

Reclaiming a theoretical orientation to reflection in medical education research: a critical narrative review

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CONTEXT Reflection and reflective practice have become popular topics of scholarly dialogue in medical education. This popularity has given rise to checklists, portfolios and other tools to inspire and document reflection. We argue that some of the common ways in which reflection has been applied are influenced by broader discourses of assessment and evidence, and divorced from original theories of reflection and reflective practice.

METHODS This paper was developed using a critical narrative approach. First we present two theoretical lenses provided by theories of reflection. Next we present a summary of relevant literature, indexed in PubMed from 2004 to 2014, relating to the application of reflection or reflective practice to undergraduate and postgraduate medical education. We categorise these articles broadly by trends and problematise the trends relative to the two theoretical lenses of reflection.

RESULTS Two relevant theoretical orientations of reflection for medical education are: (i)

reflection as epistemology of practice, and (ii) reflection as critical social inquiry. Three prevalent trends in the application of reflection to medical education are: (i) utilitarian applications of reflection; (ii) a focus on the self as the object of reflection, and (iii) reflection and assessment. These trends align with dominant epistemological positions in medicine, but not with those that underpin reflection.

CONCLUSIONS We argue for continued theorising of and theoretically informed applications of reflection, drawing upon epistemologies of practice and critical reflection as critical social inquiry. These directions offer medical education research broad and deep potential in theories of reflection, particularly in relation to knowledge creation within uncertain and complex situations, and challenging of dominant discourses and structures. Future work could explore how dominant epistemological positions and discourses in medicine influence theories from other disciplines when these theories are deployed in medical education.

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 INTRODUCTION

Reflection and reflective practice have become popular topics of scholarly dialogue in professional education;¹ early discussions of reflection in peer-reviewed medical journals date back to 1959.² In the past decade, this popularisation has seen the rise of a vast array of checklists, portfolios and other tools to inspire, document or evaluate reflection in learners and practising clinicians.^{3–5} This surge in popularity has also led to inquiry and debate into reflection and the products arising from its popular use. For example, a recent systematic review by Nguyen *et al.*⁶ developed a unified definition of reflection. In another review, Mann *et al.*¹ concluded that the very nature of reflective practice makes it difficult to quantify, yet called for rigorous research to evaluate the various educational strategies arising in its name.

Accompanying reflection's rise as both strategy for education and topic for research are notes of caution about reductionist approaches to engaging it.^{3,4,7} Reductionist approaches break down reflection and its complexity into discrete components of activity, or steps of a process. Some have argued that the very essence and purpose of reflection may be compromised when it is enforced in an overly prescriptive manner, or when it is subjected to formal evaluation and reductive approaches.^{8–10}

Broadly speaking, the origins of reflection and reflective practice as they are now taken up in the professions have been credited to Dewey,¹¹ Freire,¹² Habermas,¹³ Kolb¹⁴ and Schön.^{15–19} In their original works, reflection refers to cognitive and affective processes of consideration. For example, Dewey defined reflection as: 'Active, persistent, and careful consideration of any belief or supposed form of knowledge in light of the grounds that support it and further conclusions to which it tends.'¹¹ The term 'reflective practice' was later coined by Schön,¹⁵ drawing upon Dewey's definition and contextualising it within professional practice. Reflective practice thus refers to a way of practising, emphasising processes of professional consideration – based on multiple sources and conceptions of knowledge – before, after and in the midst of professional actions. New, practice-based, knowledge is created within reflective practice (see Ng¹⁹). Although philosophically different from one another, Freire and Habermas both invoke critical consideration and questioning of

the status quo of social structures, as reflective inquiry, with emancipatory goals.²⁰

Notice that the widely touted originators of theories of reflection did *not* call for reductionist approaches to teaching it and certainly not for instrumental approaches to assessing it.^{10,16,19,21–23}

