USING LEARNING STYLES TO ENHANCE ESL ACQUISITION

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ABSTRACT

As higher education moves into the new millennium, it will shift into an academic reality that is vastly different from the twentieth century. In this era of globalisation, graduates will have to cope with the changes and developments that are taking place in the economic and commercial sectors at national and international levels in order to seek employment. As such, they have to possess a good command of the English language in order to achieve success in their careers in current global conditions. This research is an attempt to study the learning styles of Malay students in Universiti Teknologi MARA (UiTM). This is an innovative study in the sense that an in-depth study of this nature that uses only a Malay sample has not been undertaken before. This is important because students and practitioners have to be aware of learning styles and utilize them when teaching and learning a language. The findings of this study will help make suggestions to students, as well as, practitioners on ways to improve the learning and teaching of English. Finally, the knowledge on learning styles will help students improve their proficiency in English and then easily gain access into the global job market.

Introduction

As higher education moves into the new millennium, it will shift into an academic reality that is vastly different from the twentieth century. In this new era of globalization, research and development will take the frontline in the academic sphere. Innovative research, especially in the realm of education will have to be undertaken at an aggressive pace to match the changing educational needs of society. Together with the change, terms such as 'international' and 'global' will be used to describe the process and goals of education (Mc Fadden, as cited in Morey, 2000).

To match these educational changes, Institutes of Higher Learning (IHLs) will have to embark on aggressive and innovative research to cater to the earlier mentioned changes in education. Innovative research and creative activity will be indispensable to their respective visions and missions. As a result, current research clearly shows that to remain competitive, the IHLs will need to improve the relationship between education, research and innovation. In order to keep up with global developments, innovations in research will have to be stepped up in the IPTs in Malaysia if they are to be benchmarked with other international universities in the global market to make

it to the top 100-200 placing in the Times Higher Education Supplement (THES)-Quacquarelli Symondsa (QS) World University Ranking.

In line with global developments, Universiti Technologi MARA (UiTM), being one of the largest IHLs in the country, is also undertaking steps for large scale innovative research to keep up with changing educational needs of its student population and to achieve the status of becoming a world class university by 2010. As such it is important that innovative research is undertaken at the university.

By definition 'innovation' may be broadly defined as the generation and application of new ideas and skills to produce new products, processes and services that improve economic and social prosperity (Carucci, 2007). And 'research' includes a careful study of a subject in order to discover new facts or information about it. Together they mean - a careful study of a situation that can contribute new ideas and bring changes to improve it. In this study, innovations in research will be discussed in the context of the educational changes experienced in UiTM.

In this era of globalization, undergraduates in IHLs in and around Malaysia face many varied challenges. Upon graduation, these graduates will have to cope with the changes and developments that are taking place in the economic and commercial sectors at national and international levels in order to seek employment. As such, they have to not only develop characteristics but also possess skills that enable them to compete with their counterparts to achieve success in their careers in current global conditions.

One of the many skills that undergraduates need to possess in order to participate successfully in the global economy is strong communication and interpersonal skills. In order to communicate successfully, an individual has to be able to speak fluently in languages used in the global arena. Thus, besides the mother tongue, individuals must have knowledge of international languages too. One of the international languages most easily accessible in Malaysia is the English language.

Since speaking fluent English is an important criterion for graduates to succeed as professionals, a research study to analyze and develop ways and means on how to help UiTM undergraduates to improve and speak fluent English was undertaken. In Malaysia, English is spoken as a second language and research has to be undertaken to understand the circumstances that influence the proficiency levels of the ESL students. Researchers are constantly looking into ways to improve the learning and teaching process. Although a lot of research has already been carried out on this subject, it does not appear to be directly relevant to the context in UiTM.

UiTM is a large establishment, and it is unique in the sense that it has a population of largely Malay students and their mother tongue is the Malay language (Bahasa Melayu). At this point, it should be noted that no other university has this type of a homogeneous population. As such, research conducted on other English as a Second Language (ESL) student will not be directly relevant to this unique situation. Such earlier research appears to be only partially relevant to the context in UiTM. Thus, there is a need to carry out extensive research that will bring about better changes in this IHL.

