

CHAPTER II

REVIEW TO RELATED LITERATURE

As it has been stated in the preceding part, the object of this research is learning styles. This part describes how experts define, classify, and relate learning styles with academic achievements, especially in foreign and second language learning.

A. Defining Learning Styles

The term *learning styles* is defined differently by different writers and scholars, but mostly refers to a signal of individual differences (Abidin, *et.al.*, 2011: 144). Honey and Mumford (as cited by Abidin, et al., 2011: 144) describe learning style as an individual preferred or habitual ways of processing and transforming knowledge. Learning style refers to individual differences in how we perceive, think, solve problems, and learn (Witkin, 1973 as cited by Maghsudi, 2007:2), or the ways in which an individual characteristically acquires, retains, and retrieves information (Felder and Henriques, 1995: 21). Meanwhile, Cohen (1998:15) defines *learning styles* simply as general approaches to learning. In addition, Summer Institute of Linguistics International (1999) proposes more detail definition of a learning style as “*the unique collection of individual skills and preferences that affect how a person perceives, gathers, and processes information*”. Learning style affects how a person acts in a group, learns, participates in activities, relates to others, solves problems, teaches, and works (SIL International, 1999).

In defining and describing *learning style*, there are also experts who discuss it together with the term *cognitive style*. Sometimes, the term *learning style* and *cognitive style* are used interchangeably, but at other times they refer to different concepts. To Reid (1987: 90) and Cassidy (2004: 420), the two terms refer to different things. Citing from Allport and Riding and Cheema, Cassidy (2004: 420) defines *cognitive style* as an individual's typical or habitual mode of problem solving, thinking, perceiving and remembering, while *learning style* is adopted to reflect a concern with the application of cognitive style in a learning situation. Cognitive style refers to how the mind actually functions, how it processes information or is affected by each individual's perceptions (Reid, 1987: 88). In fact, the two terms refer to different concepts.

B. Learning Styles Classification

Different classifications of learning styles exist in the literature, each with its theoretical bases and are rooted to different disciplines. Learning-styles-online.com classifies learning style into 7 categories: Visual, Aural, Verbal, Physical, Logical, Social, and Solitary, while Montemayor, et al., (2009: 61) states that there are experts who classify learning styles as visual learners, auditory learners, kinesthetic learners, and tactile learners. Meanwhile, Reid (1987: 92) classifies learning style preferences into six: visual, auditory, kinesthetic, tactile, group learning, and individual learning. In addition, Hall and Mosely, 2005 (as cited by Renou: 2) identified 71 models of learning styles published between 1902 and 2002.

If we examine closely, in most of learning style classifications there are 3

basic learning styles (Reid, 1987: 89; Ldpride Learning Styles, 2008: 2; LearningRx Franchise Corp, 2012; <http://people.usd.edu/~bwjames/tut/learning-style/>; IUPUI (Indiana University-Purdue University Indianapolis)). The three basic learning styles which mostly exist are Visual, Auditory, and Kinesthetic. The following is a brief description of each learning style.

1. Visual Learners

Visual learners learn best by looking at graphics, watching a demonstration, or reading. For them, it's easy to look at charts and graphs, but they may have difficulty focusing while listening to an explanation (LearningRx Franchise Corp, 2012). IUPUI describes in more detail the common characteristics of visual learners as the following:

- a. Uses visual objects such as graphs, charts, pictures, and seeing information
- b. Can read body language well and has a good perception of aesthetics
- c. Able to memorize and recall various information
- d. Tends to remember things that are written down
- e. Learns better in lectures by watching them

2. Auditory Learners

Auditory learners would rather listen to things being explained than read about them. Reciting information out loud and having music in the background may be a common study method. Other noises may become a distraction resulting in a need for a relatively quiet place (LearningRx Franchise Corp, 2012). In more detail IUPUI describes the common characteristics of visual learners as the following:

- a. Retains information through hearing and speaking
- b. Often prefers to be told how to do things and then summarizes the main points out loud to help with memorization
- c. Notices different aspects of speaking
- d. Often has talents in music and may concentrate better with soft music playing in the background

3. Kinesthetic Learners

Kinesthetic learners process information best through a “hands-on” experience. Actually doing an activity can be the easiest way for them to learn. Sitting still while studying may be difficult, but writing things down makes it easier to understand (LearningRx Franchise Corp, 2012). IUPUI describes in more detail the common characteristics of visual learners as the following:

- a. Likes to use the hands-on approach to learn new material
- b. Is generally good in math and science
- c. Would rather demonstrate how to do something rather than verbally explain it
- d. Usually prefers group work more than others

Learning style is unique, in the sense that each person prefers different learning styles, while some people may find that they have a dominant style of learning, with far less use of the other styles. Others may find that they use different styles in different circumstances. However, in most cases everyone has a mix of learning styles (Ldpride Learning Styles, 2008) or to Reid (as cited by Renou) learning styles are “points along a continuum”.

