Reflection in Medical Education

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This paper offers a medical-education perspective that I will hope complement other disciplinary perspectives in examining the value of reflection for learning in tertiary education. The paper outlines some of the theoretical strands of reflective practice facilitated in a unique course subject for professionalism and patient safety, within the new spiral curriculum at Leeds University School of Medicine. The material presented in this paper outlines some of what is delivered during the medical students' interactive sessions; this material is continually modified based on feedback from both students and learning facilitators.

The paper discusses why both students and clinicians need to reflect, some of the theoretical dimensions and models and examples from the Leeds context of how reflective competence can be progressively developed over the course of an undergraduate program.

The focus of the final section suggests directions for reflective practice in the future, where reflexivity takes the form of more collective endeavours requiring some change in culture and perceptions of professional identity. The paper concludes with the proposition that collaborative forms of reflection need to include more involvement of patients, interprofessional communities of practice and the use of learning from other disciplines; all of these require different levels of thinking and different ways of working.

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> *Medical Education's ultimate aim is to supply society with a knowledgeable, skilled and up-to-date cadre of professionals who put patient care above self interest, and undertake to maintain and develop their expertise over the course of a lifelong career.*
>
> Swanwick and Buckley (2010, p.xv)

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Overview

Reflective learning and practice are central to medical education and a career in medicine (albeit not peculiar to this profession alone). The use of reflection in education and training for professional development has been prominent within the literature for nursing, teacher education and social care, and more recently in the training of doctors (Boud 2010). The process of reflection and reflective competency are powerful for maximising deep and lifelong learning, and for achieving higher levels of responsive professional practice in a medical career. The imperative for understanding the value of reflection and its promotion in professional contexts is to enhance the deeper learning of the student and improve professional performance for the benefit of the client, in the form of patient-centred care. This paper encapsulates the strands of reflection in learning and "becoming" a reflective practitioner, which may apply to many disciplines and professions, but is specifically contextualised here to medical education and an effective career in healthcare. The paper focuses on the reasons for and examples of facilitating reflective practice, and considers future directions for reflection.

Drivers for reflection in medical education

The drivers for promoting and developing high levels of reflective competency in medical education at all levels, within undergraduate, postgraduate and continuing professional development throughout a lifelong career, are individual learning and professional competence.
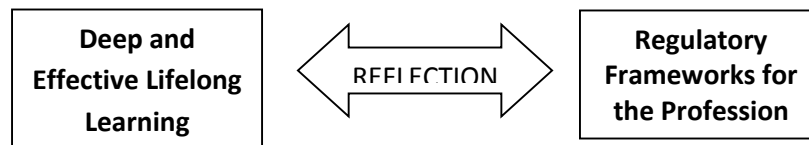

Figure 1. Principal drivers for reflection in medical education

These two domains are not antagonistic; rather, they are complimentary components of a holistic process to ensure reflective competency for the individual, the team and the healthcare organisation. Reflection is important for learning and a career in medicine, improving understanding, showing outcomes and promoting a desire for lifelong learning; it is also valuable in improving clinical competence and performance and for ensuring continual professional development (Kaufman & Mann 2010, p.23). At the organisational level, schools of medicine need to explore ways of producing a reflection-fostering culture that permeates the faculty, including tutors and students. In Leeds the design and delivery of a spiral curriculum for medical education was crucial in developing a comprehensive skill set for evolving humane medics. A spiral curriculum, according to Bruner (1976), is where information is structured so that complex ideas (topics or themes) are taught at a simplified level first and revisited at more complex levels later in the program. Examples of tried and tested learning and teaching, along with areas for continual improvement and innovation, are provided throughout the paper. The next sections focus on the two domains: dimensions of reflection for learning and dimensions for regulating the profession.

Dimensions of reflection for learning

Over time the principal focus of reflection for learning has been on the self and one's experience of a situation or event, and how an understanding of the two can inform future action. Although Honey and Mumford (1992) suggested that some individuals may demonstrate a "reflector" learning style, there is no evidence for this, and it is very focused on individual learning. What might be an idiographic form of learning for some individuals, according to Honey and Mumford, should ideally be a competence for all learners to acquire over time. Embracing reflective practice in education, a crucial metacognitive skill, supports learners to make sense and meaning (Schön 1983), and to continually adjust knowledge through a process of deconstruction and reconstruction. This process is displayed in the levels expressed in Bloom's taxonomy of learning (1964). Challenging assumptions and previous knowledge through the reflective process is the stuff of transformative learning for everyone, and acknowledges that learning is not just inherent in the individual, but is affected by the context, including other people.

> *...reflection is so critical; there can be no higher growth for individuals or for society without it. Reflection is the very process of human evolution itself* (Sawyer, n.d.).

Other examples of metacognition would be the personal consideration of various constructs involving the self: self-awareness, self-efficacy beliefs and perceptions of competence in one's own emotional intelligence. Links between development of emotional intelligence and reflective competency is of benefit to doctor/patient relationships, and consequently the potential outcomes for patients; as the medical student's professional identity develops, so should their reflective competence and practice. This aligns with the process of "becoming", a metaphor for learning (Hager 2008); becoming focuses particularly on the continual process of learning over time. Learning affects the sense of professional identity and development of reflective practice, which is crucial to educating and training medical students.

Wald and Reis (2010, p.3) state that "...reflection is not necessarily intuitive and educational interventions are warranted", emphasising the benefit of moving beyond Honey and Mumford's (1992) restrictive conception of learning. Realising that it cannot be assumed that medical students can understand neither the concept of reflection nor its importance to reflective practice in the medical profession a process like osmosis or a reliance on vicarious learning, opportunities must be injected into the curriculum to allow students to learn about reflection and develop it during the undergraduate program (five years in most of the UK; six years in many other countries). An important consequence of further developing each learner's metacognitive skills, and encouraging them to understand their own metacognitive process, is their ability use it to the best advantage for their own continuous development, professional identity and humane understanding of patients. This moves understanding of reflection from an emphasis on individual learning to an understanding of learning as a mediated, socially oriented process (Vygotsky 1978).

