

Application of Neuroscience in Aligning Instructional Design to Student Learning Style

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Abstract : Teaching is a very dynamic profession. Teaching Science is as much challenging as Learning the subject if not more. For instance teaching of Chemistry. From the introductory concepts of subatomic particles to atoms of elements and their symbols and further presenting the chemical equation and so forth is a challenge on both side of the equation Teaching Learning. This paper combines the Neuroscience of Learning and memory with the knowledge of Learning style (VAK) and presents an effective tool for the teacher to authenticate Learning. The model of 'Working Memory', the Visio-spatial sketchpad, the central executive and the phonological loop that transforms short-term memory to long term memory actually supports the psychological theory of Learning style i.e. Visual -Auditory-Kinesthetic. A closer examination of David Kolbe's learning model suggests that learning requires abilities that are polar opposites, and that the learner must continually choose which set of learning abilities he or she will use in a specific learning situation. In grasping experience some of us perceive new information through experiencing the concrete, tangible, felt qualities of the world, relying on our senses and immersing ourselves in concrete reality. Others tend to perceive, grasp, or take hold of new information through symbolic representation or abstract conceptualization - thinking about, analyzing, or systematically planning, rather than using sensation as a guide. Similarly, in transforming or processing experience some of us tend to carefully watch others who are involved in the experience and reflect on what happens, while others choose to jump right in and start doing things. The watchers favor reflective observation, while the doers favor active experimentation. Any lesson plan based on the model of Prescriptive design: C+O=M (C: Instructional condition; O: Instructional Outcome; M: Instructional method). The desired outcome and conditions are independent variables whereas the instructional method is dependent hence can be planned and suited to maximize the learning outcome. The assessment for learning rather than of learning can encourage, build confidence and hope amongst the learners and go a long way to replace the anxiety and hopelessness that a student experiences while learning Science with a human touch in it. Application of this model has been tried in teaching chemistry to high school students as well as in workshops with teachers. The response received has proven the desirable results.

Keywords : working memory model, learning style, prescriptive design, assessment for learning

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