the growing reliance on standardised testing and teacher accountability, it is understandable that teachers might be reluctant to give students more control over the learning environment. Controlling teaching methods, on the other hand, frequently results in decreased student autonomy, intrinsic motivation, feelings of competence, and overall success [53]. Additionally, allowing students to tailor their education promotes engagement and personal responsibility [48]. Students must invest in in-depth learning through consistent effort, perseverance, and personal time management. At the same time, teachers should incorporate autonomy-supportive lessons with clear structures, providing opportunities for students to take initiative in their learning [52].

The above discussion reflects on the changes in HE as a means of promoting teaching and learning and the role of faculty in promoting student engagement. However, limited studies explore and describe the best teaching and learning strategies that can be adopted across different faculties to encourage student engagement and academic success. Interprofessional collaboration can be a channel for sharing evidence-based strategies in higher education to achieve a common goal - developing competent, ethical graduates ready to be change agents in different industries. This opportunity also enables the faculty to share expertise. Student engagement is a broad phenomenon requiring a team of educators across the faculties to explore and learn from each other. This study synthesises literature to identify effective teaching and learning strategies employed across faculties to enhance student engagement and academic success. Additionally, it aims to explore the differences and similarities in these strategies and how faculties can learn from one another. The following section outlines the research methodology adopted for this review.

6. METHOD(S)

The review adopted a scoping review approach by Arksey and O'Malley [1]; the approach provided the review with a framework for reaching the aim of this review, which is to explore and synthesise literature that reveals teaching and learning strategies that promote student engagement and academic success across faculties in higher education. Furthermore, the authors identified a scoping review relevant for the review because it enabled the authors to identify and map available evidence of the topic in question. Four researchers across different faculties did the review in a higher education institution in South Africa. A librarian assisted the researchers in searching for relevant literature. Below are the five underpinned steps that the authors took.

The research methods implemented in this scoping review facilitate replication by adhering to a transparent and structured process. Arksey and O'Malley's [1] five-stage framework offers a structured methodological foundation that directs the review through essential phases, such as formulating the research question, selecting pertinent studies, and analysing data. Each stage is delineated, enabling subsequent researchers to replicate the same procedures. The formulation of the research question utilising the PICO framework (Population, Intervention, Comparator, and Outcome) emphasises the correlation between teaching strategies, student engagement, and academic achievement across various faculties. The review guarantees consistency in data collection by implementing explicit inclusion and exclusion criteria, including selecting peer-reviewed articles published in English from 2016 to 2023. This systematic methodology offers a framework for future researchers while augmenting the reliability and validity of the findings, thereby facilitating the reproducibility of the study's methods across various contexts or regions.

The review's transparent data selection process was underpinned by the following databases: CiNAHL, SCOPUS, Medline, and PubMed, to guarantee that the literature search is thoroughly documented and replicable. The study utilised a PRISMA diagram to illustrate the selection and exclusion of studies, presenting a concise overview of the data refinement process and establishing a replicable framework for subsequent research. The conclusive data analysis via thematic analysis represents an additional strength, as it employs a consensus-oriented methodology to discern recurring themes pertinent to teaching and learning strategies. The detailed documentation of the review process encompasses data collection and analysis and facilitates the replication of the study by others interested in investigating analogous subjects. The transparency and rigour of this scoping review facilitate replication and offer avenues for further refinement and comparison in future research on interprofessional collaboration and pedagogical strategies in higher education. Below, the authors discuss how they applied Arksey and O'Malley's points in this study [1].

Step 1: Identify the research question

Identifying the research question provides a roadmap for the steps that will be taken in the review [54]. Thus, the research question needs to be clearly defined and provide a breadth of the review coverage. The authors used the PICO framework to formulate the research question into parts that make it easy for all included in the review to search for relevant studies [54]. The formulated PICO for this review is indicated below as follows:

P [Population] - Students

I [Intervention] - Teaching and learning strategies across different faculties

C [Comparator or control] - Compared: Health Sciences and Business Administration faculties

O [Outcome] - Improved student engagement and academic success

In the context of this study, the research question was:

What are the teaching and learning strategies across different faculties that promote student engagement and academic success in higher education?

Step 2: Identifying relevant studies

This step involves identifying the relevant studies and developing a decision plan for where to search for the studies, terms that must be used to search for studies, the period, and language [54]. A comprehensive plan enables a structure for the review. In the context of this scoping review, the study selected full-text studies written in English and published between 2016 and 2023. This period was chosen to observe teaching and learning strategies before and after the COVID-19 pandemic. Four databases were selected for data search: CiNAHL, SCOPUS, Medline, and PubMed. To search articles, the authors and the librarian used the following keywords: Teaching and learning, strategies, student engagement, academic success, and higher learning education.

Step 3: Selection of relevant studies

In this step, the authors decided on the inclusion and exclusion criteria based on the specific research question and aligned with the subject matter by familiarising themselves with the obtained studies [54]. For the context of this study, the inclusion and exclusion criteria selected by the authors of this scoping review are discussed below.

- *Inclusion criteria*

The review included full-text peer-reviewed studies written in English to ensure rigour. Different empirical studies were included, such as qualitative, quantitative, mixed, or multimethod research and reviews. We only included peer-reviewed studies that have interventions on student engagement and academic success across the faculties, such as health sciences, education, economics, and natural sciences in higher education. Using the discussed inclusion criteria, the study moved from 1450 articles initially retrieved from the four databases to 20 articles after the screening process. This meticulous process facilitated the refinement of the literature to guarantee the inclusion of only the most relevant studies addressing the research question.

