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**Learning Strategies:
Perceptual Styles and Brain
Hemisphericity**

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Learning Strategies: Perceptual Styles and Brain Hemisphericity

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Abstract

This study investigates the learning strategies used by Palestinian female students, drawn from different proficiency levels, in relation to their perceptual styles and brain hemisphericity.

This study answered the following questions:

- 1- What is the relationship between the subject's language proficiency and strategy use?
- 2- What is the relationship between the subject's hemisphericity and strategy use?
- 3- What is the relationship between the subject's perceptual styles and brain dominance and strategy use?

Keywords: Learning Strategies, Brain Dominance, Perceptual Styles, Language Proficiency

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Introduction

There are many problems which English teachers face at the classroom, particularly teaching English with its four skills. The learners have different aspirations, interests, background and personalities. Teachers cannot ignore these differences. So teachers should select and present the language data which the students are required to learn and practice. Not all the students can answer a particular question. Therefore teachers should use visual aids, new strategies and use different types of methods to teach correctly.

As Wenden (1985) reminds us, there is an old proverb which states: "Give a man a fish and he eats for a day. Teach him how to fish and he eats for a lifetime". Applied to the language teaching and learning field, this proverb might be interpreted to mean that if students are provided with answers, the immediate problem is solved. But if they are taught the strategies to work out the answers for themselves, they may be empowered to manage their own learning.

More than a quarter of a century ago researchers such as Rubin (1975) and Stern (1975) explored the possibility that success in language learning might be related to how students go about the task. More recently, writers such as O'Malley (1987), Oxford (1990), Wenden (1991), Cohen (1998) and Chamot (2001) have suggested that learners might be able to learn language more effectively by the use of language learning strategies.

Statement of the problem

There is general consensus among researchers that the best way to understand SLA theory is to investigate the principal dimensions that constitute the learning process i.e. learning styles, learning strategies and learning environment (Elis, 1996; Oxford, 1999; Dunn, 1990). Each individual has his own unique way of processing information (i.e. learning styles). This uniqueness is affected by many variables e.g. gender, age, culture and level of proficiency. Instructors and teachers must therefore understand and pay attention to the individuality dimensions and to the variability in their students and they should endeavor to employ appropriate techniques to maximize their students' level of linguistic and communicative competence. This study is designed to investigate the use of language learning strategies by Palestinian female students drawn from three different proficiency levels and to identify any possible effects that the students' perceptual learning style and hemisphericity might have on their strategy use.

Significance of the study

Despite the importance and relevance of the learning style' issue and its' practical implications to all Arab educators, there are, to date, no reference cited in the international literature on the interaction between learning styles

and learning strategies choice/use of Arab subjects in their home environment. This study proposes the first baseline data on the subject. Such data can be expected to establish the necessary starting point modality-based(or brain-based) instruction programs that have become an accepted educational format nowadays and which are increasingly promoted by modern educators.

Purpose of the study

This study is designed to investigate the use of language learning strategies by Palestinian female students drawn from three different proficiency levels and to identify any possible effects that the students' perceptual learning style and hemisphericity might have on their strategy use.

Questions of the study

This study will answered the following questions:

- 1- What is the relationship between the subject's language proficiency and strategy use?
- 2- What is the relationship between the subject's hemisphericity and strategy use?
- 3- What is the relationship between the subject's perceptual styles and brain dominance and strategy use?

Limitations of the study

The results of the study can't be generalized out the borders of the following limits:

1. Time limitations: This study was conducted in the second semester of the academic year 2010-2011.
2. Place limitations: This study was restricted to female students at Hebron area.

Literature Review

Some researchers differentiated between LSs and the mechanism of learning (learning process) . Others used the term "learning process " as a synonym for LS . Bialystok (1978 , p.76) defines learning strategies as "optional methods for exploiting available information to increase the proficiency of second language learning " while Chamot (1987,p.71) believes them to be " techniques , approaches , or deliberate actions that students take in order to facilitate the learning and recall of both linguistic and content area information " . Oxford (1990,p.1)defines learning strategies as "steps taken by students to enhance their own learning " or as " specific actions. behaviors. steps or techniques students use to improve their progress in apprehending, internalizing, and using the L2"Oxford (1994,p.1). Nunan (1993,p.168), on the other hand, defines them as " the mental processes which learners employ to learn and use The target language."

