# Learning Style Preferences of Student Teachers: A Cross-Cultural Perspective

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**Abstract**

All students learn, but not all learn in the same way. Educational researchers postulate that everyone has a learning style. This article examines how cultural variability is reflected in the learning style of students in Egypt, Saudi Arabia and United States. In this study, the learning styles of over 300 students in Teacher Education Institutions in Egypt; Saudi Arabia and United States of America were examined with What's My Learning Style? Instrument developed by Steinbach (1993).

**Introduction**

Each person has his or her own individual way of gathering and processing information, and solving problems in day-to-day situations. These personal cognitive abilities, acquired in the course of a long socialization process are called ''learning styles'' (Reynolds, 1997). Riding (2005) assured that students are not all the same and that individual differences influence both their learning and their academic achievement.

Knowledge of one's learning style can lead to enhanced learning and helps the learner focus on improving weaker points. Learning styles analysis is also useful for informing the teaching and learning process and can be used as a tool to enhance achievement and inclusion (DFES, 2004; Rose & Nicholl, 1997).

How we learn is influenced by culture. As cultures are different, it's natural to expect differences in the styles of learning in different countries. Previous studies (Katz, 1988; Pratt, 1992) suggest that University students' learning styles differ across cultures because of the constraints that various cultures place on the behavioral patterns of

people. The perspective that there is a relationship between learning styles and culture is not new and has been discussed in scholarly research for a few decades. Some cross-cultural research has revealed that certain ethnic groups have learning styles that are distinct from those of other ethnic groups (Dunn & Griggs, 1990; Jacobs, 1987; Jalali, 1989; Sims, 1988; Williams, 1990). This study concentrates on a theoretical and empirical comparative-analysis between the learning styles and cultural typologies presented in three countries: Egypt, Saudi Arabia and United States.

**Review of Literature**

Many different learning styles/preferences and definitions of learning styles exist in the literature. Learning style is an ongoing issue of great importance to educational research.

Researchers recognized that different learners had different cognitive styles and habitual information–processing strategies that determine a learner's typical mode of perceiving, remembering, thinking, and problem solving (Messick, 1976). In examining learning styles of college students in various disciplines Canfield (1988) reported significant differences among groups of students enrolled in various majors in collegiate settings.

Kolb (1984) described learning as a four-stage process consisting of concrete experience, observation and reflection, formation of abstract concepts and generalizations and the testing of the implications of these concepts in new situations. Different learners may start at different phases of the cycle. Some individuals integrate and use all four learning modes; for others, some learning modes will come to redominate. For this reason, every human being develops a specific learning style (see Figure 1).

According to Kolb's learning styles, learners can thus be classified into one of four learning styles, namely, converger, diverger, assimilator, and accommodator, mapped in one of the four quadrants (Kolb, 1985).

- *Convergers* combine AC and AE. Convergers are best at finding practical use to theories and ideas and are good at solving problems and making decisions. Kolb suggests they prefer dealing with technical tasks than with social and interpersonal issues.

- *Divergers* combine CE and RO. Divergers are best at viewing concrete situations from different points of view, they prefer brainstorming situations to taking action.