It would be more beneficial to conduct research in UiTM where the sample is largely made up of Malay students. Such a study will be valuable as practical suggestions can be made to students to further improve their proficiency in ESL. Once UiTM graduates are equipped with a strong base in the knowledge related to their selected field of study and a good command of the English language, they will be able to participate and compete successfully as professionals in the global market.

Objective

This research is an attempt to study the learning styles of Malay students in UiTM. This is an innovative study in the sense that an in-depth study of this nature that uses only a Malay sample has not been undertaken before. Other studies used respondents from other ethnic backgrounds as their samples and these findings are not directly relevant to the context in UiTM. Previous research has shown that once undergraduates are aware of their individual learning styles they will be able to monitor their studies on their own and attain greater academic success. The findings of this study will help make suggestions to students, as well as, practitioners on ways to improve the learning and teaching of English.

The Malaysian Scenario

The scenario surrounding the Malaysian education system has to be understood. The Malaysian education system requires students to learn the English Language as a second language. The focus of ESL in primary and secondary schools is primarily for communication. For students in institutions of higher learning the need to be proficient in English goes beyond the ability to communicate effectively. For these students, the amount of knowledge they need to process increases daily with most of the sources of this knowledge being in the English Language.

Unfortunately by the time ESL students reach the tertiary level of education, they find that the "communication English" that they studied in school is not sufficient to tackle particular academic areas such as accountancy, engineering business studies and a host of other content areas of interest. Students at tertiary level have different learning needs and objectives. As such, educators have to resort to ways to help students overcome the poor command of the language.

It should be noted that learning styles and learning strategies are factors that influence second language acquisition. Students should be made aware of their learning styles and encouraged to use these strategies to enhance their learning process. Besides, they should also learn to use learning strategies to help them overcome their respective weaknesses in the language. When equipped with these learning skills, hopefully they will be able to cope with their limitations in the language and understand the reference materials related to their respective fields of study. This will help them compete successfully in the global market

Learning Styles

This study covers Malay ESL students from an institution of higher learning in Malaysia. Currently there is a dearth of comprehensive baseline data on the perceptual learning style preferences of this group of students.

While it is recognized that there are several categories of learning styles, this paper focuses only on perceptual learning styles of the ESL students. Therefore, the findings of the study are only applicable to this particular aspect of learning styles. This study uses Reid's (1987) definition of the Perceptual Learning Style Preference (PLSP) questionnaire.

The interest in learning style roots from the fact that researchers are concerned not only with the learning process of individuals, but also with the preferred learning process that will lead to optimal learning achievement. Thus, learning is enhanced when it is presented in ways that the individuals prefer. Research on education suggests that students who are actively engaged in the learning process are more likely to achieve success (Dewar, 1996; Hartman, 1995; Leadership Project, 1995; Robotham, 1999).

Reid (1995) defines leaning style as an individual's natural, habitual and preferred way(s) of absorbing, processing and retaining new information and skills, and that these learning styles persist, regardless of teaching methods and content areas. Dunn and Dunn (1993) define learning style as the way each learner begins to concentrate on, process and retain new and difficult information.

From the literature review it can be seen that learning style is not a single construct. It has been conceptualised differently by different researchers based on their own definitions of what constitutes learning style. It is very important, therefore, to specify the model and the instrument used when determining learning styles.

Methodology

The survey method is used in this research. For the survey, the research variables were measured using a questionnaire. The perceptual learning style preference (PLSP) questionnaire was used in this study (refer to Appendix).

Measurement of Perceptual Learning Style Preferences

The perceptual learning style preferences of respondents were measured using the Perceptual Learning Style Preference (PSPL) questionnaire which was developed by Reid (1987). This instrument was chosen as it has been designed specifically for adult non-native speakers of English. This is a self-reporting questionnaire.