Examples of learning Strategies

The main groups of LSs in the literature are metacognitive, cognitive and social/affective LSs. This study follows Oxford classification for LSs (1990) into six Main groups.

A- Metacognitive LSs

Metacognition is said to be "knowledge about cognition" or the "regulation of cognition" (O'Malley & Chamot, 1993, p.99; Brown et al. 1983) or "having knowledge (cognition) and having understanding control over, and appropriate use of that ' knowledge ' (Tie &Stewart, 1985, cited in Collins, 1994). According to Wenden, metacognition is "the process that underlines the efficient use of strategies and the essence of intelligent activity "(Wenden, 1987 a, p. 573. Livingston (1997) reviewed the work in the literature on metacognition and said that metacognitive and cognitive LSs are related to each other and some researchers contend that it is very difficult to remark precisely the boundaries between them. Flavell (1979) says metacognition is " knowledge and cognition about cognitive phenomena " (p.926). Flavell divides metacognitive knowledge into three categories the first of which is knowledge about a "persons variables " which refers to general knowledge about the manner in which human beings learn and process information. Secondly there is knowledge about "task variables" which include knowledge about the nature of the task as well as the type of processing demand that it will place upon the individual. Lastly, there is knowledge about "strategy variables» which refer to knowledge about both metacognitive and cognitive strategies and to when and where it is appropriate to use such strategies. Examples of metacognitive LSs are : "selective attention " strategies which refer to deeding in advance to attend to specific aspects of language input during task execution(O'Malley and Chamot,1993,p.137),and "planning " strategies which refer to generation a plan for the parts , sequence, main ideas , or language functions to be used in handling a task . Metacognitive "monitoring" strategies are concerned which checking, verifying, or correcting one' self while "evaluation" strategies include judging one's strategy use when the task is completed (Wenden , 1987 a ,p.573 O'Malley and Chamot,1993,p.137).

B- Cognitive strategies

Cognitive strategies are the learning activities that include using operations or problem-solving that necessitate direct analysis and transformation of learning materials (Brown and Palincasar, 1982; Rigney, 1978). "Cognitive LSs are often specific to distinct learning activities" (O'Malley & Chamot, 1993, p.99)Oxford (1990,p 43)states that cognitive strategies, despite their variety , are unified by a common function : "manipulation or transformation of the target language by the learner ".

C- Memory strategies

They are sometimes called mnemonics they are used to help students in their storage and retrieval of new information (Oxford, 1990). They are Classified into four strategy sets: creating mental linkages, applying images and sound, reviewing well, and employing actions.

D-Compensation Strategies

There are two strategy sets for compensation strategies: "Guessing intelligently in listening and reading "and" Overcoming limitations in speaking and writing ". These strategies are intended to enable the learner to use the new language or communicate despite his knowledge limitations (Oxford, 1990,p.47).

E- Affective Strategies

The affective side of human beings is as important as the cognitive side and both are essential for the learning process. Negative feelings towards oneself and other people could easily hamper progress and result in failure. Brown (1994) discussed all the affective factors that may affect the learning process such as self-esteem, attitudes, risk- taking, anxiety, empathy and culture-shock . Affective learning strategies help learners to control their feeling and emotions and this leads to great successes (Oxford, 1990). Affective strategies consist of three main strategy sets: "Lowering your anxiety ", "Encouraging yourself ", and "Taking your emotional temperature ".

F- Social Strategies

These involve learning through cooperating and interacting with others or through the activities learners engage themselves in to practice the language (Rubin, 1987; Oxford, 1990). There are three strategy sets of social strategies in Oxford classification of strategies: "Asking questions", "Cooperating with others", and "Empathizing with other ".

The literature is full of LSs' research on what happens during the learning process. Although this type of research has led to a general understanding of LSs and appreciation for the role of strategy training it has also lead to another controversial issue. Strategy training should be conducted to achieve one main goal which is the change of student's attitudes towards their abilities by "teaching them that their failures can be attributed to the lack of effective strategies rather than to lack of ability or laziness" (jones et. Al , 1987 , cited in O'Malley & Chamot , 1993, p. 161).

