Dual Coding Learning Theory

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Introduction

The learning theory that I will be highlighting in this paper is that of Dr. Allan Paivio and his Dual Coding Theory (DCT). To summarize the Dual Coding Theory, Paivio believes that if we learn information through more than one sensory pathway to our brains, then our brains will be able to recall, remember, retrieve and access the information more effectively and efficiently. Paivio believed that verbal and non-verbal learning are coded or patterned differently in our brains but when we use our memory or recall, both the verbal and non-verbal information work together. For example, if we hear the word “Band-Aid” (verbal) we can also picture the word “Band-aid” visually (non-verbal) in our heads. These are acts of cognition and recognition. Learning would then occur when information is coded both verbally and non-verbally and recalled simultaneously or as Paivio theorized, via dual coding.

Background

One of the reasons why I choose the theory of Allan Paivio was that he is a Canadian theorist and still alive today. He was born in Thunder Bay, Ontario in 1941 and retired Professor Emeritus at the University of Western Ontario. Allan Paivio holds three degrees which he received from McGill University and a doctorate in Psychology. He has published over 200 articles, five books and other notables. He has a long standing career, well over forty years, researching cognition and memory and still attends his office on campus several times a week. His theory, Dual Coding Theory, although years old, seems to be ever present and appropriate today in this technological age. Dr. Paivio was also crowned “Mr. Canada” in 1948, winning a bodybuilding competition and appeared on the cover of a famous muscle building magazine.
Role of the Learner

The DCT encourages the learner to take an active role in their own learning. This theory asks the learner to listen to the lecture with their ears, picture the lecture in their head and marry the two together. Dr. Paivio seems to be a theorist with a theory of the future. One of the fastest growing trends in education today is technology in the classroom. When we hear information, we learn it quicker and better when we can also visualize it. This theory relies heavily on the learner’s memory. When the learner is tasked to recall information, the memory of the information follows along two separate pathways and the learner can conjure the information both verbally and visually. Simple memorization of the words is not sufficient within this theory for the learner. In order for the learner to actually learn concepts, she must memorize the words and also be able to visualize and describe them in her head.

With iPods, iPads, and smartphones in the classroom today, the student may listen to the verbal lecture of the educator and simultaneously watch the skill being demonstrated in the palm of her hand on her cellular phone. It seems that with the Dual Coding Theory, the iPad is the learner’s best friend. Dr. Paivio could not have anticipated the emerging technology of our future, however the technology has certainly echoed his theory.

Role of the Educator

The role of the educator within Paivio’s theory is to provide the visual picture of learning along with the verbal information of learning. The educator must be proficient in her use of emerging technology such as simulation training, hands on learning, virtual classrooms, smartphones, iPads and social media formats as Second Life and Facebook. We must be able to
navigate the internet, distinguish fact from fluff and understand the terminology that goes hand in hand with new technology.

The instructor may need to become the student if she cannot use these tools effectively in the classroom. This can be a daunting task. For many of us, change is uncomfortable; technology is overwhelming and even our desktop computers are scary. We are happy in our Luddite bubble; chalk and video cassettes clutched firmly in our hands. We are content to say writing our lessons on the black board was good enough for our parents, it was good enough for us and it will be good enough for the learners of today. Some of us resist emerging technology at all costs.

Classroom Examples

An example of DCT in the classroom involves a verbal lecture on the division of cells within the human body followed up by a video presentation that reinforces the verbal information. The learner receives verbal information from the lecture and non-verbal information from the video. The learner associates the non-verbal pictures with the verbal lecture and memory and recognition occur.

A second example is simulation training of a catheterization procedure. The learner watches the visual demonstration, associates the mental pictures with memory and is then able to verbalize the procedure to the instructor while visualizing the procedure in her head. In this example, the learner can use words as triggers to recall information in our memories.

A final example of the DCT in the classroom occurs when the educator shows a black and white transparency of the anatomy of the human heart. The educator describes that left side of the heart’s blood supply as red in colour due to its high oxygen concentration and describes
the right side of the heart as blue in colour due to its low oxygen concentration content. The learner then colours the left and right chambers in their appropriate colours with the stylus on their iPad diagram. The brain is then able to recall and associate the red colour with high oxygen on the left side of the heart and the blue colour with low oxygen on the right side of the heart.

Conclusion

As stated previously, Dr. Allan Paivio seems like a theorist of the future. Even though he understood that we learn effectively through verbal and visual information together, I doubt he thought that the visual presentation would be so stimulating, saturated and prolific as it is in the 21st century. We live in a high def, 3D society and expect instant gratification. Perhaps Dr. Paivio’s theory is more relevant today than when he first developed it years ago.
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References


http://www.lifecircles-inc.com/Learningtheories/IP/paivio.html

http://pediaview.com/openpedia/Allan_Paivio