Dimensions for regulating the profession

The General Medical Council, the regulator of healthcare provided by doctors in the UK, expects all graduates to become reflective practitioners, and requires the curriculum in medical schools to facilitate reflective competency and continuing personal growth. The recommendations set out in *Tomorrow's Doctors* (2009, pp.26-7) emphasise key transitional attributes in *becoming* a doctor, of which being a reflective practitioner is a crucial part. An outcome of the UK regulatory function is the requirement of annual appraisal and five-year revalidation for doctors.

21 Reflect, learn and teach others:

a) Acquire, assess, apply and integrate new knowledge, learn to adapt to changing circumstances and ensure that patients receive the highest level of professional care.

b) Establish the foundations for lifelong learning and continuing professional development, including a professional development portfolio containing reflections, achievements and learning needs.

c) Continually and systematically reflect on practice and, whenever necessary, translate that reflection into action, using improvement techniques... (Tomorrow's Doctors 2009, pp.26-27).

Medical schools must also ensure that all tutors are "appropriately selected, trained, supported and appraised" (Tomorrow's Doctors 2009, p.62), which by implication requires educators with the capacity to mentor students along with doctors qualified in reflective competence. Isaacson et al.

(2008) emphasise that creating an environment that fosters reflective practice is essential for the personal and professional development of medical students, and point out that students will be differentially motivated to engage in the reflective process.

Learning and Teaching to Promote Reflection

Reflection for learning and learning to reflect

Over time there has been concern and debate as to whether reflection can be taught or even measured. Wald and Reis (2010) and Aronson et al. (2012) provide some evidence that structured frameworks can improve the quality of students' written reflections. Teaching or facilitating learning for reflective competence, as previously mentioned, is based on the premise that we cannot expect the skills to develop without guidance. Some studies (Learman, Autry & O'Sullivan 2008; McNeil, Brown & Shaw 2010) indicate low levels of reflection or reflective writing during residency training; and Fischer et al. (2008) indicate variable levels in medical students. If, as it seems, reflection is not intuitive, it must be imparted by educational intervention. Findings from research on the effects of reflective practice on the accuracy of medical diagnoses indicate a positive effect on complex cases where there was uniqueness and uncertainty; thus, it could offer the potential to reduce diagnostic errors (Mamede, Schmidt & Penaforte 2008). This affects patient safety, which will be further discussed below. Equally, for effective lifelong learning and high levels of professional competence, opportunities for reflection should be incorporated in the medical curriculum wherever possible. Students who achieve well are more often students who are aware of the weaknesses and strengths in their own learning processes (Ertmer & Newby 1996).

Reflection and educational theory

We consider how the construct of reflection might be viewed from three theoretical learning perspectives and how that transforms into learning and teaching processes for the development of reflective competence.

Learning Theory	Behaviourist	Cognitivist	Social Constructionist
Power Relationship	Teacher-centred	Learner-centred	Social learning/team-centred
Reflective Activity	Absence of/little encouragement to reflect	Individual reflection	Group reflection (Inter-professional teams)

Table 1. Learning theories and reflection

Behaviourism – in all its guises, from the early Classical Conditioning of Pavlov to the radical behaviourists like Skinner (1938), Behaviourism rests on a teacher (or trainer)-centred approach, where there is no requirement for the learner to take an "active" cognitive role in the process. The deterministic control of the learner and learning process involves an imposition of teaching (training) style, learning style and pre-determined outcomes. Consequently, we would not expect reflection, as a metacognitive process, to be an element of this perspective. Realising that there may be learning contexts more didactic in nature, where a transfer of "undisputed" scientific

knowledge is deemed to be desirable, could it be argued that reflection is less important in certain academic settings?

Cognitivism – Piaget's (1926) Cognitive Constructionism in particular recognises the cerebral activity of the learner in response to environmental stimulus in the widest sense, and provides the foundations of the learner-centred approach. Under these conditions the learner reflects on the personal learning journey on their own terms, based on the stimulus material presented to them and any prompts to reflect provided by the teacher. This removes it from the sphere of the individual, instead moving it towards the social, demonstrating the influence of Vygotsky's (1978) emphasis on mediation by a teacher.

Social Constructionism – This represents what might be regarded as a current paradigm in learning and teaching that emphasises an interactional approach to developing reflective competence. The teacher's role is that of facilitator, who "scaffolds" individual and group learning to enhance students' self-awareness and develop their emotional intelligence. These constructivist methods tend to move learners out of their "comfort zone" to make collaborative "sense" of potential skills being presented to them. As Petty (2009, p.33) points out, "students only get good at doing it – by doing it". Later in this paper, some student reflective narratives serve as examples of a journey towards reflective competence.

The inherent power relationship emanating from the learning theory adopted in medical education and healthcare settings will affect the interactions between "novice" and "expert", "client" and "professional"; and the forms of reflection.

Models of reflection

> Harry stared at the stone basin. The contents had returned to their original silvery white state, swirling and rippling beneath his gaze. "What is it?" Harry asked shakily. "This? It is called pensieve," said Dumbledore. "I sometimes find, and I am sure that you know the feeling, that I simply have too many thoughts and memories crammed into my mind."

> "Er," said Harry, who couldn't truthfully say that he had ever felt anything of the sort.

> "At these times," said Dumbledore, indicating the stone basin, "I use the pensieve. One simply siphons the excess thoughts from one's mind, pours them into the basin, and examines them at one's leisure. It becomes easier to spot patterns and links, you understand, when they are in this form."

> Rowling, *The Goblet of Fire* (2000, pp.518-519).

Rowling seems to encapsulate the processes of the mind in which metacognition allows us, with practice, to illuminate varied thought patterns; to consider and use this experience in the future at our leisure; to think about our thinking; and indeed, reflect, on our reflections.