The questionnaire consists of 30 statements pertaining to the six learning styles, that is, visual, auditory, kinesthetic, tactile, group and individual learning. There are five statements in each of these six learning styles. These statements have been arranged randomly in the questionnaire. The response for each statement is measured using a five-point Likert scale: 5 for "strongly agree", 4 for "agree", 3 for "undecided", 2 for "disagree" and 1 for "strongly disagree". At the end of the questionnaire, the respondents are provided with a method for calculating the score for each of the six learning style preferences. Using the scores thus obtained, the respondents would be able to determine whether they belong to the major, minor or negligible categories of learning style preferences.

Sample

The sample was made up of 137 students from three fields of stud, namely, Business Management (42 students), Secretarial Science (54 students) and Computer Science (41 students). These students voluntarily agreed to participate in the study. The respondents were in their third semester of study. The rationale for selecting these students was because by the third semester, they would be well adjusted to the system of learning English. Besides, their perceptual learning style preferences would be well developed too.

Data Analysis

The data was analysed using the Statistical Package for Social Sciences (SPSS for Windows version 11). The variables in the PLSP questionnaire, namely, visual, auditory, kinesthetic, tactile, group and individual were computed into major, minor and negligible learning styles.

Discussion

This section focuses on the perceptual learning style preferences of the respondents. The distribution of respondents according to major, minor and negligible learning style preferences is shown in Table 1. It can be seen that the group learning style registered the largest number of respondents. About 75.9% of the respondents choose it as a major preference. This is followed by kinesthetic (73.7%), visual (62.8%), tactile (62.0%), auditory (56.9%), and individual learning style (53.3%). This finding differs from Reid's (1987) earlier study. In this study it was found that

Malay students in the United States consider kinesthetic and tactile learning styles as their major learning styles, with visual, auditory, individual and group learning styles being minor learning styles.

Table 1: Distribution of Respondents' Preferences by Learning Style

Learning Style	Learning Style Preferences (%)		
	Major	Minor	Negligible
Visual	31.4	62.8	5.8
Auditory	56.9	40.1	2.9
Kinesthetic	73.7	24.1	2.2
Tactile	62.0	35.0	2.9
Group	75.9	21.2	2.9
Individual	21.9	53.3	24.8

At home, Malay students may have a preference for auditory and group learning styles due to their oral traditions where values, norms, rituals and stories are passed down orally through generations (Abdullah, 1996). Their preference for group learning as opposed to the individual style can also be attributed to the culture of the Malays. Abdullah (1992) suggests that Malaysians, especially the Malays, are generally group-oriented and prefer to work in groups.

The preference for kinesthetic, tactile, auditory and group learning styles could also be due to the fact that these are the teaching styles the respondents were exposed to during their primary and secondary school education in the *Kurikulum Bersepadu Sekolah Rendah*, KBSR (Integrated Primary School Curriculum) and *Kurikulum Bersepadu Sekolah Menengah*, KBSM (Integrated Secondary School Curriculum) English classrooms. English teaching in schools often includes the use of role play (kinesthetic learning) and task cards (tactile learning), both of which involve group activities.

Field of Study and Perceptual Learning Style Preferences
The learning style preferences of the respondents according to their fields of study are shown in Table 2. Business Management respondents consider kinesthetic (71.4%), group (71.4%), auditory (61.9%), and tactile learning style (61.9%) as their major preferences. In the case of Secretarial Science respondents, kinesthetic (73.2%), group (68.3%) and auditory learning style (58.8%) are the three major learning styles of the respondents. For Computer Science respondents the major

learning style preferences are kinesthetic (85.2%), group (85.2%) tactile (77.8%), and auditory (63.0%) learning style. Thus, there is a clear indication that kinesthetic, group and auditory learning styles are considered major learning styles by the respondents in all the three fields of study. Tactile is deemed a major learning style only by respondents of Business Studies and Computer Science, while none of the fields of study consider visual and individual learning styles as a major learning style.