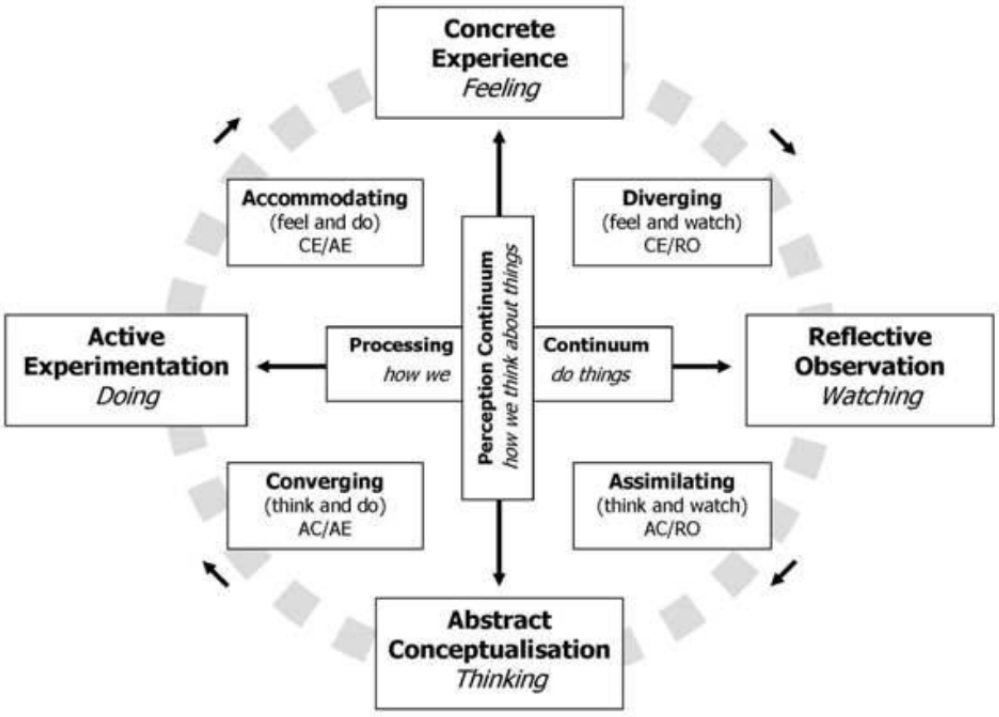


*Figure 1.* Kolb's Learning Styles

- *Assimilators* are learners who combine AC and RO. Assimilators are best at understanding a wide range of information and organizing them into concise, logical form. They are more interested in abstract ideas and concepts rather than people. They value more of the logical soundness of a theory than its practical value.

- *Accommodators* are learners who combine the learning steps of CE and AE. Accommodators learn primarily from 'hands-on' experience. They prefer to act on feelings rather than on logical analysis. In solving problems, they rely more heavily on people for information than on their own technical analysis.

Various families of learning styles have been developed. There may be encountered four basic types of approaches for identifying different learning styles (Sadler-Smith, 1997):

1. learning styles presenting personal cognitive characteristics about dependence or independence in given area;
2. styles dealing with specific learning preferences;
3. approaches combining elements of cognitive and personal learning preferences;

4. styles determined by ways of processing information - based on the cyclical model of (Kolb, 1984) for converger, diverger, accommodator, and assimilator styles.

Learning styles, however, is an umbrella concept bringing together various schools of thought (Butler, 1986) which share the belief that students learn best when they are given the opportunity to learn, deal with information, and communicate in a manner that they feel most comfortable with (Pallof & Pratt, 2003). As a result, diverse models have been developed to explain these individual differences in learning. Coffield, Moseley, Hall and Ecclestone (2004) developed a continuum of five 'families' into which any particular learning style model can be identified. Along this continuum, the learning style families are scaled from the greatest to least degree to which the belief that learning styles are relatively fixed individual characteristics has influenced the model's development (see Figure 2).

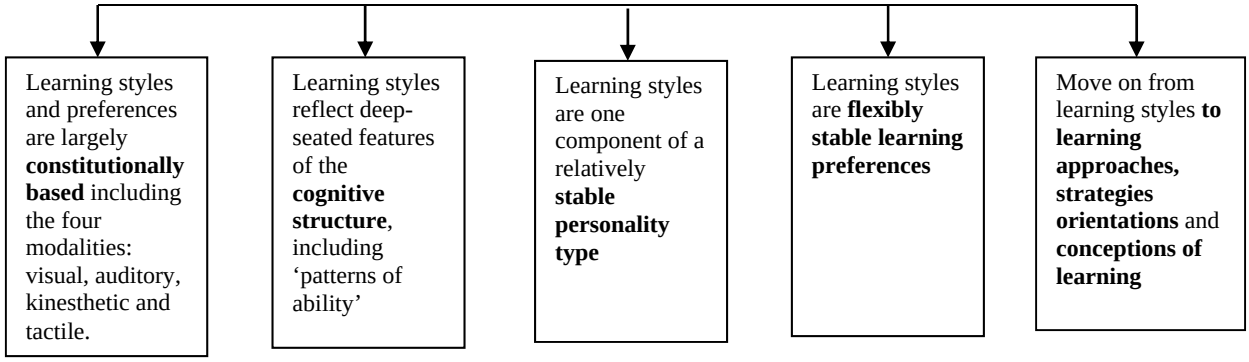


*Figure 2*. Family of Learning Styles

*Definition of learning style*

Researchers have made efforts to define and categorize learning styles in different ways, such as:

