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### Using Active Learning to Shift the Habits of Learning in Health Care Education

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#### ABSTRACT

In order to prepare competent health care professionals, changes in health care education are necessary. Professionals must be more self-directed and ready to apply knowledge in a dynamic manner. Learning by doing and utilizing an active learning approach can be a successful avenue to meet the challenge of cultivating higher order thinking and application of knowledge. This article discusses the use of active learning as a promising method for increasing the effectiveness of teaching and learning within any professional health care curriculum.

#### INTRODUCTION

Humans learn through continual exploration and interaction with the environment through activity and learn by doing. Learning is one of man's many occupations; however when placed in the context of a college classroom, learning takes on a different form. Traditional education often forces roles and routines that do not naturally mesh with the concept of doing. This article examines some of the constraints of traditional education and discusses the concept of active learning in educating health professionals.

#### Change in Pedagogy

Health care concepts are often learned via traditional teaching methods in the classroom and clinic. Instructors would metaphorically pour knowledge into students' heads via lectures with the hope that individuals would retain what is necessary and apply those concepts effectively in practice. This customary educational paradigm much like the "Container-Dispenser model" by Pollio assumed the transference of knowledge was primarily the instructor's job and students' minds were like empty receptacles.<sup>1</sup> Students were expected to passively absorb information mostly in silent isolation during a lecture, then later expected to recall the knowledge in a competitive manner.<sup>2</sup> Higher education has been challenged to enhance students' learning and to adopt a new paradigm of teaching.<sup>2-4</sup> With active learning, the responsibility for learning knowledge and skills shifts with role changes of the instructor and the student.

Professional health care education also traditionally promoted the transfer of knowledge in a rather master/student kind of scenario. Dewey outlined two methods for the practice phase of professional education: a) the apprenticeship method that emphasizes the development of skills (technique), and b) the laboratory method that emphasizes the development of reflective thinking (critical analysis) that underlies practice.<sup>5</sup> The apprenticeship method also assumed the instructor was the major "keeper of knowledge and skills" and information flowed in one direction from instructor to student. The challenge today is to encourage students to have a good foundation of meaningful learning in order to move beyond standard technical solutions and apply clinical reasoning.

In addition, employers are “demanding workers who are knowledgeable, flexible, and able to work in groups...(and who possess) moral character...and critical thinking.”<sup>3</sup> The new graduate in a health profession must possess knowledge upon which they may build successful clinical skills. Wilkins noted in pharmacy education, active learning promoted the development of abilities in addition to knowledge and attitudes that employers require.<sup>6</sup> Also, Gandy and Jensen suggested active learning may counteract the *banking concept of education* (depositing of rote information as quickly as possible into the student’s mind), and foster professional behaviors that better meet the demands of practice.<sup>7</sup> Active learning may produce a more well-rounded professional that incorporates knowledge, skills, attitudes and behaviors effectively.

After years of immersion in a traditional classroom setting, students may be resistant to changing their habits of learning. Dewey noted that students may be predisposed to respond in a particular way due to habits of thought.<sup>8</sup> According to Clark, habits once established are often hard to change.<sup>9</sup> Habits allow individuals to plan and predict, which for students means an economy of time and action when learning.<sup>8-10</sup>

Students matriculating from undergraduate education assumed a particular context for learning in a classroom. Individuals must value learning by doing and must find active learning meaningful in order to adopt different ways of learning. Active learning may change a student’s comfort zone but the use of active learning can positively shift habits of learning.

### **What is active learning**

Ryan and Martens note “active learning is more likely to take place when students are doing something besides listening.”<sup>11</sup> In addition to this idea, Bonwell and Eison, propose active learning with components of synthesis, application, or reflection.<sup>1</sup> Active learning is more than just “doing” but requires the student to “think about the things they are doing.” The insertion of video clips, hands-on exercises or demonstrations does not necessarily constitute active learning unless students are asked to *think about* the experience and further consider the concepts presented. A critical teaching moment can be lost unless a few minutes are allowed for students to reflect on what had occurred and what significance or meaning the experience has upon their learning.<sup>12</sup> John Dewey stated “an activity is continued into the undergoing of consequences, when the change made by action is reflected back into a change made in us, the mere flux is loaded with significance. We learn something.”<sup>13</sup> This use of reflection on action can be a very powerful learning tool.<sup>14</sup>

Creative classroom exercises and hands-on activities add to the flavor and texture of teaching and learning. However active learning takes this approach one step further by adding a component of reflection to allow the student to connect the learning experience to previously acquired concepts and consider what learning has taken place. Learning in this manner for health care professionals can be compelling.

### **Positive effects of active learning**

Silberman and Stalheim-Smith assert that active learning is an approach that can truly lead to meaningful, lasting learning.<sup>15,16</sup> Students engaged in active learning construct meaning by relating new information to that which they are already familiar. Anaya indicated active learning approaches do allow for a more successful learning environment and according to Bonwell and Eison, active learning promoted student achievement, encouraged motivation, and shifted students’ attitudes.<sup>1,17</sup> Research shows active learning works.<sup>18</sup>

Kezar’s study on educational trends demonstrated that the use of active learning methodology could result in students’ improved critical thinking, nonverbal communication, writing, and speaking.<sup>19</sup> Comparing active versus traditional teaching styles, McCarthy and Anderson discovered that students who participated in active learning scored higher on standard evaluations than peers who received traditional instruction.<sup>20,21</sup> Active learning may also enhance the development of independent learning skills and the practical application of information.<sup>22</sup>

Educational researchers have emphasized that learning is “not a spectator sport” and that in fact, students learn more effectively when they become actively involved.<sup>23</sup> Incorporating active learning into the classroom will promote self-direction, enhanced problem solving, and critical thinking skills.<sup>24</sup> However in order to accomplish this end, educators and students alike must embrace a “hands-on, minds-on” pedagogy.<sup>25</sup>

### **Considerations for incorporating active learning approaches**

Optimal learning environments should be a multi-dimensional and multi-sensory experience. According to research in neuroscience by Black, stimulus rich environments promote brain functioning and learning.<sup>26</sup> Therefore, educators that desire to

reach a classroom of learners with differing learning styles are compelled to teach utilizing more than just an auditory method such as lecturing. Teaching that is sensitive to diversity in learning styles and incorporates learning from various sensory modes will enhance student success and challenge learners to attempt new skills.