- *Exclusion criteria*

Non-peer-reviewed studies were excluded, and teaching and learning strategies outside the premises of the adopted PICO framework indicated in the first step were excluded. Below is the PRISMA diagram, with the search strategy and the final number of included studies. Figure 1 shows an overview of the research strategy of the included studies.

Step 4: Charting the data

In this stage, the authors developed a data charting form to extract data from each included study. Table 2 below provides a descriptive analysis of the literature used for this specific study.

Step 5: Collating, summarising, and reporting the results

The authors analysed the results using thematic analysis. The authors read the articles individually to familiarise themselves with the content, coded each article independently to limit bias, and came to discuss the codes identified in the articles as a collective. The authors created an Excel spreadsheet shared on Google Drive with the titles of the articles, and the codes with their quotations were defined. After this, the codes were grouped to formulate the themes with their subthemes. This descriptive discussion was conducted virtually with all the authors to reach a consensus on the themes and subthemes.

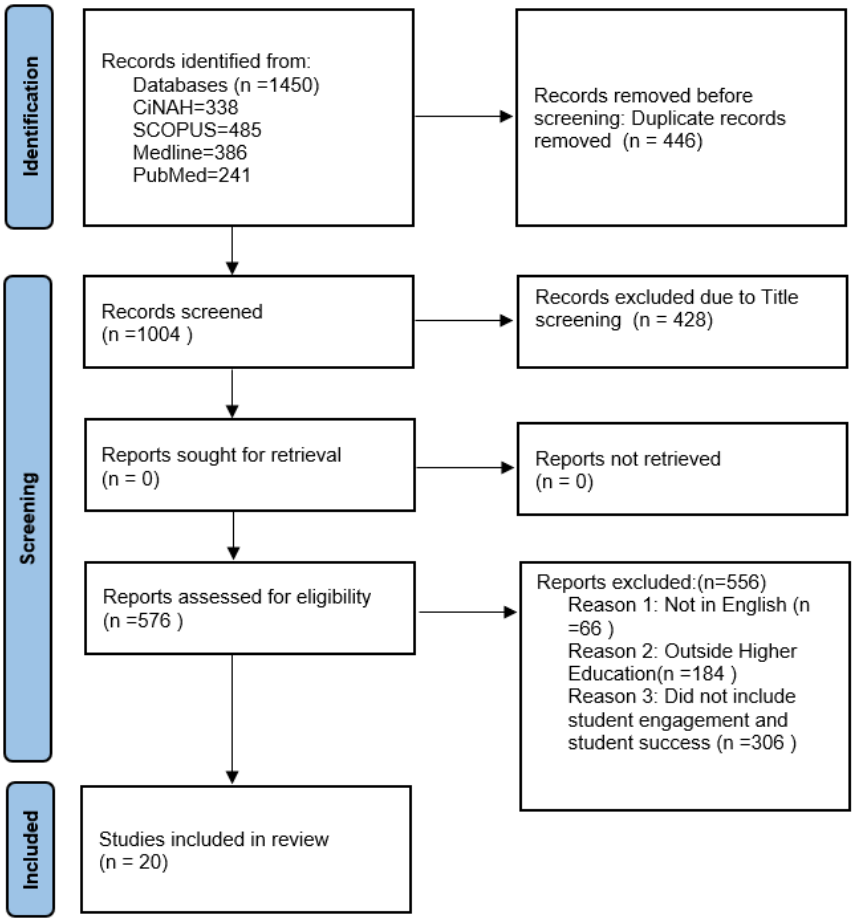

Figure 1: Overview of the search strategy with the final number of included studies.
Source: Adapted from the 2009 PRISMA flow diagram.

Table 2: Data extraction from the included studies.

Author	Title	Year of Publication	Research Design	Study Area	Country	Population
30	Student engagement in online learning in Latin American higher education during the COVID-19 pandemic: A systematic review	2022	A systematic review	Student engagement	Latin America	N/A
55	Perceived teacher support, student engagement, and academic achievement	2022	Meta-analysis, PRISMA	Perceived teacher support, student engagement		71 articles examining the relationship between students' perceived teacher support and academic achievement
56	Using interactive online pedagogical approaches to	2022	Qualitative, interviews	student engagement	Australia	Students

	promote student engagement					
57	Online and hybrid teaching and learning: Improve effective student engagement and experience	2022	Survey Research	student engagement and experience	Sri Lanka	Students
58	Academic achievement: the effect of project-based online learning method and student engagement	2022	mixed-method convergent parallel design.	Academic achievement: the effect of project-based online learning method and student engagement	Padang, West Sumatra, Indonesia	Fifth-semester students at the Faculty of Education, Padang State University,
59	The Impact of Effective Teaching Practices on Academic Achievement When Mediated by Student Engagement: Evidence from Australian High Schools	2022	longitudinal survey	student engagement	Australian High Schools	Public school students
60	Increasing student engagement in higher education	2017	focus groups	student engagement	University of San Francisco, USA	College students
61	Enhancing student engagement in one institution	2016	Literature review	student engagement	Massey University, Palmerston North, New Zealand	
62	The flipped classroom: A learning model to increase student engagement, not academic achievement.	2017	Survey Research	student engagement	Flinders University, Adelaide, Australia	Students
63	Exploring student engagement practices at a South African university: Student engagement as a reliable predictor of academic performance	2016	Quantitative, Survey Research, triangulation.		SA	Undergraduate students at UWC
64	The effect of "here and now" learning on student engagement and academic achievement	2018	quasi-experimental, between-subjects design		The University of Auckland, New Zealand	Students

