

# **A Comparison of Preferred Learning Styles between Vocational and Academic Secondary School Students in Egypt**

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## **Abstract**

In recent years, there has been a renewed interest in the dichotomy of vocational education versus general education. This has become a political pronouncement in many countries and has adopted knowledge and skills as the key focus to improve education at all levels (Oketch, 2007). This article is an extension of a comparative study on learning style and method preference of students from vocational and general (academic) secondary schools. The learning style preferences of (461) students in both vocational and academic secondary schools in Egypt are examined using The Steinbach LS Quiz. As the factor of teaching and learning styles play a major role for the students to maximize performance within the classroom.

## **Introduction**

Learning styles are simply different approaches to learning. Each individual has his/her unique way of learning. Learning style greatly affects the learning process, and, therefore, the outcome (Carver, Howard, & Lane, 1999; Vincent & Ross, 2001). Stellwagen (2001) argued that flexible combinations of learning and teaching styles allow all students to develop effective ways of gaining positive educational outcomes. The topic of learning styles and its effect on student performance have been extensively examined in the educational research literature (Felder & Henriques, 1995), specifically in the context of differences in student learning styles by Felder and Brent (2005). Many learning style assessment instruments have been developed in the past five decades (Felder & Henriques, 1995).

Chan (2001) described that the assessment of students' preferences for specific learning styles is basically to help teachers employ strategies that are congruent with students' preferences in order to maximize the learning outcomes of students. Teachers

who taught with learning styles as a basis adapted themselves more often to students' learning preferences, cooperated and reflected more with colleagues, were more development-oriented and more open to change compared with those who did not use learning styles as a pedagogical basis (Boström, 2011).

## **Purpose of the Study**

According to Griggs (1984), the correct learning style is important because it can help to increase the academic performances of the students. Therefore; this study has been conducted in order to reveal the learning style preferences of secondary school students in both academic and vocational education. This study further examined the relationship of gender and learning style among the population of interest. The method of teaching and learning plays a major role in students to performance and success can be achieved if students and teachers employ appropriate learning styles.

## **Research Questions**

This research is to identify the learning style preferences between vocational and academic secondary school students in Egypt. The research questions are as follows:

1. What are the learning styles preferences between Vocational and Academic Secondary School Students in Egypt?
2. Are there any differences between Vocational and Academic Secondary School Students in relation to learning style preferences?
3. What is the relationship between students' gender and learning style preferences in both academic and vocational secondary schools?

## **Research Objectives**

The objectives of this research are as follows:

1. To identify learning styles preferences between Vocational and Academic Secondary School Students in Egypt.
2. To identify whether there are differences between Vocational and Academic Secondary School Students in Egypt in relation to learning style preferences.
3. To identify whether there is a relationship between students' gender and their learning style preferences in both academic and vocational secondary schools.

## **Review of Literature**

Learning style refers to simple preference for the method by which we learn and remember what we learned; show us the way and how we learn; involve that the subjects are processing the information in different ways, involving cognitive part, the

affective emotional elements, psychomotor and some learning situation characteristics. Researchers such as (Dunn, Griggs, & Price, 1993; Park, 1997; Restak, 1979) also found gender differences in their studies of learning styles.

Assessing an individual's learning style is vital to the teaching and learning process. Most education research has confirmed that knowledge of student learning preferences do yield benefits, for example, Diaz and Cartnal (1999) compared the student learning styles of two online health education classes ( $N = 68$ ) with an equivalent on-campus class ( $N = 40$ ). They found significant differences in learning preferences for both group of students and concluded that knowledge of student learning preferences influenced learning performance. Felder and Silverman (1988) and Felder and Dietz (2002) also examined effects of learning and teaching styles in engineering education. They found that knowledge of students learning preferences were a determinant of student success.

Dunn (1992) has also offered the following mission statements to assure that every person has the opportunity to learn:

1. Individual learning styles should be acknowledged and respected.
2. Individual information processing is fundamental to a learning style and can be strengthened over time with intervention.
3. Learning style is a complex construct for which a comprehensive understanding is evolving.
4. Learners are empowered by knowledge of their own and others' learning styles.
5. Effective curriculum and instruction are learning-style based and personalized to address and honor diversity.
6. Effective teachers continually monitor activities to ensure compatibility of instruction and evaluation with each individual's learning style strengths.
7. Teaching individuals through their learning style strengths improves their achievement, self-esteem, and attitude toward learning.
8. Every individual is entitled to counseling and instruction that responds to his/her style of learning.
9. A viable learning style model must be grounded in theoretical and applied research, periodically evaluated, and adapted to reflect the developing knowledge base.
10. Implementation of learning style practices must adhere to accepted standards of ethics.

