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A Scoping Review on Experiential Learning in Workplace-Based: Clinical Placements

Anisa Ahmad[1], Ahmad Fuad Abd Rahim[1], Wan Mohd Zahiruddin Wan Mohammad[2], Mohd Zarawi Mat Nor[1]

[1]*Department of Medical Education, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, MALAYSIA*

[2]*Department of Community Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, MALAYSIA*

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ABSTRACT

Workplace-based experience is essential for medical students to become competent doctors. However, the study of experiential learning based on the revised Kolb theory is less emphasised in clinical workplace-based experiential education. This scoping review was designed to unearth the values that medical students gained from clinical placement using a six-stage scoping review process. The initial pool of 1,518 sources was assessed for duplication, and study eligibility was evaluated using inclusion and exclusion criteria. Data were extracted from 20 original articles for thematic analysis. The scoping review yielded nine themes: authentic work-process experience, empowering resilience skills, empowering ethics and professionalism, empowering feedback for reflection, empowering communication skills, empowering empathy, academic and future career development, empowering teamwork skills and acquisition of clinical skills. These values can be moulded into designing learning outcomes, teaching and learning activities, and assessment of workplace-based medical education. Future research should explore the effectiveness on students' personal and professional development in clinical placements that adopt the nine experiential learning values.

Keywords: *Scoping review, Experiential learning, Workplace-based, Clinical placement, Medical student*

CORRESPONDING AUTHOR

Anisa Ahmad, Department of Medical Education, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

Email: anisa@usm.my

INTRODUCTION

The goals of medical education are to develop competent, ethical and adaptable healthcare professionals who possess the knowledge, clinical skills, communication abilities, and commitment to lifelong learning needed to provide high-quality and patient-centred care. Multiple teaching and learning methods are implemented to achieve these goals, e.g., lectures, problem-based learning simulations, community-based education, and workplace-based learning, i.e., in hospitals settings. In its most simple form, experiential learning is constructing knowledge and meaning from real-life experience. In the context of medical education, the term is most commonly applied to clinical clerkship experiences that bring the learner into contact with others in a particular role and context (1). Experiential learning is, therefore, "situated" in a context relevant to learners' own future careers.

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Clinical clerkship is a crucial phase for medical students before completing undergraduate medical education where students are placed in the "real world" as an exposure for their future career (2). They are posted to clinics, wards, community and district hospitals. They are given realistic tasks, often to clerk patients, perform clinical examinations, come to a diagnosis, and plan for further patient management. Students need to interact with real patients and medical staff to achieve this task. This experience is repetitive from one patient to another patient, in similar or different situations.

Experiential learning theory is well-adapted in many disciplines since experiential learning is constructing knowledge and meaningful reflection from real-life experience. The exploration of experiential learning processes began with theorists like Kurt Lewin, Jean Piaget, John Dewey and David Kolb, who each contributed foundational ideas on the role of experience in learning (3). Lewin's work on group dynamics and action research highlighted the importance of integrating theory with practice, encouraging learners to navigate tensions between concrete experiences and abstract concepts (1). Piaget and Dewey further emphasised the significance of interaction with the environment in cognitive and applied learning, arguing that active engagement fosters deeper understanding (4, 5).

Building on these early insights, Kolb's experiential learning theory emerged, positing that learning is driven by the transformation of experience into knowledge through a cyclical process of concrete experience, reflection, conceptualisation and experimentation (3, 6–8). Despite the influence of these theories, there remains a gap in the literature regarding the specific experiential learning values that directly contribute to skill development during clinical placements. The lack of clear articulation on how these experiential elements enhance competencies in medical education highlights the need for a more structured framework that connects theory with practice in clinical training.

In contrast with the previous Kolb's theory, the revised theory emphasises more on learner's involvement and engagement with time, place and person surrounding in a specific situation (6). For instance, a student who is placed in an orthopaedic ward will have to familiarise himself with the ward environment, from observation to involvement and interaction with others in the ward. Subsequently, the student should make a critical reflective observation on the rich experience that he just went through before moving on to the next stage. Later, the learner needs to make conclusions from his/her reflections on the experience and learn from it.

Experiential learning improves cognitive, psychomotor and affective skills from previous experiences (as a repetitive cycle) by identifying the learner's strengths and areas for improvement (9). In addition, it also augments individual's understanding of their values, beliefs and self-directed learning skills. As a result, it improves students' experiential learning through reflective observation to self-evaluate their experience (10).

The medical education literature lacks a clear articulation of how experiential learning during clinical placements contributes to skill development. While experiential learning—learning through reflection on doing—is recognised as crucial for building practical skills, the specific values and mechanisms linking these experiences to improved clinical competence remain unclear (11). This gap leaves educators with limited guidance on optimising clinical placements for skill acquisition. Key aspects, such as feedback, reflection and hands-on practice, are not consistently explored in fostering problem-solving, critical thinking and procedural skills (12). Additionally, varied outcomes across clinical settings underscore the need for a structured framework to identify core experiential elements essential for effective learning (13). Addressing this issue could help educators design clinical placements that better support students' competency development.