Reflection

> [Reflection] is a form of mental processing with a purpose and/or anticipated outcome that is applied to relatively complex or unstructured ideas for which there is not an obvious solution. Moon (1999, p.23)

Literature on models of reflection have developed over time, essentially ranging from an individualistic process to one that is becoming more collective and collaborative; from those that are retrospective, mechanistic and of the past to those that are more readily transparent and active in the present; or to those that are predictive, where there is a potential to consider future experiences, decisions and behaviours before the event, and perhaps to modify them.
Dewey (1933, p.118) emphasised the need for learners to develop a habit of reflection, by learning how to "think well" or, in other words, deeply. The theory underlying Kolb's (1984) reflective model, influenced by Dewey and Piaget (1926), suggests that knowledge and learning develop through a cyclical process of "review", "questioning" and "reconstruction". "Knowledge is continuously derived from, and tested out in, the experience of the learner" (Kolb 1984, p.27). This only occurs where experiences are reviewed and analysed retrospectively; a limited view, as an individual learning activity, is reviewed in the context of the environment and the role of others.

Other cyclical, retrospective models, like those of Gibbs (1988) and Johns (1995), can be described using Schön's (1983) conceptualisation as *reflection-on-action*: reflecting after an event, on what appeared to work well and what could be different in the future. This form of reflection often leads to reflective writing in the form of professional diaries or logs, which may not only demonstrate reflective capacity but also indicate a level of professional competence for regulatory purposes.

Schön's (1983) other concept of reflection, *reflection-in-action*, is the process where the learner is faced with a novel context or set of problems, in which experiences from the past don't quite fit the new situation. This process of reflection permits the modification of the activity or procedure while it is occurring; in medical practice, it might be particularly appropriate in unexpected or unplanned clinical situations where preventing harm to patients is paramount, and often requires rapid adjustments to thinking and action.

Killion and Todnem (1991) highlighted that *reflection-for-action* involves forethought and knowledge for planning actions; for example, in the clinical context, a surgical team about to deal with a complex procedure might take time out for a team briefing to anticipate what might occur and plan accordingly. It is interesting to consider that thinking ahead of action is seen as reflection. Collective or collaborative reflection will be considered in a later section.
Whilst more simplistic retrospective, cyclical models of reflection might be adequate for younger students or novice professionals grasping the nature and processes of reflecting, there is a need to consider the quality or depth of reflections. Moon's (2004) four stages of reflecting in her Framework for Reflective Writing mirror Baxter Magolda's (1992) four stages of knowing:

> **Absolutist** – knowledge is certain or absolute, **Transitional knowing** – partial certainty and uncertainty, **Independent knowing** – everyone has their own beliefs. We might contest that these beliefs are 'independent' but are always contingent upon culture, environment and significant others, e.g. religious beliefs develop according to upbringing, peers and the media. **Contextual knowing** – knowledge is constructed and any judgement must be made on the basis of evidence in that context (Magolda 1992, p.55).

Developing reflection across a spiral curriculum

Many topics, many opportunities to reflect

The structured support and learning opportunities built into the spiral curriculum at Leeds are proving to be an effective way of facilitating deeper and meaningful reflective practice over time. Scaffolding opportunities to develop reflective competence through facilitation for learning, using a wide range of related topics delivered during the undergraduate course, is seamlessly promoting reflectivity.

The supported (scaffolded) learning is facilitated by means of small-group discussions and questioning by the tutor or coach to prompt continual reflection, central to most models of a reflective process. This competence moves to self-questioning by the individual, demonstrated in conversations and formative assessments, and becomes part of the repertoire of learning. The following dimensions are described here to indicate some of the topics introduced to medical students at Leeds and the many opportunities they afford to develop their reflective competence over time.

Metacognition

Meichenbaum (1985) suggests that metacognition is an awareness of our own knowledge (what we know and don't know) and our ability to understand, control and manipulate our cognitive processes. Research has shown that metacognitive skills can be taught to students, and that such teaching can improve their learning (Nietfeld & Shraw 2002; Thiede, Anderson & Therriault, 2003).

Decision-Making

As an example, one strand of metacognitive knowledge that can be taught and developed by raising self-awareness is problem-solving and decision-making. It can be developed by focusing on "thinking processes" in the early part of medical education, and revisited later through the spiral curriculum, in the form of clinical decision-making. Kahneman (2011) outlines two modes of thinking – fast and slow – and highlights how different outcomes might be possible from the same information input due to the different types of thinking processes. An understanding of modes of thinking can be useful during early transition to higher education to stimulate individual perceptions of learning and the amount of time spent on reflection.
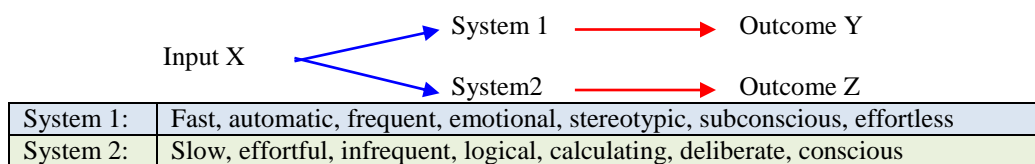

| System 1: | Fast, automatic, frequent, emotional, stereotypic, subconscious, effortless |
| System 2: | Slow, effortful, infrequent, logical, calculating, deliberate, conscious |

Figure 2. Representation of Kahneman's modes of thinking

A useful discussion to promote, in the context of Kahneman's model, is the conscious/subconscious aspects of the mind and automaticity, both in respect of System 2 and System 1 thinking and how it relates to reflection. For System 2, there is less automaticity and

increased higher-order cognition, and opportunity for critical reflection. The implication is for students (and professionals) to consider their automatic thinking and responses in situations that are not as they had been perceived. Which pathway is followed will depend on the level of self-awareness and cognitive effort made to consider one's thinking processes at a particular time.

