Combining classroom and workplace teaching to deliver physical examination teaching: A theoretical approach

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Abstract

Medical educators work to better prepare students for clinical work by constantly evolving medical curricula. The ‘integrated curriculum’ was designed to be repetitive but progressive with the aim to reduce disconnect between basic science and clinical practice. The problems arose when classroom teaching and clinical exposure happen as isolated events rather than being part of the same learning experience. This piece presents a theoretical overview of the benefits and drawbacks of combining classroom and workplace teaching to deliver physical examination teaching. The Adult learning theory proposes that this methods of teaching would promote their interest in meaningful learning. Furthermore, combining cognitivism and constructivism approaches to create and then build on schemata offers an effective way to transfer learning. There is however recognition of the limitations that primarily focus of the individuality of students with which teachers can struggle to respond.

Keywords: Integrated curriculum; learning theory; Classroom teaching; Workplace teaching

Introduction

Medical educators in their quest to better prepare students for clinical work are constantly evolving medical curricula (Brauer and Ferguson, 2015). An approach first described by Harden, Sowden and Dunn (1984), was to integrate classroom based learning with clinical exposure – labelled the ‘integrated curriculum’. The curriculum was designed to be repetitive but progressive with the aim to reduce disconnect between basic science and clinical practice; enhance knowledge retention; and to develop clinical skills (Neufeld, Woodward and MacLeod, 1989).

The main concern raised with this method is that classroom teaching and clinical exposure happen as isolated events rather than being part of the same learning experience (Dyrbye et al., 2011). The connection between the two is important as it enables students to learn the context in which they should apply their learning (Bransford, Brown and
Cocking, 2000). Furthermore, studies show students are not often able to make these connection themselves, which if not facilitated by educators, hinder the transfer of learning (Yardley, Brosnan and Richardson, 2013). This highlights the need for better association between classroom learning and its clinical applications. This piece highlights the benefit of bringing the classroom to the workplace environment in the context of teaching clinical examination. This facilities classroom teaching on examination technique and theory to be followed immediately by relevant context-specific clinical correlation, in this case simulated patient practice.

**Theoretical approach**

There are a number of learning theories that can be applied to justify this teaching approach. The Knowles principles of adult learning proposes that adult learners interest in meaningful learning is correlated to their understanding of the topic relevance (Kaufman and Mann, 2010). Traditional medical education has often set students in a role as a child, concentrating on knowledge acquisition without appreciating its importance in the clinical context (Jolly, Rees and Coles, 1998). In medical education, as with the described approach here, to overcome the difficulty of merging basic sciences with clinical practice, teachers can apply an integrated approach.

In his book *Taxonomy of Educational Objectives: the Classification of Educational Goals*, Bloom *et al.* (1956) described three domains of learning, these were cognitive, psychomotor and affective. For medical education these domains can be considered as knowledge, skills and attitudes. Historically curricula have been set up in a pre-clinical and clinical phase. This meant that students developed their knowledge in classroom settings then later on gained skills in the clinical environment. Integration is favoured as it aims to combine the delivery of this information to increase the retention and ease of application of the learning (Fostaty-Young and Wilson, 2000).

Finally, this style of integrated learning applies aspects of both the cognitivism and constructivism learning theories. The classroom teaching uses the cognitivism theory which is based on how information is received, organised, stored and retrieved. An assumption of cognitivism is that existing knowledge must be present in order to compare and process new information for learning. The existing knowledge structure is also known as a schema (McLeod, 2003).

Piaget supported this theory of learning involving the formation and development of schemata. Schema are the basic building blocks of the cognitive model that he defined as "a cohesive, repeatable action sequence possessing component actions that are tightly interconnected and governed by a core meaning" (Piaget and Cook, 1952). They represent a way of organising knowledge, as Wadsworth (2004) suggests that schemata act as 'index cards' in the brain, telling an individual how to react to incoming stimuli or information. When Piaget talked about development of a person's knowledge, he referred to the increase in number and complexity of the schemata a person has.

The subsequent simulation teaching applies the constructivist approach – whereby teachers cannot simply transmit knowledge to learners but rather they need to construct it in their own minds (Olusegun, 2015). The approach works on the premise that learning is the result of 'mental construction' where students learn by fitting information together within the context of what they already know, how the idea is taught and also by students beliefs and values (Driscoll, 2000). This means that constructivist learning is an active process, so information may be given, but understanding cannot. Constructivism requires a teacher to act as a facilitator to help students be active participants in their own learning and make connections between old and new knowledge (Tam, 2000).

Furthermore, David Kolb (1984) theorised that 'learning is the process whereby knowledge is created through the transformation of experience'. This is famously represented by a four-stage learning cycle in which the learner can enter at any point but effective learning only occurs one all four stages are mastered. The simulation session fits both
this and also the behaviourism learning theory where it states that learning involves responses to stimuli from the environment.

It is well noted that a major drawback to the integrated curriculum were some student perceptions of the teaching style. In medical schools where they have reformed the traditional curriculum to the newer style, students have been compared from both curriculum style. The perceptions of students taught in the previous curriculum were that students under the reformed curriculum had a poorer learning quality. This could undermine the self-confidence of the students studying the current curriculum.

Another criticism is that schemas in the cognitive approach help to make learning more meaningful, but a learner is hugely disadvantaged when the schemas or prerequisite knowledge do not exist. To account for this, teachers need to ensure that teaching is appropriate for all skill levels and experiences which can be problematic. Likewise, constructivism learning is based on individual traits, which can again pose a delivery problem. Learners may each have different experiences within the learning process and teachers can struggle to respond to the multitude of student identities due to lack of resources available.

Conclusion

When designing this teaching approach each theoretical perceptive was considered to offer benefits and drawbacks - the context depends on the goals and learners. Since the learning environment is dynamic there needs to be a combinatory rather than a sole theoretical approach.

Take Home Messages

- An integrated curriculum is designed to be repetitive but progressive with the aim to reduce disconnect between basic science and clinical practice.
- This introduction of classroom teaching to the workplace environment in the context of teaching clinical examination facilities theoretical teaching to be followed immediately by relevant context-specific clinical correlation.
- Learners may each have different experiences within the learning process and teachers can struggle to respond to the multitude of student identities due to lack of resources available.

Notes On Contributors

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**Appendices**

None.

**Declarations**

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

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