Active Learning in Academic Environments

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Active learning is a technique that can be thought of as cogitatively engaging students' minds through externally stimulated thinking and physical actions in order to increase retention of presented material (Bonwell and Eison). The literature on active learning is wide ranging and often at odds with itself in terms of practice, utility, and implementation. A significant amount of research seems to closely link active learning with increased student development and knowledge retention. However, some researching the topic have reached the opposing view, concluding that active learning can actually be detrimental to student progress and should not be introduced to the classroom.

A History of the Practice

The concept of active learning has been utilized in academic environments for decades, perhaps even centuries (Mednick, 1964). However, the practice of widely incorporating its use into American classrooms seemed to gain popularity in the 1980s, and was formalized into the educational pedagogy in 1991 when Charles Bonwell and James Eison put forth their research. They observed that traditional university education was presented in lecture format to large groups of students. Common teaching practice asserted that within the context of receiving a lecture, students were actively listening and likely taking notes on the material, and therefore were actively involved in the learning process. However, Bonwell and Eison asserted that students were not being engaged in these common classroom techniques, and set for the instructors should identify teaching strategies that promote students actually doing things and subsequently thinking about what it was that they did in order to better retain presented material and desired educational outcomes. (Bonwell & Eison, 1991).

By having students actively participate in their education and challenging them to physically engage themselves into an activity showed researchers that not only did mastery of content compare equally if not better to traditional lecture techniques, but material retention also demonstrably increased in a predominance of students as well. (Bonwell & Eison, 1991) This research seemed to correlate to similar findings on lectures and their use within the classroom by John Penner at the University of Michigan in the early 1980s. Essentially, researchers identified

that many teachers are either not personally engaging or dynamic enough when presenting lectures and thus this technique was not effective in educating most students (Benjamin, 1991). As our system of higher education continued to grow and more students found themselves within our university system, class sizes have grown. Reaching larger groups of students through lecture was often relied upon due to resource limitations, ease of information distribution, or instructor comfort. The use of lecture for larger groups can be effective and useful with the right instructor presenting the information. (Lowman, 1984). However, as educational administrators began focusing greater attention onto smaller class sizes and student-teacher ratios, more diverse and effective methods of instruction were needed. Active learning fit this role well and its proven ability to increase student knowledge and retention has kept this technique in the forefront of today's academic classrooms.

Variations of Practice

One of the most effective aspects of the active learning technique is that there is not a prescriptive model that instructors must follow to reach their students. Its effectiveness is often only limited by the instructor's creativity. Some different techniques include student-to-student teaching, student led discussions, group/team learning cells (McKeachie, 2002), Socratic dialogue, classroom debate between students, writing exercises (both in and out of class), decision making exercises, simulation, computer exercises, and the integration of real-life experiences into discussion or scenarios (Hess, 1999).

In student to student teaching, sometimes referred to as peer learning, students are given a problem or decision making exercise in which they must come to a well reasoned conclusion. Through this technique, students leverage their unique experiences, knowledge, intelligence, goals, and skills to arrive at a collective answer. (McKeachie, 2002) This technique benefits from the wide ranging traits and characteristics with which students come to the class, and then focuses these abilities onto a common problem pertaining to the academic course. Not only are students often thinking through complex problems, but in coming to their answers they are learning from the experiences and thoughts of their peers. (Hulse, 1975)

Student led discussions and group learning exercises bring many of the same benefits, but do so by slightly altering the group dynamic or the role of each student within the class. It should be noted that while students actively participate in discussion, debate, or collaborative thought – the instructor remains present and engaged throughout all exercises. This can be done in either an overt or covert manner, dependant on desired outcomes and teaching goals. This ensures that students are still meeting the instructors teaching objectives and reaching course outcomes that are driving the education. (Hess, 1999)

Hands-on learning, to include decision making exercises, simulations, out-of-class scenario exercises, written exercises, and real-life experiences, is another variation to active learning and lends itself well to most areas of education. As a majority of students are visual learners who

gain significant mastery of skills through practical application of their knowledge (Mednick, 1964), the ability to allow students to physically engage in the topic of discussion promotes retention of the material. (Burke & Smith, 2007). These hands on techniques of active learning encourage students to apply the concepts they have gained through reading, lecture, or other passive learning environments and put them into practice. In doing so students are relieved of common classroom boredom, energized to take kinetic actions, and retain the lessons they learn more easily in the cognitive process. (Burke & Smith, 2007)

Potential Limitations of Practice

In spite of research and anecdotal evidence supporting its utility and success, active learning is not practical in every academic environment. While its effectiveness in small groups has been verified with little dispute, many universities are still faced with the lack of teachers or resources to make the practice a reality (Benjamin, 1991). With large, multi-hundred student lecture halls still prevalent through state universities, active learning is often impractical and thus unused.

Additional limitations include Institutional Priorities, Students' Expectations, Course Objectives, Preparation Time, Teacher Resistance, and Risk. (Hess, 1999) All are very valid concerns and impediments that make active learning more difficult on instructors to implements. However, through effort and time, nearly all can be overcome and benefit both the teachers' abilities and the students' education. This requires course directors or instructors to produce creative implementation strategies for their subjects that will not only engage students, but also ensure course outcomes are met (McKeachie, 2002).

The Future

With increased forethought, creativity, and willingness to experiment with active learning in the classroom, dogmatic practices can be broken and student mastery and retention can dramatically improve. The use of active learning techniques and methods within today's classrooms are effective, engaging, and often entertaining, and will continue to increase the knowledge and abilities of today's student.

References

Benjamin, L. (1991) Personalization and active learning in the large introductory psychology classroom. *Teaching of Psychology* 18(2) 68-74.