Self-regulated learning and empowerment

I believe that self-regulated learning is a useful model for students to encompass in their program of learning, not only because of how it contributes to freedom of thought, but also because its capacity to overlay various models of reflection.
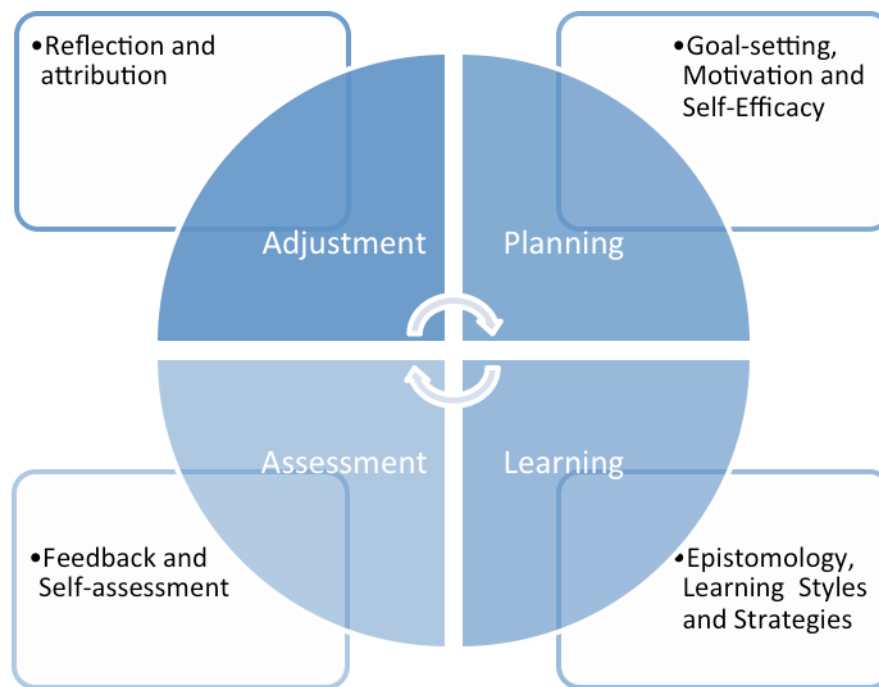

Figure 3. Adapted from White and Gruppen (2010)

Autonomous learning, central to the concept of self-regulated learning, operates at the constructivist end of the spectrum of learning and teaching theories. Along with intrinsic motivation, positive self-efficacy beliefs and self-assessment, learners can regulate their learning activity to improve the effectiveness of future outcomes. This metacognitive skill set is melded together through the reflective process and decisions taken to make adjustments to improve performance. It is important that teachers encourage learners to externalise these thought processes, either verbally or through written reflections, and give encouraging formative feedback to help students improve their reflective and self-monitoring processes.

Self-disclosure

Self-disclosure, introduced in the second week of the first year of the Leeds medical-degree program, has proved to be effective not only in urging medical students to consider its importance for doctor/patient relationships and history-taking during clinical consultations, but also in encouraging reflections on personal experiences.

An early task is for each learner to present a digital storytelling piece to other co-learners in their small seminar group. Using multimedia that is familiar to them, the new higher-education student is encouraged to produce a lively, light-hearted presentation, three to five minutes long, that outlines thoughts and feelings about their transition to university. The intention and learning outcomes for this effective task is to deliver a very short presentation early in the first term and to disclose a few aspects of the self in a secure and respectful, small group environment; this begins laying the foundations for reflective competence. Respect and confidentiality are a requirement within "ground rules" for all new medical-student cohorts, and are an essential part of their professional development.

Recent research (Brown 2014) focusing on feedback from first-year medical students about their perceptions of reflecting, as part of their "campus to clinic" placements, presents qualitative findings that question whether assessing reflective competency ought to be summative or merely formative (focusing on developmental process), and whether the process ought to be in a small peer-group setting or a one-to-one meeting with a mentor. Assuming that reflection can be learnt, I believe that a gradual development of the competence should be facilitated by means of a formative process.

Some responses from the respondents:

> I find that when I come to write it on pen and paper I'm so concerned about getting it into a structure and getting it into a form of prose.

> I find that when I'm talking about something face to face with somebody else, I'm a lot more instinctive, perhaps even slightly more truthful or open, ready to disclose my feelings and emotions, whereas when I'm writing it by myself on a piece of paper, um, it's almost, the ideas are more forced, um so I prefer discussing reflections rather than actually writing them down...and you're more likely to disclose if you get a positive regard from the other person.

In a curricular session facilitating the development of resilience within a medical career, a task is used to encourage reflection on an experience that the student found difficult, and from which they feel they have "bounced back". Two students gave their explicit consent to reproduce their reflections:

> One of the hardest situations I have ever had to deal with is the break-up of my parents' marriage. I was 11, and it was a complicated and emotional experience for me. I definitely felt the strongest emotions I have ever experienced at that point in my life. At times I felt extremely alone and angry, but the overwhelming [feeling] was that of sadness for my parents and being torn between who to "side" with.

> The divorce process continued for many years, and the feelings got easier and easier to deal with throughout this time (including the odd emotional day!). The

way I tended to deal with these feelings [was] talking to those around me who I could trust, and trying not to dwell on things that I didn't need to.

On reflection, although not an ideal circumstance, I feel that my parents' separation and subsequent divorce really shaped me into a more empathetic and understanding person. Before this, I tended to be reasonably cold and unsympathetic towards others. At the time, I felt as though I was dealing well with it; however, when I look back now, there were definitely times in which I struggled to keep a level head, due to the underlying emotions that I did not recognise were affecting me. Nevertheless, I did seek out help from friends and family when I needed it, which was essential to helping me see the situation as objectively as possible. (Student 1)

Over the period of around 2 years in secondary school, I experienced a real difficulty getting on with my peers and schoolmates. It got to the stage where loads of people in my year chant[ed] names at me across the playing fields where I would spend lunch times, steal my books during lessons and write things over them, and mess with my things if I left them lying about in my form room, and there were even a few physical altercations between myself and others. At the time I found it very difficult to deal with, and absolutely hated the idea of going to school, and although I had a friendship group, I also felt isolated within that group and only had one or two friends who [I] would say I was close with, and who really saw how the situation was affecting me. However, I feel that much of the problem was caused by the fact that I allowed myself to become an easy target for abuse by reacting to it too strongly, and instead of either brushing it off and not taking it to heart, or trying to work out what it was that was causing myself to become such an easy target, I was unsure how to react. My subsequent behaviour was that of irritating people and trying to show off, as if that would somehow make others like or respect me. Of course it instead went the other way and only exacerbated the issue. The end result was that my confidence was knocked hugely, and since then I have always struggled with doubting myself and my abilities, which had repercussions in not just my social life but also in my academics. After spending a long time talking with my parents, and after some counselling sessions, I became aware that my behaviour and thoughts were making things worse, and began to alter the way I was behaving, for instance holding back more in social situations, and to address the lack of confidence I learnt that simply pretending to be confident and acting as if I was (for instance simply confidently walking down the corridors with my head high rather than looking at my feet) helped me to actually feel more confident in myself. I still regularly feel low in self esteem and doubt whether or not those I spend time with actually like me, but I am able now to worry about it less. (Student 2)