A study by O'Malley et al. (1985) and reviewed in O'Malley & Chamot (1993) and Chamot (1987) was conducted to identify, classify, and differentiate the level of strategy variation. The subjects were either beginning or intermediate level native speakers of Spanish except for one group of five Vietnamese students. In this study, the subjects succeeded in identifying 638 independent strategies. The researchers included social strategies in their basic classification scheme of LSs of cognitive and metacognitive strategy groups. The researchers

also found that beginning level subjects were able to identify almost twice as many cognitive LSs as intermediate level subject. For metacognitive LSs the beginning level subjects were able to identify 40% more than the intermediate level and, according to researchers, the reason for this was not clear. This study concluded that students rarely use the identified LSs in integrative tasks and relied on learning strategies that did not demand active mental processing . Teachers should interact more with their students and provide them with information about their strategies' use . The strategies did not vary from those reported in the cognitive literature and strategies' use and conscious analysis of learning occur in the classroom as well as outside the classroom.

There was another study by O'Malley et al (1988a, reviewed by O'Malley & Chamot, 1993) to identify LSs used by high school students of Spanish and college students of Russian of different levels of language proficiency . The results of this study lead to the modification and regrouping of LSs that were identified in the previous study (1985a).The students in the latter study showed results similar to those of the previous one regarding the use of cognitive and metacognitive strategies. Both Russian and Spanish students at all levels reported using far more cognitive strategies than metacognitive strategies.

Although cognitive strategies' use was very high nevertheless subjects differed in their use of micro- strategies in accordance with their level of language proficiency. The use of social / Affective strategies to be much less frequent than the use of other groups of LSs. In this study, both Russian and Spanish students at higher level of proficiency were reported to use strategies more frequently than beginning levels students. This result was contrary to the findings of the previous study. The researchers concluded that the classification scheme developed to describe learning strategies reported by ESL students is applicable to English native speakers learning a foreign language.

A study by Ahmed (1994) investigated vocabulary LSs of both "good" and "poor" learners in relation to their level of education, level of overall language achievement, and the use of the TL as the medium of instruction. The subject of the study were 300 Sudanese EFL students drawn from different levels of education and language proficiency. The study found that " the vocabulary LSs identified extend beyond the range of LS identified in the relevant research"(p.238).It was also concluded that neither the "good" nor the "poor" learners" group seemed to form a homogeneous group as far as vocabulary LSs' use was concerned" (p.239).They study considered this as possible reflection of the interaction of subjects' level of education and their use (or non-use) of English as a medium of instruction. The "good" learners used the same macro- strategies, but they differed in their use of micro- strategies.

Methodology

Sample of the study

The subjects of the study were randomly drawn from three different proficiency levels; 120 from the preparatory government schools, 128 students from preparatory private schools and 100 university students who were studying English at Hebron University.

Instrumentation

Three different questionnaires were used in the study. The first questionnaire was used for collecting data on learning styles, the second on brain dominance and the third on learning strategies. The Strategy for Learning (SILL) which has been developed and revised by Oxford (Oxford, 1989 and Oxford, 1990) (version for the non-native speakers of English) was modified and used for gathering information on the subjects' use of learning strategies. The Barsch Learning Style Inventory (Barsch, 1994) was used to collect information on the subjects' learning styles while the Brain Dominance Inventory (BDI) (Davis, 1994) was used to determine their hemisphericity.

Procedure

The researcher had undertaken the questionnaires' translation. Each group of the study subjects was provided, verbally, with comprehensive explanation on the nature and the purpose of each questionnaire. Each subject completed questionnaire was given a serial number that was written on the top of the folder use for keeping together the three questionnaires of each subject. The whole procedure of instrument' administration and data collection took four weeks of which one week was devoted to the university students and the other three weeks to the intermediate school students.

Data Analysis

After collecting data, Percentage, means, std. deviation, person correlation, t-test, one way analysis of variance, Turkey test and Cronbach Alpha were calculated by using SPSS program.