65	Student engagement and academic performance of students of Partido State University	2019	Quantitative - Survey Research		Partido State University, Philippines	College students
66	Student engagement, retention, and motivation: Assessing academic success in today's college students.	2018	archival quantitative	Student success	USA	College students
67	Academic Games as a Form of Increasing Student Engagement in Remote Teaching	2021	Quantitative, short survey consisting of four questions	Teaching and learning and Student Engagement	USA	Students
68	Impact of Active Learning Strategy on Student Engagement	2021	experimental	learning strategy and student engagement, Peer learning	UK	level 4 [first-year undergraduate] to level 7 [master's degree]
69	The relationship between student engagement and academic success	2016	Quantitative	Student engagement, Academic Success, Supportive learning environment, social integration	SA	50 respondents out of a total population of 93
70	How intention/reflection improves student learning in an interprofessional experiential escape room activity	2023	Qualitative	An escape room for intention/reflection, student-centred, student engagement	USA	248
71	The Reflection-Informed Learning and Instruction to Improve Students' Academic Success in Undergraduate Classrooms	2020	Quasi-experimental	Self-regulated learning, reflection-informed learning	USA	74 second-year students
72	Considering the Role of Tutoring in Student Engagement: Reflections from a South African University	2017	Review	Student engagement, tutoring,	SA	-

7. RESULTS

The four themes with the linked sub-themes that emerged after the thematic data analysis are presented in Table 3.

Table 3: Links across the faculties: Themes that emerged from the scoping review.

Themes	Subthemes
Use of technology as a teaching and learning modality	1) Online collaborative learning 2) Hybrid learning, 3) Game-based learning
Work-integrated learning for theory-practice integration	1) Clinical placements 2) Project-based learning
Teaching and learning approach recommended for educators to improve student engagement	1) University Teacher support 2) Active participation from students 3) Blended learning 4) Problem-based and Collaborative learning 5) creating a positive learning environment
Student-centric approach for active learning	1) Flipped classroom 2) Critical thinking 3) "GRIT", 4) Peer learning strategy, 5) Student assessment

8. DISCUSSION

The primary aim of this study was to synthesise literature to identify effective teaching and learning strategies that enhance student engagement and academic success across faculties in higher education. This was done to explore the similarities and differences in these strategies to facilitate cross-faculty learning and collaboration. The findings reveal four overarching themes: the integration of technology in teaching and learning, the adoption of work-integrated learning to bridge theory and practice, student-centric approaches that foster active engagement, and reflective practices to improve pedagogical outcomes.

Theme 1: Use of technology as a teaching and learning Modality

Technology integration in teaching and learning has changed the traditional education landscape. University teachers have access to a wide range of tools and resources in the digital era that improve student engagement and individualised learning. These technologies allow students across interprofessional disciplines to actively participate in their learning and present them with lifelong experiences.

Subtheme: Online collaborative learning

Salas-Pilco *et al*. [30] and Gamage *et al*. [73] pointed out that technology-based learning, such as online learning, improves student engagement and success. According to these studies, some benefits of online learning include flexibility, better time management, individual learning, immediate feedback, collaboration, and the development of critical thinking skills. Conversely, Capacio *et al*. [74] highlighted some challenges of online-based learning, such as poor Information and communication technology [ICT] skills among university teachers, poor internet connectivity, and inadequate teaching and learning facilities. Thus, for effectiveness, faculties must collaborate with stakeholders such as the information system and academic technology advisors for the best and most effective learning management systems for students across different income brackets to ensure accessibility. Technology use in online settings has fuelled the adoption of multi-device use [75]. This includes using mobile phones, desktop PCs, and tablets in student learning [75]. The use of multiple devices promotes flexible learning styles and student engagement. The flexibility to move between devices, such as laptops, tablets, and smartphones, allows students to create personalised and meaningful educational experiences. This multi-device approach caters to diverse learning styles among students, promotes student engagement, increases accessibility, and provides convenience to learning [75]. These findings are supported by Straub and Rummel [76], who state that online collaborative learning encourages students to construct new knowledge together instead of simply rehearsing previously learned content. Straub and Rummel [76] further state that asking thought-provoking questions enables students to verbalise their thoughts. In addition, the other group members can observe the reasoning process and internalise it by imitation or modelling cognition. The educator can promote argumentations where students explain and clarify their ideas using examples to illustrate concepts.

Moreover, university teachers across interprofessional disciplines must understand that online collaboration encompasses more than technology and socio-cognitive activities. It is vital to consider students' emotions and their motivation to collaborate. The university teacher and students must monitor these aspects throughout the online collaborative process to ensure productive interactions [76].

Subtheme: Hybrid learning

Hybrid learning is a learning strategy that uses both online and face-to-face learning. Blended learning and flipped classrooms are examples of hybrid learning modalities. Blended learning uses both online and face-to-face learning but relies heavily on technology in teaching and learning, while the flipped classroom requires students to go through content before class and use class time for classroom activities such as problem-solving or classroom exercises. Eliveria *et al*. [77] and Northey *et al*. [64] believe hybrid learning effectively engages students across faculties, expands their views, and improves their learning. Hybrid learning creates a more enriched learning environment where students can access many learning resources. University teachers provide an opportunity to learn and master different learning technologies. Hybrid learning improves students' adaptability to innovative teaching, learning, and creative thinking skills. Collaço [60] agrees with previous studies that technology-based learning methods improve student engagement.