Table 2: Field of Study and Perceptual Learning Style Preferences (% respondents)

Field of Study	Level	Learning Style					
		Visual	Auditory	Tectile	Kinesthetic	Group	Individual
Business Studies	Major	21.4	61.9	61.9	71.4	71.4	33.3
	Minor	73.8	35.7	31.0	26.2	23.8	45.2
	Negligible	4.8	2.4	7.1	2.4	4.8	21.4
Secretarial Science	Major	34.1	58.5	41.5	73.2	68.3	17.1
	Minor	61.0	41.5	58.5	26.8	29.3	56.1
	Negligible	4.9	0	0	0	2.4	26.8
Computer Science	Major	35.2	63.0	77.8	85.2	85.2	16.7
	Minor	57.4	37.0	20.4	11.1	13.0	50.0
	Negligible	7.4	0	1.9	3.7	1.9	33.3

A one way analysis of variance (ANOVA) was carried out with field of study as the independent variable and perceptual learning styles as the dependent variable. The results of this test are shown in Table 3. There is a significant difference among the respondents for tactile and group learning styles. The Scheffe test of multiple comparisons was conducted in both these cases. The results shows that there is a significant difference between Secretarial Science respondents and Computer Science respondents (F = 4.168, $P < 0.05$) in their preference for the tactile learning style. Computer Science respondents have a higher preference for the tactile learning style (mean = 40.63) compared with Secretarial Science respondents (mean = 35.83). This, again, is consistent with the finding in Reid's (1987) study which showed that field of study or subject matter can have an influence on learning style preferences. The fact that Computer Science respondents have a higher preference for the tactile learning style compared with Secretarial Science respondents is consistent with the nature of the courses. Computer Science students are more involved in hands-on activities.

Besides, the findings also show that there is a significant difference between Business Management respondents and Computer Science respondents in their preference for the group learning style (F = 3.221, P <0.05). Computer Science respondents have a significantly higher preference for group learning style (mean = 42.31) compared to Business Management respondents (mean = 39.59). Discussion with lecturers teaching these two courses suggests that the difference in learning style preferences of the respondents taking Business Management and Computer Science could be related to the nature of the two courses and the teaching styles. The contents of the Business Management course and the methodology used in teaching the courses appear to favour the individual learning style. In the case of the Computer Science courses, respondents are required to work on projects where they have to apply the skills they have learned. In most cases these projects have to be carried out as group work, hence the tendency to prefer the group learning style.

Table 3: One-way ANOVA Test of significant difference in perceptual learning styles between fields of study

Learning Style Preference	Field of Study	Mean	F value	*P*
1. Visual	Business Management	33.33	0.111	0.895
	Secretarial Science	33.59		
	Computer Science	34.59		
2. Auditory	Business Management	36.42	1.229	0.296
	Secretarial Science	35.29		
	Computer Science	37.87		
3. Kinesthetic	Business Management	39.02	2.752	0.067
	Secretarial Science	39.39		
	Computer Science	42.09		
4. Tactile	Business Management	38.10	4.168	0.018*
	Secretarial Science[a]	35.83[a]		
	Computer Science[a]	40.63[a]		
5. Group	Business Management[b]	37.45[b]	3.221	0.043*
	Secretarial Science	39.59		
	Computer Science[b]	42.31[b]		
6. Individual	Business Management	30.36	1.239	0.293
	Secretarial Science	29.32		
	Computer Science	28.52		

Note: * Significant at P = 0.05 level

Conclusion

The results of various analyses pertaining to the perceptual learning style preferences of respondents are summarised as follows:

(1) The respondents have major preferences for kinesthetic, tactile, group and auditory learning styles, with kinesthetic being the most preferred of the learning styles. They have minor preferences for visual and individual learning styles. The respondents showed variations in their perceptual learning style preferences. Since teaching styles have been found to influence the learning styles of students, there is a possibility that the major learning style preferences of these students, especially the kinesthetic, tactile and group learning styles, are reflective of the teaching and learning styles they have been exposed to during their school days. The fact that the KBSM curriculum actually recommends these learning styles lends credence to this theory.

