

Chapter 5

Learning and Teaching Styles for Teaching Effectiveness: An Empirical Analysis

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ABSTRACT

Students do not have homogeneous learning patterns, their learning styles and preferences vary, their cognitive abilities vary; similarly instructors employ different teaching methods. This research explores the linkages between learning and teaching styles by using the Felder-Solomon Index of Learning Styles and CORD's teaching style inventories to match and expand the learning and teaching styles interpretation from the learners' perspective. This research provides practical implications for educators to think about how their students learn and what would be the best instructional methods for their learners.

INTRODUCTION

Learning is best accomplished when the individual needs of learners are established well in advance (Arora et al., in press). These needs include the learners' prior knowledge, learning styles, and cognitive traits. Students have different learning styles. "They preferentially focus on different types of information, tend to operate

on perceived information in different ways, and achieve understanding at different rates" (Felder, 1993, p. 286). "Students whose learning styles are compatible with the teaching style of a course instructor tend to retain information longer, apply it more effectively, and have more positive post-course attitudes toward the subject than do their counterparts who experience learning/teaching style mismatches," (Felder, 1993, p. 286). Many researchers have tried to study and understand the basic question – how students learn?

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The objective of our research study is to investigate teaching styles, i.e., a teacher's personal behavior/s and media used to transmit data to or receive it from the learner (Kaplan & Kies, 1995, p. 29), and focus on the relationship of teaching styles to the students' learning styles via use of Felder's Index of Learning Styles. The common-sense view would be that once a professor realizes that the student's preferred learning style leans toward a visual dimension, then one ought to ensure that one incorporates various visual elements in one's pedagogy. However, "Truth can be stranger than fiction" and our goal is to let the data confirm or disconfirm these notions; as research (Conti, 1985; Zinn, 2004) has shown that although students may prefer to be taught in their own favored style they are open to other teaching methodologies. Furthermore, other researchers state that the matching of learning styles with teaching styles is inconsequential with respect to students learning outcomes. The aim is to explore whether any of the various learning styles are significantly correlated to various teaching styles. If significant correlations exist we can interpret this as providing support that teachers with such a teaching style can effectively engage students of that or those particular learning styles. If the research finds no significant correlations exist, it can be taken as evidence that students can learn well from a variety of teaching styles whether it is mixed or matched.

In this research study, we elected to use the Felder-Silverman model and Index of Learning Styles (Felder & Silverman, 1988) because students can self-administer this questionnaire at no cost. In addition, the four learning style dimensions are numerically coded and easily quantified for analysis. Finally, the Index of Learning Styles has been validated (Litzinger, Lee, Wise, & Felder, 2005; Felder & Spurlin, 2005) and used in this research study.

For the purpose of the research study, we have also used CORD's teaching style inventory to assess the teaching styles of the professors from the

learners' perspective. We tried to explore the learning experience by matching the learning styles and teaching styles by analyzing the data obtained in a historically black college and university.

FELDER-SILVERMAN LEARNING STYLE MODEL (FSLSM) THEORY

The Felder-Silverman learning style model (FSLSM) is tested using the Felder and Soloman's Index of Learning Styles (ILS) (Felder & Soloman, 2003). The five dimensions of learning preferences are Sensing/Intuitive, Active/Reflective, Visual/Verbal, Sequential/Global, and Intuitive/Deductive dimension. The ILS scale only measures the first four bipolar continua (Hawk & Shah, 2007) and consists of a 44-item questionnaire. Gravernhorst (2007) describes the dimensions and modalities of each assumption.

- ***The Sensing/Intuitive (S-I) dimension*** deals with the way information is perceived. According to the Felder Learning Model, Sensing learners are practical, oriented toward facts and procedures, and favor information arriving through their senses. Intuitive learners are conceptual, innovative, oriented toward theories and meanings, and favor information that arises internally through memory, reflection and imagination.
- ***The Visual/Verbal (V-V) dimension*** deals with the way information is presented. Visual learners prefer pictures, diagrams, graphs, flow charts, experiments and demonstrations, while Verbal learners prefer written or spoken explanations and formulas.
- ***The Active/Reflective (A-R) dimension*** deals with the way information is processed. Active learners learn by trying things out, working in a group, and dis-

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