Subtheme: Game-based learning

The review revealed that game-based learning is an effective teaching strategy across interprofessional disciplines and faculties, utilising engagement, active participation, and problem-solving elements, all drawn from gaming. This is supported by Shu [78] and Pesare *et al*. [79], who state that game-based learning improves student engagement and motivation. Furthermore, Martín-Hernández *et al*. [80] found that game-based learning positively impacts intrinsic motivation, teamwork engagement, team building, teamwork competence and innovation behaviours.

For instance, game design principles are integrated into learning activities of the faculty of education to improve student engagement and learning. Game-based learning has proven to be an excellent teaching tool that stimulates active engagement, problem-solving, and student collaboration. Increased motivation is one of the main benefits since interactive and dynamic learning environments encourage students to interact more with the subject matter [78]. Furthermore, because game-based learning frequently requires students to work together to solve problems, it promotes critical thinking and teamwork while helping students develop innovative and collaborative skills [80]. Research indicates that encouraging intrinsic motivation makes learning more fulfilling and pleasurable [79]. Consequently, integrating game-based elements into pedagogical approaches can significantly augment student engagement and academic achievement across several disciplines.

Despite many advantages of game-based learning, it requires expertise in technology for the university teacher and may be a source of distraction for learners. Game-based learning can be used with other teaching strategies, promoting active learning. Titus and Ng'ambi [81] argue that realising the benefits of active learning and student engagement is possible when social-constructivist game-based learning is used, as it can reshape student learning. Social-constructivist game-based learning allows cross-cultural interaction and students to learn from each other collaboratively. This method promotes student learning, enables students to understand different cultures, and promotes different ways of thinking. Munna and Kalam [62] support the idea that gamification integration improves student engagement and success in line with previous studies. Additionally, Dorfner and Zakerzadeh [67] and Muir *et al*. [56] concur with prior studies that remote learning through games improves student engagement; however, they caution against the solo use of games as the method has numerous shortcomings. Some of the challenges highlighted are difficulty integrating with the curriculum and aligning with learning outcomes [67].

Theme 2: Work-integrated learning for theory-practice integration.

The review has revealed that work-integrated learning for theory-practice integration is a crucial teaching and learning strategy that ensures that the graduates are employable. This strategy is adopted across the faculties. Therefore, this is a great focus in the HE as it empowers the students to be ready to adapt to the rapidly emerging knowledge, economy, and increasing global demands for economic productivity; for that to happen, the students are to be prepared to be proficient, innovative, and competitive in the workplace [82]. Work-integrated learning is therefore globally recognised and nationally endorsed as a teaching and learning strategy that exposes students to rich and authentic learning experiences, providing them an opportunity to apply theoretical knowledge to practice-based tasks and ultimately building critical thinking, competence, confidence in the profession through robust socialisation to the expectations and the attributes of that particular profession, which ultimately ensures an employable graduate that is in alignment with the scope and standards of the profession [82].

Subtheme: Clinical placement

The review has exposed that for healthcare professionals' teaching and learning, clinical placement is an essential teaching and learning strategy that guides educators and healthcare professional students to engage in authentic clinical opportunities. The clinical placement strategy integrates the purposes of the placement, the activities that the students need to be exposed to and assessed to be competent in, where they need to be, the length of the placement, who will supervise the students and mentor the students as they learn [83]. The review further reveals that clinical placement is critical to ensure safe and quality practice to safeguard the well-being of the patients and families on the receiving side. They provide a positive learning culture, shift socialisation to the healthcare profession, and are most critical for competence development, the crux of quality healthcare provision, with minimal chances of increasing societal morbidity and mortality rates [83]. Clinical

placements are integrated into mainstream education programs for such reasons and more. The study failed to highlight that non-health faculty socialise their students to work on the job whilst learning. However, the second sub-theme that emerged was project-based learning, seen as a way to promote the learning experience.

Subtheme: Project-based learning

Project-based learning is a method that focuses on how students solve complex problems; this requires the students to investigate and understand lessons through dynamic inquiry [58]. The authors further elaborate that project-based learning aims to guide students in collaborating on projects that include various subjects and allow students to explore content meaningfully. In this review, project-based learning is a strategy that promotes student engagement and academic success. Students take ownership of their studies and become fully involved by gathering and integrating new knowledge based on real-time experiences and activities [58]. Munna and Kalam [68] confirm that project-based learning improves the students' cognitive learning experience and behaviour, thus boosting student engagement.

Theme 3: Teaching and learning approach recommended for educators to improve student engagement

This scoping review has revealed recommendations that can be adopted by educators within higher education across the different interprofessional disciplines. These recommendations highlight that university teachers, as subject matter experts, bring a wealth of knowledge and pedagogical expertise. However, in teaching and learning, they take a role as facilitators and assign students to take control of the learning process. The university teachers' and students' active involvement in reflective practices allows for sharing experiences and best practices, improving a collaborative environment where insights from lectures and students can be exchanged [84]. This approach makes it possible for university teachers to adapt teaching practices to the requirements of different students while considering their needs and learning styles. Moreover, university teachers improve the growth of a dynamic learning community where sharing ideas and cooperative investigation of cutting-edge teaching techniques catalyse students' academic achievement. Below, the authors discuss the subthemes that emerged from this theme.

