



## IMPORTANCE OF INSTRUCTIONAL DESIGN AND LEARNING STYLES ON IMPROVING ACADEMIC ACHIEVEMENT OF STUDENTS IN SCIENCE

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### ABSTRACT

The present article emphasizes the importance of instructional design and learning styles to improving the academic achievement of students in science. Science subject require deeper understanding to learn different concepts and perceive the same. The instructional design and learning styles has unique power for improving the academic achievement of students in science. It is proved from different research studies conducted in abroad and India. Most of the studies are recommending that both instructional design and learning styles are most preferable approach to improving the academic performance of students in science. Therefore, the present article reveals the importance of instructional design and learning styles of students to improving their academic performance in science.

**KEYWORDS :** Instructional design, learning styles, Academic achievement in science

### INTRODUCTION

Teaching and learning are the main components of the system of education. This system formally runs in school. The students learning takes place in classroom environment. So if the classroom environment is effective the system of education is successful otherwise no one can save it from destruction. Teaching/learning situation directly or indirectly depends upon learning styles. Different theorists and educationists have defined learning styles in their own way. They believe that this is an important concept to be studied. The concept of style helps to understand that how the learners are same with each other, and how they differ in terms of learning. Instructional Design is the plan, organization for the effective learning of the students. Instruction is not only the training, but the development of the new technology, presentation and representation of the reality or information change. Therefore; flexibility, adaptability and availability of resources, instructional materials selection criteria are so important concern for the meaningful learning of the students. From the eclectic approach, students should face with more than one alternative for learning atmosphere to match content level with suitable materials, strategies and theories. In addition to this, teachers have great responsibility to organize the instruction with integrating content level of knowledge and selection of attractive, productive materials within learning-teaching process for providing equal opportunities, standards, having experiences about reality for students under the constructivist approach. By the opportunities of instructional design, students are motivated to learn individually sufficiently. Instruction is a part of education because all instruction consists of experiences leading to learning (Hackbarth, 1996).

### Instructional design

"Instructional Design is defined as "a systematic process that is employed to develop education and training programs in a consistent and reliable fashion" (Reiser, Dempsey, 2007). In addition, it may be thought of as a framework for developing modules or lessons that (Merrill, Drake, Lacy, Pratt, 1996) "Instructional Design is the systematic development of instructional specifications using learning and instructional theory to ensure the quality of instruction. It is the entire process of analysis of learning needs and goals and the development of a delivery system to meet those needs. It includes development of instructional materials and activities; and helps to try out and evaluate all instruction and learner activities. Instructional design is a system of

developing well-structured instructional materials using objectives, related teaching strategies, systematic feedback, and evaluation. It can also be defined as the science of creating detailed specifications for the design, development, evaluation, and maintenance of instructional material that facilitates learning and performance. Instructional Design is more than just putting information in front of the learner. It has clear goals and gets your learners focus on the right things. It engages learners with clear and meaningful content. In a way it compresses the learning process and saves time. Eric Ashby asserts that any technology which increases the rate of learning would enable the teacher to teach less and the learner to learn more. In our daily life we see, that learner learn better when taught through hap tic games, movies, animations and graphics. Thus attractive, animated and learner centered activities helps retention of information in learner for longer duration of time. Also learner are more enthusiastic and interested in using, sharing and communicating with tools like blogs, instant chats, video conferencing and social software. We adopt these techniques in education to give better experiences to learner and to make our teaching learning process effective, efficient and accessible for learners.

### Learning style

Learning style approach to learning emphasizes the fact that individuals perceive and process information in their very different ways. According to Keefe and Languise (1983), the task force committee of National Association of Secondary School Principals (NASSP), defined learning style as the composite of characteristics of cognitive, affective and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with and responds to the learning environment. It is demonstrated in that pattern of behavior and performance by which an individual approaches educational experiences. Its basis lies in the structure of neural organization and personality which both molds and is molded by human development and the learning experience of the home, the school and the society. Gordon and Yocke (1999), and Keefe and Monk (1988), in their instructional research model viewed learning style as an umbrella term which encompasses cognitive, affective and physiological or environmental dimensions. Thome (2000), defined learning style as a consistent pattern of behavior with a certain amount of variability. It is the way individuals concentrate on, absorb and retrain new and difficult information or skills. He further explained that when people

learn, they use learning styles that are uniquely their own but make adjustments, depending on the nature of the task and the teaching styles being used. Furthermore, no one type of learning style is better or worse than any other type. Each type occurs at a different frequency in the general population but some types are therefore more common.