Why raise concerns about the way reflection has been taken up in medical education? Previously, Hodges²⁴ suggested that reflection has become a dominant discourse in medical education and assessment. This discourse is said to construct the student as self-assessor and the teacher as confessor. For example, across the health professions there is a preponderance of portfolios requiring written reflections from students, with an overarching theme of self-assessment and documentation of learning.^{25–36} Yet, we propose that these practical applications of reflection in medical education are removed from the theoretical framings advanced by theorists of reflection. Further, we argue that these applications are at risk of becoming 'trendy' in education at the cost of distracting from the richer potential of reflection. Recently, Wear *et al.*³⁷ sought to reclaim reflection's roots in its pedagogical applications, quoting Rodgers' lament: 'Reflection has suffered from a loss of meaning. In becoming everything to everybody, it has lost its ability to be seen.'³⁷

We conducted a non-systematic critical narrative review^{38,39} aimed at reclaiming reflection's theoretical roots. Specifically, we juxtapose two sides of a paradox: theories of reflection explicitly resist reductionism and promote a space for artistry within uncertainty, yet in medical education, reflection is chiefly applied in instrumental or technical ways. By juxtaposing and problematising, we hope to reintroduce some forgotten or suppressed aspects of reflection to the field of medical education. We will argue that theoretical work on the broad topic of reflection has a rich and vast history, which, as a collective whole, offers robust potential for further exploration and theorisation. We argue from a position of collective engagement with this body of literature over a number of years.^{16,19,21,24,40–49}

 METHODS

This critical narrative review begins with an explication of two main theoretical premises of reflection for medical education, as conceived of by the authors' collective engagement with theories of

reflection. Next we summarise three major (and overlapping) trends in how reflection has been applied in the recent peer-reviewed medical education literature, specifically focusing on research and theoretical papers addressing the *application* of reflection to undergraduate and (post)graduate medical education. Then we briefly problematise the trends relative to the theoretical frames outlined earlier. In problematising the trends, we stepped back from the popular applications of reflection and asked what might be missing relative to the rich body of theory from which these applications derive. This process was undertaken in an effort to help advance scholarly work on the topic of reflection, with a critical awareness of the effects of paradigmatic or discursive influences of medicine on attempts to draw upon multidisciplinary theories in medical education.

Three major trends in applications of reflection were derived through a non-systematic review of the literature. As with critical narrative reviews,³⁹ the non-comprehensive search sought to identify the most significant items for our topic. PubMed was searched using a combination of MeSH headings (Education, Medical; Students, Medical; Narration; Thinking; Writing) and free-text searches (variants of reflection, self reflection, reflective practice, reflective). Searches were limited to English-language articles published during the previous 10 years (1 January 2004 to 22 July 2014) and included research, review and perspective articles. Articles focusing on the topics of reflection or reflective practice and populations in undergraduate, graduate or postgraduate medical education were included for full-text review. Articles related to health professions other than medicine were excluded. Articles were sorted into the three trends (with some overlap) through an iterative process of broad categorisation. The goal was to capture *dominant* trends in applications of reflection for comparison with the theoretical framings we propose next.

TWO THEORETICAL FRAMINGS OF REFLECTION FOR MEDICAL EDUCATION RESEARCH

For the purposes of comparison within the literature review, we first present two theoretical framings for reflection. Reflection may be viewed as: (i) an epistemology of practice, and (ii) a critical approach to inquiry. These orientations are not entirely new; they are implicated in programmes of research by health professions education scholars (beyond medicine).^{19,21,23,50–52} Yet our hope is this: by sharing the

breadth and depth of theoretical conceptions of reflection, reflection may be better understood, leading to its continued and enriched exploration in medical education.

Reflection as epistemology of practice

Reflection, as taken up in an epistemology of practice by Schön, is known as reflective practice.^{15,19,21,23,51,53} In Schön's epistemology of practice and its continued theorisation by other scholars, reflective practice offers more than skills-based self-assessment and, instead, becomes a useful theoretical framework for research in medical and health professions education.^{15,19,21,23,54} Recently, attention to rigorous theory has been called for in medical education practice and research.⁵⁵ Theories can be thought of as macro-level or grand (universal), mid-level (local systems) or micro-level (individual), and are defined as organised, coherent and systematic articulations.⁵⁶ We suggest that theories relating to reflection, when conceptualised in line with the original tenets as epistemologies of practice,^{15,19,21–23,54,57} offer micro-level and perhaps mid-level theory for research in medical education. Yet the theoretical framework of epistemology of practice has been largely untapped to date in medical education, perhaps as a result of the influences of medicine's dominant epistemological stances.

