The competency matrix and the use of reflection and reflective practice to develop your learning and understanding.

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Introduction

In the most recent edition of AMSJ I discussed the concepts of intellectual humility, growth mindset, and situational awareness, and their roles in the development of a person’s professionalism and professional identity. In this edition of AMSJ I will discuss some theories of reflection and reflective practice, which are required to utilise the concepts previously discussed, and enable the optimal development of your learning and professional development. In doing this I will discuss the competency matrix, which is a learning development theory that is referred to frequently in healthcare learning, especially in the context of simulated learning environments. I will also discuss some of the flaws in the current theory that are preventing the recognition of optimal reflective practice.

The competency matrix

The ability or inability to recognise one’s limitations, and therefore subsequent learning, is described in a learning framework called ‘the competency matrix’, which relates to the learning of a new skill, behaviour, ability, or technique [1]. The framework is outlined in Figure 1 below:

![Figure 1: The conscious competency learning matrix – the four stages of learning. [2]](image)

Learners begin at stage 1: ‘unconscious incompetence’. As their skills increase they enter stage 2 of ‘conscious incompetence’. With greater skill acquisition, they attain stage 3 of ‘conscious competence’. Finally, as they master their skill, they attain stage 4 of ‘unconscious competence’. This framework has a vitally important aspect. When students learn, they commonly wish to know how their learning is progressing, and this is often done by form of assessment [3]. Awarding students marks or grades, such as 7/10 or 56%, does not give the learner any indication of what they actually need to do to improve their score if they were to do the assessment again. This is the basis of the newer paradigms of assessment such as programmatic assessment [4], which many medical schools are developing and implementing into their new curriculums. This narrative feedback encourages students to not simply settle for a ‘pass mark’, but develop a desire to reflect on performance and improve. Therefore, the ability of a learner to move through this matrix requires an ability to recognise which part of the matrix they are situated currently. Levels 2 and 3 are usually very...
obvious to learners, however levels 1 and 4 are not. Furthermore, having two distinct ends to learning suggests that there is a very obvious beginning and end, which is far too simple.

Consider this model with a person learning to drive a car. Before learning to drive, many people have been in a car and sense that driving might be relatively easy to do. This is stage 1, where they are not aware of how difficult it can be for the person who has never done it before. When they actually have their first lessons, they realise how difficult it is and become aware of how unskilled they are, realising that they have a lot to learn. This is stage 2. As they continue to learn to drive, every step is very deliberate and thought out; however, they begin to gain competency and recognise the things that they are doing right. This is stage 3. Finally, they get to a point where driving is no longer deliberately thought-out; they can change gear and brake automatically without thinking. They are at stage 4, and no longer aware of their own competence. However, if the person ages and loses reflexes and abilities, this level of skill will change, or even if they simply change cars and become unfamiliar with their environment.

Learning can also be displayed in a time cycle, with time spent learning on the x-axis, and level of learning on the y-axis, as seen below in Figure 2. This model displays the ‘dip’ that people describe as they attempt to acquire a new skill. The ‘dip’ actually reflects a person’s appreciation of what they know, and therefore relates to their confidence rather than their knowledge.

The lack of focus on reflection and ongoing learning in this early model of the competency matrix is one of the significant flaws. Stage 4 ‘unconscious competence’ has also been described as ‘mastery’ [5]. This phrase suggests that the learner can learn no more: they have mastered their skill. This has obvious risks in the field of medicine, where disease concepts and knowledge, investigations, and management are continually changing. If a practitioner does not maintain their level of skill, they will no longer have ‘mastery’ of their subject. This can easily occur if apathy or complacency start to creep into a doctor’s practice [6]. This suggests that reflective practice is required if a practitioner is to maintain their mastery. However, as stated in the previous paragraph, the practitioner needs to reflect at both ends of the matrix (stage 1 and 4), as well as throughout the middle stages of 2 and 3. Reflective practice needs to be an ongoing process throughout a practitioner’s career; always
present in the background or even the forefront of their thinking. This idea led to the development of a more recent version of the matrix, displayed in figure 3.

Figure 3. Reflective competence as a fifth level of the competency matrix.