### Theories of Learning and ID Development

Saettler (1990) identified six areas that demonstrate the impact of behaviorism on Educational Technology in America: the behavioral objectives movement, the teaching machine phase, the programmed instruction movement, individualized instructional approaches, Computer –Assist Learning and the systems approach to instruction. Although cognitive psychology emerged in the late 1950s and began to take over as the dominant theory of learning, it was not until the late 1970s that cognitive science began to have its influence on instructional design. Cognitive science began a shift from behaviorist practices which emphasized external behavior, to a concern with the internal mental processes of the mind and how they could be utilized in promoting effective learning. The design models that had been developed in the behaviorist tradition were not simply tossed out, but instead the "task analysis" and "learner analysis" parts of the models were embellished. The shift of instructional design from behaviorism to cognitive was not as dramatic as the move into constructivism appears to be since behaviorism and cognitive are both objective in nature. Behaviorism and cognitive both support the practice of analyzing a task and breaking it down into manageable chunks, establishing objectives, and measuring performance based on those objectives. Constructivism, on the other hand, promotes a more open-ended learning experience where the methods and results of learning are not easily measured and may not be the same for each learner. While, behaviorism and constructivism are very different theoretical perspectives, cognitive shares some similarities with constructivism .An example of their compatibility is the fact that they share the analogy of comparing the processes of the mind to that of a computer. "(Perkins, 1991, p.21 in Schwier, 1998) But the question is how these theories precept class instruction. Table I presents the comparison of the major learning theories in relation with some instructional variables. The new models addressed component processes of learning such as knowledge coding and representation, information storage and retrieval as well as the incorporation and integration of new knowledge with previous information.

### Academic achievement in science

The academic achievement of students is associated to the ability to use scientific knowledge in order to understand and make choices about future, the natural world and other topics that affect humans. In today's technology-based societies, there is a consensus about the importance of subjects such as science for increasing development which implies better understanding of scientific concepts and theories, and the ability to structure and solve scientific problems and they are more important and valued than ever. Given that, the relevance of measuring what are the determinants of scientific literacy and the availability of self-motivation is crucial for the future of developing countries. There are many approaches available for improving academic performance in science. However, only few approaches are more effective in that series the instructional design and learning styles are plays a vital role for improving academic performance in science among students.

### CONCLUSION

The present article concludes that both instructional design and learning styles are most preferable teaching and learning technique for improving the academic performance of students in science. Normally science teaching needs some

innovative approach to teach the concept among the students to perform well in science. Therefore, the present article elaborately discussed the importance of instructional design and learning style for the improvement of academic achievement in science among students.

### REFERENCES

1. Isman, A., Dabaj, F., Altinay, Z., & Altinay, F. (2003). Effects of Instructional Design on Learning. *Online Submission*, 1(1).
2. Reiser, R. A., & Dempsey, J. (2007). Trends and issues in instructional design and technology (pp. 94-131).
3. Merrill, M. D., Drake, L., Lacy, M. J., Pratt, J., & ID<sub>2</sub> Research Group. (1996). Reclaiming instructional design. *Educational Technology*, 5-7.
4. O'Keefe, D. L. (1983). *Stolen lightning: The social theory of magic*. New York: Vintage Books.
5. Gordon, H. R., & Yocke, R. (1999). Relationship between personality characteristics and observable teaching effectiveness of selected beginning career and technical education teachers. *Journal of Vocational and Technical Education*, 16(1), 47-66.
6. Keefe, J. W., & Monk, J. S. (1988). *Learning style profile: Technical manual*. National Association of Secondary School Principals.
7. Mbaegbu, A. N. (2012). learning styles: origin, theories, implications for teaching and learning in secondary schools. *The Nigerian Journal of Research and Production Volume*, 20(1).
8. Mergel, B. (1998). Instructional design and learning theory.
9. Alzand, W. (2010). Instruction design and educational quality. *Procedia-Social and Behavioral Sciences*, 2(2), 4074-4081.