Many prior reviews have shown the values that students gained from clinical placements (14–19). However, the experiential learning values that contribute to skill development in clinical placements have not been thoroughly articulated. Therefore, this scoping review aimed to unearth the elements of experiential learning values in the context of clinical placement.

METHODOLOGY

A scoping review was performed to map the key elements of experiential learning values in clinical placements. It was performed according to the scoping review protocol by Arksey and O'Malley's (20) as follows: (a) identifying the initial research question; (b) identifying relevant studies; (c) selecting specific studies; (d) charting the data; (e) collating, summarising and reporting the results; and (f) experts' consultation.

Identification of Initial Research Question

This review used an initial research question to explore the literature: "What are the values that students gain from their experience in clinical placements?" In this context, "experience in clinical placement" is defined as clinical experience that has been explored in an interventional or non-interventional study, whereby the favourable outcomes were evident through quantitative or qualitative measurements.

Identification of Relevant Studies

An electronic search of the following databases was conducted: Google Scholar (Google Inc., Mountain View, CA), Scopus (Elsevier B.V., Amsterdam, Netherlands) and PubMed (US National Library of Medicine, National Institutes of Health, Bethesda, MD) from 1st October 2020 to 31st December 2020. Two search terms with a Boolean combination were used in this review: "experience" and "clinical placement." To optimise coverage of the literature, title, abstract and full article screening was performed based on three sets of eligibility criteria (Table 1). In general, the review only considered full articles that were written in English and studies exploring medical students' experiences from clinical placements.

This scoping review is aimed to capture the recent experiential learning in clinical placement; therefore, the literature before 2015 was not included. Without denying the importance of publication before 2015, we are relying on Okoli and Schabram (21) who highlighted the impossibility of retrieving all the published articles when conducting a literature search. Given this rationale, we opted to concentrate on the timeframe spanning 2015 to 2020. This choice aligns with the principles of study maturity, as articulated by Kraus et al., wherein a more mature field tends to yield a greater number of published articles, reflecting a broader spectrum of investigated topics (22). In fact, it was noted that within this time frame, a significant number of articles have been found as relevant to clinical placements with the recent discovery of experiential learning values. Nevertheless, our time frame did not include the timing of the COVID-19 pandemic outbreak, which began at the end of 2019. Hence, we might miss some important elements of experiential learning values that are gained by students in clinical placements during the COVID-19 pandemic.

Because the review focused on exploring the values that medical students gain from clinical placement, a time restriction of published articles was employed, whereby only articles published between January 2015 and December 2020 were selected. Review articles, commentaries, editorials, theses and any papers not matching the eligibility criteria were excluded.

Table 1: Criteria for study selection

Eligibility criteria	Inclusion criteria	Exclusion criteria
Title and abstract selection	Reflects that the article is an original article. Highlights value those medical students gained from clinical placements. Pro evidence of a robust study design that is not limited to randomised controlled trials. Shows evidence of evaluation on the experiential learning in clinical placement. Highlights at least one quantitative or qualitative measurable outcome(s).	Non-English language. Unsuitable context (e.g., clinical simulation, role-play, clinical teaching, problem-based learning, lectures). Unsuitable study subjects (e.g., nursing students, other allied health students, post graduate students).
Full-text article selection	Original research article including peer review article. Elaborates the elements of the experiential learning values in clinical placement. Provides clear methodology on the measurement of the outcome(s). Well-designed research intervention (if applicable). Shows evidence of evaluation of the students experience in clinical placement. Reports at least one quantitative or qualitative measurable outcome(s).	Article in predatory journal. Review articles, published theses, books, research report, editorial and letters.

Study Selection

The screening process was done in two stages, title and abstract selection, and full-text article selection (Table 1). Based on the search terms "EXPERIENCE" and "CLINICAL PLACEMENT" and "MEDICAL STUDENT", 1,518 articles were identified. To minimise discrepancies in study selection during scoping reviews, dual screening is often employed, where two reviewers independently assess studies and resolve disagreements through structured discussions, ensuring consistency and reliability. Using standardised protocols with clear inclusion and exclusion criteria further reduces ambiguity and promotes uniform application. Additionally, transitioning from dual-review screening of a subset of studies to single-review screening once a high agreement rate is achieved enhances efficiency without compromising rigour (23, 24).

The screening process was done by the first and second authors. A total of 111 duplicate records were removed during the first review process. Based on the eligibility criteria for titles

and abstracts, 523 abstracts were retrieved. Then, the abstracts were screened according to the eligibility criteria for abstract selection, namely whether the abstract provides evidence of evaluation, either quantitatively or qualitatively, of at least one experiential learning value from clinical placement through a well-designed study. Based on these criteria, 149 articles were screened according to the eligibility criteria for full-text article selection. Likewise, the selected 20 full-text articles elaborated on elements of experiential learning values in clinical placement were evaluated by the first and fourth authors. Search results were exported to the bibliographic software programmes; Mendeley and Microsoft Excel. The selection process of full-text articles was performed by at least two researchers as recommended (25, 26). The final study included 20 articles for data extraction and charting. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) flowchart was used to report the study selection process (27).

