

Learning Styles: A Review

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ABSTRACT

Learning style is the way in which each learner begins to concentrate on, process, and retain new and difficult information. There are various learning styles which measure different ways learners acquire second language – perceptual, character and cognitive. Various instruments are used to measure learning styles; questionnaire and test. However, opponents of learning styles have argued over the lack of strong theoretical underpinnings on the subject, various definitions given on the subject and the language obstacles in the instruments themselves. This paper looks into the various ways that learners learn language based on their differences in learning styles, thus, allowing for better pedagogical instructions toward language classroom.

Keywords: Learning styles, pedagogical implication, second language learning

Introduction

There are complex variations on the definitions of learning styles (Brown 1998). *Style* is a term that refers to consistent and rather enduring tendencies or preferences within an individual. Styles are those general characteristics of intellectual functioning that especially pertain to you as an individual, that differentiates you from someone else (Brown 1994:104). Learning styles are described as 'the ways in which an individual characteristically acquires, retains and retrieves information' (Felder 1995:21). James and Gardner (1995) explain learning styles as the 'complex manner in which, learners most efficiently and most effectively perceive, process, store and recall what they are attempting to learn'. It is seen as 'a stable, trait like consistency in one's approach to attending, perceiving and thinking' (Entwistle & Ramsden 1988:8). Keefe (1979) defines learning style as 'cognitive, affective and physiological traits that are relatively stable indicators of how learners perceive, interact with, and respond to the learning environment'. Brown (1994) states that learning styles mediate between emotion and cognition and are determined by the way they (learners) internalise their total environment. Appleton (1983) defines learning style as a blend of cognitive, affective and behavioural elements.

Reid (1987) refers to style as the pervasive quality in the learning strategies or the learning behaviour of an individual. Reid (1995) further defines learning style as internally based characteristics, which are often used unconsciously and are the basis for the intake and understanding of information. According to Reid (1995), learning styles is 'an individual's natural, habitual and preferred way(s) of absorbing, processing, and retaining new information and skills. These learning styles persist, regardless of teaching methods and content areas' (Reid 1995: viii). Learning style, can be summarised as the way in which each learner begins to concentrate on, process, and retain new and difficult information (Dunn & Dunn 1992:2).

Fischer and Fischer (1979) indicate that there are four types of learners: a) emotionally involved b) incremental c) sensory generalist-specialist d) intuitive. Learners who are emotionally involved can be further subdivided into two categories: i) learners who need a colourful learning atmosphere and ii) learners who require a dynamic interplay of ideas and activities. The incremental learner requires a logical-sequential structure. The sensory generalist is a multisensory learner and the specialist prefers one dominant sense. The intuitive learner has sudden insights into learning and is able to make meaningful and accurate generalization based on the information and experience gathered unsystematically.

Pask (1988) distinguished two types of learning styles: the holist and the serialist. The holists prefer to look at learning globally and as a series of relations to topics. The serialists, on the other hand, look at learning as a step-by-step process (Pask as cited in Schmeck 1988:87). Their focus was narrow, concentrating on each step of argument, cautiously and critically (Riding 1998:130). Das (1988) states that learning style is a predisposition to adopt a learning strategy and that it is latent instead of manifested.

Kirby (1988), in his study on reading skills, describes learning style as global, analytical and synthetical. Global learners, according to Kirby, pay insufficient attention to details and jump quickly to the broadest level of interpretation. In contrast, analytical learners pay much attention to details via rote memory.

Torrance and Rockenstein (1988) identify learners through right and left brain hemisphere. According to them, the right brain is primarily specialised for non verbal, holistic, concrete, spatial, analogic, creative, intuitive and aesthetic functions. Right brain learners see the whole instead of the parts and seek relationships and gestalts (Kinsella 1995;177). On the other hand, the left brain is primarily specialized for verbal, analytical, abstract, temporal and digital operations (Torrance & Rockenstein 1988:278). The left-brain learners, according to Kinsella

(1995), specialise in distinguishing the parts that comprise the whole (Kinsella 1995:177). Furthermore, left brain learners are able to analyse, rationalize and think objectively by processing information in a linear and sequential manner (Kinsella 1995:177). Right and left-brain styles, according to Torrance and Rockenstein, reflect their corresponding dominant brain hemisphere characteristics (Torrance & Rockenstein 1988:278).

