



Teaching, learning and assessment of the affective domain of undergraduate students: A scoping review

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ABSTRACT

Aim: To describe the literature on the teaching, learning and assessment of the affective domain among undergraduate students across various disciplines.

Background: Effective education integrates cognitive, psychomotor and affective development. While extensive research has addressed the teaching, learning and assessment of cognitive and psychomotor domains, considerably less attention has been given to the affective domain. The affective domain, encompassing values, ethics and emotional competencies, is essential for professional readiness yet remains a challenge in nursing education.

Design: A scoping review was conducted.

Methods: A comprehensive search was conducted following the PRISMA extension for Scoping Reviews (PRISMA-ScR) guidelines and was registered on OSF registries.

Results: Twenty articles met the inclusion criteria, representing studies across 13 countries in America, Asia and Europe. No scoping review has mapped teaching and assessment of affective skills in undergraduate nursing programmes. The findings emphasized teaching and learning strategies within the affective domain but revealed a significant gap in assessment methods, particularly in nursing education.

Conclusions: Despite the recognized importance of the affective domain, existing literature predominantly addresses teaching and learning, with limited emphasis on systematic assessment strategies.

1. Introduction

Effective education in various professions integrates cognitive, psychomotor and affective learning domains, each playing a crucial role in professional competence. While cognitive and psychomotor development are well-researched and systematically integrated into curricula, the affective domain remains underused in undergraduate education (Dabney and Eid, 2024; Frezza et al., 2019; Kuo et al., 2023; Kuboja, 2016; Nelson et al., 2020; Szecsi et al., 2024).

The affective domain encompasses values, ethics and emotions and influences motivation, engagement and professional identity formation (OECD, 2021). In nursing and other healthcare disciplines, well-developed affective skills contribute to improved communication, ethical decision-making, empathy and emotional intelligence, which are critical for quality patient-centred care (Dabney and Eid, 2024; Perregrini, 2019), as well as preparing them for work in the reality of the healthcare system (Whittaker et al., 2023). Fostering affective competencies enhances resilience, reduces burnout and strengthens

patient-care relationships (Coffey et al., 2019; Gerami Nejat et al., 2022; Hsu et al., 2024; Lee et al., 2023, 2020; Zhang et al., 2023).

However, despite its recognized importance, its integration into curricula is limited, partly due to concerns about subjectivity in assessment and a predominant focus on cognitive learning (Frezza et al., 2019; Nelson et al., 2020; ResearchGate Publication, 2023; Setiawan et al., 2019). Existing literature highlights challenges in incorporating the affective domain into education, including a lack of standardized teaching strategies and assessment tools (International Journal of Teaching and Learning Sciences 2025; Tshikanda, 2020). Gano-Phillips (2009) suggested that affective learning is a byproduct of cognitive learning. Ifadah et al., (2023), Pierre and Oughton (2007) and Whittaker et al., (2023) argued that it requires deliberate, structured engagement to develop the affective domain.

Due to the challenging nature of development of the affective domain (Wu et al., 2022) and the lack of a generic approach, this scoping review intended to map the existing literature on teaching, learning and assessing the affective domain in undergraduate education across

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various disciplines. It aimed to identify effective strategies, highlight gaps in assessment methods and provide insights for developing structured approaches to enhance affective learning outcomes. No scoping review has mapped teaching and assessment of affective skills in undergraduate nursing programmes (Contreras-Ramos et al., 2024). This research may contribute to professional practice by enhancing the development of students' affective domain (Tshikanda, 2020). Strengthening this domain can help new professionals with professional socialisation (Peisachovich et al., 2024) and improving their coping mechanisms as they transition into a new working environment. It further sought to inform educational practices and support the development of holistic, competency-based curricula.

The review addressed the question: *What evidence exists on teaching, learning and assessment of the affective domain in undergraduate students?*

2. Methods

2.1. Protocol and registration

The protocol was designed according to the scoping review methodological framework of Tricco et al., (2016), using the PRISMA-ScR to report on the study (Tricco et al., 2018), ensuring transparency and rigour. The protocol was registered with the OSF registries (<https://osf.io/4vhmr/>).

2.2. Eligibility criteria

The eligibility criteria were chosen based on the population, concept and context framework. This study was limited to undergraduate bachelor's degree programmes, which prepare students for their professional roles and when they start to develop their professional identity, developing their attitudes and values needed for that field. Due to a lack of literature that focused on nursing only, the decision was to include all undergraduate bachelor's degree programmes.

English articles were selected because English is a global language that would enable the search to access a large pool of data and for ease of understanding of the data. The main search was limited to the period between 2013 and 2023 to scientific journals and databases accessible through a higher education institution. Studies were included if they addressed teaching, learning and assessment of the affective domain of undergraduate students. The criteria for exclusion were publications that focused on the cognitive and psychomotor domains, secondary education, postgraduate students, letters and blogs.

2.3. Databases

The first and second authors initially searched the Cumulative Index to Nursing and Allied Health (CINAHL) and Education Resources Information Center (ERIC) databases on the 30th of July 2022. This search was performed to assess the efficacy of the search terms and the availability of relevant articles.

After the first search, the first author, in collaboration with an information specialist, conducted an independent review, with the second author verifying the publications. The search strategy was adjusted to change the search terms to include a more focused search. The revised search was conducted from August 2022 to January 2023 on CINAHL, ERIC, Health Source: Nursing/Academic Edition and Medical Literature Analysis and Retrieval System Online (MEDLINE).

2.4. Search strategy

The Boolean search terms for the preliminary search were (affective domain) and (learning and assessment) and health and science of nursing and education and affective domain of learning and assessment in education and higher education or college or university or post-secondary. No limiters were selected for the preliminary search.

The scoping review included any research methodology used. During the review process, an ancestral search of the included articles was performed to find additional resources.

2.5. Selection criteria

Reference management software (EndNote™) was used to import the sources of evidence into Rayyan™, which was used to organise the data and to remove duplicates. Sources of evidence were screened through a process that started with reading the titles, then the abstracts and thereafter the full texts based on the inclusion and exclusion criteria. Rayyan™ allowed team members' reviews to be blinded. The selection process is illustrated in Fig. 1.