Data Charting

The selected final articles were reviewed, and several important data were extracted to provide an objective summary of the review. The extracted data were charted in Appendix (Table A), including the title of the article, location, context of study, method, aim of study, and key findings.

Collating, Summarising and Reporting the Results

Based on extracted data, a thematic analysis was performed to identify the elements of experiential learning values in clinical placements. Description of the methods and distribution of the selected articles were reported. Interventions and other results that shared similar characteristics were organised thematically to provide a statement of the evidence.

Thematic Analysis

Thematic analysis was conducted using the six-step process by AMEE guide no. 131: familiarisation, coding, generating themes, reviewing themes, defining and naming themes, and writing up (28). These steps were done manually using Microsoft Word. Two researchers familiarised themselves with the selected articles and coding was done. Themes were generated and reviewed by all researchers. Subsequently, we came up with definitions of the themes.

Expert Consultation

The scoping review findings were sent for experts' verification. Ten out of twelve experts who were invited personally through email invitation agreed to participate. The inclusion criteria are those who are currently medical lecturers (with medical qualifications) and have at least two years of experience as clinical supervisors. Those who were on leave were excluded. Subsequently, expert feedback forms were emailed, which included their comments on the suitability and appropriateness of codings to subthemes and subthemes to themes. On top of that, experts are required to fill in the Likert scale (1–5) on the appropriateness of subthemes to theme. Finally, the expert's feedback was reviewed by researchers to come out with the final themes of the scoping review, as shown in the results. Details of the experts are presented in Table 2.

Table 2: Details of expert contributors

Expert	Specialty	Year of experience in the field
Expert 1	Paediatrician	12 years
Expert 2	Emergency physician	9 years
Expert 3	Anaesthesiologist	8 years
Expert 4	General surgeon	11 years
Expert 5	Obstetric and gynaecologist	19 years
Expert 6	Ophthalmologist	18 years
Expert 7	Medical educationist	9 years
Expert 8	Otorhynolaringologist	12 years
Expert 9	Family medicine specialist	11 years
Expert 10	Ophthalmologist	14 years

RESULTS

Literature Search

Based on the keywords search, a total of 1,518 articles were found. Duplicate articles that were found in different databases were eliminated. Based on the criteria of title selection, the final report on the articles search is summarised using PRISMA charting as shown in Figure 1 (27). The 20 selected studies were reviewed thoroughly and important key findings that answer our research questions were extracted as shown in Appendix (Table A) (17, 19, 29–44).

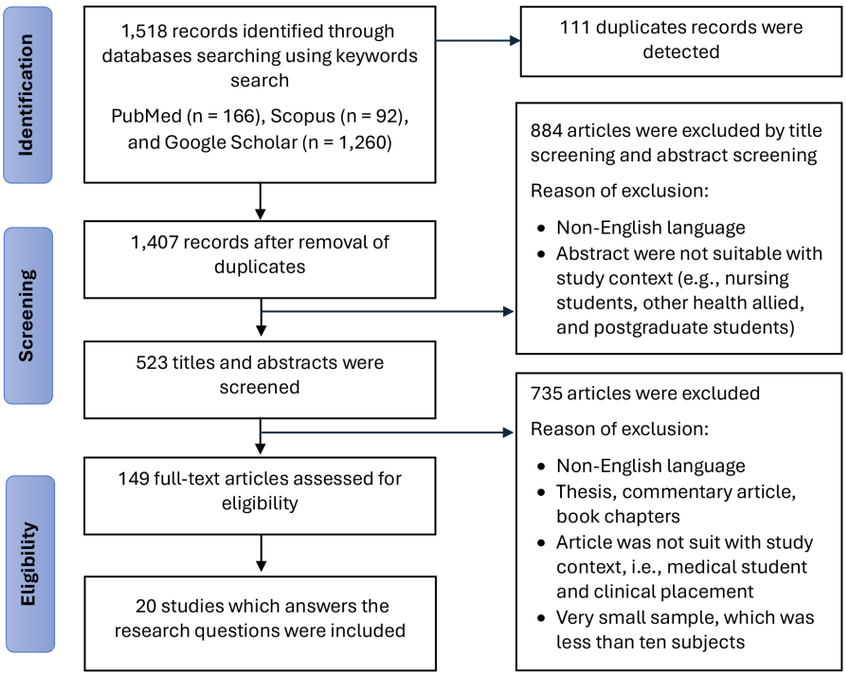

Figure 1: PRISMA chart reporting on findings of literature search.