There are three major categories of learning styles which are widely

recognized and relevant to the field of foreign language learning: sensory or perceptual learning styles, cognitive learning styles, and affective/temperament learning styles (Reid, 1995 as cited by Renou). Perceptual learning styles deal with the ways we perceive information: what senses which are used to perceive information. Therefore, the three basic learning styles described above, visual, auditory, and kinaesthetic learners, fall in the category of perceptual learning styles. Cognitive learning styles or “thinking styles” (http://en.wikipedia.org/w/index.php?title=Cognitive_style&oldid=521169708) have to do with the manner in which people perceive, recall, and organize information (Ellis, 1985: 144). Experts generally classify cognitive styles into 2 categories: field independence (FI) and field dependence (FD). FI learners are analytic learners who tend to work independently, while FD learners are global learners who are socially oriented and extrinsically motivated (Ramirez and Price-William, 1974 as cited by Kang, 1999). Affective/temperament learning styles are learning styles which distinguish learners according to their emotions, values, and feelings: how they motivate themselves and react to learning stimuli.

A well-known classification of learning styles was proposed by Felder and Silverman. In 1988, Felder and Silverman proposed a *learning-style model*, together with its parallel *teaching-style model*. To them, student’s learning style may be defined based on the answers to the five questions below (Felder and Silverman, 1988: 674-675).

1. What type of information does the student preferentially perceive: sensory or intuitive?
2. Through which sensory channel is external information most effectively

- perceived: visual or auditory?
3. With which organization of information is the student most comfortable: inductive or deductive?
 4. How does the student prefer to process information: actively or reflectively?
 5. How does the student progress toward understanding: sequentially or globally?

Based on answers to those five questions, they proposed five learning and teaching styles dimensions as the following.

Dimensions of Learning and Teaching Styles

<i>Preferred Learning Style</i>		<i>Corresponding Teaching Style</i>	
sensory intuitive	} Perception	concrete abstract	} content
visual auditory	} Input	visual verbal	} presentation
inductive deductive	} Organization	inductive deductive	} organization
active reflective	} Processing	active passive	} student participation
sequential global	} Understanding	sequential global	} perspective

Source: Felder and Silverman, 1988: 675.

In 1991 (Felder and Spurlin, 2005:104), Barbara A. Solomon and Richard M. Felder of North Carolina University created the initial version of what so called Index of Learning Style (ILS), based on Felder and Silverman model of dimensions of learning and teaching styles. They made two significant changes in the model: dropping the inductive/deductive dimensions, and changing the visual/auditory category to visual/verbal. This change was then reinforced by Felder himself in June 2002 with his preface attached to the original article

(Felder, 2002). Hence, the model which is currently available and known as *Index of Learning Style (ILS)* and is used as the instrument of this research assesses preferences on four dimensions: 1) sensing-intuitive; 2) visual-verbal; 3) active-reflective, and 4) sequential-global.

The characteristics of learners within each dimension of the learning styles model proposed by Felder and Solomon can be described as the following (Felder and Solomon: Learning Styles and Strategies)

1. Active and Reflective Learners

Active Learners	Reflective Learners
1. tend to retain and understand information best by doing something active with it--discussing or applying it or explaining it to others	1. prefer to think about it quietly first
2. Response to a problem: "Let's try it out".	2. Response to A problem: "Let's think it through first"
3. prefer group work	3. prefer working alone
4. very hard not to do anything physical while having lectures other than taking notes	4. hard not to do anything physical while having lectures other than taking notes

2. Sensing and Intuitive Learners

Sensing Learners	Intuitive Learners
1. tend to like learning facts	1. often prefer discovering possibilities and relationships
2. like solving problems by well-established methods and dislike complications and surprises	2. like innovation and dislike repetition
3. tend to be patient with details and good at memorizing facts and doing hands-on (laboratory) work	3. may be better at grasping new concepts and are often more comfortable than sensors with abstractions and mathematical formulations.
4. tend to be more practical and careful than intuitors	4. tend to work faster and to be more innovative than sensors
5. don't like courses that have no apparent connection to the real world	5. don't like "plug-and-chug" courses that involve a lot of memorization and routine calculations