The Aim

The paper aims to provide a review of four learning styles: Witkin's Field Independent/Dependent, Kolb's Experiential Learning, Myer-Briggs Temperament Indicator and Dunn and Dunn's Learning Style Inventory. The review analyses the essence of each learning style, its weaknesses and the pedagogical impact it has on second language learners.

Learning Style 1: Witkin's Field Independent and Field Dependent

Field independence/dependence is the most researched of all cognitive styles (Rasinski 1983). This learning approach measures how students are able to overcome the effects of distracting background elements when they attempt to differentiate relevant aspects of a particular situation. The instrument used to measure the learning approach is the Group Embedded Figures Test (GEFT). The test is a twenty five-item test, which contains three time sections of 2, 2 and 5 minutes, respectively. The test comes in booklet form and the individual is required to trace one of eight simple figures embedded in a visual background of greater complexity.

This test describes the ability of an individual to identify a specific element from within a complex field. Witkin, Goodenough and Cox's (1977) definition of Field Independence is "the extent to which a person perceives part of a field as discrete from the surrounding field, as a whole rather than embedded in the field; the extent to which a person perceives analytically".

Field independent style persons have the ability to perceive a particular relevant item or factor in a field of distracting items (Brown 1994:106). That is to say field independent persons will see the trees instead of the forest, the picture of a man or a hidden castle in a 3-D picture (Brown 1994; Wyss, 2002).

The characteristics of the field independent style are the ability to distinguish parts from whole, competitive, and self confident (Brown 1994). Dembo (1991) states that field independent persons are more interested in subjects such as mathematics and physical sciences which stress the impersonal and abstract, something which they are better at learning and remembering. Field independent individuals will also tend to re-organise, restructure or represent information to suit their own needs, conceptions or perceptions (Jonassen & Grabowski 1993). Brown (1994) states that it has been found in Western culture that most males tend to be field independent. He further adds that, cross-culturally, the development of field independence among children as they mature very much depends on the type of society and home that the child is reared. A democratic, industrialized, competitive society with freer rearing norms tends to produce more field independent persons (Brown 1994).

Field dependent persons have the tendency to be dependent on the total field so that the parts embedded within the field are easily perceived, though that total field is perceived more clearly as a unified whole (Brown 1994:106). The field dependent persons are drawn to people, favours occupation that deals with people, prefers social sciences, more people oriented and are better at learning and remembering social materials (Dembo 1991). Brown (1994) states that field dependent style persons tend to be more socialised, tend to derive their self-identity from persons around them and are usually more emphatic and perceptive of the feelings and thoughts of others (Brown 1994:106). An important factor to be taken into consideration in the development of field dependent persons is the home or society in which the persons are reared. Brown (1994) suggests that an authoritarian or agrarian society, which is usually highly socialised and utilises strict rearing practices, tends to produce more field dependent persons (Brown 1994:106). Individuals who are Field Dependent experience difficulty in discriminating a particular element from within a complex visual field; they will tend to be more global in their approach. Witkin (1977 as cited in Parkinson & Redmond 2002) when describing the implications of Field Independent– Field Dependent refers to the fact that field dependent people tend to have more difficulty with learning material that lacks inherent structure and organisation.