Expert Consultation

Table 2 shows the details of the experts. Ten experts participated in the consultation stage, with the majority of them rating the subthemes as appropriate or very appropriate, scoring them 4 or 5. The feedback was reviewed and discussed among the researchers, but no significant changes were made to the method or results of the scoping review. Expert comments included suggestions for improvement: Expert 2 appreciated the themes but pointed out that cognitive biases, rather than knowledge, may pose more significant risks in acute care, questioning whether this issue was adequately covered. Expert 5 found all proposed subthemes highly relevant for clinical training, emphasising their importance for students. Expert 8 recommended using more specific terms instead of general ones to enhance focus. Expert 9 suggested aligning the themes with Malaysia's Education Blueprint (2015–2025) to ensure their relevance to the national educational framework. Finally, Expert 10 raised concerns about the inclusion of non-peer-reviewed journals in the search process, recommending the exclusion of Google Scholar as a search engine and the inclusion of only peer-reviewed, non-predatory journals in the selection criteria.

Thematic Analysis

The thematic analysis yielded nine themes of experiential learning values in clinical placements as shown in Table 3.

Table 3: Themes, subthemes and elements of experiential learning during clinical placement

Themes	Subthemes	Elements of experiential learning
Theme 1: Authentic work-process experience	Managing consultations	Students observed on: Managing complex consultations (15) Managing challenging consultations (15) Prioritisation of patient interests (31)
	Managing treatment plan	Students observed on: Treatment of mental health (15) Treatment of substance use disorders (15) Treatment to specific diagnosis (28, 30)
	Managing doctor-patient relationships	Students are aware on: The strengths and weaknesses in their professional relationships with patients (39) Being rejected by patients (33) Building trusting and professional relationships patients (39) Patients' trust in the physician to ensure patient compliance (39) Students observed on: Authentic interactions with patients (33) Dealing with difficult interactions with patients (33) Effective physician-patient relationships (39)
	Awareness to promote healthcare	Students are aware that: Promote healthcare within the wider health system is important (15) Good prison-based healthcare (15) Sociocultural context influences healthcare (33)

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Table 3: (*Continued*)

Themes	Subthemes	Elements of experiential learning
Theme 2: Empowering resilience skills	Managing self-anxiety related to patient	Students overcoming anxiety during interaction with patients (15)
	Managing uncertainty	Students observed on: Data gathering process skills in initial triage is uncertain (33) Managing unexpected issues arising during consultations (33) How to react appropriately to certain situations which contributed to preparedness for real life and resilience (33)
	Confronting illness and death	Students observed: Confronting death and dead body (34) Terminally ill patients (34)
	Dealing with emotionally challenging situations	Students learned to: Talk to others while facing bad emotions was a relief (34) Get used to situations that cause emotional unpleasantness (34)
	Build self-confidence	Students experienced that: Confidence is important in undertaking the duties of a doctor (32) Meet patients in their homes as valuable for confidence development (13) Clinical placements improved confidence level (14, 35)
Theme 3: Empowering ethics and professionalism	Understand professional role	Students perceived that: The added value of doctors lies in their broad knowledge base (38) Understanding the roles/responsibilities of oneself or others was important (31) Recognition of own limitations was important (31) Students experienced on: Having a responsibility and a meaningful role (33) Developing a sense of duty and commitment to patients (33)
	Build competency in one's own role/ profession	Students observed on: Respect for patients (31) Respect for other health professions (31) Ethical and social justice in medicine (15)
	Interprofessional practice	Students experienced that: Medical and nursing students were able to work with other professions (29)
	Positive role model	Students perceived that: Their contact with registrars was valuable (36) Teaching from medicine and rural general registrars had been particularly helpful (36) Registrars were perceived to be credible and knowledgeable (36)

(*Continued on next page*)

Table 3: (*Continued*)

Themes	Subthemes	Elements of experiential learning
Theme 3: Empowering ethics and professionalism	Positive role model	Students observed that doctors demonstrate: Positive team behaviour (42) Good interaction with patients (42) Professional expertise (42) Good proficiency/skills (42) Social competence in the team (42) Effective work processes and documentation (42)
Theme 4: Empowering feedback for reflection	Feedback on global personality judgement	Students received self-oriented comments on personality (31)
	Feedback on behaviour-oriented	Students received comments on clinical skills and actions (31)
	Feedback on specific instance of behaviour	Students received comments based on the context of a particular event (31)
	Feedback on valence/ actionability reinforcing	Students received comments highlighting strengths (31)
	Constructive/corrective feedback	Student received: Further clarification/examples to take action (31) Sufficient examples/clarification for learner improvement to take action (31) Feedback by academic staff and health workers (37) Feedback from peers (25, 37) Constructive feedback from mentors (27)
Theme 5: Empowering communication skills	Confidence in communication skills	Being exposed to clinical scenarios in clinical training led to an increase confidence in communication skills (33, 37)
	Importance of communication skills	Students conclude that: Communication skills can reduce patient anger and violence (13) Meet patients in their homes was valuable for communication skills (13)
	Growth in communication skills	Students experienced that: Communication skills in role-play is effective and helpful (13, 37) Role-play allowed students to prepare for real-life scenarios (13) Interaction with patients improve their questioning and listening skills which led to understandable and respectful communication (29, 31, 43)
Theme 6: Empowering empathy	Understand patient's condition	Students learned to: Appreciate patients' feelings (13) Understand their patient's experience of being in prison (26) Understand person-centredness by patient's perspective and journey (33, 38)
	Knowing patients through multiple contexts	Students experienced that they: Ran into patients in town, and interacting with their families and friends (39) Attend patients more to details, recognising changes in symptoms and identifying overlooked information (39)