Subtheme: University Teacher support

This review further supports facilitating Continuous Professional Development (CPD) in higher educational institutions. The facilitation of CPD is emblematic of institutional commitment to academic excellence, encompassing multifaceted elements that elevate the instructional landscape. Encouraging teachers to participate in proactive, high-tech pedagogical training programmes gives them access to innovative teaching strategies and strengthens their ability to provide engaging lectures in various academic settings. Access to up-to-date instructional materials and dynamic technology resources enables university teachers to incorporate innovation into their teaching easily.

This was revealed by Schreiber [63], who suggested that innovation includes collaborative networks where knowledge is shared, and university teachers can pool their wealth of experience to benefit collective pedagogical enrichment. As a result of an ongoing dedication to professional development, teacher support initiatives encourage the development of a group of empowered educators who demonstrate a commitment to the highest levels of academic excellence [84].

University teachers have demonstrated that concept-checking works well with students at all maturity and skill levels. The success of this approach depends on the teacher's background, objectives, and beliefs [54]. Notably, reflective concept-checking necessitates that the teacher has a toolkit of problems and techniques to expose misunderstandings and evaluate concepts, as this becomes a fundamental tool for adjustment and may need to change rapidly as the conversation progresses, whilst teaching. Furthermore, Tomaszewski [78] states that it might be challenging for a new teacher who has never been exposed to student-centred learning to recognise when they are unintentionally using teacher-centred approaches rather than the intended student-centred approaches, given the potential conflicts between more teacher-centric activities [78], like lecture presentations, and more student-centred additions to lecture sessions, like concept checking. A concept check, for instance, in which the instructor poses a question to a student with a known answer and then goes into further detail about the response, is not always a student-centred approach [85].

Subtheme: Active participation from students

This study review has revealed that academic success largely depends on the symbiotic relationship between the active participation of students among each other and with the university teacher. The student-centric approach encourages and promotes a learning environment in which students are active participants in their education rather than passive recipients because of its emphasis on expert-driven guidance. According to Peters [9], teachers pique students' intellectual and emotional curiosity with lively and captivating lectures, encouraging them to participate actively in their education. With its emphasis on subject mastery, the university teacher-centric approach is a stimulant for developing a sense of collective intellectual curiosity, encouraging students to seek information actively, pose intelligent questions, and participate in critical discussion. Through this pedagogical symbiosis, the university teacher's expertise serves as a beacon, guiding students towards successfully transitioning from passive recipients of knowledge to active, empowered participants in their education. Several factors can influence student participation in the learning process. Pajares [86] and Stewart [87] state that the first factor lies within the students' personalities. The authors further add that students with high self-efficacy become more

actively involved in their learning due to better academic achievement and participation in the classroom. Through active participation, students show a more significant interest in their learning as they become more self-aware of challenges encountered whilst studying on their journey. Students become more involved by asking questions, providing opinions, and raising and discussing topics that they find challenging or insightful, which may add to active learning and encourage classroom participation. The following important factor is the traits and skills of the teacher, which have been demonstrated, taught, or shown by the teacher. The traits include understanding, supportive, approachable, and friendly through positive non-verbal behaviour. Fassinger [88] states that teachers contribute to the success of active participation in the classroom as their smiles and acknowledgements are affirmative and open-minded, contributing to students' active involvement in the school. Yu and Lee [89] found that students' motivation in learning affects their group participation. The participation of the students in a learning group is closely related to the effectiveness of group learning, including the planning process and supporting facts.

Subtheme: Blended learning

Under this subtheme, the study review indicates that many innovations are being adopted by the teaching and learning environment. One of these is the use of technology through blended learning. Blended learning combines face-to-face and online teaching modalities.

Eliveria [77] states that blended learning integrates the adaptability of online education with the interactive characteristics of in-person sessions, facilitating more active engagement among students from various faculties. The assortment of learning formats accommodates multiple learning preferences, maintaining student motivation and academic engagement. In higher education, specifically in Interprofessional Education (IPE), students from diverse disciplines, such as medicine, nursing, and pharmacy, collaborate in their learning endeavours. Blended learning offers a framework for students to collaborate on joint projects and case studies online, followed by discussions and reflections during in-person sessions, thereby promoting teamwork and a comprehensive approach to problem-solving [101]. Blended learning allows access to course materials anytime, enabling students to regulate their learning at their own pace. This is especially advantageous for students from diverse faculties with differing schedules, allowing them to engage in reflective activities and collaborative discussions without the constraints of a rigid timetable [17]. Blended learning methodologies, including flipped classrooms and interactive discussions, promote student engagement with the material before class, resulting in more profound reflections during in-person sessions [18]. This active learning method enables students to implement theoretical knowledge in practical, interdisciplinary settings. Blended learning facilitates opportunities for reflection in both digital and physical environments. Engaging in reflective discussions with peers from different faculties enables students to improve their critical thinking skills [48].

However, Leach [61] states that adopting a blended learning approach will be difficult, particularly in under-resourced higher education institutions. There are a lot of underlying factors that make blended learning less effective. A significant challenge pertains to users' effective utilisation of technology and guaranteeing participant commitment in light of unique learner characteristics and technological experiences [89]. According to Shu [78], when users encounter problems with technology, they may give up on learning and eventually cause technological applications to fail. According to a 2013 Oxford Group report, 26% of students worried they would not finish their studies in a blended learning environment, while 16% had negative attitudes towards the approach. Since learners are vital collaborators in all educational endeavours, their histories and personal traits influence their capacity to learn; in the case of blended learning, the design tools chosen may impact how well they understand [17]. The effectiveness of blended learning has been studied in the past with an emphasis on grades, course completion, retention, and graduation rates; however, there is minimal research that has been done in South African universities context regarding the effectiveness of blended learning with an eye towards learner characteristics/background, design features, and outcomes [18]. Additionally, no research has been done on how learner characteristics and design elements predict outcomes within the framework of planning evaluation research to determine blended learning's efficacy. According to Guskey [90], planning evaluation fits in well because it takes place before the implementation of any innovation and allows planners to ascertain needs, take participant characteristics into account, examine contextual issues, and gather baseline data.