(2) The findings on the learning style preferences in this study differ from those of Reid (1987) who researched Malay ESL students in America. This difference is plausibly the result of the host country's culture which appears to have an influence on the learning styles of the students.

(3) Computer Science students have the tendency to prefer the tactile learning style more than Secretarial Science students; they also have a higher preference for the group learning style than Business Management students.

Implications

Several implications can be drawn from the research findings of this study for ESL teaching and learning. These implications are discussed in relation to perceptual learning style preferences and development of curricular materials.

Implications of Learning Style Preferences on ESL Learning

The findings on perceptual learning style preferences have both curricular and instructional implications. These are presented as follows:

(a) One must assess teachers' and students' learning style preferences, and accept the fact that personal variables of the students such as age, years of learning the language, language proficiency, gender, field of study and culture do influence learning style preferences. The findings of this study can be used in learner training, in tailoring instructions and in preparing suitable learning environments.

(b) Teachers should make conscious efforts to improve the teaching/learning situation in the following context:

i. Language learners should be made aware of their dominant perceptual learning style(s) in order for them to participate more actively and effectively in their language development. This can be done by administrating the PLSP questionnaire to the students when they have gone some way into the ESL course. It will allow them to have an opportunity to reflect on their learning processes when completing the questionnaire.

ii. Language teachers must become aware of their own learning style preferences to enable them to accommodate the diversity of learning styles in their classrooms. Teachers who teach exclusively in a manner that is compatible with their own learning style, but is in conflict with that of the learners can inhibit learning. By analysing their own learning style preferences using the PLSP questionnaire, teachers would become aware of their own learning styles, thereby enabling them to develop a more flexible and varied approach to teaching the language.

iii. Students who can adjust to the demands of their environment can use their preferred learning styles and also adapt to other learning styles. Teachers should provide multiple opportunities for their students to investigate identify and use their learning styles.

iv. Teachers need to integrate as many teaching styles as possible into their lesson preparation even though they may not feel entirely comfortable using some of them. For example, students who are most comfortable working alone could be encouraged to work in groups with thoughtful and thorough preparation beforehand, including emphasis on group discussion skills, role play with group roles, practice in observing group processes and so on. However, this does not always appear to be the case. A study carried out by Rosnah, Pung and Faridah (2009), showed that 'teachers' instructional strategies were seldom varied despite them being aware of their students learning styles.' Therefore teachers have to take more aggressive steps and adapttheir teaching styles to cater to their students' needs.

v. Since particular learning styles are suitable for particular learning tasks, students need to know which styles are appropriate in special learning situations and for special purposes.

vi. Students should build on their current learning styles and experiment with new ones. Examples are: visual learners practicing with audiotapes; auditory learners reading supplements or hands-on material such as computer programmes; rotating different modules to incorporate visual, auditory and kinesthetic learning styles.

vii. When students are allowed to learn according to their respective

learning styles, they will eventually become autonomous learners. And this is the ultimate aim of education. This is also mentioned in a study carried out by Kathpalia and Heah (2010) where they clearly feel that students should be encouraged to be independent writers and rely less on others in order to be successful writers.

Implications for Developing Curricular Materials

(a) People involved in preparing curricular material need to be sensitive to the culture of the learners. Learning styles suggested in these materials must be culturally acceptable to the learners. Books should be designed to make the undergraduates more 'rounded' professionals who are able to compete in the global market.

(b) Training in learning styles could be built into the curricular materials.

(c) To encourage learner autonomy, curricular materials that allow independent learning such as self-access materials and those that use multimedia should be developed.

Recommendations

Based on the implications of this study, the following recommendations are suggested.