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Table 3: (*Continued*)

Themes	Subthemes	Elements of experiential learning
Theme 7: Academic and future career development	Research and publications	Students: Participate in clinical audit (44) Conducting research and publication (44) Presenting academic findings in scientific meetings (44)
	Teaching others	Students: Develop and teach simulation sessions (44) Assisting the delivery of life support courses (44) Conducted peer-teaching for knowledge sharing (25)
	Career aspirations and future direction	Students shared that they: Developed interest in a career in emergency medicine (44) Had contact with registrars which was useful for them in deciding on their career paths (36) Developed interest to work in rural areas (24)
Theme 8: Empowering teamwork skills	Leadership and problem-solving	Students: Used input/knowledge/skills of others for problems/projects (31, 44) Engaged others in problem-solving (23, 31) Shared ideas, knowledge, and understanding to form solutions (26)
Theme 9: Acquisition of clinical skills	Patient continuity of care	Students shared that: They had opportunities to care for acutely unwell patients (32) Repeated encounters fostered an understanding of biomedical and psychosocial contexts (39) They were able to provide care based on patients' particular needs (39) Being confident with skills in handover and making patient referrals (29, 35)
	Diagnostic and management	Students learned about: Accessing information from electronic records to achieve diagnostic closure and re-evaluate their decisions (39) Diagnostic assessment, the evolution of illness and management plans (39) Performing focussed history taking, clinical examination, and formulating diagnosis and management (23)
	Clinical procedural skills	Students experienced that: They gain confidence in venepuncture, cannulation, arterial puncture, intramuscular injection, performing and analysing an ECG and peak flow measurement (35) It was easy to practice clinical skills in the peripheral hospital (12)
	Complex clinical reasoning	Students applied the concept of: Learning related to complex clinical reasoning (33) Hypothetico-deductive method in diagnostic reasoning (38)

Theme 1: Authentic work-process experience

Seven articles documented that medical student acquired genuine work experience while participating in clinical placements. It was reported that students observed the authentic process of patients' consultation and treatment plan to a specific diagnosis, which made them aware that doctor-patient relationship management was important to avoid treatment bias (18, 19, 34–36, 39). Apart from that, promoting healthcare awareness is another important part that students gain through primary care and community care settings (19, 39). The challenging work process requires students to solve a real-world problem or engage in tasks that are career-focused and directly mirror the kind of interesting conundrums they might face in this profession (39). Another article stated that observation of the patient-doctor professional relationship has its strengths and weaknesses, but however, it is important to build trust in patient-doctor interactions and how to deal with difficult interactions with patients (19).

Theme 2: Empowering resilience skills

There were seven articles that found that students empower their resilience skills during clinical placements. They observed and experienced many uncertain situations arising during consultation, specifically in the emergency department (39). In addition to dealing with death, they had experience with terminally ill patients and confronted death and dead bodies, which were emotionally challenging situations (40). Subsequently, they learned to cope with self-anxiety and emotionally unpleasant feelings (19, 40). As a result of these repeated encounters, students coped with these situations by talking with each other and getting used to such situations (40). On the other hand, one article found that it was a valuable experience for students to develop their self-confidence via home visits (17). These experiences developed the self-confidence to encounter uncertainty during clinical placement (38, 39, 41, 45).

Theme 3: Empowering ethics and professionalism

This theme was derived from seven articles which yielded students learned to understand ethics and professionalism through clinical placements. Students perceived that good values of a doctor include having broad knowledge, understanding others' responsibility and recognising of own limitation (44). Apart from that, students shared that they gained some role of responsibility and developed a sense of duty and commitment to patients while being posted in general practice (39). They learned to respect patients and other health professionals while working (37). Observing other professions in real workplace settings exposed students to multi-professional roles and ethical practice in medicine (19, 35). Students also realise that doctors act as role model, which allows them to understand professional roles, respects and interprofessional practice in the medical profession (42, 46).

Theme 4: Empowering feedback for reflection

This theme was generated from four articles that explored feedback practices during clinical placements. Students were recipients of multisource feedback encompassing detailed comments on their behaviours, skills, and personality traits provided by mentors, supervisors and peers (31, 33, 37, 43). Moreover, beyond merely receiving feedback, students were afforded additional clarification and ample examples to aid them in their improvement efforts (37, 43).

Theme 5: Empowering communication skills

Six articles portray that students empower their communication skills through clinical placements. The authentic working environment exposed students to unexpected situations which made them aware of the importance of good communication skills, and stimulated their growth in communication such as questioning and listening skills, thus increasing confidence in their communication skills (35, 37, 39, 43, 47). Apart from that, effective communication can reduce patients' anger and violence as well (17). While students perceived that role-play allowed them was effective to prepare themselves for real situations (17).