Self-regulation, computer proficiency, workload management, social and familial support, attitude towards blended learning, gender, and age are among the learner characteristics and backgrounds examined for blended learning effectiveness. While the outcomes considered include satisfaction, performance, intrinsic motivation, and knowledge construction, we look into learner interactions' blended learning design features, face-to-face support, learning management system tools, and technology quality.

To set up the necessary foundational arrangements for developing blended learning as an innovative pedagogical approach, planners of such learning environments will benefit from knowing which variables are significant predictors of blended learning outcomes.

Subtheme: Problem-based and collaborative learning

Under this subtheme, the study reveals that the teaching and learning process uses the constructivist-based problem-based learning (PBL) approach. Solving a problem is the ultimate goal of problem-based learning [91]. One way to learn is to solve

a problem from real life. Put another way, students actively participate in solving the assigned problems during the learning process and are, thus, accountable for their procedure [92]. Students who use the constructivist-based collaborative learning approach in the classroom work in groups and receive rewards based on their output [93]. Typically, students collaborate with two or more classmates to conduct research, solve problems, or prepare for projects [94]. Constructivist learning environments are designed using collaborative problem-solving as well. Under the collaborative problem-solving approach, students engage in activities like group skills development, group formation, effort demonstration during the problem-solving process, and evaluation afterwards [95]. Ultimately, this sub-theme emphasises how constructivist-based problem-based learning may effectively promote student engagement and success by allowing students to work together to solve real-world problems.

Theme 4: Student-centric approach for active learning

This approach has gained attention as it improves students' experience of higher education teaching and learning and prepares students for the workplace [61,62]. Our scoping review identified key subthemes of pedagogical evolution: the flipped classroom method, GRIT, critical thinking and peer learning. Through these subthemes, this approach empowers students to take charge of their learning by being in the driving seat. Students from different faculties are challenged to find innovative and creative solutions to real-world problems. In addition, student-centred approaches allow university teachers to tailor lessons to each student's understanding level. By implementing this approach, students become more confident and gain a deeper understanding of learning.

Subtheme: Flipped classroom

This subtheme incorporates homework that was once given to students to complete after class and is now done during class time [96]. This method allows students to create a more collaborative and peer-learning environment. University teachers can also provide explicit and clear instructions to students. As a result, students can participate in class activities or group work. This allows them to think critically and apply what they have learned [62]. Hence, instead of lecturing (passive learning), the university teacher can offer guidance and support during class activities. For example, university teachers can create online tutorials or videos to support students' understanding of the material. This will improve active participation from the students and can positively impact their university experience. This review also showed that flipped classrooms could improve student satisfaction and course marks [62]. This method emphasises the need to give students personalised feedback to identify areas for improvement. In this way, students collaborate actively, creating engaged and motivated students.

Furthermore, flipped classrooms enable university teachers to gauge student understanding and give feedback. This can also help to identify areas of difficulty that can be addressed before they become a barrier to learning. On the other hand, O'Flaherty and Phillips [97] found that flipped classroom curriculum approaches tend to 'wither on the vine' due to a lack of pedagogical integrity. Lacking interactivity, formative feedback mechanisms, and linking between pre-class activities and face-to-face classes makes students less likely to engage in such activities. In addition, it is essential to balance time spent on pre-class activities and actual face-to-face activities. Students and university teachers must be employed throughout the learning process. Therefore, providing adequate interactive and formative feedback mechanisms while ensuring an appropriate balance between pre-class and face-to-face activities is essential to successful learning.

Subtheme: Critical thinking

Liu and Roohr [98] mention that university students need critical thinking skills to succeed in the global workforce. Critical thinking is one of Bloom's taxonomy's higher-order skills, pivotal to decision-making [99]. This subtheme links to the above theme, "Problem-based and collaborative learning". Critical thinking skills are particularly essential within the Health and Natural Sciences faculty, where students must solve complex problems both individually and collaboratively. Enhancing these skills has been shown to significantly contribute to academic success, as evidenced by studies that emphasise their role in fostering systematic analysis, problem-solving, and decision-making [71,99]. For instance, group projects and problem-based learning approaches have proven effective in developing critical thinking in these disciplines [99]. This allows students to systematically analyse data or information, pose questions, and approach problems. Menekse [71] found that by providing students with critical thinking opportunities, university teachers prepare students to navigate the complexities of the real world. As a result, it leads to making informed decisions and adapting to their potential workplace. It also enables students to develop innovative problem-solving skills.

Similarly, Butler [99] states that this is essential for success in any field, and university teachers can ensure students acquire the skills they need to succeed [71]. Students can be given group projects that challenge them to think outside the box and develop innovative solutions [57]. This will contribute to collaboration and critical thinking among students, making the learning experience worthwhile. In addition, critical thinking skills can help students develop opinions and think logically and independently. These skills are essential for students' success in a rapidly evolving world.