Criticisms of Witkin's Field Independent and Field Dependent

Brown (1994) adds that currently, the classroom implication of Field Dependent hypotheses is still plausible but lacks supportive evidence. This is due to the absence of a true test for field dependent persons (Brown 1994:107). In addition, Brown argues that field independent and dependent is quite a variable within an individual. This is to say that the learners can vary their utilisation of the learning styles depending upon the task that he is asked to do (Brown 1994:107). Griffiths and Sheen (1992) conclude that this theory is flawed and has no relevance towards second language learning. Brown (1994) adds that it may be incorrect to assume that a learner is either field independent or

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field dependent as he may exercise a sufficient degree of learning styles depending on the given context (Brown 1994:108). Chapelle (1995) argues that a measure of style should comprise items or tasks that will assess how individual works and *not* how well he works. A problem with GEFT, she adds, is that it asks test takers to find geometric shapes and then evaluate how well they did it (how many they found) rather than access the processes they used to attempt to find them. Moreover, to assess learning style we need to develop a test for which there are no correct or incorrect responses, but only different responses (Chapelle 1995). Furthermore, the GEFT does not look into the possibilities and differences in terms of gender and culture.

Learning Style 2: Kolb's Experiential Learning Model

Kolb (1974) labelled his model experiential for two reasons, historical and the pivotal role experience plays in the learning process. The core of the model is a simple description of the learning cycle, depicting how experience is translated into concepts which, in turn is used as a guide in the choice of new experience (Kolb 1974:28).



Fig. 1: The Experiential Learning Model

Kolb (1974) views learning as a four-stage cycle in which the first cycle, the concrete experience will serve as the basis for observation and reflection. These are, then, assimilated into a theory from which new implications for actions can be deduced. The implications and hypotheses then serve as guides to create new experiences (Kolb 1974:28). He furthers adds that in order for a learner to be effective, he needs four kinds of abilities. The abilities are:

- i. concrete experience abilities (CE)
- ii. reflective observation abilities (RO)
- iii. abstract conceptualization abilities (AC)
- iv. active experimentation abilities (AE)

Based on the Experiential Learning Model, Kolb developed the Learning Style Inventory (LSI) which is a simple self-description inventory that is designed to measure individual's strength and weaknesses as a learner (Kolb 1974:30). The fundamental idea of the inventory is to better understand the different ways that people learn and solve problems so that they can be aware of the consequences of their own learning style and of the alternative modes available to them, as well as improve the design of their learning experiences by taking into account these learning style differences (Kolb 1974:30).

The LSI measures an individual's relative emphasis on four learning abilities mentioned earlier concrete experience (CE), reflective observation (RO), abstract conceptualization (AC) and active experimentation (AE). The inventory will ask the individual several times to rank order four words that describe these different abilities. The inventory yields six scores, CE, RO, AC, and AE plus two combination scores that indicate the extent to which the individual emphasizes abstractness over concreteness (AC-CE) and the extent to which an individual emphasises experimentation over reflection (AE-RO) (Kolb 1974:30).

Kolb has managed to identify four dominant types of learning styles based on his research using the LSI on managers and graduate students in management. The four dominant styles are described below:

Convergers dominant abilities are abstract conceptualization and active experimentation. They are unemotional; work best with things rather than people, and are very practical with most of them being engineers. On the other hand, **Divergers** are the opposite of converger and they are a combination of concrete experience and reflective observation, very imaginative, and interactive with a broad interest in art. According to the research by Kolb,

personnel managers tend to be characterized by this learning style. Assimilators dominant learning abilities are abstract conceptualisation and reflective observation. They excel in inductive reasoning, creating theoretical models, assimilating disparate observations into an integrated explanation and more concerned with the concepts of theories rather than the practical use of them. People with this learning style are mostly involved in research and planning. Accommodators are best at concrete experience and active experimentation and their greatest strength is in doing things, carrying out plans and experiments. They adapt themselves into immediate circumstances and are risk takers who feel at ease with people but may appear pushy and impatient at times.

