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COMPARATIVE STUDY OF LEARNING STYLES IN HIGHER EDUCATION STUDENTS FROM THE HIDALGO STATE AUTONOMOUS UNIVERSITY, IN MEXICO

Abstract

This is a study on learning styles based on the Kolb model (1984). It was conducted on a sample of Mexican higher education students, to develop a picture of their learning styles at three different stages during their studies. The intention was to determine whether there were differences between students majoring in educational sciences and law, during the initial, intermediate and final semesters. The sample included 212 students aged 18 to 25 years from the Hidalgo State Autonomous University. All students responded to the Kolb Learning Style Inventory and a demographics questionnaire. The paper presents this research project's first results. There were differences found in learning styles across programs and semesters. Results are discussed from the Kolb approach on experiential learning.

Keywords: learning styles, Kolb's model, higher education

Introduction

With the new wave of educational reforms that began in the 1990s, there has been an emphasis in research on knowledge acquisition methods. From basic to higher education the talk of the town is on strategies, metacognition or cognitive skills. These strategies tend to be organized and conditioned by factors of which the degree of incidence is uncertain, thus creating for each learner a peculiar way of acting regarding his or her own knowledge construction. This form of preferential learning is what Schmeck (1988) calls learning style.

The purpose of this study was to identify the learning styles of a group of students from the Educational Sciences and Law degree programs at the Hidalgo State Autonomous University (UAEH, acronym in Spanish) to learn about existing differences, by program and semester (initial, middle and final), based on the Kolb model (1984).

We know that students develop different ways of learning according to previous experiences and the cultural context in which they acquired them. The subjects of this study completed high school in institutions from different communities that work with different systems, a situation that marks important differences in the appropriation of new knowledge at the time of entering college.

The paper has four sections: the first one presents Kolb's theoretical postulates on experiential learning, then the methodology, the results and discussion, ending with the conclusions.

Theoretical Framework

Several models have been developed to explain learning styles from different perspectives. This paper is based on Kolb's (1984: 133) experiential learning, which was developed by drawing from multiple paradigms that emphasize experience as central to knowledge acquisition, focusing primarily on human learning.

Kolb initially departs from a rationalist position, then he focuses on a behaviorist explanation to finally assume a constructivist model that draws on personal experiences as a source for the development and enrichment of learning (Canales, 1991).

This theory provides the foundations for an approach to education and learning as a lifelong process that is firmly established in the traditions of social psychology, philosophy and cognitive psychology (Kolb, 1984: 140).

The experiential learning model aims to establish a framework for examining and strengthening the key link between education and professional development. It views classroom work as a learning environment that provides experiences under which learning is significantly consolidated. It stresses the role of formal education in developing the potential of individuals as citizens, family members and human beings and the importance of meaningful learning in personal development processes.

Kolb mentions some features that are necessary for understanding his model's approach: Learning is best understood as a process, not in terms of results, it is a continuous process based on experience, a holistic adaptation to the world in order to create knowledge. It is a process that requires conflict resolution between dialectically opposing modes of adaptation to the world involving transactions between the individual and the environment.

The learning styles model presents two basic dimensions for learning: perception and processing. Learning is the product of the way in which we perceive and then the processing of what was perceived.

Kolb describes two forms of perception, both opposing: perception takes place either through concrete experience or abstract conceptualization. In processing, he also found two opposite forms: first is active experimentation, and second, reflective observation (Davies & Lowe, 2009).

From the interaction between the two forms of perceiving and the two forms of processing, Kolb describes his model in four quadrants, which represent the interactions that take place when learning happens. The horizontal axis identifies the doing and watching, which is called the continuous processing and how to "transform the experience". The vertical axis identifies the feelings and thoughts which are also known as the continuous perception axis.

Thus, our learning style is a product of deciding between two options: 1) How to assimilate experience choosing whether "to observe or to do"; 2) The emotional response to the experience that transforms it choosing either to think or to feel.

The combination of these two choices results in four learning styles: Accommodators (concrete experience and active experimentation); Divergers (concrete experience and reflective observation); Convergents (abstract conceptualization and active experimentation); and Assimilators (abstract conceptualization and reflective observation).

Method

The methodology used was quantitative, descriptive and cross-cutting. Information was retrieved through two instruments: the most recent version of the Kolb Learning Style Inventory and a demographic data questionnaire.

The instruments were administered to 105 students from the Bachelor's Degree in Educational Sciences and 107 from the Law Degree program at the Hidalgo State Autonomous University. 67% of them female and 33% male, ranging from 17 to 29 years of age.

Study participants were studying in six of the nine semesters of each degree program. Three ranges were formed, each with 35 to 40 students: the first with students from the 1st and 2nd semesters, the second from 4th and 5th and the third with students from the 8th and 9th semesters. In this way it was possible to compare the results on the learning styles for the initial, middle and final semesters of each program.