2.6. Data extraction

A data extraction chart was designed and tested collaboratively. The data were captured on an Excel spreadsheet with the following headings: number, year of publication, cite, document, country of origin (published/conducted), source, key words, background, objective, methodology, study population and sample size, results, conclusion, last execution of literature search, supplemented search, gap identified, key themes. Data charting was performed independently by the first author and confirmed by the second author. The data chart attached at the end of the article include the citation of the article, the aim of the study, the objective, the methodology, the population and sample, the results/findings, the conclusion and key themes (Table 2 Data Chart). Any further detail may be requested from the authors.

2.7. Data items

Numerical and thematic analyses were conducted. Numerical analysis is presented in terms of the results and the characteristics of the sources of evidence. The thematic analysis included coding of the data under the main themes of teaching and learning and the assessment of the affective domain.

2.8. Quality appraisal

Two researchers selected the studies for final inclusion in the review and conducted a quality assessment using the PRISMA-ScR: Checklist and Explanation (Tricco et al., 2018). The checklist consisted of 22 questions, nine questions related to the methods, five related to the results and three dealt with the discussion of the results. Each question was addressed in the report and noted on the checklist on which page it was reported.

2.9. Synthesis

From the original data extraction chart, the findings of the numerical and thematic analyses were noted. The second reviewer appraised the data charts to confirm accuracy of the analysis.

2.10. Ethical approval and informed consent

This scoping review formed part of the first phase of a doctoral study, of which the first author was the doctoral candidate. Ethical approval was obtained from the University of Pretoria Faculty of Health Sciences (Ethics Reference No: 630/2022).

3. Results

3.1. Selection of sources of evidence

The initial search yielded 105 articles and two additional sources were found through tracing sources in the reference lists of the selected

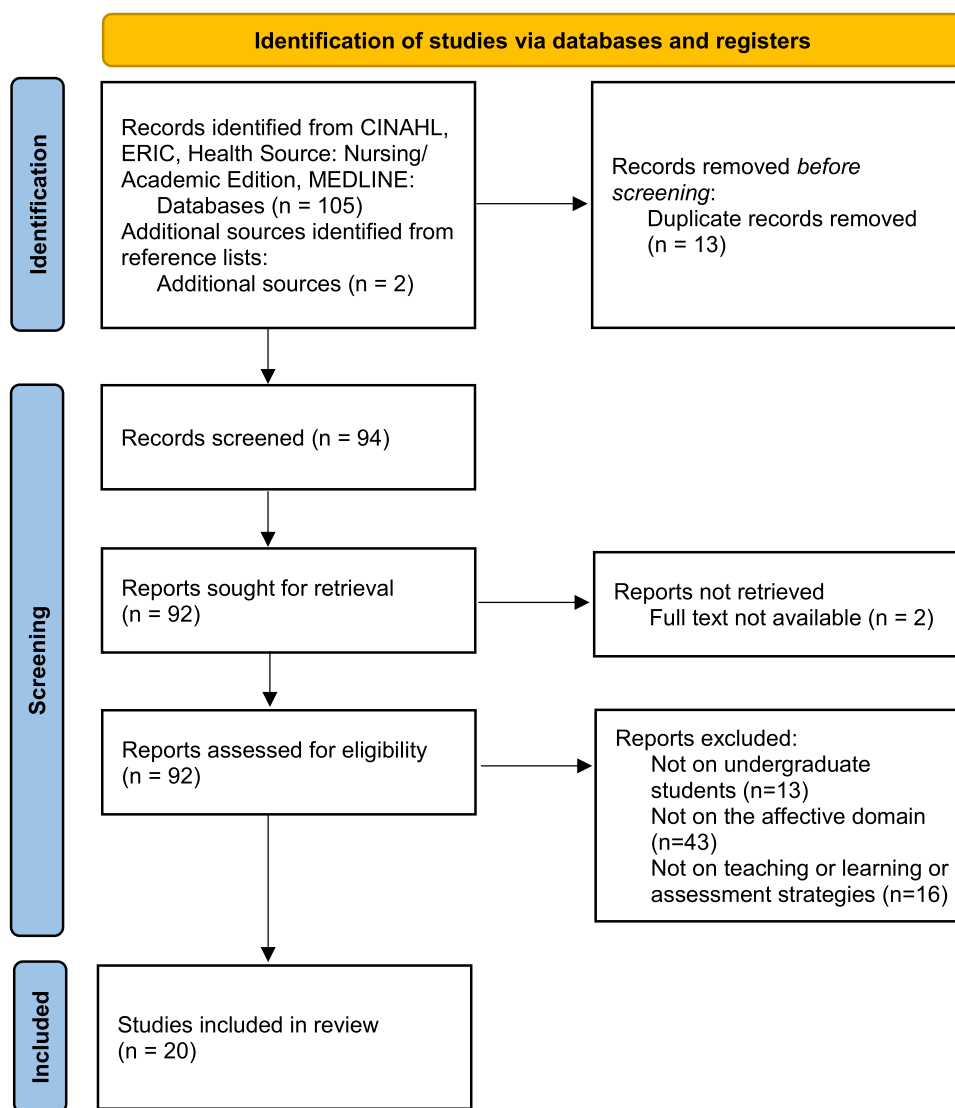


Fig. 1. PRISMA-ScR diagram of the scoping review process based on Page MJ et al. (2021).

articles. Duplicates (n = 13) were eliminated. The authors screened 94 articles by title, thereafter by reading the abstract. Two articles were excluded because no full texts were available. The eligibility of the remaining 92 articles was assessed. Thirteen articles did not focus on undergraduate programmes, 43 did not focus on the affective domain and 16 did not focus on teaching, learning, or assessment strategies; and therefore excluded from the study.

The full texts of the remaining 20 papers were reviewed. Qualitative study designs were used in 16 papers and quantitative designs were used in four papers. Thirteen papers focused on the affective domain only, while seven included other domains as well. The final list was discussed among the authors and consensus was reached for inclusion in the data chart. Data were extracted for thematic analysis. The second author co-analysed the results to minimise reporting bias.

3.2. Characteristics of the sources of evidence

The countries from where the articles originated are indicated in Table 1, representing North America, Western Europe, Southern and South-Eastern Asia and Australia.

Evidence of teaching and learning in the affective domain among undergraduate students is reported from various disciplines, such as medical (n = 6), nursing (n = 4), anaesthetics (n = 1), business

Table 1

Countries from where articles (n = 20) originated.

