Medical Educators: How we learn, how we teach and the symbiotic relationship between the two pursuits

Lynne Reid[1]

Corresponding author: Dr Lynne Reid lynne.reid@jcu.edu.au
Institution: 1. James Cook University
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Abstract

As both a medical educator and a life long student, I can appreciate the complexity of adult learning. In this reflective essay I explore the characteristics of my own learning styles and how this influences my teaching.

Keywords: Medical education; learning styles; the teacher as a learner; adult learning

Introduction

As both an educator and a student, I can appreciate the complexity of adult learning. In this reflective essay, I examine my own approach to learning and how that influences how I teach.

Recently I have been tasked with teaching fourth year medical students the principals of clinical investigations. Whilst I have a practical working knowledge of the subject, much of the content is theory that I was taught twenty years ago and promptly forgot after my own undergraduate learning came to an end. I was returning to a topic with some working knowledge but certainly no depth of knowledge. I needed to relearn the material to a much higher level that would equip me to transfer my knowledge to a group of students and confidently answer questions. Reflecting on my own motivation to learn in this instance, it is certainly the case that enhancing the student learning experience was my main drive.

Discussion

There are many theories that endeavor to explain the manner in which students learn. These theories also look at the issues which influence student learning. Teaching and learning within the healthcare profession is an interesting domain to explore the range of educational theories, the concepts and strategies relevant to this type of adult
learning. Whilst I have focused mainly on delivering teaching in recent years, I now find myself exploring and reflecting on my own learning.

Any theoretical model that tries to describe adult learning through educational theory will have acknowledged both motivation and reflection (Taylor, 2013). Here I look to examine the factors that influence student learning and reflect on my own experience.

Cognitive constructivism states that we construct our knowledge based on what we already know. We then make decisions about when and how to develop our knowledge (Cantillon P, 2010). The process of learning this subject involved me firstly, questioning myself. What do I already know? What do I need to learn? Vygotsky (1978, pp. 34-40) describes constructivism as benefiting learners through interactions with teachers and other learners. This was most definitely the case in my own learning journey. Without conscious planning, I entered a very efficacious learning environment. The intensity of my learning was at its greatest when I was interacting with my first term tutorial group. Whilst I had prepared myself by reading the coursework and revising my prior knowledge, I had not adequately tested my knowledge. My understanding of the matter was advanced both during the tutorial and after the tutorial, by the students' analysis of the subject and their questioning of me. Only when I was tested by other learners about what they needed to know, could I identify areas of my own knowledge that were lacking.

According to Dewey (1933) reflective practice involves five phases:

1. Suggestion
2. Problem Setting
3. Hypothesis or guiding idea
4. Reasoning
5. Testing

At the suggestion stage, the ideas and concepts that I was explaining to the students were being dissected by them, which in turn produced lines of questioning that I had not anticipated. As answers to the new queries were not readily available to me I was tasked with hypothesizing the answers and then finding the information with the resources that we had. I did this with my class as an exercise. The class split into smaller groups to explore the online resources, thus completing the problem setting phase. By gathering more information and exploring possible solutions I passed through the guiding idea phase to reach a stage of reasoning and considering all the possibilities available to me. By applying my newly extended knowledge of the subject, I was able to approach the subsequent lines of question with a new depth of knowledge.

By revisiting Vygotsky's theory and recognizing that learning occurs in a zone of proximal development (ZPD) I can acknowledge that collaboration with the students advanced my learning, beyond that which I could have reached on my own (Cantillon P, 2010, pp. 1-3).

Reflecting on my own experience, I can acknowledge that my understanding of the subject matter increased greatly through the active participation in information gathering and analysis with other learners. However, the actual skill that I chiefly developed was as a result of the experience that I had had. The process of acknowledging the limitations of my understanding, confronting the weakened teacher – student relationship in the context of a tutorial, but developing a strategy to compensate was extremely useful. To further extrapolate the value of this, it can be applied to experiential learning theory described by Kolb (1984, pp. 21-22). Kolb explains that learning is a four-step process. 1) The learner has an experience; 2) the learner observes and reflects on the experience; 3) the learner forms abstract concepts about the experience and 4) the learner tests the concepts in new situations.

Bloom's taxonomy further demonstrates a stepwise progression from superficial learning to understanding that can be applied and evaluated. This development in the 1950s, was an attempt to classify educational goals and
objectives. Ultimately the classification became a taxonomy of three domains which were the cognitive, affective and psychomotor. The initial publication concerned itself primarily with the cognitive domain (Bloom, 1956, p. 7). The cognitive domain is further split into six levels. The first level is knowledge and would include reading and remembering text, recalling lecture content and rote learning based on repetition. The second level is comprehension and would involve being able to explain a theory, able to translate or summarise. The next level is application. An example of application would be applying knowledge to a new situation or problem. The fourth level is analyzing and can be characterized as an ability to deconstruct the learning. Synthesis is the subsequent level where elements of learning are pieced together to create a new finding. The final level is evaluation and requires the learner to be able to summarise and assess the process and outcomes (Bloom, 1956, pp. 201-206).

It is apparent that many theories exist which can aid the medical educator but perhaps a ‘Multi-theories’ model as proposed by Taylor & Hamdy which centers on a five stage process of dissonance (challenging the learner's knowledge and finding it lacking), refinement (seeking explanations or solutions), organization (restructuring of ideas), feedback (where the newly acquired knowledge is tested by the teacher or peers), and finally consolidation (reflecting on learning experience and knowledge gained)(Taylor, 2013). In conclusion, student learning is influenced by multiple factors such as motivation, readiness and experience. Reflection and evaluation allow the learner to consolidate their learning but also move from a stage-wise process with an end point, to a cycle of learning. In a cycle of learning the acquired knowledge is applied, evaluated and tested, thus posing further questions to be answered.

**Conclusion**

In conclusion, as medical educators we can appreciate the benefit of learning with other learners and we can improve the learning experience for the students by testing our own knowledge before a teaching episode, during tutorials but also afterwards when reflecting on the delivery of the lesson. As educators we must realise that reflection is an important part of the process and leads to greater understanding.

**Take Home Messages**

Teaching and learning are naturally intertwined and the opportunity to reflect on our own learning styles and how these can influence our teaching is a great opportunity to develop a deeper understanding of new subject matter. We must take time out of our busy schedules to do this reflection which will add quality to our education programmes and the delivery of teaching.

**Notes On Contributors**

Dr Lynne Reid is a working General Practitioner who also works as a lecturer and academic co-ordinator for the undergraduate medicine at James Cook University. She is also the Lead Medical Educator for postgraduate General Practice training with Generalist Medical Training at James Cook University. Dr Reid is currently completing a Masters in Health Professional Education at James Cook University.
Acknowledgements

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Appendices

Declarations

The author has declared that there are no conflicts of interest.

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