### *Definition of learning style*

The term learning styles refers to the view that people learn information in different ways. The variety of concepts found on learning styles literature makes it, nevertheless, difficult to build a unified framework.

Learning style is a biologically and developmentally imposed set of personal characteristics that make the same teaching (and learning) methods effective for some and ineffective for others. According to Keefe (1979), learning styles generally refer to cognitive, affective, and physiological behaviors that perform as relatively stable indicators of how people perceive, interplay with, and respond to their environment in learning situations.

Learning involves the totality of human activities: feeling, reflecting, thinking, and doing (Kolb, 1984). Cano (2005) pointed out learning styles deployed by students may well reflect the quality of the education they are receiving. Learning styles are usually described as the cognitive, affective, and physiological traits that students exhibit as they interact in the classroom environment.

Some consider learning styles are related to individual methods and strategies of information processing (Reid, 1995). Additionally, Haar, Hall, Schoepp, and Smith (2002) also elaborated learning styles as individual's differences in which information is perceived, processed, and communicated.

#### *Secondary (High) Schools in Egypt*

Secondary education reform in Egypt in the 1990s is consistent with the country's historical background in both its economic and social dimensions. Since the 1952 revolution, Egypt pursued economic policies based on state intervention, centralized decision-making, public sector dominance of industrial production, import substitution and a highly regulated system of controls on private economic activity. The education system as a whole expanded rapidly, especially in the secondary and university subsectors. All levels of education (primary, preparatory, secondary, and higher education) were offered free of charge. Moreover, in 1964, the government guaranteed a government job to any university graduate (Richards, 1992).

Secondary education has crucial importance in the Egyptian education structure because its graduates compete for university admission or for work. During the 1980s secondary education was structured in three broad types: 1) a three-year general or academic program; 2) three or five-year vocational and technical programs; and 3) a five-year primary teacher training program (Clementina, 2002).

According to the structure of the education system in Egypt, graduates of general secondary schools may go to the university, while graduates of technical secondary schools may only go to non-university higher and middle institutes or to the job market. Generally, less than 5% of the technical school graduates are admitted to the universities (Wilcox, 1988; World Bank, 1999); while, more than 80% of the general secondary school graduates enter the universities (Clementina, 2002).

Table 1

*Structure of the Educational System in Egypt*

Age	Grade	Level		
22	17	Universities	Non-Universities Higher and Middle Institutes	
21	16			
20	15			
19	14			
18	13		General Secondary School	Technical Secondary School (3 Year)
17	12			
16	11			
15	10			
14	9	(Basic) Preparatory		
13	8			
12	7			
11	6	(Basic) Primary		
10	5			
9	4			
8	3			
7	2			
6	1			
3, 4, 5		Pre-Primary		

**Source:** Case Studies in Secondary Education Reform: Improving Educational Quality (IEQ) Project, American Institutes for Research (Clementina, 2002)

## Methods

The Steinbach LS Survey was translated into Arabic. This Arabic version was constructed in the same format as the English version, and was given to two language experts for back translation. A corrected final version of the survey was administered to High School students in both academic and vocational schools in Egypt. The Steinbach LS survey, consisted of (12) statements with forced choice items with two options (yes, no). The participants are expected to select the appropriate choice for each statement. The researchers designed a survey to collect demographic information from the learners. Demographic data consisted of Education (vocational & academic) and gender (male & female).

### *Participant Selection*

This research focuses on secondary (high) school students in both academic and vocational education. The participants in this study were selected from secondary (high) schools in Ismailia and Suez Governorates. The research focuses on 3<sup>rd</sup> year high school students in both vocational and academic schools. The participants in this study, 441 students, represent a convenience sample of Egyptian students.

### *Data Analysis*

The descriptive statistics show a total of 441 students (161 males and 280 females) participated in the survey. Out of them, 261 students were Academic secondary schools students and 180 were Vocational secondary schools students.