Particular epistemological stances, or philosophies of knowledge, are widely adopted in the health professions, producing various products of these epistemological positions. For example, the evidence-based practice (EBP) movement stems from an epistemology that considers experimental research knowledge to be of primary value; knowledge translation emerged as a way to move this important research knowledge into practice, where it could be applied.^{38,58} Although the original definition of EBP speaks of patient values and practitioner expertise, it is not experiential knowledge, but, rather, the best available *research* evidence (scientific knowledge) that has taken hold as the trump card in clinical and educational debates.³⁸

An epistemology of practice, however, re-weights this balance between different sources of evidence and knowledge, placing an emphasis on practice such that practice is not merely the site for *applying* theory and research knowledge, but also a site for *developing* knowledge, albeit experiential and tacit knowledge.^{22,23,57} From this perspective, the formulation of new, practice-based knowledge is sparked in the indeterminate zones of practice – uncertain,

unstable, unique, or value-conflicted practice situations.^{15,23,57} From here, practitioners, as inquirers of their own practice, engage their reflective capacities to question assumptions, (re)frame situations, examine their practices, test potential moves in the midst of practice, and consider possible ways forward.^{19,40,57}

The existence (and value) of tacit knowledge is one of the fundamental assumptions in an epistemology of practice and is thought to support practice in the face of uncertainty. Tacit knowledge, discussed by Polanyi^{59,60} and taken up in Schön's¹⁵ work, is the type of knowledge we may exhibit in intelligent action, but find difficult to explicate through language because 'we know more than we can tell'.⁵⁹⁻⁶¹ Tacit knowledge informs esoteric competence, or professional artistry, which practitioners use to navigate indeterminate zones of practice.^{15,19,57} These theoretical concepts are ripe for continued development as theory, as well as for use as theoretical orientations to elucidate how practitioners learn, make decisions and innovate in the face of ever-prevalent uncertainty within practice.^{62,63} We suggest that although many in medical education have applied these theoretical principles pedagogically, few have chosen to study these theoretical concepts to build and deepen the theoretical and research knowledge base on the topic.

What difference might it make to consider reflection as more than tool or technique? Reflective practice as a *way of being* transcends traditional assessment; it is an orientation through which one practises, continually challenges one's own assumptions, and builds new knowledge. Herein, rather than linking up with assessment, reflective practice demands a space to broaden understandings of reflection at an epistemological and theoretical level. We suggest that it is this type of engagement with reflection that will serve the field best at this point in time: understanding inquiry and experimentation within practice as opportunities for the generation of knowledge, and as avenues for navigating uncertainty and complexity. If reflection is viewed as a theoretical framework and epistemology of practice, and is explored further through theory-building research, medical education may be more aligned with reflection's theoretical origins and ultimately see more benefit from its continued study and application.

Indeed, a number of scholars in professions education (beyond medicine) inquire into practice episte-

mology from a range of positions. For instance, Stephen Kemmis⁵¹ proposes an epistemology of professional practice that moves from knowledge 'in the heads' of practitioners to consideration of the extra-individual features of practice; Kinsella and Pitman⁶⁴ (professional education) and Flaming⁶⁵ (nursing) explore phronesis or practical wisdom as an epistemology of practice. Shaw and DeForge's⁶⁶ epistemology of (physiotherapy) practice suggests a bricolage orientation to practice. These articles are examples of the types of exploration that medical education could undertake in inquiring into epistemologies of practice.