Theme 6: Empowering empathy

This theme was generated from five articles. Students enhance their empathy towards patients with diverse backgrounds and illnesses. Patients' different journeys teach them to appreciate patients' feelings in various contexts and conditions (17, 19, 39, 44). For instance, students who participated in home visits and witnessed firsthand the living conditions of patients, as well as their interactions with family members, gained a deeper understanding of the challenges they face in daily life (18).

Theme 7: Academic and future career development

There were four papers elicited that students develop their academic and future careers during clinical placements. Students envisioned the medical field as offering a wide spectrum of opportunities for future exploration, including avenues such as research and publication (41). Furthermore, they recognised the significance of peer-teaching and peer-feedback during clinical placements for their academic growth (31, 41). Concurrently, they gleaned valuable insights from observing the practices in rural areas, which served as inspiration for their future career aspirations (30, 42).

Theme 8: Empowering teamwork skills

In four articles, it was noted that students enhanced their teamwork skills during clinical placements. Immersed in the workplace environment, they actively participated in and observed team dynamics. They demonstrated leadership and problem-solving abilities by leveraging their prior knowledge and skills, collaborating with peers to generate innovative solutions, and freely exchanging ideas, knowledge and perspectives to address challenges effectively (29, 32, 37, 41).

Theme 9: Acquisition of clinical skills

This theme emerged from seven articles, indicating that students effectively executed clinical procedural skills, conducted focused history taking, clinical examination, comprehensive diagnostic assessment and management of actual patients (18, 29, 41). Students also gained valuable skills in handover and making patients' referral (35, 41). Moreover, they actively participated in observing and assisting with treatment and management plans, thereby gaining insights into complex clinical reasoning and the importance of continuity of care by understanding their biomedical and psychosocial context (18, 39, 44).

DISCUSSION

The first theme focuses on experiences and dealing with immediate human situations in a personal way, through observation and presence. It emphasises feeling more than thinking, in which it concerned with the uniqueness and complexity of present reality over theories, as described in Kolb experiential learning theory (6). Commonly, medical courses provide simulation experience on certain topics during the preclinical phase, which prepares them for clinical placement dealing with real patients (37, 39, 48–50).

Ethics and professionalism are taught in lectures and demonstrations in role plays, video shows and through medical movies (51, 52). Clinical placements serve as another platform for students to observe, analyse, conclude, and relate their observations on ethics and professionalism. More contact time with medical personnel has made students aware of the importance of professionalism in medical practices (53). In this review, students perceived a role model as one who practices interprofessional roles, good interactions, treats others with respect, and is knowledgeable during clinical placements (42, 46). This finding shows that students want role models who are not only skilled practitioners but also show professionalism, collaboration, respect and dedication to learning. These qualities are crucial for shaping students into competent and compassionate healthcare professionals.

Resilience among medical students is in growing debate. Clinical placements have been reported as a major factor contributing to resilience (54). However, on the other hand, Weurlander et al. and Shatté et al. emphasises that exposure in workplace environment served as an adaptation that help to build resilience (32, 55). In the clinical placement, repeated encounters with unexpected people and situations indirectly empowered students' coping mechanisms while dealing with uncertainty (56). Uncertainty is a major cause of mental strain during clinical years, include feelings of insecurity of professional skills, own credibility, fear of making mistakes, coping with responsibility, and tolerating oneself as incomplete and accepting oneself as a good-enough doctor-to-be (17, 38, 41, 44, 57). Recently, Stephens et al. found that students experience a wide range of uncertainties during clinical placements, and they suggested that educational interventions on uncertainty tolerance should be developed, specifically to clinical uncertainties relevant to students' stage of learning (58).

The learning process through this phase is an intuitive and "artistic" approach over a systematic, scientific approach to arising problems. The knowledge, theories and simulation with "patients" during the preclinical phase is transformed to the real-world context, i.e., being with patients, relatives, and other health workers in clinical placements.

Reflection upon rich experiences during clinical placement makes students reorganise their pieces thoughts and feelings into a meaningful view. While having all their senses during clinical placements, students went through a broad spectrum of live scenarios on top of medical problems per se. They feel and observe a new environment, meet new people, and follow repeated encounters in similar contexts to familiarise clinical placement. John Dewey believed that reflection was a necessary precursor to action, while Donald Schon believed on reflection-on-action and reflection-in-action (59, 60). Thus, experiential learning over some period of time during clinical placements allows students to make meaningful reflections through the presence of other health workers in clinical placements, especially clinical tutors, supervisors, and colleagues who may provide constructive feedback for medical students. Although students reported that writing journals was not preferred, it was beneficial for their personal and professional clinical learning, whereby it predominantly made them aware of their thoughts, feelings, and behaviours, building confidence and

helping them both personally and professionally (43, 60). By receiving feedback on different angles, students can observe their own progress in learning and ascertain their strengths and weaknesses (61). Furthermore, students can develop more effective critical thinking skills by questioning and analysing their own and others' behaviours, thus students begin to understand themselves and can be more self-critical in a positive way (62, 63).