Assessment of Learning Styles

The assessment of ESL learning styles of the students should be carried out by administering the PLSP questionnaire. The results of the assessments will enable both the teacher and the students understand the individual learning styles of the latter and become aware of the modalities that they avoid or seldom use. Before taking part in any assessment, students need to be convinced that they have the potential to master any subject matter across the curriculum, and that their ability to master it will be determined by their learning style preferences. Before the assessment sessions, teachers should explain to the students the concept of individual differences in learning, stressing why it is necessary for teachers and students to explore the topic. Students must also be made aware that no one learning style fits for all.

"Stretching" Learning Style Preference

Teachers should suggest alternative systems. Suggest learning devices such as alternative learning styles for learning tasks that are challenging, and to encourage students to experiment with these different learning styles. Students can be introduced to some of the salient characteristics of the different perceptual learning styles, thereby enhancing their natural styles.

Designing Integrated Learning Systems

Teachers may design and use computer-based learning multimedia that allows integrated learning systems to act as intelligent tutors. The effectiveness of such systems is greatly enhanced by the incorporation of the means of assessing learning style preferences into their control systems. The computer system should have the capability to use this information to adapt instruction to suit the learning style preferences of the individual students, and should have the following framework:

1. Initial assessment of students' knowledge on the topic; and

2. Control presentation to facilitate ease of learning and to reduce information load by taking into account the student's learning style in terms of:
    (a) conceptual structure;
    (b) type of context (verbal or visual);
    (c) layout of information (for example, tables and diagrams); and;
    (d) choice of mode presentation.

Books and Learning Materials

Since learning styles have been found to be linked with culture, curriculum developers and writers must take this into account when suggesting learning styles for particular topics in their books or other teaching materials.

Motivating the Students

Teachers should motivate students by encouraging them to practice more in learning ESL and stress the advantages of acquiring ESL for their career prospects and the attainment of instrumental goals. Teachers should not try to force learners to immerse themselves in the cultural aspects of the English Language. Attempts to try this approach with the learners would alienate them.

Thus in the final analysis, every research no matter how small or big is important and contributes tremendously to the overall data of knowledge. Innovations in research are important and should be highly encouraged among the teaching fraternity. This research is especially beneficial in the sense that the sample is unique, that is, a homogeneous sample was used to gather data. Besides, a study of this nature, using the Perceptual Learning Style Preference Questionnaire (Reid, 1997) has never been done on a homogenous Malay sample. The findings are useful for practitioners as they will be able to plan and adopt appropriate methodologies and materials in the classroom taking into account the learning styles of the students. Prior to this, practitioners in Institutes of Higher Learning may have had only a general idea of the learning styles of the Malay students, This research has helped to clearly determine the learning styles of Malay students. This will provide helpful guidelines to lecturers when deciding the best teaching approach to adopt in the classroom.

As stated in the introduction, 'innovation' refers to generation and application of new ideas and skills to produce new products, processes and services that improve economic and social prosperity while 'research' includes a careful study of a subject in order to discover new facts or information about it. And it was the aim of this study to carefully investigate a situation that will help determine new ideas and bring changes and improvements. Carrying out an in-depth study on a homogeneous sample will help determine the learning styles of the students concerned and valuable and practical suggestions can be made to further improve the level of proficiency of students. Therefore in this study, innovations in research were discussed in the context of the educational changes that can be introduced in Institutes of Higher learning in general.

The findings of this research are important because students and practitioners will be aware of learning styles and use them wisely in the learning and teaching process. Finally, the knowledge on learning styles will help students improve their proficiency in English and then easily get access into the global job market.

References

Abdullah, A. (1992) Influence of ethnic values at the Malaysian workplace. In A. Abdullah (Ed*.), Understanding the Malaysian workforce: Guidelines for managers.* Kuala Lumpur: Malaysian Institute of Management.

Abdullah, A. (1996). *Going glocal*. Kuala Lumpur: Malaysian Institute of Management.