The use and study of epistemologies of practice offer an important avenue for research in medical education, related to research on clinical reasoning, self-regulated learning and adaptive expertise, yet drawing from somewhat different disciplinary origins.⁶⁷⁻⁶⁹ Clinical reasoning, self-regulated learning and adaptive expertise stem from cognitive psychology and cognitive science; reflection has roots in various sub-disciplines of philosophy and education, and interdisciplinary domains. Some scholars have explored reflection and its relationship to processes of clinical reasoning,^{50,70-74} a pursuit that requires thoughtful attention to the epistemological origins of these related yet different topics. We argue for more exploration along these lines, with careful attention to epistemological issues and the range of what reflection as a theoretical field includes. In this way, reflection may also serve as a theoretical framework to inform design and analysis in qualitative research studies. Ultimately, if the medical education field considers reflection in this way, it may be able to contribute more substantively to the building of theory around reflection, rather than focusing most of its efforts on mandating and measuring performances of reflection.

Reflection as critical social inquiry

Critical reflection is a related theoretical area encompassed by the body of theoretical literature on reflection. We acknowledge that one could readily critique some theories of reflection and reflective practice (i.e. by Dewey¹¹ and Schön¹⁵) for omitting explicit consideration of ethical, cultural, social and political forces. Yet other theorists of critical reflection (e.g. Freire^{12,20} and Habermas^{13,20}) are, in fact, primarily focused on emancipation from socio-political forces and relations of power. Contemporary theorists have linked these variants of reflection in their own conceptions of reflection.^{51,52,75} For instance, Kinsella has written about a continuum of

reflection as phenomenological, pragmatic, embodied, critical and epistemic reflexivity.⁷⁶

‘Critical reflection’ should not be conflated with reflection. We acknowledge that there is some conflation of critical reflection with critical reflexivity in the literature, and we have not explored these differences in this paper (see Kinsella⁷⁶ for more on reflexivity). In our use, critical reflection falls under the pluralistic umbrella of reflection, but requires more explicit attention to social and systemic forces, and the assumptions embedded in thought processes and power relations, with an aim toward transformation and action.⁷⁵ Critical reflection was sparked by Habermas’ distinction amongst types of knowledge as technical, practical and emancipatory; he implicates the critical social sciences and critical reflection in the development of emancipatory knowledge.¹³ Informed by Habermas,^{13,20} Brookfield⁵² calls us to constantly engage in critical reflection through critical inquiry and dialogue in order to become more aware of the social, cultural, economic and political forces at work. Brookfield^{52,77} emphasises that reflection is not inherently critical; rather, it must draw upon critical theory in order to be critical. Specifically, Brookfield^{52,77} explores critical reflection as ideology critique, providing illumination of power relations and recognition of hegemonic assumptions. He reminds us to: ‘apply the same rational scepticism to our own position that we apply to analysing how dominant cultural values serve the interests of the few over the many. A critically reflective stance toward our practice is healthily ironic, a necessary hedge against an overconfident belief that we have captured the one universal truth about good practice. It also works against uncritical development, and reification, of protocols of critical reflection.’⁷⁷

As a form of critical social inquiry within practice, critical reflection can overcome the ‘danger that knowledge, skills, and attitudes may be quickly reified into rather inflexible categories that test competencies empty of internalised values’.⁷⁸ Note some examples of this use of critical reflection exist in medical education.^{79–83} In fact, leaders in medical education have called for greater engagement with social sciences and humanities perspectives and approaches in medical education.^{55,84–87} Moving beyond the biomedical model in medical education has been suggested as a way to overcome the limitations of rote but often surface enactment of desirable knowledge, skills and attitudes toward more adaptive, critical, dynamic, reflective orientations that can better withstand, and flourish, in

complexity.^{78,86,88} For example, Kumagai and Lypton⁷⁸ have described their educational use of critical reflection in this vein, attempting to move ‘beyond [cultural] competence’ toward a Freire-inspired critical *consciousness*.

Meanwhile, medical education research papers using critically reflective approaches such as critical discourse analysis have also seen an upsurge in popularity.^{89–92} These papers are arguably reflective in nature, and in particular demonstrate reflection as critical reflection and critical social inquiry. We suggest that viewing reflection in line with these calls for change, as a form of critical social inquiry, can offer medical education mid- to grand-level theory that can inform medical education’s efforts to inspire ‘ethical, socially responsible, patient-centred care’⁹³ orientations.