Subtheme: Student Persistent Behaviours ("GRIT")

GRIT has been well documented in the scoping review by Engle *et al.* [100]. GRIT refers to a student's determination and resilience to achieve a goal, irrespective of challenges [61]. These challenges include inadequate university support for a

first-generation student without financial support. Hodge *et al*. [101] observed that students with persistent behaviour have a higher success rate in HE than those with non-persistent behaviour. In this way, GRIT is known as a mindset that can help students overcome challenges and persevere through challenges. This highlights the importance of a positive attitude, which can aid students in improving through effort under challenging situations [70]. As a result, these behaviours can encourage students to take charge of learning and help them adapt to changing conditions. Hodge *et al*. [101] found that first-generation students had higher effort scores. This suggests that first-generation students exhibit more GRIT than their non-first-generation peers, demonstrating greater resilience and determination in pursuing higher education despite challenges. However, first-generation students from low-income areas in the United States are four times [27%] more likely to leave higher education [102], highlighting the vulnerability of this group. Similarly, in South Africa, first-year students face a 33% dropout rate [103], further highlighting the challenges to persistence. Despite these findings, studies [102,103] do not explore whether the pressures and challenges faced by these students foster GRIT or contribute to their persistence. This gap shows the need to understand the factors that enable students to persist in adversity and how GRIT may play a role in overcoming these barriers. Martin and Marsh [104] define academic persistence as a critical component of GRIT, emphasising its importance in navigating obstacles within HE. Furthermore, Hodge *et al.* [101] suggest that higher education institutions can foster persistence by mentoring and supporting both first-generation and non-first-generation students. Such initiatives not only enhance students' resilience but also create a sense of belonging, which is vital for their success and retention in higher education.

GRIT can help students develop the critical thinking, problem-solving, and emotional intelligence needed to succeed. Integrating these elements into the module or course can create a supportive learning environment. However, too much GRIT can contribute to overworking and burnout, decreasing motivation and productivity. In addition, overworking can also increase health problems. Therefore, it is imperative to balance the right amount of rest [105].

Subtheme: Peer learning

Peer learning is an effective educational tool and can significantly impact peers' academic growth. This sub-theme emphasises collaborative learning, encouraging students to learn from one another's different perspectives and experiences. Peer learning, as revealed by the scoping review, enables students to explore and gain insights that are often absent in traditional classroom settings [69,71,72]. Additionally, it fosters the formation of peer relationships, which not only enhance the immediate learning experience but also provide long-term benefits for future academic and professional endeavours [68,94].

Peer learning and mentoring can create a more inclusive learning environment. According to Munna and Kalam [68], peer learning and mentoring programs could involve a student or group where students work together to discuss key concepts and prepare for exams. In addition, students benefit from working in groups as it allows them to develop teamwork and understand how to collaborate with others effectively [69]. Peer learning in HE can be a platform for students to engage and interact with other students. Students may feel more comfortable asking their peers in the same class, or students who did the module or course previously, questions, than asking their university teacher. This will encourage collaborative efforts as part of learning [72]. When students work together in pairs or groups, they learn from each other's weaknesses and strengths. By working together, students become creative, resilient, and confident when faced with challenges in the workplace. Due to this, peer learning is paramount for university students to succeed in their studies by understanding the challenging content in their courses and successfully transitioning from HE to the workplace.

Subtheme: Student assessment

Under this subtheme, we found that conventional assessments such as class tests, essays and assignments limit student teaching and learning experiences at HE. Student performance increases when presentations, group projects and portfolios are given to students [61]. As a result, it can provide a deeper understanding of student performance. These assessments can show the student's interests and strengths in class. In addition, group work/projects can lead to a collaborative working environment, as there is transparent student communication between the university teacher and the student. Student evaluation can help students think critically and logically, which may explain their reasoning. Conventional assessments can be combined with group activities or presentations to measure students' thinking ability and problem-solving skills. University teachers can provide students with specific support by identifying their strengths and weaknesses.

Is there a difference, and what are the similarities across faculties?

Across the health science, economic management, and science faculty, the review has shown that moving from traditional teaching to blended learning with the digital use of multiple devices promotes flexible learning and accommodates all learning styles. Therefore, this calls for meaningful learning experiences and increases accessibility and convenience of learning. For instance, students benefit from hybrid learning as it expands their horizons and improves their ability to learn and adapt to new teaching and learning methods. As discussed in the first theme, gamification is active learning participation that uses games to solve problems. Gamification across faculties, with widespread use of digital and video streaming games, is used to acquire knowledge. However, the review failed to identify the unique attributes of gamification used in health science education and natural sciences. Gamification has also reached an extent where higher education and companies

use it to improve experiences. Therefore, it can be advised for faculties such as health science within simulation training to include game-designed techniques to create a high-fidelity simulated reality.

In economic management, gamification promotes social constructivism based on the game's design and the content so that students across cultures can interact and be aware of various cultures and systems. This fosters engagement and broadens ways of thinking, which aids students who will develop and be open to adopting anywhere with diverse sets of cultures. However, as a collaborative effort, the authors believe that the success of the gamification depends on collaboration between educators, information systems, and digital technology advisors who can work to integrate the learning outcomes of the curriculum into the game designs. Thus, calling for interprofessional collaboration.