United States of America	n = 4
Australia	n = 3
India	n = 2
United Kingdom	n = 2
Canada	n = 1
Indonesia	n = 1
Pakistan	n = 1
Philippines	n = 1
Philippines & Australia	n = 1
Singapore & Sri Lanka	n = 1
Switzerland	n = 1
United Kingdom & Spain	n = 1
United States of America & Sweden	n = 1

administration (n = 1), biochemistry (n = 1), chemistry (n = 1), dietetics (n = 1), information technology (n = 1), pharmacy (n = 1), physical education (n = 1) and undisclosed (n = 2). Most of these articles (n = 13) were generated in healthcare sciences, while the other articles originated from basic sciences (n = 3), from the information and economic sciences (n = 2) and two were unknown.

The characteristics of the sources were diverse. They represented

developed regions from the world (approximately 75 %) and disciplines related to healthcare (n = 13, 65 %). The information obtained from the articles was considered as being relevant, up-to-date and appropriate.

3.3. Critical appraisal of sources of evidence

The included articles employed a variety of research methodologies. Four studies followed a quantitative approach, including an experimental study (n = 1), a quasi-experimental control group design (n = 1) and instrument development and validation (n = 2). Five studies followed a qualitative approach, of which three were qualitative descriptive studies and two were hermeneutic phenomenological studies. Five of the studies focused on implementation, followed an intervention research design (n = 3), an action research design (n = 1) and a multi-method research design for cooperative learning (n = 1). The remaining six studies used theory-based methodologies, namely a meta-analysis (n = 1), systematic review (n = 1), critical review (n = 1), scoping review (n = 1), narrative review (n = 1) and a literature review (n = 1).

The value of inclusion of a variety of methodologies in this scoping review lies in the fact that sufficient research-based information could be retrieved to address the objective of the scoping review. Limiting the type of methodologies for inclusion would have resulted in too few articles to describe teaching, learning and assessment of the affective domain due to the scarcity of research conducted.

3.4. Results of individual sources of evidence

From the data chart, the data were sorted into two key themes: the teaching and learning of the affective domain and the assessment of the affective domain, which will be discussed later (Table 2).

3.5. Synthesis of results – teaching and learning strategies

The most reported teaching strategy for the affective domain was reflection (Green and Batool, 2017; Joshi et al., 2022; Krause, 2016; Pagatpatan et al., 2020; Stephens and Ormandy, 2018; Yanofsky and Nyquist, 2014; Younas and Maddigan, 2019). Experiential learning (Hui and Mahmud, 2023; Younas and Maddigan, 2019), simulation (Kalra et al., 2016; Krause, 2016; O'Shea et al., 2022; Roberts and Kaur, 2023; Rogers et al., 2017; Yanofsky and Nyquist, 2014) and cooperative or collaborative learning (Casey and Fernandez-Rio, 2019; Green and Batool, 2017; Stephens and Ormandy, 2018; Sugano and Mamolo, 2021) followed as popular choices for teaching strategies in the affective domain.

The use of storytelling (Roberts and Kaur, 2023; Yanofsky and Nyquist, 2014; Younas and Maddigan, 2019), poetry (Joshi et al., 2022; Kalra et al., 2016), mentoring and engaging with role models (Frezza et al., 2019; Pagatpatan et al., 2020) and 360° video (Donnelly et al., 2020; Yanofsky and Nyquist, 2014) featured more than once in the papers included in the study. Other methods for teaching and learning in the affective domain included games (Hui and Mahmud, 2023), team-based service-learning (Bartz et al., 2022), project-based learning (Sugano and Mamolo, 2021) and the orientation-decision-do-discuss-reflect method (Anwar et al., 2018).

3.6. Synthesis of results - assessment strategies

Four of the 20 articles discussed the assessment of the affective domain (DeLellis et al., 2023; Frezza et al., 2019; Rogers et al., 2017; Yanofsky and Nyquist, 2014). No guidelines describing the assessment of the affective domain were found, indicating a gap in the current literature.

4. Discussion

This scoping review explored teaching, learning and assessment strategies within the affective domain of undergraduate education. The affective domain of learning, as outlined by Krathwohl, Bloom and Masia (1964), emphasized the emotional aspects of learning.

This domain focused on how individuals' approach and respond to learning emotionally, addressing areas such as feelings, values, appreciation, enthusiasm, motivation and attitudes. By creating a supportive learning environment and emphasizing the value of interpersonal skills, educators ensured that students are well-equipped to build trust and establish meaningful connections with their clients and colleagues. The findings indicated several teaching strategies for the affective domain, but assessment of the affective domain remained an underdeveloped area (Frezza et al., 2019, Pagatpatan et al., 2020).

4.1. Teaching and learning strategies

Several strategies were identified for fostering the affective domain, such as reflective journaling and creative writing, experiential learning (such as simulation-based and community-based learning), cooperative learning, interprofessional education, preceptorship and simulation, while reflection emerged as a core strategy for fostering affective domain development across various educational strategies and settings, as discussed in the following section.

Creative and narrative-based methods such as poetry, storytelling and reflective writing, served as experiential tools that humanized the learning process and provided emotionally rich experiences that connected academic content with personal and patient narratives (Joshi et al., 2022; Kalra et al., 2016; Rogers et al., 2017; Younas and Maddigan, 2019). Reflective journaling was used to assess and develop affective learning outcomes, especially in clinical and immersive simulation settings (Rogers et al., 2017). Poetry and creative writing fostered reflection and empathy, helping learners engage emotionally and intellectually in medical and healthcare students according to Joshi et al., (2022) and in pharmacology students according to Kalra et al. (2016). In both groups, poetry was found to improve communication, encouraged positive interpretations of situations, nurtured creativity among students and deepening emotional engagement and promoting personal insight (Hui and Mahmud, 2023; Joshi et al., 2022; Kalra et al., 2016).

Experiential learning was widely endorsed for advancing student growth in the affective domain, particularly in health professions and higher education. It involved direct engagement in authentic tasks that stimulated emotional, social and cognitive responses, allowing learners to develop attitudes, values and interpersonal competencies through lived experiences (DeLellis et al., 2023; Frezza et al., 2019; Hui and Mahmud, 2023). Methods of experiential learning include simulation-based-, community-based- and service learning.