- The "characteristic, cognitive, affective, and psychological behaviors that serve as relatively stable indicators of how learners perceive, interact with, and respond to a learning environment"( Keefe, 1979, p. 4).
- A predisposition to adopt a particular learning strategy which involves a particular pattern of information processing activities (Schmeck, 1983).
- The "modes of perceiving, remembering, thinking, problem solving, and decision making, reflective of information-processing regularities that develop in congenial ways around underlying personality trends" (Messick, 1994, p. 122).
- The "learners' natural, habitual, and preferred ways of absorbing, processing, and retaining new information and skills which persist regardless of teaching methods or content area" (Kinsella, 1995, p. 171).

- The unique collection of individual skills and preferences that affect how a student perceives, gathers, and process learning materials (Johnson & Orwig, 1998).
- The "individual consistencies in perception, memory, thinking, and judgment across any stimulus condition" (Curry, 2000, p. 239).
- The "individual's preferred ways of gathering, organizing, and thinking about information" (Fleming, 2001, p. 1).

Thus; The term 'learning styles' has no one definition – in much of the literature it is used loosely and often interchangeably with terms such as 'thinking styles', 'cognitive styles' and 'learning modalities'.

*Learning style and culture*

So far, there have been only a comparatively small number of studies analyzing learning styles across cultures. Culture may be related to the development of learning styles. Hofstede (2001) defined Culture as "the collective programming of the mind which distinguishes the members of one human group from another''. Irrespective of the discipline, the scholars have come to more or less a common ground with respect to defining culture. Culture can be conceptualized as "shared motives, values, beliefs, identities, and interpretations or meanings of significant events that result from common experiences of members of collectives that are transmitted across generations'' (House, Hanges, Javidan, Dorfman, & Gupta, 2004, p. 15).

Individuals are the product of their cultural background and experiences, several studies have assumed that an individual's preferred learning style will depend on his or her cultural background. Hofstede (1997) argues that a country's culture shapes its peoples' preferred modes of learning through their socialization experiences. Hyland (1993) assures that learning style is affected by individual differences such as gender, academic and cultural background. Culture acts as a strong socialization agent (Barmeyer 2004; Hayes & Allinson, 1988) that influences information processing and cognition (Earley & Ang, 2003). Thus there is reason to believe that the differences in cultural socialization tend to influence learning preferences. Pratt (1992) argues that learning styles may vary from culture to culture. Hayes and Allinson (1988) suggest that the culture of a country may be one of the powerful socialization agents that have a great impact upon the development of learning styles.

Research has identified cultural differences in the learning styles of various ethnic groups. Reid (1987) conducted a comparative study of college students learning English as a second language and reported that there were significant cultural differences in visual, auditory, kinesthetic, tactile, group, and individual learning styles among Korean, Chinese, Japanese, Malay, Arabic, and Spanish students. Park (1997) conducted a comparative study of Chinese, Filipino, Korean, Vietnamese, and Anglo

students in secondary schools and concluded that Korean, Chinese, and Filipino students were more visual than Anglos and that Korean, Chinese, and Anglo students showed negative preferences for group learning while Vietnamese showed a major preference and Filipino students showed a minor preference.

Joy and Kolb (2007) concluded that culture has an impact on the learning style scales that is comparable to that of some of the demographic variables. Culture has a significant effect in deciding a person's preference for Abstract Conceptualization vs. Concrete Experience.

Thus, culture has the ability to shape the ways in which its members receive, process and act on information and experience, shaping the particular way they learn from experience.

