Collaboration and Communication in the Online Classroom through a Brain-Based Approach

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ABSTRACT

Utilizing brain-based learning strategies in the classroom encourages the creation of learning environments that are inviting, engaging, and meaningful. Information and communication technologies used in online classes can be enhanced and made more meaningful for students by applying a brain-based approach. This paper examines the use of brain-based learning in an online environment to build an inviting and collaborative cultural experience for learners. A brain-based model is explored to illustrate effective teaching strategies that can be implemented in an online learning environment. Empirical research and analysis are presented in a research study along with a theoretical evaluation of how incorporating brain-based strategies in online learning can positively affect overall student development and online culture.

Keywords: Brain, Brain-Based Approach, Collaboration, Communication, Culture, Distance Learning, Online, Student Learning, Teaching, Technology

INTRODUCTION

Incorporating brain-based learning strategies in an online course provides opportunities for instructors to create engaging learning environments that motivate and stimulate student learning. Through the use of brain-based methods of instruction in pedagogy, learners focus distinctly on performance and ultimately understanding of core course concepts.

Within higher education, online learning is being offered more readily. Many instructors teaching online courses are just beginning to think about best practices as they become more comfortable and familiar in this medium. Other first adapters who are already comfortable with teaching online are continually seeking ways to improve upon their pedagogy, the course, and the overall delivery of the content.

When working with learners in a classroom setting, whether online or face-to-face, student
attention must be gained so that course content can be examined more critically. In addition, it is important that a course be designed so that it is inclusive for all students and meets diverse learning needs.

Brain-based learning is defined as a “systematic process of conceptualizing how learning takes place in a stimulating environment and through a systematic approach, and then, how to best facilitate this process” (Houff, Klinger, & Coffman, 2013, p. 2062). Brain-based instruction focuses on the learner, the individual process of learning, and the ability to incorporate new information into an existing schema. The use of brain-based learning strategies is one best practices approach that can be integrated into an online learning environment to help instructors design challenging and meaningful course content that resonates with students. The main focus of this paper is to utilize the strategies of brain-based instruction to provide a framework for faculty to embed the brain-based model of instruction into online courses. This paper demonstrates how using brain-based learning can create a collaborative cultural experience whereby student interest, motivation, and ultimately learning is enhanced.

Brain-Based Research and Link to Education

First introduced in the 1960’s, neurophysiology of learning continues to be explored. Currently, there remains limited scientific information about the human brain and learning. The brain and how it interacts with the body and learning is limited due to its complexity. Brain science still needs to be better translated into brain-based instructional strategies that educators can directly apply into their instruction.

Brain-based learning takes place when two cells, called neurons, communicate with one another. As neurons begin the process of gathering information, they grow dendrites. This is because the brain continually searches for meaning. As it searches, dendrites are able to multiply.

As dendrites multiply, a chemical reaction occurs through a synapse. Synapses are responsible for information passing between neurons. Through recall, chemicals and neurotransmitters are released into the endocrine system which is connected to the synapses, altering and intensifying our conscious experiences.

The human brain is constantly seeking both meaning and patterns to find relevancy to the information it is confronting. Researchers have identified this occurrence as neural plasticity. Plasticity is important because it provides the means through which the brain can change its structure and overall function from each external experience that it encounters (Wolfe & Brandt, 1998). The brain is extremely adaptable and constantly changing as we learn new information. It is those changes that account for learning.

Brain-based learning requires a systematic process of conceptualizing how learning takes place in a stimulating environment and through a systematic approach, and then how to best facilitate this process (Houff et al., 2013). Learning new skills can be difficult, but with practice these skills become automatic. This automaticity is the learner’s neural connections being created and the principle of plasticity at its most basic level.

The constant growth and development of the brain is significant. It is continually developed through interaction with the environment and by engaging students with patterns and new meaning through which knowledge can be gained. Prior knowledge is also important.

Differentiation and the focus on individual learning styles are incorporated into this method of instruction to help build on the individual strengths of the learner, but at the same time provide a collaborative learning environment built on activity and learning problems. This builds on the learner’s prior knowledge and skills so retention of the new knowledge gained is increased (Gardner, 1983; Sousa & Tomlinson, 2010).

The ever changing and dynamic ability of the brain provides information to educators that a learner’s brain has the ability to update and
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