Simulation-based learning, which replicated real-world scenarios in safe environments is often used in training of professionals. O'Shea et al. (2022) conducted a longitudinal hermeneutic study amongst dietetic students and Roberts and Kaur (2023) conducted a quasi-experimental study amongst nursing students to demonstrate the use of simulation activities for affective development. Both studies found it significantly supported affective learning, enabling students to practice and internalize professional behaviours such as empathy, teamwork and lifelong learning. The activities allowed the students to experience complex emotional and ethical situations in a safe environment, followed by structured debriefing and reflection.

Another method of experiential learning was community-based education and service learning. These approaches immersed students in real communities, encouraging engagement with social issues and patient experiences. Positive role models, mentors, preceptors and instructors played pivotal roles in experiential learning, guiding learners through reflective processes in the form of feedback and reinforcement

Table 2
Data Chart.

Cite	Aim of the study	Objective	Methodology/ methods/design	Population & sample	Results/Findings	Conclusion	Key themes
Hui & Mahmud, Switzerland, 2023. Influence of game-based learning in mathematics education on the students' cognitive and affective domain: A systematic review.	The literature review focussed on the influence of game-based learning in mathematics on students' cognitive and affective domains.	This study aims to review journal articles from 2018 to 2022 concerning the influence of GBL in mathematics T&L on the students' cognitive and affective domains.	Systematic review.	Articles published in 2018 – 2022 included 28 articles.	Game-based learning positively impacted students' achievement, attitude, motivation, interest and engagement in the affective domain.	Studies relating to game-based learning has increased since 2019. Mathematics using a game-based learning (GBL) will influence the cognitive and affective domains.	Learning
Roberts & Kaur, United States, 2023. Effect of storytelling and empathy training to support affective learning in undergraduate nursing students.	The effect of storytelling and empathy training on enhancing empathy development using simulation-based training.	This study examined the impact of a storytelling and empathy training intervention on enhancing empathy in simulation-based learning.	A quasi-experimental control group design.	Undergraduate nursing students (n = 71).	Storytelling and empathy training improved self-perceived empathy but did not affect empathy.	Storytelling and empathy training can enhance simulation-based learning, fostering empathy development in undergraduate nursing students.	Learning
Samarasekera, Lee, Yeo, Yeo & Ponnampuruma, Singapore, Sri Lanka, 2023. Empathy in health professions education: What works, gaps and areas for improvement.	To identify interventions to instil empathy in both undergraduate and postgraduate medical education.	This study explores effective interventions for fostering empathy in undergraduate and postgraduate medical education and identifies areas for improvement.	A narrative review.	Articles published 2012 – 2020 included 44 articles.	Interventions included simulation, interviewing, reflective/narrative writing, experiential learning, debriefing, discussion, role play/drama, feedback, coaching, case discussion and gamification. Interventions were more effective than the didactic methods.	Pedagogical methods that engage the affective domain and experiential learning are more effective than traditional didactic teaching approaches.	Learning
Bartz, Pelletier, Alexander, Osman & Johnson, United Kingdom, 2022. Service learning and the medical student affective domain.	To review service learning and the medical student affective domain.	United Kingdom	Intervention research (team-based learning).	All students enrolled in the Principal Clinical Experience programme in the 2018 – 2019 academic year (n = 45).	The team-based service-learning activity contributes to the students' community understanding, empathy and team building.	No conclusion.	Learning
DeLellis et al., United States, 2022. Examining validity for the pharmacy affective domain-situational judgment test (PAD-S).	To validate the situational judgment test (SJT) to assess the affective domain.	To examine the validity evidence for a recently developed situational judgment test (SJT) to assess the affective domain contained in the Accreditation Council for Pharmacy Education (ACPE) Standards 2016.	Validation of an instrument.	Pharmacy students at three institutions (n = 559).	Cronbach alpha indicated a validity of 0.70. The SJT provides an objective, helpful and easy assessment for student development of the affective domain.	Early validation of the SJT suggests it may be a promising tool for assessing student progression in the affective domain.	Assessment
Joshi, Paralikar, Kataria, Kalra, Harkunni, & Singh, India, 2022. Poetry in medicine: a pedagogical tool to foster empathy among medical students and health care professionals.	To explore poetry's role in teaching, cultivating and enhancing empathy among medical students and healthcare professionals.	Not disclosed	Qualitative descriptive	Medical students and health care professionals (sample size not provided).	Poetry enables students to articulate their feelings, fostering reflection and understanding; however, careful facilitation is necessary.	Poetry can help students rediscover the human aspects of medicine. With the rise of Artificial Intelligence (AI) in healthcare, the unique quality of human empathy is essential for connecting with patients. Cultivating empathy is crucial	Learning

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Table 2 (continued)