This scoping review unveiled that students envision their future careers in medicine. Being placed in clinical placements in workplace-based environments, students reflect on the concept of their future careers as doctors as an individual who treats patients. Another role of being a doctor also involves research and publications and teaching others. Engaged in the experiential learning cycle, these concepts prompt students to devise action plans for self-improvement in the subsequent phase, which involves active experimentation (6). Recently, a framework of resident-teacher has been developed in the context of medical education (64). This framework addresses two major roles of residents: instruction and assessment roles. The sub-competencies include knowledge transfer through teaching and publications, which were similarly found in this review. Thus, clinical placements create a supporting culture for residents-teacher roles, as suggested by Liang et al. (64).

This review shows that communication, empathy, teamwork and clinical skills are practiced during clinical placement. Interestingly, it was found that teamwork skills, empathy and communication skills are essential in nurturing medical students' professional identity during community placements (65). Communication skills and empathy towards colleagues, superiors and patients are essential competencies for medical students as they are groomed to become medical practitioners (66). Koponen et al. found that students improve their communication skills during experiential learning activities as the training progresses, which also reflects the purpose of experiential learning (67). Theories of communication skills are taught, but to ensure it is embedded in students' personal and professional development, it needs practices such as simulations, role plays, and even virtual patients (68, 69). Despite the increasing importance of teamwork in healthcare, teaching and learning on teamwork still fall under the hidden curriculum (70). Students develop teamwork skills during experiential learning, which involves students completing tasks in the team. For example, community-based projects, service-learning projects and many more.

Apart from the abovementioned skills, clinical skills are developed with repeated encounters with similar procedures on different patients. Clinical placement serves as a huge opportunity for students to unlearn and re-learn their clinical skills such as history taking, physical examination, venepunctures, electrocardiogram, etc. However, students achieve these competencies slowly through adaptation to new clinical placement, through multiple observations (71). Therefore, Prashar et al. shared 12 tips to improve clinical skills during clinical placement to engage in reflective practice, discover ways to facilitate further occasions for clinical skills learning, and make the most of clinical skills learning chances (72).

This scoping review is strong in its comprehensive approach to exploring the values medical students gain from clinical placements, using a six-stage process and analysing data from 20 articles. It identifies nine key themes, such as authentic work experiences, resilience, ethics, and communication, providing valuable insights that can improve medical education outcomes, teaching strategies, and assessments. However, the study has limitations, such as relying on a small number of articles, which may not capture all experiences across various clinical settings. It also does not assess how these themes impact students' personal or professional development. Future research should explore the practical effects of these values on students and include a broader range of sources and settings.

CONCLUSION

This article outlines the key experiential learning values medical students gain from clinical placements, which help develop essential skills and competencies for becoming doctors. The nine values identified in the review are crucial for shaping medical students and preparing them for their future roles. These values can inform curriculum planning, development, teaching, learning activities, and assessments in workplace-based education. Institutions should ensure students are engaged in experiential learning by placing them in appropriate clinical settings, such as clinics, wards, or operating theatres. Integrating these values into programme outcomes and student tasks will lead to a more impactful curriculum for workplace-based learning.

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APPENDIX

Table A: Selected studies and key findings for the scoping review

Articles	Location	Context	Method	Aim of the study	Key findings
"I just had no idea what it was like to be in prison and what might be helpful" (19)	Australia	Correctional health services (Mental health and substance use service)	Qualitative	To examine the views of learners and educators on how to promote clinical learning in correctional settings	Students learned about: Health of people involved in the justice system Patients with complex health needs Managing complex consultations Mental health and substance use disorders Overcoming anxiety related to interacting with people in prison
Assessing interprofessional collaboration: pilot of an interprofessional feedback survey for first-year medical students (37)	USA	Inpatient, outpatient, and emergency departments across private and public health systems	Qualitative	To examine the feedback system effectiveness in students' learning during clinical placement	Constructive feedback and comments from educators are valuable in improving students' competencies and collaboration skills
Learning from patients: why continuity matters (18)	Canada	Clinical placements in various settings	Qualitative	To describe how students experience patient continuity during clinical placements	Students were able to: Build trusting and professional relationships Re-evaluate their clinical diagnostic decision-making Practice iterative and deep critical reflections
"He's going to be a doctor in August": a narrative interview study of medical students' and their educators' experiences of aligned and misaligned assistantships (38)	United Kingdom	Assistantship programme	Qualitative	To explore final-year medical students' experiences in an assistantship programme	Students were able to: Increase confidence in undertaking the duties of a foundation doctor Learn transferable skills Consider themselves to be team members Shadow themselves as foundation doctor

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Appendix (*Continued*)