THREE DOMINANT TRENDS OF REFLECTION IN THE MEDICAL EDUCATION LITERATURE

We present three dominant trends in applications of reflection within medical education literature of the past decade. Although we distinguished among reflection, reflective practice and critical reflection in the previous sections of this paper, in this section we amalgamate articles across all uses of these terms because the terms are generally not distinguished in the literature we reviewed. Further, there are no singular, neat definitions of these terms because they signify complex concepts.^{6,19,76,94} The three dominant trends are distilled categorisations of reflection as it is conceptualised in the medical education literature. Note that some papers span multiple categories and that the categories are prevalent but not all-inclusive. The cited papers are examples of the three dominant trends, but are not representative of *all* the articles we found per trend. We are deliberately juxtaposing these three categorisations of reflection in medical education literature with our two proposed ways to frame theories of reflection (as epistemology of practice and as critical inquiry). In so doing, opportunities for growth in scholarly explorations of reflection in medical education will be made visible.

Utilitarian applications of reflection

Using reflection as a tool

Reflection is often presented as a pedagogical tool to support the acquisition of particular knowledge, skills and attitudes. Kanthan and Senger⁹⁵ point to

reflection 'as an effective teaching/learning tool that may be implemented at any level of education' to promote personal growth and enhance learning. Demonstrating the use of reflection to document and assess competencies, Johna *et al.*⁹⁶ describe reflective writing as 'an innovative tool for teaching and evaluating ACGME [Accreditation Council for Graduate Medical Education] core competencies'.

Even when the word 'tool' is not explicitly mentioned, reflection is described as a means or mechanism to help learners achieve a particular learning outcome. Examples include reflective assignments as a way to help learners solve problems and cases,^{97,98} improve communication skills,^{99,100} enhance empathy and provide compassionate care,^{96,101,102} develop professionalism or physician identity,^{33,103–110} and learn CanMEDS roles and competencies.^{96,111,112}

Following this utilitarian thread of reflection in medical education, medical students and residents commonly engage with reflection through graded or mandatory (pass/fail) reflective writing exercises. Variations on this approach include the use of narrative essays, creative writing, reflective journals, blogs and diaries, which are sometimes accompanied by collaborative narrative inquiry or group discussions.^{33,34,102,106,113–117}

Exploring how to encourage and teach reflection

Considerable literature focuses on how to best teach reflection and engage students in reflective activity. For example, a large body of literature explores how to stimulate reflection in students, usually to meet a certain pedagogical goal (e.g. professionalism). Papers in this category provide guides to teaching and facilitating reflection.^{117–123} Other articles compare different reflection formats such as blogs versus written assignments¹²⁴ or focus on specific tools and methods to engage learners in reflection, such as debriefing,^{125,126} virtual patients,¹²⁷ digital storytelling,¹²⁸ online discussion forums,¹²⁹ Google docs¹³⁰ and blogs.^{31,116,131} Additional studies look at the importance of feedback in order to enhance reflective ability in students^{35,132–135} and how instructors can effectively provide feedback to inspire reflection.^{5,112,132} Notably, Hedy Wald and colleagues^{136–139} have developed approaches to providing formative assessment and feedback on students' written reflections through the BEGAN framework^{136,140} and the REFLECT rubric.^{138,139} These rubrics are seeing uptake in medical education.^{111,118,141}

Using reflection as a window into the student experience

Finally, some studies have used reflection as a window through which teachers might better understand what learners are thinking and encountering in their medical education experiences, as they develop personally and professionally as physicians.^{115,142,143} Associated with this trend, other studies focus on student reflections as a valuable resource from which to gauge what students actually perceive in their learning.^{114,144–148}