Cite	Aim of the study	Objective	Methodology/ methods/design	Population & sample	Results/Findings	Conclusion	Key themes
O'Shea, Palermo, Rogers, & Williams, Australia, 2022. Development of affective learning in dietetics graduates: A qualitative longitudinal study.	To investigate the value of simulation-based learning activities concerning affective learning among dietetic students.	This study investigates the value of simulation-based learning activities in enhancing affective learning among dietetic students.	A qualitative longitudinal study applying a double hermeneutic, interpretative phenomenological approach.	Dietetic students (n = 6).	Simulation-based learning following Krathwohl's hierarchical levels of affective domain learning assisted students with workforce readiness, valuing lifelong learning and interprofessional teamwork.	as empathetic doctors impact the emotional well-being of patients. Simulation-based learning enhances students' affective domain development and educators should integrate it into their programs.	Learning
Sugano & Mamolo, Philippines, 2021. The effects of teaching methodologies on students' attitude and motivation: a meta-analysis.	This study evaluates the impact of teaching strategies on students' affective domain, focusing on attitude and motivation, in secondary chemistry.	This study examines the effectiveness of teaching strategies on students' affective domain, including attitude and motivation, in secondary chemistry.	A meta-analysis	Studies published from 2015 to 2016 (n = 14).	Cooperative learning affects attitude and motivation, whereas project-based learning and individualised instruction only affect attitude.	Cooperative learning significantly enhances students' positive attitudes, motivation and interest in learning chemistry.	Learning
Donnelly, McLiesh & Bessell, Australia, 2020. Using 360° video to enable affective learning in nursing education.	To describe the integration of the affective domain in the conceptualisation of 360° video.	Not disclosed	Implied intervention research but not disclosed.	Nursing students, the sample size was not disclosed	360° video offers an engaging, reproducible and consistent method for enhancing affective learning.	Affective learning has traditionally been challenging to both implement and assess.	Learning
Pagatpatan, Valdezco & Lauron, Philippines, Australia, 2020. Teaching the affective domain in community-based medical education: A scoping review.	To describe the teaching of the affective domain through community-based medical education and develop an initial model for instructional purposes.	This study explores the existing literature on teaching the affective domain through community-based medical education and proposes an initial instructional model.	Scoping review	Articles included (n = 22)	Affective domain development requires a long-term process through structured reflection, with opportunities to apply knowledge in practice, demonstrated through role modelling and mentoring.	Proposed an initial model in teaching the affective domain in community-based medical education.	Learning
Casey & Fernandez-Rio, United Kingdom, Spain, 2019. Cooperative learning and the affective domain.	Practical examples of how to promote affective learning among students.	This article provides practical examples of how teachers can foster affective learning through two cooperative learning structures: Student Teams Achievement Divisions (STAD) and the jigsaw classroom. It also presents a taxonomy to help teachers assess and value students' affective learning.	Model-based practice in physical education	Not disclosed	Cooperative learning following Krathwohl's taxonomy promotes affective learning. The Student Teams Achievement Division and Jigsaw is described.	Educators should choose approaches that effectively foster learning in the affective domain.	Learning
Frezza, Daniels, & Wilkin, United States, Sweden, 2019. Assessing students' IT professional values in a global project setting.	To develop a low-cost affective domain assessment instrument.	This study evaluates the development and implementation of low-cost affective domain assessment tools, leading to personal and group characterization of key global IT professional values.	Instrument development and validation	Students (n = 7) and alumni (n = 9).	Profession-specific actionable value statements can guide the assessment of the affective domain.	Students showed strong agreement in recognizing these global values but had more varied responses when it came to internalizing and valuing them.	Assessment

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Table 2 (continued)

Cite	Aim of the study	Objective	Methodology/ methods/design	Population & sample	Results/Findings	Conclusion	Key themes
Younas & Maddigan, Canada, 2019. Proposing a policy framework for nursing education for fostering compassion in nursing students: A critical review.	This study proposes a policy framework for nursing education to cultivate compassion in nursing students.	This study aims to develop a policy framework to enhance compassion in nursing education.	A critical review	Articles published from January 2008 to April 2018 (n = 29)	Encourage reflection and critical thinking to enhance clinical excellence and integrate knowledge effectively.	Compassion is expressed when nurses authentically work to understand patients' suffering and become sensitive to their experiences.	Learning
Anwar, Senam & Laksono, Indonesia, 2018. Meaningful biochemistry learning using the orientation-decision-do-discuss-reflect (OD3R) method.	To integrate the elements of the Orientation/ Decision/ Do/ Discuss/ Reflect method for meaningful biochemistry learning.	The Orientation/ Decision/ Do/ Discuss/ Reflect (OD3R) method seeks to integrate the elements and makes biochemistry learning meaningful.	Implementation study	Biochemistry students at four universities in Indonesia (n = 216)	The OD3R method structures affective learning	Each stage of the OD3R method addresses the cognitive, affective and psychomotor domains in biochemistry learning.	Learning
Stephens & Ormandy, United Kingdom, 2018. Extending conceptual understanding: How interprofessional education influences affective domain development.	This study assesses the impact of the Interprofessional Learning Programme on students' attitudes and values.	This study evaluates the impact of the Interprofessional Learning (IPL) program on students' attitudes, values and examines behavioural changes in clinical practice related to interprofessional collaboration.	Action research.	Students from nursing, radiography, physiotherapy, social work, podiatry (n = 63).	Interprofessional learning activities contribute to self-assessment, team building and reflection, leading to sustained change in values, attitudes and behaviours.	A conceptual framework exploring how, for whom and under what circumstances Interprofessional Learning (IPL) is effective.	Learning
Green & Batool, Pakistan, 2017. Emotionalized learning experiences: Tapping into the affective domain.	This study investigates the impact of emotionalized learning experiences on students' academic achievement.	This study explores the impact of emotionalized learning experiences on students' academic achievement at Preston University. Its key objectives are to assess the effect of teaching strategies on academic performance and examine the relationship between affective learning conditions and student achievement.	Experimental study.	Business administration students (n = 140)	Reflective learning, interactive lectures, cooperative learning and activities enhanced learning in the affective domain.	The reflective learning method was the most effective, followed by interactive lectures, cooperative learning and activity-based methods in enhancing students' knowledge, shaping attitudes and developing skills for a happy, healthy and meaningful life.	Learning
Rogers, Mey & Chan, Australia, 2017. Development of a phenomenologically derived method to assess affective learning in student journals following impactful educational experiences.	To develop a method to assess the presence and quality of affective learning.	To develop a method to assess for the presence and quality of AL.	Double hermeneutic interpretative phenomenological analysis.	Student journals (n = 135), intervention (n = 81), control (n = 54)	Clinical Learning through Extended Immersion in Medical [or Multimethod] Simulation (CLEIMS) enhances affective learning assessed through reflective journaling.	The method outlined a way to assess affective learning in health professional students.	Assessment
Kalra, Singh, Badyal, Barua, Sharma, Dhasmana & Singh, India, 2016. Poetry in teaching pharmacology: Exploring the possibilities.	This study explores the use of poetry as an active learning tool to connect knowledge and the affective domain.	This study explores poetry as a tool for active learning, connecting knowledge and the affective domain. It also examines whether integrating learning with imagination can be used for "assessment for learning."	Qualitative descriptive	Students (n = 120)	Creative activities such as poetry enhance learning in the affective domain. Reflective learning combined with subjective experience contributes to life-long learning.	Poetry writing can serve as a simulation exercise, connecting academic knowledge, creativity and the affective domain within an assumed scenario.	Learning

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Table 2 (continued)