Weakness of Kolb's Experiential Learning Model

Kolb's theory of experiential learning is not without any criticism. There are certain limitations to the theory and preferred learning styles. Kolb's himself points out that the results from the LSI come from the learners and depend very much on the way the learners rate themselves. It does not rate learning style preferences through standards or behaviour, as some other personal style inventories do, and it only gives relative strengths within the individual learner, not in relation to others (Kelly 1997). Kolb's LSI internal consistency as a whole is relatively low with average coefficients of .79 and .83 on split half coefficient, and Alpha coefficient of .29 to .71, demonstrating moderate reliability. Test and retest abilities suggest that an individual ranking is not stable over time (Heineman 1995).

According to Rogers (1996), learning includes goals, purposes, intentions, choice and decision-making, and it is not at all clear where these elements (experiential model) fit into the learning cycle. Smith (2001) points out various limitations to the model created by Kolb, such as cultural experiences and conditions are not seriously taken into account, insufficient attention to the process of reflection and empirical support to the model is also weak. Nonetheless, Kolb's contributions cannot be underestimated. Whatever their limitations, by presenting a model of experience in a scientific form, he has helped move educational thought from the locus of the instructor back to the learner (Kelly 1997).

Learning Style 3: Myers-Briggs Temperament Indicator

Swiss psychologist, Carl Gustav Jung, proposed a theory of psychological type in 1921, asserting that everyone is either extroverted or introverted in orientation, and prefers one way of perceiving (sensing or intuition) and one way of judging or deciding on action (thinking or feeling) (Bonham 1987). Jung proposes that personality, or psychological type, is formed by the ordered combination of four preferences concerning the use of perception and judgment. The four bi-polar preferences encompass Extraversion-Introversion, Sensing-Intuitive, Thinking-Feeling, and Judging-Perceptive (Heineman 1995).

Katherine Cook Briggs in 1942, with her daughter, Isabel Briggs Myers, began to work on an instrument that would reveal individual types, the Myers-Briggs Type Indicator (MBTI). The MBTI is purported to measure the three Jungian dichotomies plus a fourth dimension, perceiving (P) versus judging (J). Of the four dichotomies, the sensing-intuition preference reveals basic learning style differences while the thinking-feeling dimension shows a pattern of commitments and values of the student and the judging-perceiving dimension shows work habits (Schultz 1985).

The Myers-Briggs Type IndicatorTM has been widely used to classify student learning styles in various disciplines (Montgomery & Groat 2002). The MBTI is a self-report instrument with dichotomous scales intended to sort people into type categories, rather than to measure strengths of individual traits or degrees of type development. The items, though written in a forced-choice format, are less aversive than other forced-choice instruments because each item deals with only one polarity, and the responses reflect opposing, rather than competing, choices (Ring 1998). It is available in Form G, the standard form of 126 items, Form F, a research form containing 166 items, and Form AV, the Abbreviated Version of only 50 items (Ring 1998).

The MBTI is a psychometric instrument designed to sort people into groups of personality types. Jungian theory (Jung 1971) posits that variation in human behavior is not due to chance, but to basic and observable differences in the ways people prefer to use their minds to gather and process information. Perception, according to the same theory, is the means by which one becomes aware of people, things, events, and concepts; judgment is the means of coming to conclusions about how to handle the information gathered. On the other hand, sensing-perception uses the physical senses of seeing, hearing, tasting, touching, and smelling, while intuition perceives through an intangible, usually unconscious, sometimes called "sixth" sense. These are measured on the MBTI's SN (Sensing and Intuition) index. Thinking-judgment involves making decisions objectively and impersonally, based on laws, principles, and factual information. Feeling-judgment makes decisions subjectively and personally, based on relationships and values—one's own and those of others (Ring 1998).

The two remaining indices deal with orientation and attitude. The *El index* indicates Extraversion, an orientation toward the outer world, focusing on people and things, and Introversion, an orientation toward the inner world of concepts and ideas. Myers has added a *JP index* to Jung's original classifications to describe the process used

primarily in dealing with the outer world; the extraverted part of life. A *J report* indicates a preference for using a judgment process (Thinking or Feeling), while a *P report* indicates a preference for using a process of perception (either Sensing or Intuition). All four indices are dichotomous, as people tend to develop one preference on the scale at the expense of the other (Ring 1998).