A two way multivariate analysis of variance (MANOVA) was conducted to examine the relationship of gender and types of education on three different learning styles (Auditory, Visual and Kinesthetic). The Box's M test was not statistically significant and indicates that homogeneity of variance-covariance assumptions is not violated,  $F(18, 332516.580) = 1.180, p = 0.267$ , so the Wilks' Lambda test statistic is used in interpreting the MANOVA results. Factor interaction was examined and it was statistically significant,  $[F(3,435) = 5.793, p = .001, \eta^2 = .038]$ , however, the multivariate effect size was small. The Levene's tests of equality of error variances for Kinesthetic learning style was statistically significant with a value of .002 and indicated equality of variance assumption was violated. However, the Levene's tests for the other two dependent variables (Auditory and Visual learning styles) were not statistically significant with values of .469 and .678 for Auditory learning style for Visual learning style respectively, which indicated that the variances were fairly equivalent between the groups.

Prior to examining the univariate ANOVA results, the alpha level was adjusted to  $\alpha = 0.025$  because two dependent variables were analyzed. Univariate ANOVA results indicated that there is a statistically significant interaction effect of gender and education on Kinesthetic learning style  $[F(1,437) = 15.513, p = .000, \text{partial } \eta^2 = .034]$ . The effect size was small. No significant difference was found in Auditory and Visual learning abilities across male and female students or across Academic secondary schools students and Vocational school students. However significant results were found for Kinesthetic learning ability.

The main effect of school type yielded an F ratio of  $F(1, 259) = 9.546, p = .002$ , indicating that in Academic secondary schools, the Kinesthetic learning ability of male students was significantly higher ( $M = 7.01, SD = 1.04$ ) than that of the female students ( $M = 6.60, SD = .912$ ). However for Vocational schools an F ratio of  $F(1, 178) = 6.268, p = .013$  indicated that the female students had higher Kinesthetic learning ability ( $M = 6.93, SD = .858$ ) than male students ( $M = 6.57, SD = 1.03$ ).

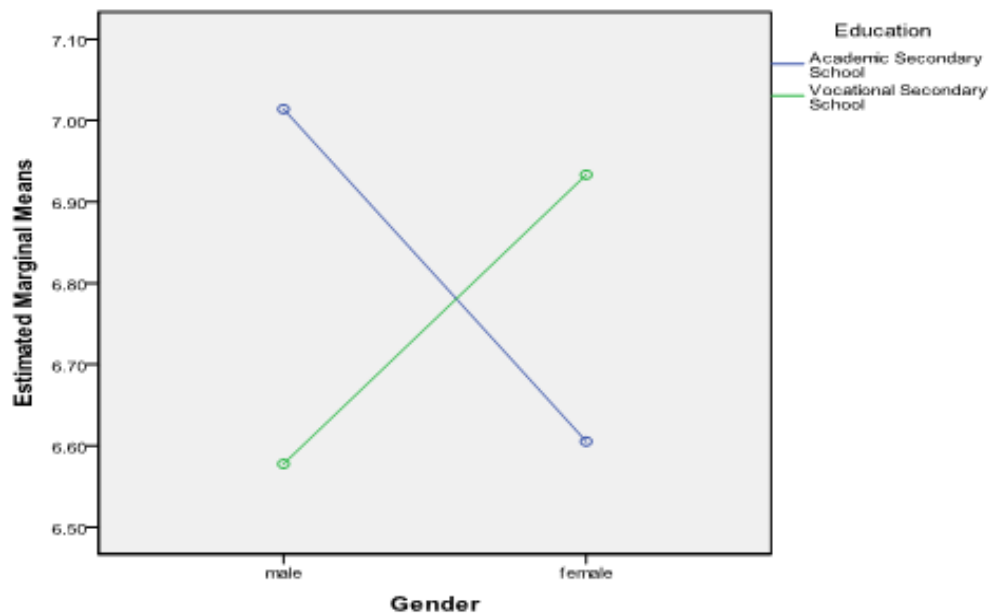


Figure 1: Kinesthetic Learning in Academic and Vocational secondary schools

## Findings

No statistical differences were found among the Auditory, Visual and Kinesthetic learning modalities. The researchers had anticipated a strong representation of kinesthetic learners within the vocational population; however, this was not the case. Data indicated that the Kinesthetic preference was higher among males in academic programs of study than for females in the same program. Within the vocational settings females had higher kinesthetic preference than the males. No gender-based differences were found. As a result of these findings, further research is recommended in these areas.

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