NEW QUESTIONS ABOUT LEARNING STYLES

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Abstract - Educators are increasingly concerned about the efficacy of their instruction, and are conscious that the challenges facing them will not be met using traditional methods of teaching. Many pedagogical approaches have been proposed to facilitate the achievement of that goal. The one we will explore in this paper is related to the process by which students learn, and is based on the learning styles inventories developed respectively by Felder and Keirsey and on the Kolb’s learning cycle. During the last three decades, several successful studies of learning styles have been conducted. Nevertheless, only a few questions have been addressed and most of the studies were of limited scope, brief duration, or narrow focus. This paper will discuss the contribution of a wide mapping of learning styles of former and current engineering students, taking into account gender, culture, ethnicity, nationality, and different teaching methodologies for supporting innovation and reform in engineering education.

Index Terms - Engineering education, Learning cycle, Learning styles.

LEARNING STYLES DATABASE

The overall goal of engineering curricula should be to develop engineering graduates who are professional contributors and lifelong learners, capable of succeeding in current and future global, multi-disciplinary markets. The capability to learn effectively and efficiently benefits engineering students as much as any capability and should be provided as a component of engineering education. Strategies that help students develop their capacity for learning on their own and provide increased opportunities for practicing this skill are needed [1].

Engineering faculty, conscious of the present needs and the impossibility of meeting them with traditional teaching methods, are actively involved in researching ways to cope with this new challenge [2]. The examination of the educational engineering literature indicates that students learn in different ways and that they have different preferences for learning. For the most part, professors have been experimenting with the use of the “learning model,” and they have shared their experiences in response to the continued effort to understand diversity in learning styles and the implications for student learning.

According to [3], learning models are reference guidelines based on the premise that “different individuals seek and process information using different strategies”.

Within this context, we are carrying on a project which intends to develop a wide mapping of learning styles and use these data collected to exploit some questions in order to provide subsides for supporting and facilitate ongoing innovation in Education Institutions and Organizations. The population to be studied includes professors and former and current engineering students from the U.S. and Brazil. We have already developed and validated a friendly interface database, which can be easily accessed by Internet from any part of the world. For data collecting, we are using the learning style questionnaires from Kolb (Learning Style Inventory), Felder (Index of Learning Style) and Keirsey (Temperament Sorter) [4], [5], [6].

The expected outcomes are answers for these questions: (a) Is there a predominant learning style among engineering students? (b) Can a learning style be changed? (c) Is the learning style of engineering students different for different majors? (d) Are the engineering students’ learning styles different at different universities? (e) Is there a significative difference between the learning styles of American and Brazilian engineering students? (f) Do gender, ethnicity, or culture affect learning style? The framework of the database and the results already obtained will be presented.

ACKNOWLEDGMENT

Our thanks to Fundação Coordenação de Aperfeiçoamento de Pessoal de Nível Superior –CAPES, for the grant.

REFERENCES


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ASEE/IEEE Frontiers in Education Conference
November 5-8, 2003, Boulder, CO
33rd ASEE/IEEE Frontiers in Education Conference
S1D-18