An MBTI result consists of a four-letter code, such as ESTJ (Extraverted Sensing Thinking Judging), to indicate the personality type of the individual. All possible combinations yield sixteen personality types, each with a distinct descriptive profile of characteristic behavior patterns caused by the dynamic interaction of the individual processes (Ring 1998).

ORIENTATION TO LIFE	Extroverted Group interactions Applications	Introverted Working alone Concepts and ideas
PERCEPTION	Sensing Facts and data Routine	Intuitive Impressions Not routine
DECISION MAKING	Thinking Objective Logical	Feeling Subjective Search for harmony
ATTITUDE TO OUTSIDE WORLD	Judgment Planning Control	Perception Spontaneity Adaptive

Table 2.2: Preferences of Myers-Briggs Personality Types (taken from Montgomery and Groat, 2002)

Criticisms of Myers-Briggs Temperament Indicator

Critics of the MBTI draw notice to the forced-choice format assuming that the opposing functions or orientations are not independent but mutually exclusive. The descriptions are based on those proposed by Jung and were without subsequent research. Eliason (1995) found that there are numerous items in the MBTI which may be problematic for non native English speakers, words such as *ingenious, conspicuous* and *cramp* and also idioms such as *make up your mind, get into tight spot* and *leave you cold* (Eliason 1995). However, evaluation done by Harvey (1996) on MBTI research over the last ten years, using generally accepted standards has shown the scores to be quite good and comparable to 'even the most well-established and respected trait based instruments' (Harvey 1996).

Learning Style 4: Perceptual Learning Style (Dunn & Dunn Learning Style Inventory)

Learning style is the way that students of every age are affected by their a) *immediate environment* b) *own emotionality* c) *sociological needs* d) *physical characteristics* and e) *psychological inclination* when concentrating and trying to master and remember new or difficult information or skills (Carbo, Dunn & Dunn 1986).

People learn through their different senses, some children will remember what is heard, some recall visually what is seen or read, many will use their fingers in some way to help them remember some basic facts and information and there are others who must be involved in real life activities to learn (Carbo, Dunn & Dunn, 1986:13). Carbo, Dunn & Dunn (1986:2) further adds that, children will learn best when they use their learning style characteristics advantageously.

Perceptual learning style preferences form a part of an extensive coverage of the various factors that contribute to the learning styles of students. Dunn and Dunn have classified the learning styles into five stimuli and they are called Learning Style Inventory (LSI). The stimuli are *environmental*, *emotional*, *sociological*, *physical* and *psychological*. These stimuli are further broken down into different areas.

Learning Style Inventory (LSI) is a comprehensive approach to the identification of an individual's learning style. The instrument analyses the conditions under which students prefer to learn. The diagnosis is accomplished through an assessment of 18 environmental, emotional, psychological, sociological and physical characteristics. It reports a Consistency Key to reveal accuracy with which each respondent has answered its questions (Carbo, Dunn & Dunn, 1986:254).

The LSI has shown to have an impressive reliability, face and construct validity (Kirby 1979). Keefe (1982) has verified that LSI is the most widely used assessment instrument in elementary and secondary schools. The LSI has been used to examine and compare the styles of underachievers, students in alternate education, the handicapped, the gifted and the good and poor readers (Carbo, Dunn & Dunn 1986:255).

Criticisms of Perceptual Learning Style

Felder and Henriques (1995) suggest a different aspect of perceptual learning styles as they classify the way people receive sensory information as *visual, verbal* and *others (tactile, gustatory, olfactory)*. Visual learners prefer that the information be presented visually-charts, diagrams and pictures. Verbal learners, on the other hand, prefer spoken or written explanations to visual presentation. The third category (touch, taste and smell) plays a marginal role in language instruction. This is considered as unconventional in learning style literature (Dunn, Dunn & Price 1978) in which sensory modalities are classified as visual, auditory and kinesthetic (Felder & Henriques 1995:23).