These reflections were shared initially with the tutor only, via the student's electronic progress file, and later shared with one other student in the small-group session; the content was strictly confidential to each pair of students in that session. What this task demonstrates is a combination of self-disclosure, self-awareness and emotional intelligence. Some students found the task to be emotionally demanding, though I suspect the reflective process for the students in these two examples could have been cathartic, in that subsequently they disclosed their previous experiences with the entire group and discussed their current level of resilience and psychological distance they had "travelled".

Emotional intelligence and the humanities

In the "affective domain" of the "taxonomy of educational objectives", Krathwohl, Bloom and Masia (1964, p.20) believed that if cognitive objectives are developed in learners, corresponding affective behaviours will follow. The authors also believed that at one time, statements of affective objectives in educational courses were equal in number to statements of cognitive objectives, but that over a period of 10 to 20 years, there was an erosion of focus on the affective domain (p.16). Some explanation for this may be in the quest for quantifying learning outcomes in more valid and reliable ways; assessment techniques in the use of, for example, multiple-choice questions might not be amenable to measuring qualitative forms of learning outcomes, values and attitudes.

Boud and Walker (1998) question the appropriateness of reflection where individuals don't include elements of their emotional subjectivity. Solms and Panksepp (2015, pp.169-178) believe that feelings "are not epiphenomenal to the workings of the brain. Feelings evolved for good biological reasons". But although the affective part of the human brain has been around much longer than the neocortex, in evolutionary terms, and people may be capable of controlling their emotions, in my experience feelings need to be considered as part of the reflective process.

Moon's Framework for Reflective Writing (2004, pp.13-15) includes the salience and use of emotional influences in the two higher levels of reflection. This framework has been used successfully by students, based on stimulus material from students' anonymised reflective narratives and documents from qualified medics submitting for regulatory reassessment. In my experience, students are adept at assigning one of the four levels to each document, which subsequently increases their awareness of the "deepening" levels to improve their own reflective competence. The ability to develop quality reflections can be taught and facilitated without the use of cyclical blueprints, which Boud (2010, p.27) has referred to as "reflection as recipe following" or "reflection without learning".

Again, during the first year of the Leeds program, presentation of the emotional intelligence strand begins with Goleman's (2001) conceptual framework to give students the pegs on which they can hang their future reflections about emotions and their ability to manage them.

Abilities	Yourself	Others
Recognition of emotions	**Awareness of own emotions**	**Awareness of others' emotions**
Regulation of emotions	**Management of own emotions**	**Management of others' emotions**

Table 2. After Goleman (2001) and Jordan & Lawrence (2009)

The four elements in this quadrant, along with Goleman's fifth skill, (intrinsic) "motivation" (the drive to achieve and improve the levels of EI skills), are discussed for students' understanding and improved competence in the four areas. This lets learners examine their emotions in a broader framework and to gauge where each element may need some improvement. It also allows them to examine their willingness to modify their thoughts and behaviours. The task based on this topic invites learners to reflect on perceptions of their current levels of emotional intelligence in each domain, then construct an action plan to address weaknesses. Students are remarkably honest in reflecting on this aspect of their learning, as demonstrated in their e-portfolios, and followed up

later in the year by their own review of their action plans to self-assess how far they believe they have "travelled".

An additional possibility to provide the learner with manageable goals to develop their emotional intelligence is to use the model suggested by McShane, Olekains and Travaglione (2013). This indicates that the learner begins at the lower level of competence before it is possible to move up. It would, however, be helpful to indicate to students that these levels are likely to overlap; for example, managing one's own emotions in response to a growing awareness of others' emotions.
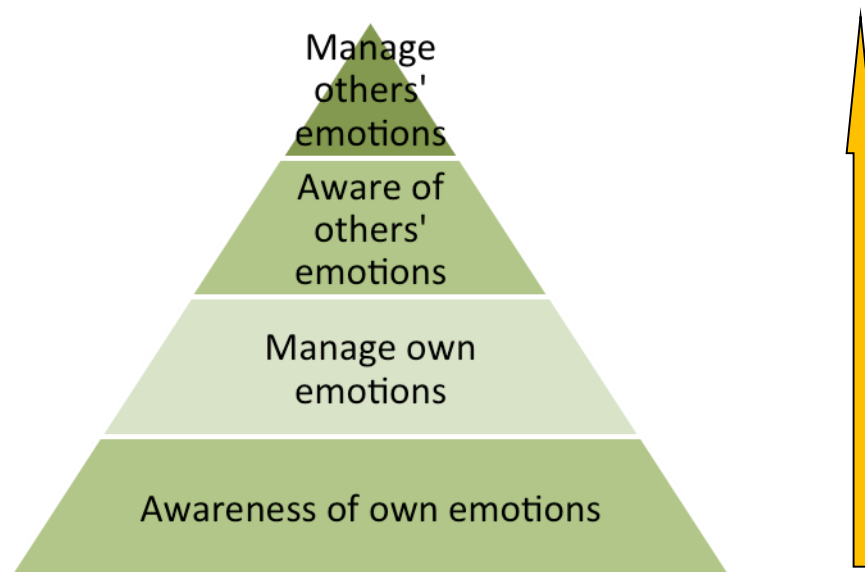

Figure 4. After McShane, Olekains & Travaglione (2013)

The highest level of competence is likely to be required for individuals occupying a team-leader or management role; though it would be equally important for any positive and stable personal relationship.