A focus on the self as the object of reflection

Reflection is commonly termed 'self-reflection' in the medical education literature.^{110,114,147,149,150} Self-reflection is elicited through different techniques and exercises, usually written; it is used to help medical students and residents, through independent introspection, think and learn about various subjects important for physicians, such as death and dying,¹⁵¹ ethics,¹⁵² professionalism,¹⁵³ social determinants of health,¹⁵⁴ disability¹⁴⁷ and empathy.¹⁰²

Even when the term 'self-reflection' is not specifically used, there is an apparent focus on the self as both the subject and object of reflective activity. We found that in most instances of reflection in medical education, learners engage in reflection independently through writing exercises.^{31,99,102,103,113,114} Written assignments may be followed by discussion or instructor feedback in an effort to facilitate learning with and from others. Yet even when reflective activities encompass group discussions and feedback, the focus is on developing the self by expanding one's own knowledge base and interpretive capacity, and broadening one's understandings of certain issues.^{31,102,114,155} This inward-looking and individual focus is thought to contribute to self-awareness and self-improvement through analysis and understanding of specific learning experiences that teach knowledge, skills and attitudes.^{33,99,102,103,113,114} We characterise many of these articles as focusing on the self, or individuals, because the goal is typically to improve individuals' knowledge or attitudes rather than to critically address social or systemic influences and issues.

Reflection and assessment

We suggest that the first two trends lead to the third. The first two trends – utilitarian reflection and self-reflection – are encompassed in a wider view of reflection as it relates to the discourse of

assessment in medical education.²⁴ We found many examples of how the ways reflection has been applied in medical education establish a link between using reflection as a tool to develop oneself, and using it to assess individuals. The reflection–assessment interface can be broadly characterised in two related ways: (i) by conceiving of reflection as a competency or means to achieve competencies, and (ii) by harnessing written reflective activities and products as proxies for assessment of learners’ reflective capacity and learning.

Reflection as competency

Competency-based education has become a guiding movement in medicine.^{156–158} The Cleveland Clinic Lerner College of Medicine at Case Western Reserve University has established reflective practice as one of its curriculum’s nine core competencies.^{159,160} More often, however, reflection is discussed as an attribute of competent professionals rather than a stand-alone competency. The ability of learners to engage in reflective activity is viewed as a core skill that, like clinical skills, can or should be measured and assessed to ensure that it is being learned well.^{31,33,95,112,161,162} ‘Reflective competence’¹¹² is usually demonstrated through portfolios.

Reflection and assessment through portfolios

A common way to assess the development of reflective capacity in learners is through the use of portfolios. In medical education, print and electronic portfolios (ePortfolios) are common examples of mandatory reflection, with portfolios forming a repository to demonstrate three achievements, as outlined by Friedman Ben-David *et al.*²⁸ as “goal-setting, self-reflection, and discovery”.¹⁶³ This mandatory demonstration of reflection in the form of portfolios is used as a way to measure and track learners’ engagement with reflective exercises.^{31,131} As part of a portfolio, reflection may be demonstrated through print or electronic journals and blogs,^{33,116,142,144,155,164} and reflective essays or narrative accounts.^{34,95,111,112} The need to appraise learners’ knowledge, skills and attitudes is built into these reflective assignments. Epstein¹⁶⁵ outlines portfolios as a method of assessment used to ‘demonstrate a trainee’s development and technical capacity’. Portfolios are designed to track and audit the experiences of reflection and learning in order to provide ‘*evidence* that learning has taken place’³⁶ [our emphasis].

The use of reflective assignments and portfolios has become more widespread in recent years, but the experimental evidence for their generalisable efficacy is limited.^{94,166,167} Perhaps because reflection is difficult to evaluate, another trend in the literature refers to reflection rubrics developed to facilitate assessment of portfolios.^{32,136,138,168–171}

DISCUSSION

Problematising these trends

We speculate that medical education’s concentration on reflection as utilitarian, self-focused and linked to assessment demonstrates the influence of dominant discourses of assessment²⁴ and evidence-based medicine.^{38,58,84} We therefore problematise the three trends identified above with awareness of the influence of these dominant discourses. Acknowledging these dominant discourses enables us to recognise how theories derived from other disciplines can and cannot be deployed within the field of medical education.