Felder and Henriques (1995) regard kinesthetic as outside the sensory input modalities and suggest that students' preference toward motion or physical activity be considered under a different set of learning style. They suggest that this category be considered under Kolb's active and reflective dimension.

Weaknesses of Learning Styles Instrument

The discrepancies in how the term *learning styles* is used and the relativeness of the idea of consistency, cause confusion over what characteristics are most important in determining a person's learning style (Eliason 1995). Various instruments measure various aspects of style with its own definition of the term. MBTI measures personality traits, Kolb's LSI measures ways we process information and Dunn & Dunn Learning Style Inventory measures perceptual as well as psychological aspects of styles. The confusion extends the challenge of how best to measure a style as most learning style instruments focus on one or two aspects of learning style and none encompasses all aspects (Eliason 1995).

Eliason (1995) said that many learning styles instruments have limited theoretical underpinnings and the validity of these tests has been seriously questioned. Perceptual learning style provides a good illustration of the point above as Dunn and Dunn (1975) categorize perceptual as visual, kinesthetic, tactile and auditory whereas Felder and Henriques categorize them as visual, verbal and others (tactile, gustatory and olfactory) and considered kinesthetic as outside the sensory modalities. These divisions, according to Grasha (1984), are grounded more in the experiences of the authors than in theories of human learning.

Chapelle and Green (1992) argue that the test for Field Independence/Field Dependence only measures one style, that is, cognitive restructuring. They further mention the inconsistencies in the definition of field independence/ dependence and how it is measured.

Reid (1987) found that there are significant differences in correlations between native and non-native speakers as well as differences in language and cultural backgrounds, in norming her learning style questionnaire (Eliason 1995). This finding suggests that the validity and reliability of a learning style instrument might differ in the context of second language learners, if they are not normed to the target population.

The language used in the learning style instrument might become a formidable obstacle for the learners to understand and might require translation. However, even if items are translated appropriately, learners might make different associations, depending on the language they are tested in. Furthermore, according to Bonham (1988b) the learners themselves bring a certain amount of unpredictability to the learning style evaluation process as most instruments are self reporting and consequently depend on the learners knowing themselves sufficiently, and being willing to reveal themselves to the evaluator.

Pedagogical Implication on English Language Teaching

In relation to second language learning and classroom implication, Brown (1994) discusses two hypotheses relating to field independent/dependent learning style. Brown concluded that field independent is closely related to classroom activities that involve analysis, attention to details and mastering of exercises, drills and other focused activities (Brown 1994:107). It appears that field independent style learners are more successful in second language learning. According to Brown (1994), recent research has supported these hypotheses (Naiman et. al 1978; Hansen & Stansfield, 1981; Chapelle & Roberts, 1986; Abraham, 1985; Chapelle & Abraham, 1990; Chapelle & Green, 1992) of the field independent style superiority in second language learning (Brown 1994:107). Brown (1994) states that field dependent persons will be primarily successful in mastering the communicative aspects of a second language by virtue of their empathy, social outreach and perception of other people.

Nelson (1995) suggests that ESL teachers take into perspectives cultural variation, as cultural groups with the same learning style dimension may have pedagogical variation, when considering the type of pedagogical approach

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to be used in the classroom (Nelson 1995). Their learning style preferences should serve as a guide toward preparing the right pedagogical approach. Eliason (1995) suggests that as instructors, ESL teachers should not only match learners learning style with instructional style but also develop their weaker learning style areas. This, according to Witkin (1976), will allow for greater diversity among the individuals (Eliason 1995). Grasha (1984), Oxford and Lavine (1999) and Oxford and Erhman (1993) also suggest that learners be encouraged to develop weak learning style areas and to go beyond their comfort zone. Teachers should allow for greater diversity in the pedagogical approach in the classroom. Learners should experience other learning styles but they should not be forced to accept them, instead gradually move toward other learning styles. Eliason (1995) suggests that individual learners should be eased into group work with careful thought and preparation with emphasis given on the strength and importance of group dynamics (Eliason 1995).