Inclusion of the humanities in medicine at Leeds is a means of helping medical students and junior doctors to appreciate human diversity, take subjectivity seriously and support affective development (Gordon & Evans 2010, p.84). The desirable learning that ensues from a focus on medical humanities is the development of empathy and professional competence within the context of patient-centred healthcare. Greaves (2004) points out that helping others means more than just solving medical problems, and that "curing" is not equivalent to "healing"; attending to the humanities through education and training allows students to "reflect on, and give expression to, their own and others' experience of health, illness and care giving" (Gordon & Evans 2010, p.83). The inclusion of the humanities in medicine is further discussed in a later section.

Professionalism and patient safety

The undergraduate degree in medicine at Leeds was redesigned in 2010 to include a multi-dimensional, professional strand that incorporates the elements presented in this section of the

paper, all of which facilitate reflection in one form or another. The strands of professionalism delivered in the small groups cover values and attitudes, behaving responsibly and acting with integrity, altruism and empathy, professional boundaries and the media. These provide vehicles not merely for discussion and fulfilling regulatory requirements, but for deep reflection individually, in smaller peer groups and through presentations and role-plays.

The taxonomy of the affective domain mentioned previously refers to the "generalised set" as a system of attitudes and values, "a persistent and consistent response to a family of related situations or objects" that "...enables the individual to reduce and order the complex world about him [her] and to act consistently and effectively in it" (Krathwohl, Bloom & Masia 1964, p.184). A possible affective-learning objective might be "readiness to revise judgements and to change behaviour in the light of evidence" (Krathwohl, Bloom & Masia 1964, p.184).

Synthesising the many elements of learning about professionalism is a complex process in the development of a professional identity, and strong reflective skills are needed to capture the interplay between critical thinking and situational analysis. Capacity-building for deep learning and reflective practice in medicine is imperative to ensure recognition of the complex elements of patient safety and safe practice. "Deep learning can be integrated with current experience and knowledge, resulting in rich cognitive networks that the individual can draw on in practice" (Kaufman & Mann 2010, p.22).

Because we tend to work in a social-constructionist framework and openly value collaborative learning and feedback, it is useful to engage the students in feedback on collective learning about reflection; inviting them, as always, to engage metacognitively – in other words, to reflect on their reflective skills. The following are a sample of some Year 2 students' responses to being asked, "How do you feel you have developed your reflective competence?"

> Learnt how to reflect on past to affect future: explore situations in more depth to properly reflect – not just scratch the surface; that many situations require reflection; reflection is a key to job satisfaction; reflection reduces errors and strengthens teams.

> I've become more confident in talking about how situations make me feel and not just describing them like a narrative.

> The tutor feedback has been really helpful in guiding and developing our reflective skills. I have genuinely noticed the benefits of improved reflections in getting me to critically analyse in greater depth my thought processes, relationships and clinical skills and practice.

Directions for Reflection in the Future

Social and cultural change

Although the broad sweep of learning theories outlined earlier is not comprehensive, Table 1 indicates how power relationships between novice and expert, client and professional may change over time (West 2010) and will affect the forms of reflection that may be desired, encouraged or even permitted. Professional practice is evolving, with more emphasis on reflection as a collective, rather than individual, activity, and a recognition that from a social constructivist-standpoint, the "co-production" of knowledge or understanding is a more helpful approach; co-production of

knowledge is defined here as a readiness and willingness of potential "co-producers" to create understanding together. In the context of this process, the emotional component is central to the ability and willingness to contribute. "While there is potential for learning in any situation, the greatest source of learning is from other human beings, in particular peers and patients" (Pitts 2010, p.106). Two aspects to the development of a collaborative reflective process might be considered:

1. Who is collaborating and co-reflecting; student peers, student and supervisors, experienced medics, doctors, patients, family carers, individuals from widely differing disciplines?

2. What systems or practices need to be put in place to foster other forms of reflection?

Whatever forms and groups might evolve from these possibilities, mutual trust and cultural changes will have to develop in tandem. The need for trust and a willingness to be open to the ideas and experiences of others, as well as one's own, may require new ways of thinking for productive working. The following offers a few possibilities for the future.

Possible directions for change

The case for patient involvement

Within a doctor-patient relationship, one might assume that from a position of reducing diagnostic error and increasing patient safety, the co-construction of health and wellbeing for the patient is crucial. Sinclair (1997) and West (2010) suggest that although psychological, sociological and narrative forms of understanding have been introduced into the medical curriculum, changes in medical culture are somewhat marginal. This said, there has been a definite push to promote patient-centred and self-care approaches within both primary and secondary care in the UK, though one might wonder whether this stems more from regulatory and audit purposes than from a desire to promote co-reflection with patients and clinicians, or patients' self-reflection.

Professional cultures of the future may need to increasingly build confidence and questioning into professionalism training, if changes are going to be anything but marginal (West 2010). Could there be a desire or need to promote collaborative reflections between medics and patients, in a bid to empower patients and co-construct an understanding to gain an optimum outcome for patient healing and wellbeing? Though many good clinicians would argue that this is what they do, more of a shift in the power relationship between the patient and doctor may be needed, along with some skilful interactions with patients to encourage a dialogue with reciprocal trust and willingness for both parties to disclose and reflect deeply.

The case for professional and inter-professional learning

Boud (2010, p.36) considers that reflection within professional practice "is a way of thinking about productive work, not strategy or technique", and further suggests that "we do need to move beyond older conceptions of reflective practice that are insufficiently rich to generate further work". We ought to be open-minded enough to consider other paradigms of reflection, experimenting with parameters such as the number of individuals involved and the form that the reflection takes. Reflection is often linked to continual professional development and continuing professional registration in the form of portfolios, reflective diaries and learning logs; reflection is coming to be used as a written proxy for current professionalism, and the document containing the

reflection as a quasi-assessment tool. Is this what reflection is, or has it much more to offer? Is there any reason why students can't reflect together as a group, or co-practitioners -can't produce understanding together? Reflective practice is usually conceptualised as the responsibility of the individual, and is assessed on that basis (Bradbury et al. 2010). Such conceptualisations tend to leave out reflections that consider workplace practices, workplace cultures and situated learning (Bradbury et al. 2010, p.82). In this way, social constructionist principles may be encapsulated within a socially contextualised framework. Working and learning as a member of inter-professional teams involves the development of a modified professional identity formed by learning and communicating together in an inter-professional community, and that has the capacity to gradually become a "community of practice" (Wenger 1998).