Articles	Location	Context	Method	Aim of the study	Key findings
Learning through service: a qualitative study of a community-based placement in general practice (39)	United Kingdom	Primary care clinics (multi-disciplinary)	Qualitative	To identify features supporting service learning on primary care clinical placements	Students described: Authentic clinical experience integrated with responsibility Increased motivation Building resilience Managing uncertainty Contributing to patient care Developing communication skills
How do medical and nursing students experience emotional challenges during clinical placements? (40)	Sweden	Hospitals, primary healthcare settings and municipal care.	Mixed method	To investigate on how students manage emotional challenges during clinical placement	Students managed to cope with emotional challenges by: Talking to trusted peers or supervisors Getting used to challenges situations
Communication skills teaching and learning in Nepal; what are medical students' perceptions and experiences? A qualitative study (17)	Nepal	Rural placement	Qualitative	To explore the experience and perceptions of medical students on communication skills development	Students described the opportunity to meet patients in their homes as valuable for skills and confidence development
What difference can a year make? Findings from a survey exploring student, alumni and supervisor experiences of an intercalated degree in emergency care (41)	United Kingdom	Emergency medicine	Mixed method	To explore the experiences of students and supervisors in a hospital emergency placement	Students reported increased confidence in clinical and procedural competencies Supervisors rated student competence in clinical, inter-professional and academic writing skills
Medical student contact with specialty trainees: missing out in general practice? (42)	Australia	General practice, medicine, surgery, psychiatry placements	Mixed method	To assess the values of exposure with registrars during clinical placements	Registrars were perceived: Credible and knowledgeable As useful for them in deciding on their own career paths
Enhancing learning in longitudinal clinical placements in community primary care clinics: undergraduate medical students' voices (43)	Africa	Primary care clinics	Quantitative	To explore medical students' perceptions of their learning experiences in primary care clinics	Students perceived that clinical placement: Developed their clinical skills Provided opportunity on receiving feedback Allowed interaction with health workers
Developing medical students' broad clinical diagnostic reasoning through GP-facilitated teaching in hospital placements (44)	United Kingdom	General practice	Mixed method	To examine students' perception on diagnostic clinical reasoning through GP facilitated teaching	Students practiced: Hypothetico-deductive method in diagnostic reasoning Using real patient cases Understanding the patient's perspective and journey

(*Continued on next page*)

Appendix (*Continued*)

Articles	Location	Context	Method	Aim of the study	Key findings
Encountering aged care: a mixed methods investigation of medical students' clinical placement experiences health services research (29)	Australia	Residential aged care placement	Mixed method	To explore students' learning experiences in residential aged care facilities	Students learned: To assess dementia in elderly Awareness on the importance of learning from elderly Problem solving and critical reflection Clinical decision making
Enhancing future acceptance of rural placement in Tanzania through peripheral hospital rotations for medical students (30)	Australia	Rural hospital placement	Quantitative	To assess student perceptions, and attitudes towards rural practice after graduation	Students perceived: It was easy to practice clinical skills in the peripheral hospital Developed interest to work in rural area
Identifying opportunities for peer learning: an observational study of medical students on clinical placements (31)	Australia	General medicine, emergency, oncology and surgical department	Qualitative	To describe peer-assisted learning activities and values during clinical placement	Students learned through: Active observation and listening Build trust on each other Practiced peer-feedback
Prevocational integrated extended rural clinical experience (PIERCE): cutting through the barries to prevocational rural medical education (45)	Australia	Integrative corrective rural placement	Qualitative	To determine whether students in rural settings could gain the skills and confidence across disciplines	Students gained: Confidence Patient management Clinical skills competencies
Is reflective learning visible in online discussion forums for medical students on general practice placements? A qualitative study (32)	New Zealand	General practice (GP) placement	Qualitative	To explore whether online forums demonstrate reflective learning on GP placement	Impacts of online forums during GP posting: Application of ideas, knowledge, and understanding, leading to the formation of solutions Students' reflection was mostly superficial
Medical students' experiences of the benefits and influences regarding a placement mentoring programme preparing them for future practice as junior doctors: a qualitative study (33)	United Kingdom	Obstetrics and gynaecology (O&G) placement	Qualitative	To study medical students' experiences mentoring programme during their O&G placement	Students found mentorship: Useful for integration into the team An opportunity for constructive feedback

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Appendix (*Continued*)

Articles	Location	Context	Method	Aim of the study	Key findings
Peer mentoring: evaluation of a new model of clinical placement in the Solomon Islands undertaken by an Australian medical school (34)	Australia	Rural hospital placement	Mixed method	To evaluate rural placement effectiveness and values	Students gained confidence on: Clinical procedural skills History taking and communication skills Clinical examination and patient management Learned about culture, and rural lifestyle
Shifts in nursing and medical students' attitudes, beliefs and behaviours about interprofessional work: an interprofessional placement in ambulatory care (35)	Australia	Interprofessional clinical placement (ambulatory care)	Mixed method	To examine experience towards interprofessional socialisation after clinical placement in ambulatory care	Students increase in self-perceived ability: Wwork with others and in valuing working Improved knowledge Teamwork Communication Organising referral Listening skills Provision for holistic care Engagement skills Advocating for patients
Self-perceived confidence of medical students communicating with pediatric patients in a 7-week pediatric placement: a pilot survey (36)	United Kingdom	Paediatric placement	Quantitative	To evaluate the level of self-confidence in clinical skills	Significant improvement in: Verbal communication Physical engagement Asking sensitive or probing questions Explaining medical management