The Impact of Learning Styles in Teaching and Learning at UiTM

MacKinnon (1978) states, "The wide range of individual differences surely must mean that there is no single method for nurturing creativity; ideally the experiences we provide should be tailor-made, if not for individual students, at least for different types of students" (cited in Diaz & Bontenbal 2001).

Montgomery and Groat have listed down several reasons for incorporating learning styles into teaching (2002):

Making Teaching and Learning a Dialogue Responding to a More Diverse Student Body Communicating Our Message Making Teaching More Rewarding Ensuring the Future of Our Disciplines

Adapted from Montgomery and Groat (2002)

Style in teaching is more than a superficial collection of interesting mannerisms used to create an impression. It is best viewed as a pervasive quality that plays an important role in several aspects of the teaching process. The personal qualities of the teachers guide and direct the selection of instructional processes. Thus, style becomes the mechanism responsible for how we convey the substance of our disciplines (Grasha 1996).

Proponents of learning styles have suggested that teachers should match their teaching styles with that of the learners' learning styles (Grasha 1996). Grasha (1996) even proposes a set of teaching styles to match different learning styles of the learners. Grasha (1996) further adds that, the efficacy with which teachers display their styles has two effects on students- it may facilitate or hinder their ability to acquire content and skills and it influences the learning styles our students adopt. In effect, Grasha (1996) adds that there is a symbiotic relationship among teachers' personal qualities, the instructional processes they employ to convey the content of their disciplines, and the styles their students display as learners.

The most fundamental fact is that each teacher must understand that each learner learns differently and the amount of intake from the input given varies. Thus a teacher should be ready with different approaches to their teaching to ensure that the optimum environment is created during the teaching and learning process. Certain of set teaching styles may not work with certain group of learners but may work tremendously well with another. Therefore, it is suggested that a teacher should at the beginning of the academic year, conduct a survey of his/her students' learning styles. However, a teacher should first determine the type of learning styles instrument that he/she wants to use and decide if that particular instrument suits the needs of the students. Data gathered should form the fundamental blocks of creating the approaches to teaching and learning.

Conclusion

Second language instructors should not only take into account the various ways learners learn a language, but other external factors such as cultural variations as well. Learners should know their strong as well as weak learning styles. Learning environment should be developed to meet the needs, and styles of the learners.

References

Brown, B.L. (1998). Learning Styles and Vocational Education Practice. Retrieved April 12, 2005, from http:// ericacve.org/docgen

Brown, H.D. (1994). Principles of language Learning and Teaching. New Jersey: Prentice Hall.