Moreover, we could not find the difference in the commencement across the three faculties in work-integrated learning. However, a link between work-integrated learning and project-based learning exposes students to complex problems to solve. Therefore, this calls for other faculties to consider work-integrated learning opportunities earlier, such as in health science; this practice builds competence and socialises the professions into forming professional identities. Moreover, reflective practices in teaching were seen as the best to promote engagement for academic success. Barton and Ryan [106] define reflective practices as critical reflections that bring unconscious aspects of experiences to conscious awareness, making them available for conscious choice. Reflection as a skill is an essential element in critical thinking and problem-solving, and in essence, it enhances a student's quality of life during teaching, learning, and post-graduation. Therefore, reflective practices by educators can be explored and implemented to open the students across faculties to opportunities to experience the world and oneself. Further studies can be conducted to identify the multimodal approaches used for reflective practices across faculties. This can be health sciences and marketing, for instance, to see what each faculty can learn from, with, and about each other to improve their approaches to reflective practices.

9. RECOMMENDATIONS

To improve the impact of faculty in HE, faculty need to prioritise social connections with university teachers and students through mentoring initiatives and open avenues of communication. With the ever-changing educational methodologies and technology tools, faculty must invest in upskilling university teachers and faculty staff. This will ensure effective teaching and learning that improves student engagement and success. Using digital pedagogies such as online, hybrid, and game-based learning strategies requires various technologies and training lectures on ICT skills. The study identified gamification as a mode of teaching and learning that improves engagement for academic success. However, it would be interesting to determine how gamification differs across faculties, the unique educational context, the unique attributes, when they are used in the learning process, and whether they are included in formative or summative assessments. Moreover, even with assessments, the study revealed that conventional forms of assessments can be used. Further studies can be done to explore the authenticity of the assessments used to evaluate students, promote engagement, and improve the employability of students post-graduation.

Additionally, faculty must invest in new digital technologies, facilitate technology integration into teaching practices, and promote active learning strategies to improve student engagement and success. Further, the faculties can include problem-based learning strategies as part of teaching and learning strategies to socialise students in critical thinking, making decisions based on seeking evidence that supports their actions in their future professions after graduation.

Moreover, higher education institutions should emphasise learning outcomes that reflect real-world applications rather than solely focusing on academic outcomes. This focuses on developing skills that can be applied to real-world scenarios. As a result, it allows students to gain a more comprehensive understanding of their subject. A thoughtful combination of blended and PBL is advised to maximise student active learning. With the help of digital resources and conventional teaching practices, blended learning gives students a more flexible and individualised way to learn. PBL, which strongly emphasises problem-solving and critical thinking, is improved when students participate in real-world situations, which helps them grasp concepts more deeply. This method promotes self-directed learning and enhances teamwork and communication abilities. University teachers can create a dynamic learning environment where students are empowered to participate actively in their education. They are prepared for the challenges of a rapidly evolving world by combining blended learning, which incorporates diverse learning modalities, with PBL's problem-solving focus.

10. LIMITATIONS

This study on interprofessional reflections in higher education acknowledges several limitations. The reliance on literature reviews and thematic analysis, while offering valuable insights, limits the depth of empirical data directly gathered from participants across various faculties. As a result, the findings may not fully capture the real-time challenges and complexities faced by university teachers and students in specific faculty contexts. Additionally, the generalisation of findings across diverse disciplines without accounting for the unique dynamics and pedagogical methods of each field risks oversimplifying the nuanced nature of teaching and learning strategies in higher education.

Future research should adopt a more comprehensive, interdisciplinary approach, incorporating both qualitative and quantitative methods, such as case studies, interviews, and focus groups, to provide richer, context-specific insights. Furthermore, exploring technological innovations, including AI-driven learning platforms, could illuminate their impact on

student engagement and academic success. Research into the integration of these technologies, alongside addressing challenges such as digital literacy and resource accessibility, would bridge the gap between theoretical frameworks and practical applications, enhancing our understanding of effective strategies to optimise student outcomes across various disciplines.

11. CONCLUSIONS

This review aimed to explore and synthesise literature regarding effective teaching and learning strategies that encourage student engagement and academic success across faculties in higher education. This review showed the significant role of IPC in fostering effective teaching and learning strategies that enhance student engagement and academic success across faculties in higher education. Drawing on insights from various disciplines, IPC has emerged as a critical mechanism for sharing evidence-based practices, developing innovative approaches, and addressing shared challenges. The findings highlight that IPC fosters co-creation among faculty, encouraging a culture of continuous improvement and teamwork.

The review identified key strategies such as hybrid learning, game-based approaches, and work-integrated learning that are enriched by the interdisciplinary exchange of knowledge. For example, integrating perspectives from health sciences, natural sciences, and economic management sciences enhances the design of teaching modalities to meet varied student needs while fostering critical thinking and problem-solving skills. Furthermore, IPC facilitates the development of innovative practices such as project-based learning and reflective teaching, which are essential for preparing students for interdisciplinary professional environments. A consistent theme throughout the findings is the need for higher education institutions to break down disciplinary silos. By embedding IPC into pedagogical strategies, faculty can create more inclusive and adaptable learning environments that not only improve academic outcomes but also align with the collaborative demands of the modern workplace. IPC provides a framework for faculty members to learn from and with each other, ensuring a holistic approach to student success. By actively engaging in IPC, faculty can ensure that teaching strategies are inclusive, adaptable, and aligned with the dynamic demands of higher education.

In light of these findings, we recommend that higher education institutions prioritise IPC as a cornerstone of pedagogical innovation. This includes facilitating interfaculty workshops, promoting collaborative curriculum design, and creating platforms for ongoing dialogue among educators. Through sustained IPC efforts, higher education can achieve its overarching goal of producing competent, socially responsible, and employable graduates.

AUTHORS' CONTRIBUTIONS

All authors contributed to the conceptualisation of the manuscript, the data search, analysis, and writing up.

CONFLICT OF INTERESTS

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