Cite	Aim of the study	Objective	Methodology/ methods/design	Population & sample	Results/Findings	Conclusion	Key themes
Krause, United States, 2016. Precepting challenge: Helping the student attain the affective skills of a good midwife.	To discuss the precepting challenge in helping midwifery students to attain affective skills.	This article explores the acquisition of affective skills by students in the clinical setting. Well-developed affective skills require minimal attention, but when lacking, their recognition and remediation can be challenging for preceptors.	Qualitative descriptive	Not disclosed	Effective preceptorship using reflective dialogue, role modelling, simulation and role play to enhance active participation is necessary to develop the affective domain.	Effective teaching techniques and a strong understanding of the affective domain improve preceptors' ability to assess and address student deficiencies.	Learning
Yanofsky & Nyquist, United States, 2014. Using the affective domain to enhance teaching of the ACGME competencies in anesthesiology training.	Discussion on the teaching of the affective domain.	Not disclosed	Literature review	Not disclosed	The affective domain can be taught through attention grabbers (brainstorming, video clips, use of a quotation, visual image, story), skill builders (independent study of written/digital media, formal presentation, case-based exercises, role-play and simulation/standardised patients), catalysts (progressive disclosure cases, small group activities, think-pair-share, quizzes, games, polls and audience response systems), intensifiers (narrative/reflective writing, presentations by learners and commitments-to-change) and trackers (journals and portfolios).	Using the affective domain to guide teaching techniques can help develop key beliefs and values that support advanced competencies and sub-competencies. Educators aim to impact knowledge, attitudes, skills and the daily behaviour of our graduates.	Learning and assessment

of positive affective behaviour. Such exposure promoted empathy, a sense of social responsibility and cultural sensitivity (Bartz et al., 2022; Krause, 2016; Pagatpatan et al., 2020; Stephens and Ormandy, 2018). Pagatpatan et al. (2020) found in a scoping review on community-based medical education that structured reflection supports long-term affective development. It was found that students engaging in reflective practices developed a deeper understanding of the emotional dimensions associated with their learning experiences (Hui and Mahmud, 2023). Furthermore, the development of the affective domain required a long-term process through structured reflection (Donnelly et al., 2020), with opportunities to apply knowledge in practice and be demonstrated through role modelling and mentoring. Krause (2016) demonstrated reflective dialogue and preceptorship to be effective tools in clinical settings for addressing affective skill gaps in midwifery students. Bartz et al. (2022) concluded with an intervention study that team-based service learning contributed to students' understanding of community, empathy and team building. Stephens and Ormandy (2018) evaluated the impact of programs incorporating interprofessional education that employed reflection amongst students from nursing, radiography, physiotherapy, social work and podiatry, through action research. The

results indicated the promotion of sustained changes in values, attitude and behaviour, as well as self-assessment, team building, understanding of the roles and contributions of various healthcare professionals and reflection.

In an experimental study on emotionalized and reflective learning methods, Green and Batool (2017) demonstrated amongst business administration students that emotionalized and reflective learning methods consistently emerged as among the most effective strategies for enhancing affective competencies such as compassion, empathy and motivation. Other methods such as interactive lectures, cooperative learning and use of activities were found to be less effective.

Though Green and Batool (2017) indicated cooperative learning as less effective for development of the affective domain than emotionalised and reflective learning methods, several authors demonstrated valuable contributions by cooperative learning in the affective domain. Grounded in social constructivist theory, cooperative learning approaches promoted collaboration, mutual support and shared responsibility among learners, cultivating essential affective attributes such as empathy, respect, motivation, social connectedness and professional identity. Sugano and Mamolo (2021), in their meta-analysis on

secondary chemistry education, found that cooperative learning significantly improved student attitudes and motivation, more so than project-based or individualized instruction. This finding underscored the unique role of social interaction in promoting not only cognitive gains but also deeper emotional engagement and sustained interest in learning.

Similarly, Casey and Fernandez-Rio (2019) illustrated the effectiveness of cooperative models such as the Student Teams Achievement Divisions (STAD) and the Jigsaw classroom. These models actively engaged learners in peer-led instruction, shared problem-solving and mutual accountability. Grounded in Krathwohl's affective domain taxonomy, these cooperative structures provided a framework through which educators could intentionally plan, implement and assess affective learning objectives.

The benefits of cooperative approaches also extended into interdisciplinary and experiential learning. Stephens and Ormandy (2018) demonstrated how interprofessional education, which incorporated cooperative strategies, led to improvements in teamwork, reflective practice and values clarification among health sciences students. In addition, Green and Batool (2017) noted that cooperative activities embedded in emotionalized learning experiences significantly enhanced affective learning by increasing engagement and personal relevance.

It can therefore be concluded that reflection was a critical tool for affective development, appearing across multiple studies. These reflection methods allowed students to connect theoretical content with personal values, leading to deeper emotional engagement and the development of empathy. Reflective learning supported long-term affective growth, enhanced clinical readiness and promoted compassionate care. Whether used in simulation-based learning, interprofessional education, or community-based contexts, reflection consistently fostered attitudinal shifts and personal insight in different disciplines, making it integral to meaningful affective domain teaching and learning.

4.2. Assessment strategies

A key finding of this review was the significant gap in assessment strategies for the affective domain with limited studies directly addressing assessment, underscoring the lack of approaches (DeLellis et al., 2023; Frezza et al., 2019; Rogers et al., 2017; Yanofsky and Nyquist, 2014). Assessment methods primarily relied on surveys and qualitative evaluations, which, while valuable, lacked objective benchmarks (Samarasekera et al., 2023).

Surveys were commonly employed to capture self-perceived changes in empathy, attitudes and motivation. Tools such as situational judgment tests (DeLellis et al., 2023) and self-assessment questionnaires (Roberts and Kaur, 2023) offered accessible means to quantify affective outcomes. However, reliance on self-reporting may have limited the depth of insight gained, particularly when objective behavioural change was not easily captured.

DeLellis et al. (2023) validated a situational judgment test (PAD-S) to objectively assess affective traits in pharmacy students. Though early in development, situational judgment tests offered accessible and standardized survey-based assessment tools. DeLellis et al. (2023) proposed that objective, standardized assessments like situational judgment tests were feasible and necessary for effectively evaluating affective domain development, rather than relying solely on subjective or informal observations.