At Leeds, some elements of such a new paradigm for reflection have been implemented in an embryonic way. For example, medical students are engaged in inter-professional learning sessions over a period of three years, where Year 1 students from nine different healthcare professions work together in small groups on patient-safety matters to learn and reflect collectively. Opportunities for peer reflections in clinical settings for medical students are afforded by "Campus to Clinic" placements.

The case for transdisciplinarity and learning from other disciplines

Boud (2010, p.34) indicates the potential challenges for transdisciplinary teams coming together with a common purpose: there may be different traditions, cultures, thinking and ways of working, and this can apply to both academic disciplines and less formal occupational groups. As Boud (2010) suggests, there needs to be common ground with agreed expectations about the purpose for reflection and an appropriate outcome for the collaborative enterprise. "Co-productive relationships commonly start from situations in which there are differences in knowledge between parties, differences in skill and an imbalance of power – typically one side of a co-productive relationship has influenced the other" (Boud 2010, p.35). While healthcare workers from different disciplines might be considered to have a common ground, a purpose for co-reflecting and an appropriate target outcome (the best clinical outcome for patients), it is not an easy task to gain complete collaboration and co-production of understanding that results in the optimum outcome with and for the patient.

Alternatively, we might consider learning about "reflection for learning" from other disciplines dissimilar to our own, which is perhaps the central focus of this special issue. A move in medical education is to consider the use of the humanities in medicine to develop insights that will facilitate humane judgements aligned with technical judgements. A problem with the biomedical approach is that illness or disease is the object of investigation and the body a site for specific protocols. Through a battery of specialised tests, the body is "read" by doctors, nurses and other healthcare professionals; in the future these processes may be partly assumed by robotics. In this way, the individual's experience of being ill and their identity in dealing with the illness is often not part of the treatment.

A new medical-humanities strand introduced to Year 1 students will spiral through later years of the curriculum. Students are exposed to music, film, poetry and still images to consider how these works awaken feelings, thoughts and memories. This highlights the affective domain within reflexivity and is delivered prior to their "digital storytelling" presentation; it is thus positioned to encourage the use of "the arts" in this early, non-assessable piece of work. A preliminary study in the use of drama in medicine (Gamble 2015) indicated that following experience of drama sessions, third-year students were more aware of verbal and non-verbal communication in

themselves and others and had increased confidence, helping them capitalise on their placement experiences.

Conclusion

The development of reflective practice is certainly crucial for formative learning at the undergraduate stage of medical education, and throughout the clinician's continuing professional development. Tutors and students would benefit from open discussion of the metacognitive dimensions of learning and the theories underpinning the process of reflection to facilitate their reflective competence.

Facilitating reflective competence formally in the Leeds curriculum is emphasised by the learning opportunities and structured support the program provides. Developing self-awareness and competence to think about previous experiences, what is happening in the moment and what could happen in the future are imperative for improving the individual's own actions and those of others in a range of contexts and different time frames.

A number of topics and sessions are included in the spiralling curriculum, allowing students to develop reflective competency, both individually and collaboratively. These are delivered with support from an academic tutor or clinical supervisor. Having facilitated the concept of reflection with medical students, it is incumbent on the team of tutors to reflect on relative success and ways of continually improving learning and teaching for the future. I am pleased to report that this is accomplished at Leeds by a team of over 20 dedicated tutors – an effective, affective and reflecting community of practice.

References

Aronson, L, Niehaus, B, Hill-Sakurai, L, Lai, C & O'Sullivan, P S 2012. A comparison of two methods of teaching reflective ability in year 3 medical students. *Medical Education*, 46(8), pp. 807-814.

Baxter Magolda, M 1992. *Knowing and reasoning in college students: Gender-related patterns in intellectual development*. Jossey-Bass, San Francisco.

Bradbury, H, Frost N, Kilminster S & Zukas, M 2010. *Beyond reflective practice: New approaches to professional lifelong learning,* Routledge, Oxford.

Bloom, B S, Bloom, B S & Masia, B B 1964. *Taxonomy of educational objectives, Handbook 1: The cognitive domain.* David McKay Co. Inc., New York.

Boud, D 2010. Relocating reflection in the context of practice. In Bradbury, H, Frost, N, Kilminster, S & Zukas, M (eds.), *Beyond reflective practice: New approaches to professional lifelong learning,* Routledge, Oxford.

Boud, D and Walker, D 1998. Promoting reflection in Professional Courses: The challenge of context. *Studies in Higher Education,* 23(2), pp. 191-206.

Brown, A 2014. *Understanding learning experiences using reflective exercises in Campus-to-Clinic Placements for first year medical students*. MSc. Thesis in Medical Education, University of Leeds.

Dewey, J 1933. *How we think.* DC Heath & Co., Boston.

Ertmer, P A & Newby, T J 1996. The expert learner: strategic, self-regulated and reflective. *Instructional Science*, 24, pp. 1-24.

Fischer, M A, Harrell, H, Haley, H-L, Cifu, A, Alper, E, Johnson, K & Hatem, D 2008. Between two worlds; a multi-institutional qualitative analysis of students' reflections on joining the medical profession. *Journal of General Internal Medicine*, 23(7), pp. 958-963. doi: 10.1007/s11606-008-05-8-1.

Gamble, C 2015. *The thespian practitioner*. BSc. Thesis in Medical Education, University of Leeds.

General Medical Council 2009. *Tomorrow's Doctors*. Wiley-Blackwell, Oxford.

Gibbs, G 1988. *Learning by doing: A guide to teaching and learning methods*. Centre for Further Education Unit, Oxford.