- Carbo, M., Dunn, R. & Dunn, K. (1986). Teaching Students to Read Through Their Individual Learning Styles. New Jersey: Prentice Hall.
- Dunn R.& Dunn K. (1992). Teaching Elementary Students Through Their Individual Learning Style. Mass: Allyn and Bacon.
- Ellis, R. (1997). Second Language Acquisition. London: Oxford University Press.
- Felder, R.M. (1988). Learning and Teaching Styles in Engineering Education. *Engr. Education*, 78(7): 674-681. Retrieved April 12, 2005, from www.ncsu.edu/felder-public/Learning_Styles.html
- Felder, R.M.& Henriques, E.R. (1995). Learning and Teaching Styles in Foreign and Second Language Education. Foreign Language Annals, 28, No. 1: 21-31. Retrieved April 12, 2005, from www.ncsu.edu/felder-public/ Learning_Styles.html
- Fraenkel, J.R.& Wallen, N. E. (1996). How to Design and Evaluate Research in Education. N.Y.: McGraw-Hill Inc.
- Grasha, F.A.(n.d.). Teaching with Style the Integration of Teaching and Learning Styles in the Classroom. Retreived September 12, 2006, from http://oira.syr.edu/cstl2/Home/Teaching%20Support/Resources/Subscriptions/POD/ v7/V7N5.HTM
- Griggs S.& Dunn, R. (1996). Hispanic-American Students and Learning Style, ERIC Clearinghouse on Elementary and Early Childhood Education, Urbana, IL. Retrieved April 12, 2005, from www.ericfacility.net/databases/ ERIC_Digests/ed393607.html
- Heineman, P. L. (1995a). Kolb Learning Style Indicator. Retrieved April 12, 2005, from http://www.personalityproject.org/perproj/others/heineman/mbti.htm
- Heineman, P. L., (1995b). Myers-Briggs Type Indicator. Retrieved April 12, 2005, from http://www.personalityproject.org/perproj/others/heineman/mbti.htm
- Hood, K. (1995). Exploring Learning Styles and Instruction. Department of Mathematics Education, University of Georgia.
- Kolb, D., Rubin, I.M.& McIntyre, J. (1974). Organizational Psychology: A Book of Readings 2nd ed. New Jersey: Prentice Hall Inc.
- McLoughlin, C. (1999). The Implications of the Research Literature on Learning Styles for the Design of Instructional Material. Australian Journal of Educational Technology, 15(3):222-241.
- Mitchell, R.& Myles, F. (1998). Second Language Learning Theories. London: Arnold Publishers Montgomery.
- Oxford, R. (1989). The Role of Styles and Strategies in Second Language Learning, Washington DC, *ERIC Clearinghouse on Language and Linguistics*. Retrieved April 12, 2005, from www.ed.gov/databases/ ERIC_Digests/ed317087.html
- Parkinson, A & Redmond, J. A. (2002). The Impact of Cognitive Styles and Educational Computer Environments on Learning Performance. Dublin Ireland, Dept of Computer Science, Trinity College. Retrieved April 12, 2005, from http://www.cs.tcd.ie/publications/tech-reports/reports.02/TCD-CS-2002-18.pdf
- Reid, J. M. (ed). (1998). Understanding Learning Styles in the Second Language Classroom. New Jersey: Prentice Hall Regents.
- Reid, J.M.(ed). (1995). Learning Styles in the ESL/EFL Classroom. Boston: Heinle & Heinle.
- Reid, J.M. (1987). The Learning Style Preferences of ESL Students. TESOL Quarterly, Vol. 21, No. 1: 87-103.
- Richards, J.C.& Lockhart C. (1994). Reflective Teaching in Second Language Classrooms. New York: Cambridge University Press.

- Riding, R.& Rayner S.(1998). Cognitive Style and Learning Strategies: Understanding Style Differences in Learning and Behaviour. London: David Fulton Publishers
- Ring, B. P. (1998). *Myers-Briggs Type Indicator: A Research Report*. Personality Institute, vol. 1 No. 1. Retrieved April 12, 2005, from http://members.tripod.com/~PersonalityInstitute/Myers-BriggsTypeIndicator.htm
- S. M., Groat, L. N. (2002). Student Learning Styles and Their Implications for Teaching. The Regents of the University of Michigan. Retrieved April 12, 2005, from www.crlt.umich.edu
- Smith, M.K. (2001). David Kolb on Experiential Learning. Retrieved April 12, 2005, from http://www.infed.org/bexplrn.htm.
- Swisher, K.& Deyhle, D. (1989). The Styles of Learning are Different but the Teaching is Just the Same: Suggestions for Teachers of American Indian Youth. *Journal of American Indian Education*. Special Edition. Retrieved April 12, 2005, from http://jaie.asu.edu
- Thomson, B.S.& Mascazine, J.R. (1997). Attending to Learning Styles in Mathematics and Science Classrooms, Columbus OH. *ERIC Clearinghouse for Science Mathematics and Environmental Education*. Retrieved April 12, 2005, from www.ericfacility.net/databases/ ERIC_Digests/ed432440.html

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