Roberts and Kaur (2023) used surveys to measure self-perceived empathy before and after storytelling and simulation interventions. While students reported improved perceptions, objective empathy levels did not change significantly, highlighting the limitations of self-reporting. Surveys were frequently employed for affective self-assessment but might not fully capture deep emotional or behavioural change without complementary qualitative methods.

Qualitative evaluations offered deep, contextual understanding

necessary for fully appreciating affective learning transformations. Studies such as Samarasekera et al. (2023) and Joshi et al. (2022) used narrative synthesis and qualitative feedback to identify effective interventions for empathy and emotional learning in healthcare students. O'Shea et al. (2022) applied hermeneutic interpretative phenomenological analysis in a longitudinal study with dietetic graduates, revealing how affective growth unfolded over time through experiential learning.

Frezza et al. (2019) showed that while information technology students recognized professional values, truly internalizing them was harder to measure, highlighting the need for affordable, practical tools to assess affective growth. Assessment of the affective domain needed to go beyond the surface agreement and find ways to measure deep internalization of values. Simple, low-cost tools (such as value statement assessments using a Likert scale) could help track affective learning but must be interpreted carefully.

Rogers et al. (2017) found reflective journaling by healthcare students to be a powerful tool to capture internal emotional and attitudinal shifts that occurred during learning. Through students' narratives, researchers could assess emotional engagement, value formation and personal meaning-making — areas typically hard to measure quantitatively. Reflective writing provided a practical and effective means to assess affective domain development when structured properly. It allowed educators to evaluate the depth of emotional learning and value internalization, rather than surface knowledge alone. Therefore, reflective journals represented a rich, effective way to assess affective learning, although interpreting them demand careful, qualitative analysis.

Yanofsky and Nyquist (2014) reviewed the teaching of the affective domain in anaesthesiology training. They used Bloom's Taxonomy levels (Receiving, Responding, Valuing, Organizing and Characterization) to describe various teaching and assessment methods. These included attendance records, task completion, written and verbal expressions, performance ratings, activity logs, portfolios and observations. Yanofsky and Nyquist (2014) argued that affective domain assessment should be continuous, behaviourally anchored and integrated with reflective and observational methods, despite its inherent challenges. They recommended employing multiple tools to assess affective learning, including reflective journals and portfolios for self-assessment, observations of student behaviour in clinical settings, peer feedback and standardized patients or simulations that incorporated emotional components. They further stressed that educators should prioritize observing behavioural indicators such as communication style, the demonstration of empathy and ethical decision-making, rather than depending exclusively on students' self-reported perceptions of their own affective growth.

The integration of surveys and qualitative evaluations provided a comprehensive approach to fostering and assessing affective learning but might be subjective. Affective education was best supported by combining reflective practices that encouraged personal insight, validated survey instruments that tracked self-perceptions and qualitative inquiries that revealed the depth and complexity of emotional development. The complexity of the affective domain, the subjective nature of emotional experiences, the development of reliable tools and the need for longitudinal assessment called for careful planning and execution, which often required more time than was typically allocated to educators (DeLellis et al., 2023; Frezza et al., 2019; Rogers et al., 2017; Yanofsky and Nyquist, 2014).

4.3. Challenges and recommendations related to teaching, learning and assessment of the affective domain

Despite its recognized importance in preparation of professional disciplines, the teaching of the affective domain remained under-emphasized in education, particularly in health professions training. Several interconnected challenges contributed to this situation.

First, measuring affective outcomes objectively proved difficult.

Studies indicated that empathy, values and professional attitudes were subjective constructs that were challenging to quantify reliably. Moreover, early-stage tools such as situational judgment tests are still undergoing validation, highlighting the lack of standardized assessment methods and need to be further enhanced (Rogers et al., 2017).

Second, the historical focus of educational programs on cognitive and technical competencies marginalized affective learning. The emphasis on academic knowledge and clinical skills often side-lined the structured development of emotional intelligence and ethical sensitivity (Yanofsky and Nyquist, 2014). Educators can systematically embed affective-domain strategies across the curriculum by first defining and mapping explicit emotional and ethical learning outcomes alongside cognitive and psychomotor objectives. Structured reflection through weekly journals, guided debriefings after simulations and end-of-term portfolios can enable students to examine their values, emotional responses and professional identity in relation to real-world practice (Donnelly et al., 2020; Rogers et al., 2017). Simulation scenarios should be designed to evoke authentic emotional and ethical challenges, with debrief frameworks that prompt discussion of feelings, decision-making and interpersonal dynamics (Green and Batool, 2017; Hui and Mahmud, 2023).

Third, teaching strategies that effectively targeted the affective domain such as simulation-based learning, reflective exercises and mentoring, required considerable time, resources and faculty engagement. Many institutions found it difficult to sustain these methods at scale, given their cost and complexity compared with traditional didactic teaching (O'Shea et al., 2022).

Fourth, there was a prevalent reliance on implicit learning through role modelling rather than explicit instruction in affective skills. This hidden curriculum approach often resulted in inconsistent development of critical affective attributes such as empathy, compassion and professional identity (Krause, 2016). Experiential learning such as service-learning and community engagement experiences can assist in immersing students in diverse care settings, fostering empathy, cultural sensitivity and social responsibility (Pagatpatan et al., 2020). Cooperative and interprofessional learning activities such as jigsaw exercises and shared case analyses, can promote respect, mutual support and collaborative problem-solving across disciplines (Stephens and Ormandy, 2018).

Fifth, many educators lacked training or confidence in teaching and assessing affective outcomes. Faculty development traditionally focused on imparting cognitive knowledge and technical skills, leaving a gap in expertise related to emotional and value-based education (Yanofsky and Nyquist, 2014). Formal mentorship programs and targeted faculty development might equip educators to role-model affective competencies, employ multi-method assessments (such as empathy checklists, peer feedback and reflective writing rubrics) and deliver constructive feedback on students' professional behaviours (Anwar et al., 2018; Yanofsky and Nyquist, 2014). By weaving these components into lectures, simulation labs and clinical placements, nursing programs can ensure that graduates emerge not only technically proficient but also emotionally intelligent and ethically grounded caregivers.

Finally, while innovative strategies such as poetry, narrative writing, storytelling, humanised clinical content and immersive technologies demonstrated promise for fostering affective development, they remained relatively new and were not yet widely embedded across curricula (Frezza et al., 2019; Younas and Maddigan, 2019). However, recent studies showed growing awareness and innovation (O'Shea et al., 2022; Pagatpatan et al., 2020) suggesting that emphasis on affective education may increase in the future. Addressing these challenges remains essential for producing empathetic, ethical and socially responsible graduates (Joshi et al., 2022).