In the case of reflection, we argue that it has been applied, broadly speaking, in ways that are influenced by a reductionist mindset and therefore incongruent with the philosophical underpinnings of reflection and reflective practice. Van Manen¹⁷²

has stated: ‘...the predominant concern of educational practice has become an instrumental preoccupation with techniques, control, and with means-ends criteria of efficiency and effectiveness. [...] The shortcomings of these models lie in their preoccupation with the measurement of learning outcomes, the quantification of achievement, and the management of educational objectives.’ Similarly, in medical education and the broader health professions education literature, scholars caution against reductionist uses of reflection and the grading of reflective exercises.^{3,4,7,37,173–175} For example, Boud and Walker suggest a flexible deployment of reflection in programmes, acknowledging the effects of context.⁷ Sumsion and Fleet acknowledge the double bind whereby we are unable to prove reflection is effective if we do not develop ways to assess it, but we do a disservice to reflection if we assess reflection based on current understandings of what it is.⁸

What are the consequences of philosophically misaligned applications of reflection? We raise the concern that if learners are introduced to reflection solely or primarily as a means to learn knowl-

edge, skills and attitudes, then learners and educators may view reflection as merely a means to an end. In seeing reflection in this utilitarian and reductionist way, they may eventually perceive it as falling short of its goals because it is difficult to 'prove' reflection 'works'. We suggest that dismissing reflection for its lack of utility would be misguided if in its applications it is being misconstrued or held up to inappropriate standards for effectiveness.

This utilitarian influence is clear. In a review of reflection in medical education, Chaffey *et al.*⁹⁴ found the research surrounding reflection as a teaching method to be generally weak with 'very little empirical evidence of the efficacy of facilitation methods'. They posit that this is attributable to the 'the breadth of the construct of reflection' and suggest that a more defined construct 'with clear outcomes, could lead to the development of benchmarks useful in tracking student progress and as research outcome measures'.⁹⁴ Meanwhile, Wear *et al.*³⁷ caution that 'educators must consider how overly regulated exercises in reflection might inadvertently serve as tools for surveillance and regulation rather than as opportunities for revelation and transformation'. Juxtaposed, these thoughts might reveal a tension in the utilitarian approach to reflection in medical education. A utilitarian pursuit to studying reflection seeks a clear definition of what precisely reflection is and 'proof' that reflection is occurring in learners. However, the philosophical roots of reflection allow us to argue that it is fundamentally meant to exist in indeterminate spaces and not to be subject to quantifying measures.

Medical education's approach to competency-based education, with a focus on discrete 'knowledge, skills, and attitudes',^{78,176,177} may encourage reductionist mindsets that lead to implementing and assessing reflection in ways incompatible with the original theories that gave rise to reflection and reflective practice. Indeed, competency-based education breaks down behaviours into small fragments to be 'observed, and assessed ... using a checklist'.¹⁵⁸ Evidenced by the third trend we presented, reflection has become part of the discourse of assessment that is inherent in the conceptualisation of competencies as pieces of knowledge and skills to be assessed. We suggest, however, the need to proceed with caution so that reflection is not only conceived of as a learning technique to be measured and evaluated, but also as a way of being and seeing.

Interestingly, Whitehead *et al.*¹⁷⁸ recently conducted a Foucauldian analysis of the 'missing person' in competency frameworks. This study revealed that the 'person' role was removed in the Canadian CanMEDS competency framework, whereas a Dutch interpretation added a reflector stem to the flower-shaped model. Perhaps the 'person' role was removed for the same reasons that reflection is refashioned by the discourse of assessment in medical education; reflection stems from epistemological positions divergent from those dominant in medicine and thus is only workable within medical education when it is made to fit into the mould. Given the substantial body of theoretical literature on critical reflection as a tool for questioning assumptions, power relations, and social and systemic structures, it is peculiar that reflection has been taken up in medical education, predominantly, as self-reflection and associated with self-assessment. Although we have suggested discursive and paradigmatic reasons for this observation, an area for future study may involve an excavation of these discourses and their effects and interactions.⁹¹