Brennan, J., deVries, P., & Williams. R. (1997). *Standards and quality in higher education.* London: Jessica Kingsley Publishers.

Carucci, R.A. (2007*). Leadership divided. What emerging leaders need and what you might be missing*. Foreword by Mike Roberts, president, McDonald's Corporation. Jossey-Bass: A Wiley Imprint.

Dewar, T. (1996). Adult learning online_Retrieved October 29, 2002 from http://www.cybercorp.net/~tammy/lo/ oned2.html.

Dunn, R., & Dunn, K. (1993). Teaching secondary students through their individual learning styles: Practical approach for grades 7-12. Boston: Allyn and Bacon.

Hartman, V. F. (1995). Teaching and Learning style preferences: Transitions through technology. VCCA Journal, *9*(2), Summer, 18-20. Retrieved April 5, 2002 from http://www.so.cc.va.us/vcca/hart1.htm

Kathpalia, S.S., & Heah, C. (2010). Sharing the responsibility of Feedback in Academic Writing. *The English Teacher, 34.*

Lukmani, Y. (1972). Motivation to learn and language proficiency. *Language learning, 22,* 261-174.

Macintyre, P. D., & Gardner, R. C. (1991). Methods and results in the study of anxiety and language learning: A review of literature. *Language Learning, 41,* 85-117.

Mc Fadden. (2000). *Global challenges in higher education.* Higher Education in Europe. *25*(1), 25-39.

Reid, J. M. (1987). The learning style preferences of ESL students, *TESOL Quarterly, 21(1),* 87-111.

Reid, J. M. (Ed.). (1995). *Learning styles in the ESL/EFL classroom.* Boston, MA: Heinle and Heinle Publishers.

Robotham, D. (1999). *The Application of Learning Style Theory in Higher Education teaching.* Retrieved June 23, 2002 from http://www.chelt.ac.uk/el/philg/gdn/discuss/kolb2.htm.

Rosnah, M., Pung, W.C., & Faridah, R. (2009). Learning Style Preferences Among Male and Female Students in Two Urban Schools. *The English Teacher, "38. MELTA".*

APPENDIX

PERCEPTUAL LEARNING STYLE INVENTORY

SA	STRONGLY AGREE
A	AGREE
U	UNDECIDED
D	DISAGREE
SD	STRONGLY DISAGREE

SA	A	U	D	SD		
					1.	When the teacher tells me the instructions, I understand better
					2.	I prefer to learn by doing something in class.
					3.	I get more work done when I work with others
					4.	I learn more when I study with others
					5.	In class, I learn best when I work with others
SA	A	U	D	SD		
					6.	I learn better by reading what that the teacher writes on the chalkboard.
					7.	When someone tells me how to do something in class, I learn it better.
					8.	When I do things in class, I learn better.
					9.	I remember things I have heard in class better than things I have read.
					10.	When I read instructions, I remember them better.
SA	A	U	D	SD		
					11.	I learn more when I can make a model of something.
					12.	I understand better when I read instructions.
					13.	When I study alone, I remember things better.
					14.	I learn more when I make something for class project.
					15.	I enjoy learning in class by doing experiments
SA	A	U	D	SD		
					16.	I learn better when I make drawings as I study.
					17.	I learn better in class when the teacher gives a lecture
					18.	When I work alone, I learn better.

					19.	I understand things better in class when I participate in role playing.
					20.	I learn better when I listen to someone.
SA	A	U	D	SD		
					21.	I enjoy working on an assignment with two or three classmates
					22.	When I build something, I remember what I have learned better.
					23.	I prefer to study with others
					24.	I learn better by reading than by listening to someone.
					25.	I enjoy making something for a class project.
SA	A	U	D	SD		
					26.	I learn best in class, when I participate in related activities.
					27.	In class, I work better when I work alone.
					28.	I prefer working on projects myself.
					29.	I learn more by reading textbooks than by listening to lectures
					30.	I prefer to work by myself.