Results of the study and discussion

The research questions in this study were tested by employing series of null hypotheses. They were as follow:

1-There are no significant relationships between the subjects' language proficiency level (PL) and their use of learning strategies.

2- There are no significant relationships between the subjects' hemisphericity and use of learning strategies.

3-1-There are no significant relationships between the subjects' perceptual learning styles and brain dominance.

Null Hypothesis 1

1-There are no significant relationships between the subjects' language proficiency level (PL) and their use of learning strategies.

Oxford (1995) considered strategy averages of 3.5-5 to be indicative of high strategy use and designated 2.5-3.4 as medium strategy use while 1-2.4 were regarded as low strategy use. As can be seen from table (4.1) that the frequency of strategy use of PL1 subjects can be classified as medium for all strategy categories except the metacognitive one which was used at a high level. PL2 and PL3 subjects showed high strategy use for cognitive, compensation and metacognitive categories but only medium level use for the memory and affective categories with PL3 averages being slightly higher than those of PL2.

Table 4.1 Mean of use of Learning strategies for proficiency levels

PLs						
PLs	MEM	COG	COMP	META	AFF	SOC
PL1	3.378	3.371	3.385	3.806	3.306	3.471
PL2	3.138	3.599	3.553	4.119	3.113	3.525
PL3	3.268	3.749	3.612	4.231	3.145	3.334
All Groups	3.258	3.563	3.512	4.043	3.189	3.452

Null Hypothesis 2

2- There are no significant relationships between the subjects' hemisphericity and use of learning strategies.

Table 4.2 Diagnosis of brain dominance with learning strategies for proficiency level 1(PL1,PL2,PL3)

Strategy Gr		Left		Whole		Right	
		WLD	BLD	WLD	BLD	WLD	BLD
Mem	GA	1.026	1.064	1.072	1.112	0.948	0.983
Cog	GB	1.009	0.995	1.022	0.967	0.982	0.929
Com	GC	0.977	0.942	1.091	1.051	1.003	0.967
Mcog	GD	1.010	0.950	1.101	1.036	0.961	0.905
Aff	GE	0.997	1.034	1.125	1.166	0.970	1.005
Soc	GF	1.002	1.009	1.128	1.135	0.963	0.969

As can be seen from the table above, the result for the highest strategy use at each proficiency level, as diagnosed by WLD and WLD values.

PL1: whole or integrated brain subjects show the highest use for all six strategy groups followed by left hemispheric dominants and last are the right hemispheric dominants.

Null hypothesis 3

3-There are no significant relationships between the subjects' perceptual learning styles and brain dominance.

Table 4.3 Pearson correlation between perceptual styles and brain dominance

Proficiency levels	R	P-value
PL1	0.186	0.049
PL2	0.286	0.001
PL3	0.114	0.263

Correlation analysis has been performed between the subjects' learning styles and brain dominance. As can be seen from the table above, the results are significant for PL1 and PL2 but not for PL3. Although the correlation coefficients are not substantially high but the correlations are statistically significant.

The positive correlation coefficient in the case of PL1 and PL2 implies that left-hemispheric dominants are more likely to have a visual or a visually-dominated modality while their right-hemispheric counterparts are more likely to have a tactile or tactually dominated modality.

Summary of findings

The results of study revealed the following:

1-The dominant hemisphericity of the Palestinian female students was the left brain (more than 50%) followed by the right brain (= 30%) and lastly whole brain (= 15%).

2-The dominant perceptual styles of Palestine students were the visual and visually dominated styles (about 50%) followed by auditory dominated styles (about 30 %) and lastly the tactile and the tactually dominated styles (about 20 %).

3-The subjects of the study were able to identify their LSs and their responses to these strategies reflected their level of proficiency. University students used memory, cognitive, compensation and metacognitive learning strategies in their high mode more than others. Affective and social LSS were more highly used by younger subjects.

Recommendations

In the light of the results of the study, the researcher recommended the following:

- 1-More researches are needed in the field of learning styles, learning strategies and gender differences in Palestine.
- 2-Research on the effect of learning styles on the subjects' choice of a career in science or humanities.

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