Results

Characterization of the Population in the Study

Most people, according to the ideas of Kolb, Rubin and McIntyre (1977), develop learning styles based, other theories aside, on some learning skills. These are the result of the hereditary apparatus, of one's own experiences and the demands of the cultural environment. Learning is the result of the transaction between the social knowledge which represents the accumulated cultural experience and personal knowledge. Hence the importance of presenting a characterization of the population that took part in the study.

In the State of Hidalgo, Mexico, there is a wide range of municipalities with populations showing different cultural characteristics. 23.27% of the population are indigenous and speak different languages: Nahuatl 68%, followed by Otomi 29.7% and Tepehua 0.5%. Students from both programs differ in their place of origin, 44% of Education students come from different municipalities, compared to only 15% of Law students. While they are attending college, the difference becomes smaller: 90% of Education and 85% of Law students live in Pachuca (the State capital). 54% of Education students' fathers work in a trade while in Law it drops to 39%. 63% of Education students' mothers are homemakers. 19% of Law students' mothers completed an undergraduate degree while only 9.5% did so in the case of Education. Fathers who have college education rank at 17.1% for Education and 22.4% for Law. 39% of Education students completed their high school programs in technical schools, while only 21% of Law students attended these institutions and 40% of them come from high schools ascribed to the UAEH.

Learning Styles

The learning style which most participants identified themselves with was the Assimilator, with 57.5% of Law and 40% of Education students in the first two semesters of their programs. This style is dominated by abstract conceptualization and reflective observation. Its greatest strength lies in the ability to create theoretical models. Assimilators are noted for their inductive reasoning, in integrating contrasting observations into a comprehensive explanation.

In students from the 8th and 9th semesters this style drops in both programs to 34%. This learning style is considered by Kolb suitable for professionals in research and planning departments, which are important components in the curricula for both programs.

Educational Science students from the final semesters registered the highest percentage of study participants that identified themselves with the Accommodator learning style with 43.8% compared to 34.4% of Law students. This style is characterized by concrete experience and active experimentation. Its greatest strength lies in doing things, developing projects and experiments, as well as engaging in new learning experiences. These people have a tendency to find themselves in situations in which they have to adapt to specific immediate circumstances. Their formation is usually oriented toward technical or practical applications, activities that are found in the Education program's final semesters.

Among the group of students in intermediate semesters the Divergent style presents its highest percentage with 31% in Education and 28.5% in Law. People who better perform in concrete experience and reflective observation fit into this style. Their greatest strength is their imaginative capacity, and are noted for their ability to look at concrete situations from multiple perspectives. Within this style Kolb (1977) places executives with backgrounds in the humanities and liberal arts.

The Convergent style reported lower percentages in both programs, only 14% in Education and 12% in Law for all study participants. In Education it presents an increase between the first semesters from 15% to 17% in the intermediate but it then drops to 2.8% in the final semesters. In Law this style shows a constant average for the three ranges, 12% for the initial, 11.4% for the intermediate and 12.5% for the final semesters. The greatest strength of this style lies in the practical application of ideas. People with this style seem to perform better in situations such as conventional intelligence tests where a single correct answer or solution is presented for each question or problem. Their knowledge is organized so they can focus on specific problems using hypothetical deductive reasoning, and it is associated with students and professionals in technological and exact sciences. Actually this learning style has little to do with the curricula and teaching practices of both of the programs studied.

The subjects that students consider easy or difficult showed to have no relation to the learning styles, but instead to the way in which the curriculum is developed for each program. However, the relationship lies in the type of content that is studied in the initial, intermediate and final semesters.

Conclusions and Final Discussion

The results reflect different aspects and characteristics of the study population at different points in their studies through 3 of the learning styles proposed by Kolb which respond to the curricular context they are immersed in, the social stimuli they are exposed to, as well as to their physical and emotional responses when understanding new information.

It is interesting to note that in Education students, of whom 44% come from other municipalities, accommodators and assimilators are the two predominant learning styles during the initial and final semesters. Lewin's model of laboratory training and action (Kolb, 1984: 8-10) may explain this through some group

dynamic techniques that facilitate learning, change and growth by the means of an integrated process that begins with an experience of the here and now, that is followed by a collection of data or observations about the experience. It is possible that in these students' places of origin, such forms of knowledge appropriation may be widely applied.

The results are explained by some of the salient aspects of the model: the first being the value given to the immediate concrete experience for validating and testing abstract concepts, the second aspect highlights the feedback process which provides the basis for a continuing process of action directed towards the goal as well as the assessment of the consequences of such action.

It is important for teachers to know the learning styles of their students to diversify their teaching strategies in the classroom and improve the level of learning appropriation among their students. For teachers, to learn how students learn allows them to strengthen those areas that present weaknesses for assimilating knowledge from different approaches.

To learn more about the models that have enriched Kolb's own model facilitates understanding new concepts consistently emerging in curricular models developed in higher education institutions. Undoubtedly as Lewin, Dewey and Piaget's principles strengthen the Kolb model, they do so as well for "innovative" approaches in education. Those old ideas are refreshing these days.

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