(Courtesy of Will Taylor, Chair, Department of Homeopathic Medicine, National College of Natural Medicine, Portland, Oregon, USA, March 2007 [6])

Regarding teaching and learning, this fifth stage of competence has been described as 'conscious competence of unconscious competence', which is a person's ability to recognise and develop unconscious incompetence in others and themselves [6]. More simply, it is described as reflective competence, as seen in the diagram. The ability to recognise one’s ongoing learning needs, and the accumulation of one’s knowledge and application of said knowledge is a major aspect of emotional intelligence, and to recognise it in others is an even greater level of emotional intelligence. The link between this article and my two previous articles can be seen here, where emotional intelligence for personal learning and the learning of others is intertwined with situational awareness (within the learning environment) and intellectual humility (in your rate of acquisition of knowledge versus what there is still to learn). Having learned a skill, many learners will forget what they went through to learn it, and how they mastered it – they have forgotten the theory and application and have become simply functional. This has a major impact if they try to teach the skill to somebody, as they will struggle to impart the knowledge if they can’t recall how they amassed it. Therefore, they can make worse teachers than someone who has good ability at the conscious competence stage [7].

There are three other key aspects of learning that are neither demonstrated nor explained by this framework. Firstly, whilst the diagram demonstrates an overlap between each of the stages of the
competency model, as stated earlier, reflective competence should occur at all stages. In some circumstances learners are not always ‘unconsciously incompetent’ from the beginning, and accept that they don’t know what they are attempting to learn, so they are ‘consciously incompetent’ from the beginning. However, in other clinical circumstances they are ‘unconsciously incompetent’, suggesting that their place on the competency matrix has to be related to the context of what they are learning. Therefore, the diagram relates to a specific person learning a specific task. This problem has commonly been related to younger learners, which can be derogatory as they may well be more willing to accept that they have a lot to learn, compared with a more experienced learner who might believe they can’t be taught anything new.

Secondly, in some cases where the learner is at a level of being ‘consciously competent’, they become ‘unconsciously incompetent’ as further learning is attempted. This is related to the previously mentioned intellectual humility, and aligns with overconfidence as somebody acquires a new skill. Reflective competence should not be considered a fifth stage that occurs once a learner has attained ‘unconscious competence’, but rather a background quality that is always present.

Thirdly, whilst the initial diagram talks about learners going back from stage 4 to stage 3 and then stage 2, this only occurs if the person possesses reflective competence. If they do not possess this quality, they can regress from stage 4 of ‘unconscious competence’ directly to stage 1 of ‘unconscious incompetence’ without even realising. The current diagram does not show a link between unconscious competence and unconscious incompetence for when reflective competence is lost, and this process may occur. The point at which the transition from unconscious incompetence to conscious competence occurs has often been called the ‘light-bulb moment’ [8], but the light-bulb might not flash in the opposite direction, going from unconscious competence to unconscious incompetence if the learner doesn’t possess reflective competence.

What this learning model demonstrates is that whether or not a learner is actually ready to learn may not be so straightforward. The ability to possess the correct mindset to learn links with the previous discussion regarding intellectual humility and situational awareness. Whereas a growth mindset is about how you apply oneself to the learning environment once you are immersed in it, the competency matrix, and especially the beginning of the matrix, influences your ability to learn before you have even entered the learning environment. Since mentors and educators are not always present in a learner’s development, it is imperative that they impart the ability and the desire for the learner to develop and sustain reflective competence throughout their learning.

If learners have the intellectual ability, a desire to learn, and also possesses reflective competence, then they should eventually develop unconscious competence – mastery. If learners start to learn, but become overconfident in their learning and their abilities, they have lost the ability of reflective competence and will once again be unconsciously incompetent. If learners develop ‘mastery’ of the process and they maintain reflective competence, they will recognise when they are beginning to lose or have lost their ‘mastery’, meaning they can choose to reharness their skills or not to.

Therefore, the important aspect for learners and educators is not just ensuring how learners negotiate the competency framework, but how they are cognitively situated before they commence the learning process, and how they will remain cognitively situated throughout their ongoing learning.
Conclusion

This is the final instalment in the series of discussions around your professional identity and the development of your learning and professional practice. What I hope I have demonstrated is that a huge amount of responsibility for ongoing learning and development rests with the learner themselves, and not with assessment organisations and accreditation bodies. It is useful to know about theory and concepts such as the competency matrix, intellectual humility, growth mindset, and situational awareness, however the most important aspect is how you personally utilise these theories and develop them within your own learning and professional practice.

Your medical career can be long, and within that time your ability to learn and perform will inevitably change, and not always for the better. Therefore, it is vital that you recognise that your learning is there to help others – your patients. Your patients are the ultimate beneficiary of your learning and development, which is why it is paramount that you start to ensure it develops optimally as early as you can in your career. This requires reflecting with the right people at the right time in the right manner, including yourself.

References