Yanofsky and Nyquist (2014) believed effective affective domain assessment requires intentional design, the use of multiple complementary methods and training for faculty to recognize affective learning outcomes reliably.

In application to practice, educators should begin by articulating clear, observable affective learning outcomes such as demonstrating empathetic communication or ethical decision-making, aligned with Krathwohl's taxonomy. They can then implement a multi-method assessment strategy. Case-based situational judgment tests, adapted from the PAD-S model, offer standardized scenarios to objectively evaluate students' responses to emotional and ethical dilemmas (DeLellis et al., 2023). Structured reflective journals and e-portfolios, scored against detailed rubrics (Anwar et al., 2018), enable longitudinal tracking of value internalization and depth of emotional insight (Rogers et al., 2017). Behavioural observation checklists used during simulations and clinical placements allow faculty to rate specific affective behaviours consistently (Yanofsky and Nyquist, 2014). Complementing these with peer and self-assessment exercises using validated value-statement instruments, fosters metacognitive awareness and personal accountability (Frezza et al., 2019). Additionally, emotionally charged standardized-patient encounters, paired with debrief rubrics, can assess empathic engagement in a controlled clinical context (Anwar et al., 2018; DeLellis et al., 2023; Frezza et al., 2019). To ensure reliability and validity, faculty must be trained in inter-rater calibration, exemplar review and effective feedback delivery (DeLellis et al., 2023; Frezza et al., 2019; Rogers et al., 2017). Embedding these assessments at key program milestones (entry, midpoint, exit) ensures that affective competencies are systematically developed and reinforced alongside cognitive and psychomotor skills (DeLellis et al., 2023; Frezza et al., 2019).

Given the identified challenges in teaching and assessing the affective domain, it is critical to consider the broader implications for educational practice and future research. Addressing these gaps will require systematic curricular integration, innovative teaching strategies and the development of validated assessment frameworks that can support the cultivation of emotional and ethical competencies in professional education.

5. Implications for teaching strategies

The scoping review underscores the need for intentional, structured teaching strategies to develop the affective domain in undergraduate education. Approaches such as simulation-based learning, reflective journaling, storytelling, poetry and community engagement create emotionally rich experiences that link academic content to personal and professional values. Reflection emerged as a central method, enabling students to explore emotions and ethical dilemmas. To foster empathy and professional identity, these strategies must be systematically embedded across the curriculum, supported by guided reflection, mentorship and faculty role modelling.

5.1. Implications for assessment

The assessment of the affective domain remains a persistent challenge due to its subjective nature and the lack of standardised tools. This review highlights the need for validated discipline-specific strategies that assess emotional awareness, values and professionalism. Promising methods include reflective journal rubrics, situational judgment tests, behavioural observations and portfolios. Effective implementation requires faculty training in structured assessment and feedback delivery. To ensure developmental progression, affective assessment should be continuous, behaviourally anchored and integrated at key curriculum milestones, alongside cognitive and psychomotor competencies.

5.2. Implications for research

Further research is needed to develop validated, scalable frameworks for assessing the affective domain. Longitudinal studies should examine how affective competencies evolve and evaluate the sustained impact of interventions such as simulation, poetry-based learning and community engagement. Additionally, research into faculty readiness to teach and

assess the affective domain is essential for effective curriculum integration. Robust, discipline-sensitive evidence is vital to inform pedagogical and assessment practices across educational contexts.

5.3. Implications for nursing today

In nursing education, integrating affective learning is essential to complement clinical competence and foster compassionate, ethical practice. Structured strategies such as simulation, interprofessional learning and community engagement provide meaningful opportunities for students to develop empathy, resilience and professional identity. Reflection, particularly following emotionally complex experiences, supports the internalisation of values and ethical sensitivity. Nursing programmes must prioritise faculty development and implement deliberate, multi-method assessment of affective competencies to prepare graduates for the relational and ethical demands of modern healthcare.

5.4. Limitations

The researcher excluded articles published before 2013 and those requiring payment. Only English-language articles were screened. While valuable articles may have been missed, the researcher believed that this scoping review still provided meaningful insights.

While the body of research showed a growing commitment to studying the affective domain, it remained fragmented, context-specific and methodologically variable. Many studies involved small, discipline-specific samples that limited generalizability (e.g., O'Shea et al., 2022; Frezza et al., 2019). The heavy reliance on subjective self-assessments introduced potential bias and limited the reliability of outcomes (Roberts and Kaur, 2023). To strengthen the field, future studies needed larger, more diverse samples, longitudinal designs, validated multi-method assessments and greater consistency in defining and targeting affective competencies.

6. Conclusion

The research confirmed that developing the affective domain was essential for preparing empathetic, ethical and emotionally intelligent professionals. Structured interventions such as reflection, simulation and community engagement effectively fostered emotional and attitudinal growth. However, challenges remained, including inconsistent assessment methods, small sample sizes and a lack of standardized frameworks. To advance affective education, institutions must embed structured affective objectives into curricula, invest in faculty development and prioritize research that creates validated, longitudinal assessment tools. Strengthening the affective domain alongside cognitive and technical skills is vital for producing compassionate, patient-centred graduates ready to meet the complex demands of modern professional practice.

Nurse educators were encouraged to purposefully plan the use of reflection, experiential learning, simulation and cooperative and collaborative teaching strategies to develop the affective domain of their students. Additional options included storytelling, poetry, mentoring, role modelling and the use of 360° videos to promote self-reflection. The literature provided little guidance on how educators should assess affective learning. Assessment currently relied primarily on surveys and qualitative evaluations such as reflective journals. Further research is needed to develop discipline-specific tools that could systematically evaluate values, attitudes and emotional competencies and to establish clear guidelines for assessing the affective domain.

CRediT authorship contribution statement

Potgieter Lizelle: Writing – review & editing, Writing – original draft, Validation, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Carin**

Maree: Writing – review & editing, Supervision, Conceptualization. **Celia Filmlalter:** Writing – review & editing, Supervision, Methodology, Formal analysis, Conceptualization.

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