**Methods**

*Preparation of the Instrument*

For the Arab students, The Steinbach Learning Style 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 a group of student teachers in Saudi Arabia and Egypt. The Saudi students group was selected from Jazan University, and the Egyptian group was selected from Suez Canal University.

The Steinbach LS survey, consisting of (12**)** statements with forced choice items with two options (yes, no), was used to gather data. The participants were expected to select the appropriate choice for each statement. Researcher designed demographic information was used to examine two variables. Demographic data consisted of place (country) and gender (male and female).

An estimate of Validity was established using a Q-sort Technique. When using this technique "An individual is given a set of items or statements, usually on cards, and asked to place then into specific categories so that each category contains some minimum of cards" (Gay, 1980, p. 121).

A five person panel was established using a convenience sample of two doctoral level, one graduate student and two undergraduate level participants. Each participant was presented with an envelope containing three header cards labeled: Auditory, Visual and Kinesthetic, in keeping with the three domains the instrument purports to measure. The envelope also contained the instrument's 12 questions on individual slips of paper. The panel members were requested to array the header cards in front of them

and place appropriate question with each header card. Upon completion responses were paper clipped to the header card and returned to the envelope.

The resulting products were reviewed for a percent agreement with the instruments scoring standards. Results of the percent agreement are shown in Table 3 below.

Table 1

*Card Sort Results*

| Scorer | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| #1 | X | X | X | X | X | X | X | X | X | X | X | X |
| #2 | X | X | X | X | X | X | X | X | X | X | X | X |
| #3 | X | X | X | X | X | X | X | X | X | X | X | X |
| #4 | X | X | X | X | X | X | X | X | X | X | X | X |
| #5 | X | X | X | X | X | X | X | X | X | X | X | X |

Note: X= scorer agreement
0 = lack of agreement

As a result of the Q-Sort Review, an estimate of validity for the What's my Learning Style? Instrument was considered to be appropriate for research purposes.

**Participants**

The descriptive statistics shows out of the total 316 respondents, 118 (37.3%) were American students, 94 (29.7%) were Saudi students and 104 (32.9%) were Egyptian students. 208 (65.8%) of the total respondents were males and 108 (34.2%) were females.

Table 2

*Demographics*

| **Nationality** | **Male** | **Female** | **Total** | **Percent** |
|---|---|---|---|---|
| American | 35 | 83 | 118 | 37.3% |
| Saudi | 94 | 0 | 94 | 29.7% |
| Egyptian | 39 | 25 | 104 | 32.9% |
| Total | 208 | 108 | 316 | 100% |

**Results**

*Auditory Learning ability*

The descriptive table shows the descriptive statistics including the mean, standard deviation for each separate group (Egyptian students, Saudi students and American students) as well as for the total respondents when all groups are combined (Total).

Table 3

*Descriptive Statistics (Auditory Learning Ability)*

| | Respondents | Mean Score | SD |
|---|---|---|---|
| Egyptian student | 104 | 6.3942 | .96962 |
| Saudi student | 94 | 6.9362 | .81397 |
| American student | 118 | 6.3814 | .96891 |
| Total | 316 | 6.5506 | .95650 |

The Levene's F Statistic shows a significant value of 0.003 and, therefore, the assumption of homogeneity of variance is not met.

Table 4

*Homogeneity of Variance Test*

| Levene's Statistics | df1 | df2 | Sig |
|---|---|---|---|
| 6.086 | 2 | 313 | .003 |

So, the Robust Tests of Equality of Means Table instead of the ANOVA Table was used to determine the group differences among the three different groups of respondents.

Table 5

*Robust Tests of Equality of Means*

| | Statistic[a] | df1 | df2 | Sig |
|---|---|---|---|---|
| Welch | 13.312 | 2 | 207.234 | .000 |

[a]Asymptotically F distributed

The robust tests of equality of means table shows, there was a statistically significant difference between groups as determined by one-way ANOVA Welch (2,207.234) = 13.312, $p < 0.01$). A Games-Howell post-hoc test revealed that the Saudi students have statistically significantly higher (6.93 ± .813, $p < 0.01$) auditory learning ability compared to Egyptian students (6.39 ±.969) and American students (6.38 ± .956). There were no statistically significant differences in the auditory learning ability between the Egyptian and American students ($p = .994$).