In a further challenge of the orientation to the self in applications of reflection, one must consider the cautions in the literature about self-assessment, in terms of accuracy and appropriateness.^{73,179–181} Viewed in this light, the focus on self-reflection and its possible conflation with self-assessment is potentially problematic. However, theorists of reflection, such as Dewey,¹¹ Freire,¹² Habermas,¹³ Schön,¹⁵ Kolb,¹⁴ Boud⁷ and others, do not focus on the self as the object of reflection. Recall that Dewey's definition of reflection focuses on knowledge claims as the object of reflection, and emphasises the importance of experience in education (see Dewey¹¹). Schön, Kolb and Boud focus on how individuals reflect as a means to create knowledge about practice in and through encounters and experiences in practice.^{7,14,15,57} Thus, reflection as self-reflection is merely one interpretation, and one that may skew reflective activity to a focus on oneself and what one thinks and feels, in lieu of reflection on one's practice and what one does. Self-reflection might also fail to encompass Freire's,¹² Habermas's¹³ and others' versions of reflection as critical consideration of how social and systemic forces influence agency, practices and decisions and their call to enact change.²⁰

Papers encouraging students to consider complex social issues (disability, culture, patient experiences of illness, community health) still often focus on students' own experiences of delving into these

issues and what they learn as individuals. There is clear opportunity for greater and deeper discussion about how social and systemic forces might have constrained understandings or encouraged assumptions of these complex issues in the first place, and how social and systemic forces will always exert influence upon one's actions and decisions. Our definition of critical reflection includes considerations of the creation by social and systemic factors of contexts that implicitly or explicitly influence one's beliefs and behaviours. As previously mentioned, some medical education studies have begun to delve into critical reflection.^{79–83} Although this is an emerging and encouraging orientation, critical reflection has not yet become a dominant trend in the field. Critical reflection's ability to be employed deeply and pervasively may be met with tension as it will require openness to critical pedagogical approaches rather than behaviourist approaches to education.

CONCLUSIONS

Two ways of framing theories of reflection in medical education are: reflection as epistemology of practice, and reflection as critical social inquiry. Three popular trends in applications of reflection to medical education include a utilitarian trend, a self-focused trend, and an assessment trend. We have juxtaposed the two sets of theories and the three trends because many pedagogical innovations come and go; they are notoriously difficult to justify for widespread and permanent adoption, given the complexity and dynamic nature of medical education contexts.⁸⁷ And without deep consideration including philosophical and theoretical exploration, we may fail to understand why innovations falter. Continual refinement of theory, however, is at the core of research and academic practice. We do not suggest that theory and application are dichotomous. Indeed, in medical education, there is a need to continue to advance reflection in the realms of both the development and the application of theory; each realm is inextricably linked with the other. However, there is a notable dearth of ongoing theory development embedded within or occurring alongside the considerable production of practical innovations that cite reflection as their inspiration or goal. The prevalence of reflection in theoretical domains of education and philosophy, and broadly in the social sciences, suggests that it may behove medical education to treat reflection as a theoretical orientation – as an epistemology of

practice and approach to and focus for critical inquiry – and not merely as a specific practice, tool or pedagogy.

As epistemology of practice or critical social inquiry, reflection could inform research and curricular design at a high level, not only in the development of tools and techniques, but also by informing underlying philosophies of and overarching approaches to medical education and practice. Importantly, we suggest careful, critical reflection within any such attempts at 'using' reflection in medical education. Any explorations of reflection and their subsequent implementation will require critical awareness of the way medicine's dominant epistemological stances are influencing, and at times contravening, applications of theories and practices from other epistemological positions.

We suggest that before reflection becomes the latest trend to have come and gone in medical education, the field must broaden its conceptualisation and deepen its understanding of what reflection is, from which philosophical contexts it derives, and what its purposes in the current socio-political context of medical education *can* be. Greater theorising could lead not merely to improved pedagogical and assessment applications, but also to multiple ways of thinking about complex challenges in medical education.

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