Goleman, D 2001. *The emotionally intelligent workplace*. Jossey-Bass, San Francisco.
Gordon, J J & Evans, H M 2010. *Learning medicine from the humanities.* In Swanwick, T (ed.), *Understanding medical education: Evidence, theory and practice*. ASME: Wiley-Blackwell, pp. 83-98.

Greaves, D 2004. *The healing tradition: Reviving the soul of Western medicine*. Radcliffe Publishing, Oxford.

Hager, D 2008. Learning and Metaphors. *Medical Teacher,* 30, pp. 679-686.

Honey, P & Mumford, A 1992. *Manual of Learning Styles* (3rd ed.). Pearson, London.

Johns, C 1995. Framing learning through reflection within Carper's fundamental ways of knowing in Nursing. *Journal of Advanced Nursing*, 22(2), pp. 226-34. doi:1046/j.1365-2648.1995.22020226.x.

Jordan, P J & Lawrence, S A 2009. Emotional intelligence in teams: Development and initial validation of the Workgroup Emotional Intelligence Profile-Short Version (WEIP-S). *Journal of Management & Organisation*, 15(4), pp. 452-469.

Kahneman, D 2012. *Thinking Fast and Slow.* Penguin Random House, London.
Kaufman, D M & Mann, K V 2010. *Teaching and learning in medical education: How theory can inform practice.* In Swanwick, T (ed.), *Understanding Medical Education: Evidence, Theory and Practice*, ASME: Wiley-Blackwell, Oxford, p. 16-36.

Killion, J & Todnem, G 1991. A process for personal theory building. *Educational Leadership*, 48(6), pp. 14-16.

Kolb, D A 1984. *Experiential learning: Experience as the source of learning and development.* Prentice Hall, Englewood Cliffs, NJ.

Krathwohl, D R, Bloom, B S & Masia, B B 1964. *Taxonomy of educational objectives: Book 2 – affective domain,* Longman, New York.

Learman, L A, Autry, A M & O'Sullivan, P 2008. Reliability and validity of reflection exercises for obstetrics and genecology residents. *American Journal of Obstetrics & Gynaecology*. doi: 10.1016/j.ajog.2007.12.021.

Mamede, S, Schmidt, H G & Penaforte, J C 2008. Effects of reflective practice on the accuracy of medical diagnoses. *Medical Education*, 43(5), pp. 468-75. doi: 10.1111/j.1365 2923.2008.03030.x.

McNeil, H, Brown, J M & Shaw, N J 2010. First year specialist trainees' engagement with reflective practice in the e-portfolio. *Advances in Health Sciences Education: Theory & Practice*, 15(4), pp. 547-588. doi: 10.1007/s10459-009-9217-8.

McShane, S, Olekains, M & Travaglione, T, 2013. *Organisational behaviour: Emerging knowledge* (4th ed.). McGraw-Hill, Australia.

Meichenbaum, D 1985. Teaching thinking: A cognitive-behavioural perspective. In Chipman, S F, Segal, J W & Glaser, R (eds.), *Thinking and learning skills, Vol. 2: Research and open questions*. Lawrence Erlbaum Associates, Hillsdale, NJ.

Moon, J 1999. *Reflection in Learning and Professional Development.* Routledge Falmer, London.

Moon, J 2004. *A Handbook of Reflective and Experiential Learning*. Routledge Falmer, London.

Nietfeld, J L & Shraw, G 2002. The effect of knowledge and strategy on monitoring accuracy. *Journal of Educational Research*, 95, pp. 131-142.

Petty, G 2009. *Evidenced based teaching* (2nd ed.). Nelson Thornes, Cheltenham.

Piaget, J 1926. *The child's conception of the world.* Routledge and Keegan Paul, London.
Pitts, J 2010. Portfolios, personal development and reflective practice. In Swanwick, T (ed.), *Understanding medical education: Evidence, theory and practice*. Wiley-Blackwell, Oxford.
Rowling J K 2000. *Harry Potter and the Goblet of Fire*. Bloomsbury, London.
Sawyer, D n.d. Viewed 20 July 2015, https://www.uvm.edu/~dewey/reflection_manual/understanding/html.

Schön, D 1983. *The reflective practitioner: How professionals think in action*. Jossey-Bass, San Francisco.

Skinner, B F 1938. *Behaviour of organisms.* Appleton-Century-Crofts, New York.

Sinclair, S 1997. *Making doctors: An institutional apprenticeship.* Berg Publishers, Oxford.

Solms, M & Panksepp, J 2010. Why depression feels bad. In Perry, E K, Collerton, D, LeBeau, F E N & Ashton, H (eds.), *New horizons in the neuroscience of consciousness*. doi: 10.1075/aicr.79.23sol.

Swanwick, T & Buckley, G 2010. Introduction: understanding medical education. In Swanwick, T (ed.), *Understanding medical education: Evidence, theory and practice*. Wiley-Blackwell, Oxford.

Thiede, K W, Anderson, M C & Therriault, D 2003. Accuracy of metacognitive monitoring affects learning of texts. *Journal of Educational Psychology*, 95, pp. 66-73.

Van Manen, M 1995. '*On the epistemology of reflective practice', Teachers and Teaching: theory and practice*, vol. 1, no. 1, pp. 33-50.

Vygotsky, L S 1978. *Mind in society: the development of higher psychological processes*, Harvard University Press, Cambridge MA.

Wald, H S & Reis, S P 2010. *Beyond the margins: reflective writing and development of reflective capacity in medical education*, DOI: 10.1007/s11606-010-1347-4.

Wenger, E 1998. *Communities of practice*, Cambridge University Press, Cambridge.
West, L 2010. Really reflexive practice*: auto-biographical research and struggles for a critical reflexivity.* In Bradbury, H, Frost, N, Kilminster, S & Zukas, M (eds.), *Beyond reflective practice: New approaches to professional lifelong learning*. Routledge, Oxford, pp. 66-82.

White, C B & Gruppen, L D 2010. *Self-regulated learning in medical education*. In Swanwick, T (ed.), *Understanding medical education: Evidence, theory and practice*. Wiley-Blackwell, Oxford, pp. 271-282.