*Visual Learning ability*

The descriptive table shows the descriptive statistics including the mean, standard deviation and 95% confidence intervals for the dependent variable (Time) for each separate group (Egyptian students, Saudi students and American students) as well as for the total respondents when all groups are combined (Total).

Table 6

*Descriptive Statistics (Visual Learning Ability)*

| | Respondents | Mean Score | SD |
|---|---|---|---|
| Egyptian student | 104 | 6.6538 | .91130 |
| Saudi student | 94 | 6.7766 | .89388 |
| American student | 118 | 6.8814 | .84524 |
| Total | 316 | 6.7753 | .84524 |

The Levene's F Statistic shows a significant value of 0.008 and, therefore, the assumption of homogeneity of variance is not met.

Table 7

*Homogeneity of Variance Test*

| Levene's Statistics | df1 | df2 | Sig |
|---|---|---|---|
| 4.875 | 2 | 313 | .008 |

So, the Robust Tests of Equality of Means Table instead of the ANOVA Table was used to determine the group differences among the three different groups of respondents.

Table 8

*Robust Tests of Equality of Means*

| | Statistic[a] | df1 | df2 | Sig |
|---|---|---|---|---|
| Welch | 2.086 | 2 | 197.373 | .127 |

[a]Asymptotically F distributed

The robust tests of equality of means table shows, there was no statistically significant difference in the visual learning abilities among the American, Egyptian and Saudi students as determined by one-way ANOVA Welch (2,197.373) = 2.086, p =.127).

*Kinesthetic Learning ability*

The descriptive table shows the descriptive statistics including the mean, standard deviation and 95% confidence intervals for the dependent variable (Time) for each separate group (Egyptian students, Saudi students and American students) as well as for the total respondents when all groups are combined (Total).

Table 9

*Descriptive Statistics (Kinesthetic Learning Ability)*

| | Respondents | Mean Score | SD |
|---|---|---|---|
| Egyptian student | 104 | 6.8558 | .94938 |
| Saudi student | 94 | 6.9468 | .90835 |
| American student | 118 | 6.0254 | 1.2453 |
| Total | 316 | 6.5728 | 1.13714 |

*Homogeneity of Variances Table*

The Levene's F Statistic shows a significant value of 0.001 and, therefore, the assumption of homogeneity of variance is not met.

Table 10

*Homogeneity of Variance Test*

| Levene's Statistics | df1 | df2 | Sig |
|---|---|---|---|
| 7.055 | 2 | 313 | .001 |

So, the Robust Tests of Equality of Means Table instead of the ANOVA Table was used to determine the group differences among the three different groups of respondents.

Table 11

*Robust Tests of Equality of Means*

| | Statistic[a] | df1 | df2 | Sig |
|---|---|---|---|---|
| Welch | 22.114 | 2 | 208.273 | .000 |

[a]Asymptotically F distributed

The robust tests of equality of means table shows, there was a statistically significant difference between groups as determined by one-way ANOVA Welch (2,208.273) = 22.114, $p < 0.01$). A Games-Howell post-hoc test revealed that the American Students have statistically significantly lower (6.02 ± .1.24, $p < 0.01$) Kinesthetic learning ability compared to Egyptian students (6.85 ±.949) and Saudi students (6.94 ± .908). There were no statistically significant differences in Kinesthetic learning ability between the Egyptian and Saudi students ($p = .770$).

**Conclusions / Recommendations**

Analysis of the data leads us to the following conclusions/recommendations:

1. With no statically differences found concerning the Visual Modality preference common classroom practice regarding visual aids to learning should be beneficial to all three nationalities.
2. Saudi students demonstrated a preference for the Aural Modality, therefore a higher level of lecture among Saudi students than the other nationalities would be appropriate to support their expressed learning preferences.

3. Lastly, the American students were significantly less inclined to select the Kinesthetic Modality than the students from the other nations. As a result the data indicate that less emphasis on the Kinesthetic Modality for American students than the other nationalities would be an appropriate classroom strategy.

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