Bonwell, C & Eison, J. (1991) *Active Learning: Creating Excitement in the Classroom*. Washington D.C.: Jossey-Bass.

Burke, H. & Smith, C (2007) *Archaeology to Delight and Instruct: Active Learning in the University Classroom*. Walnut Creek, CA: Left Coast Press

Hess, Gerald F. (1999) Principle 3: Good Practice Encourages Active Learning. *Journal of Legal Education*, 49:3, 401-417

Hulse, Stewart H. (1975) *The Psychology of Learning*. New York: McGraw-Hill Book Company

Lohman, Joseph (1984) *Mastering the Techniques of Teaching*. San Francisco, CA: Jossey-Bass.

McKeachie, Wilbert J. (2002) *Teaching Tips: Strategies, Research, and Theory for College and University Teachers* (11th ed). Boston: Houghton Mifflin Company

Mednick, Sarnoff A. (1964) *Learning*. Englewood Cliffs, NJ: Prentice-Hall Inc.

Pratton, J. & Hales, L. (1986) The Effects of Active Participation on Student Learning. *Journal of Educational Research*, 79:4 210-215.

Annotated readings:

Browne, M. N. & Keeley, S (2001) *Striving for Excellence in College: Tips for Active Learning* (2nd ed.) Upper Saddle River, NJ: Prentice Hall, Inc.

This book provided an insight on active learning from a student perspective, and provided arguments, exercises, and discussions that are meant to help a student improve their classroom learning abilities. Much in the same way that instructors research learning techniques and attempt to integrate them into their classrooms for increased student understanding and retention,

this book attempts to do the same for students. The authors focus students on attitudes, encountering active learning within the classroom, and external conditions that will impact their ability to gain and retain information throughout their educational experience. This is an interesting look from the "other side" on the active learning and how to best embrace it.

Clark, Rosemary (2009) "What I See is Mere Masquerading as Learning." *The Guardian (London)*, March 17, 2009

This article addresses the common impression that active learning must involve physical activity, and notes that activity alone may simply be a distracting diversion to the pursuit of knowledge. Rather, the author stresses that active learning focuses on a complete conceptual understanding, reinforced through application in different contexts and various educational activities. The author also provides an interesting opinion on the use of group work in relation to active learning, and how it has become almost dogmatic in today's classroom. It is presented that while sometimes group work is beneficial, a multitude of practices need to be incorporated into the classroom to keep the student engaged and avoiding boredom.

Evans, R & Anthony, J (1991) "Active Learning: Students and the School Budget Process." *Social Studies* 82:2, 56-61

This study from a computer engineer and high school teacher illustrates the literal interpretation of active learning in the form of high school students delving into an understanding of the local school board budgeting process. The students conducted active polling and research throughout the community, using civic interaction and public voting records to understand the process of local school funding. While the study focuses on an isolated study involving the students of Nishayuna High School, the broader conclusion drawn by the authors is that students from the high school gained a significantly broader and deeper understanding of community politics and civic interaction through the method of active learning than they would have through other more standard methods such as lecture or readings.

Haas, Mary E (1987) "Geography and the Active Learning Bulletin." *Journal of Geography*, 86:2, 76-77

This short work discusses the use of active learning in combination with historical education techniques such as individual research, reporting, information retrieval, and critical thinking exercises. The interesting aspect of this article however, is that it is focused on the elementary level of education rather than at the university or post graduate level that most research focuses on. Through the use of creative education involving murals, puzzles, computer software, and summarization activities, students are shown to dramatically improve their geographic skills and application of knowledge through active learning.

O'Sullivan, Roisin (2009) "Back to School?" *Business and Finance*, August 27, 2009

This piece specifically addresses post graduate professionals who have recently left the work force in an effort to earn their Master of Business Administration degrees and are encountering a new and somewhat unfamiliar environment in the classroom. Since the completion of their undergraduate degree, many students are noticing a dramatic shift toward active learning and the impact it is having in terms of gaining added knowledge and skills that will benefit their future earnings potential. Through active learning techniques – gained in both distance and classroom learning environments – MBA students are concluding that their decision to seek added education to enhance their resumes and abilities are greatly enhanced by active learning techniques within the classroom.

Penner, Jon G. (1984) *Why Many College Teachers Cannot Lecture: How to Avoid Communication Breakdown in the Classroom.* Springfield, IL: Charles C Thomas Publisher

This book provides an insight into the common use of verbal lecturing in university classrooms and lecture halls and discusses both the common pitfalls of this technique, as well as how integration of active learning techniques can enhance the instructor's ability to reach students of varying learning styles. It is written clearly and with a straight-forward style that focuses on the teacher, teaching methods, and the student. Through a focused look at the lecture process – to include the many pros and cons there within – the author aims to make the reader a better educator. This comes in the form of being a better lecturer, as well as incorporating active learning techniques into classroom presentation.

Richardson, B.L, Wuilleminm, D. B., & MacKintosh, G. J. (1981) "Can Passive Touch be Better Than Active Touch: A Comparison of Active and Passive Tactile Maze Learning." *British Journal of Psychology* 72:3, 353- 362

This study focuses on those active learning techniques focused on physical movement or exertion (rather than on simply cognitive activity alone). In their study, the authors compare two groups of 30 subjects that are trained on solving a "blind" maze, using only the feel of their fingers to guide them to a sort of "braille marked" finish. The study concludes that those subjects who were coached to be passive (ie., told to keep their fingers steady while the maze below their fingers was moved for them) demonstrated greater retention of their problem solving when tested one week later than were those who were told to actively explore the maze while it remained unseen but moveable. While this physical activity could be considered a component of active learning, it seems to only illustrates one example of the field, and I don't feel it provides

any dramatic or revealing conclusions regarding the effectiveness of active learning in a classroom.