As discussed earlier, the pairing of active learning with collaborative learning is a natural process. The use of collaborative learning techniques is well documented in the educational, psychological, and medical education literature. Students learn from each other and from the activity of helping one another.<sup>27</sup> A fascinating study by Ruhl, Hughes, and Schloss indicated that if the instructor spoke just six minutes less and incorporated pauses within the lecture for students to interact with each other and compare notes, students learned more.<sup>28</sup>

Johnson, Johnson, and Smith note with increased pressure on students to learn and to apply difficult material, social support within the educational process becomes increasingly important.<sup>2</sup> Interaction with others promotes a supportive learning environment that assists students in constructing meaning and purpose to their learning. Collaborative learning is a departure from the traditional teacher/lecturer-centered environment in higher education.<sup>29</sup> The use of collaborative learning and active learning go hand in hand with changes in pedagogy.

Some of the identified benefits of learning collaboratively include: a) better integration of skills, knowledge, and problem solving abilities thereby increasing self esteem, b) a more positive attitude toward learning c) stimulation of critical thinking, d) a greater sense of community between students, and e) enhanced individual responsibility for learning.<sup>30,31</sup> Collaborative learning facilitates teamwork, which prepares students for working as future members of a health care team.

Brufee indicates that collaborative learning challenges the traditional view of a teacher's authority and requires a re-acclimation of students in the experience of learning.<sup>27</sup> The culture of the classroom shifts from individual assignments and an instructor's sole explanation of material to students constructing meaning with others in connection to the classroom experience.<sup>29</sup>

## RESULTS OF ACTIVE LEARNING

Although active learning has been proven to produce positive educational outcomes, resistance to its incorporation in health care curricula exists. Active learning should be utilized with a combination of approaches but should not be the sole method of teaching.<sup>21</sup> It is also not the intention of the authors to suggest that traditional lectures be wholly replaced with active learning. Educators must always consider the purpose behind exercises that may appear solely entertaining to students or faculty unfamiliar with their value.

Instructors may resist using active learning approaches for many different reasons. Active learning requires time and effort to consider the purpose of the interactive experience, considerable planning and implementation of well thought out learning activities, and time for reflection. Faculty may consider the process too time consuming. Instructors must recognize the fact that students often evolve as professionals in a dynamic, non-linear manner and therefore students need time in their learning process to reflect and absorb the knowledge and skills. Faculty members may perceive pressure to cover an enormous amount of course content in a limited amount of time and therefore refrain from utilizing active learning approaches.

Individuals unfamiliar with active learning may choose to continue to teach in the same manner used previously or how they were taught. Some instructors may feel as though they do not have adequate experience with this method of instruction to effectively employ active learning strategies or that students will not be receptive to changes in their habits of learning.

Some students may not appreciate active learning and consider the approach too novel. This method requires students to enter the classroom prepared and to engage in critical thinking. Active learning takes effort. Some students do not value active learning for this reason. Yet if an instructor takes the time in the beginning of the course to explain the active learning approach and discuss the benefits of such an approach, then shifting habits of learning will be less abrupt.

Faculty should elicit support from administrators by explaining how active learning links with their teaching philosophy as not all institutions may heartily embrace this approach. Therefore, "utilizing an active learning approach will not only shift habits of learning with students, but may shift comfort levels and habits with institutional administration systems."<sup>21</sup> The changes in institutional culture should be approached as evolutionary, rather than revolutionary processes being mindful to include formative and summative assessment to demonstrate efficacy of active learning.

## DISCUSSION

It is critical for instructors to assess the outcomes of incorporating active learning approaches. Are students learning better? Formative, timely flow of information is necessary for checking if students are finding the active learning approaches useful. According to Angelo and Cross, classroom assessment can be "learner-centered, teacher-directed, mutually beneficial, formative, context-specific, ongoing and firmly rooted in good practice."<sup>32</sup> Using ongoing classroom assessment techniques allows the instructor to ascertain if there is a gap between the teaching and learning.<sup>32</sup>

Examples include asking students to identify the most confusing point of the lecture after a class session or writing a brief summary of their learning, exercises that both require reflection on learning. Some assessment techniques utilize collaborative learning such as having students pair up and share what they believe are the key points covered. It is the underlying processes of teaching that one must consider assessing when using the active learning approach.

## CONCLUSION

The authors suggest that instructors who incorporate active learning in their curricula also consider formative and summative assessment methods to examine the efficacy of this approach. In addition, the need for longitudinal study to determine the correlation between successful clinical practice and active learning is evident. Active learning is an approach to teaching and learning that facilitates deep and meaningful learning by engaging students in "manipulating" knowledge.<sup>21</sup> Health care education would benefit significantly by incorporating active learning into curricula. We do not necessarily have to teach more, we have to teach better. Active learning approaches enrich and empower the learning of concepts, and it encourages the development of skills and behaviors required of future practicing professionals.

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