3. Visual and Verbal Learners

Visual Learners	Verbal Learners
1. remember best what they see-- pictures, diagrams, flow charts, time lines, films, and demonstrations	1. get more out of words--written and spoken explanations
2. learns more when information is presented both visually and verbally	2. learns more when information is presented both visually and verbally

4. Sequential and Global Learners

Sequential Learners	Global Learners
1. tend to gain understanding in linear steps, with each step following logically from the previous one	1. tend to learn in large jumps, absorbing material almost randomly without seeing connections, and then suddenly "getting it"
2. tend to follow logical stepwise paths in finding solutions	2. may be able to solve complex problems quickly or put things together in novel ways once they have grasped the big picture, but they may have difficulty explaining how they did it

C. The Roles of Learning Styles in Learning Process and Performance

Beside the research which was conducted by Oxford and Lee (2007: 124) and that by Macaro, et al. (2007: 173) described in the background of this research which revealed the fact that there was a relationship between learning styles and academic achievements, there are some other experts who also support and agree that learning style is one of the variables which influences how students learn (Reid, 1987: 87; Benson, 2001: 67). For example, Domino (as quoted by Reid, 1987: 10) found that college students taught in preferred learning styles scored higher on tests, fact knowledge, attitude, and efficiency than those taught in instructional styles different from their preferred styles. Nelson et al., 1993 (as quoted by Mulalic et al., 2009) concluded in their research that students who

completed learning styles inventories at the beginning of the course achieved better at the end, and those students who were participating in learning style workshops persisted in the universities in larger percentages than those who did not participated in the workshops.

In a study which examined the different learning strategies by college students in a hypermedia assisted language learning setting for whom English was a second language, Liu and Reed (1994: abstract) concluded that different learning style groups employed different learning strategies in accomplishing the same task. Meanwhile, Sriachanyachon (2012: 211) revealed two important findings related with learning style: 1) there were positive relationships among students' English background knowledge, learning styles, and motivation at 0.05; 2) greater variety of learning styles and more motivation to learn English were found with students with higher English background knowledge. Investigating the effects of cognitive learning style on 1st-year academic performance in 19 university courses using a sample of 4,546 students over a 4-year period from 1993 to 1997, Drysdale, Ross & Schulz (2001: abstract) revealed that academic performance based on learning style was found to be significant ($p < 0.05$) in 11 of the 19 courses.

A research on perceptual learning styles by using *The Learning Styles Survey (LSS)* as the instrument and one-way ANOVA and multiple regressions as the method of data analysis was conducted by Abidin, et al. (2011: 143). Two important results relevant with our research are: 1) there was a significant relationship between overall academic achievement and learning styles; 2) the

high moderate and low achievers have a similar preference pattern of learning in all learning styles.

In the field of English learning in senior high school, China Papers (2010) reported that in general tactile style and individual style are the most contributable style variables affecting English learning achievements. They are positively correlated to total score with a significance level of .183(*) and .117. And group style is negatively correlated to total score with a significance level of -.147.

D. Learning Styles, Gender and Subject Preference

It is undeniable that men and women are basically different in many aspects, both physically and mentally. Gender is also a variable which is believed to have a relationship with learning styles preference (Reid, 1987: 1) and to be one that affects learning process as well as learning performance. Wardhaugh (1992) also states that women and men may have different paralinguistic systems and move and gesture differently. Besides, Trudgill (1985:90) says that males' and females' speeches are not only different; females' are also better than males'. In addition, Vasyura (2008) points out that male are more confident in communicative activity. In addition, distinctive differences in cognitive styles between males and females as well as systematic differences associated with major area of study, level of academic achievement, and educational level were revealed in their research (O'Brien, 1991: abstract). If sex variable has relationship with learning process and learning outcome, it is very possible that it also has relationship with learning styles.

The characteristics of learners within each dimension of the learning styles model as proposed by Felder and Solomon are different. Therefore, it is very logical to think that an individual with certain learning style will naturally tend to prefer certain subject. A student with very strong verbal learning style, for instance, is assumed to prefer speaking more than writing. This is supported by the fact that 1) there is a correlation between perceptual learning styles and English learning achievements; 2) auditory style and kinesthetic style are positively correlated to listening while visual style is negatively correlated to listening; 3) tactile style is positively correlated to reading while visual style and group style are negatively correlated to it; 4) tactile style, auditory style, kinesthetic style and individual style are correlated to writing positively while group style is correlated to it negatively (China Papers, 2010)