

## Impact of Technology Use on Secondary School Students' Communicative Competence

EMTITHAL ALWASILA ABDALLAH AHMED

Training Directorate, Ministry of Education

MAHMOOD ALI AHMED

Assistant Professor

Sudan University of Science and Technology

### Abstract:

*This study aims at describing and investigating the practice of computer use as communication strategy among second year students in some secondary schools in Khartoum Locality to identifying variance in students' performance due to psychological, social factors and due to lack of awareness.*

*The study follows the descriptive analytic method, employing a test and a questionnaire after a computer-enhanced session to collect the primary data, and hardware and software publications for secondary schools. Data collected undergo statistical processing.*

*The study concludes to many findings and provides some recommendations and suggestion.*

**Key words:** Technology Use, Secondary School Students' Communicative Competence

### INTRODUCTION

Whenever, the word technology is heard, nothing would come first to one's mind other than computer and its various applications. As Hanson- Smith states, "PC has become an important device for language teaching and learning and,

particularly after emergence of the internet which has created incredible opportunities for learners to strengthen their communicative skills, both by "individualizing practice and by tapping into global community of other learners" (cited in Carter and Nunan, 2002, p. 107).

Computer-assisted language learning (CALL) researchers addressed different areas of interest. They compared computer use with other technologies, e.g. computer-based listening activities and audio-taped materials in traditional labs (Thornton and Dudley, 1997). They investigated how computer strengthens the instructed acquisition (Eskenazi, 1999), lexical items (Laufer and Hill, 2000), skill areas, e.g. conversational analysis by Negretti (1999), reading comprehension skills by Chun and Plass (1997), and explorations of connections among reading, writing, speaking and critical thinking by Sullivan (1998).

The bulk of information electronically stored and retrieved creates a hugely rich source of authentic tasks and projects that might play a genuine role in promoting language acquisition and language use, since the tumultuous chaotic information in the internet impose necessity of devising strategies for effective learning and communication, to make this new technology an 'environment' for learning and communicating, as Egbert and Hanson-Smith assert (1999). However, this on-line database allows engaging in linked multimedia discourses authored in a non-linear format what enhances computer-mediated communication via web-based chat rooms, discussion forums and educational sites.

## **STATEMENT OF THE PROBLEM:**

Though computer allows language learners to communicate with native speakers around the world via the internet, and allows classes to communicate in safe, guided atmosphere, where they enter a virtual reality, such as schmooze University

(Falsetti, 1998) or Diversity university at Marist College (www.du.org) to attend distance learning, the process of measuring the impact of computer use, as a technology, on-line communication involves different factors that influence communicative abilities, since communication strategies which aim to overcome specific communicative problems, differ from learning strategies, which aim to maximize the effectiveness of the overall learning process (Mitchell and Myles, 1998).

### **QUESTIONS OF THE STUDY:**

This study raises questions to find answers for the following:

1. Whether students using computer share motivation, or there are various attitudes.
2. Presence and absence of social patterning of the practice.
3. Awareness of participants
4. Variance of outcomes.

### **OBJECTIVES OF THE STUDY:**

This study mainly aims at describing and investigating the practice of computer use as communication strategy among second year students in some secondary schools in Khartoum Locality to identify variance in students' performance due to psychological, social factors and due to lack of awareness.

### **HYPOTHESES OF THE STUDY:**

**H1** There is a statistically significant variance in students' performance in the computer-enhanced session due to psychological factors.

**H 2** There is a statistically significant variance in students' performance in the computer-enhanced session due to social factors.

**H 3** There is a statistically significant variance in students' performance in the computer-enhanced session due to lack of awareness.

## **METHODOLOGY**

This study follows the descriptive analytic method. It collects its primary data from students in four randomly chosen first year classes in secondary schools in Khartoum Locality. The four classes are from girls secondary schools. Secondary data is collected from hardware and software publications, data collected will, be statistically processed and discussed.

The researcher holds a computer-enhanced session in each class to practice instructed communication activities, then a test and a questionnaire is distributed to participants at the end of the class to be filled by them. The questionnaire involves data that would help investigating the different factors that influence communication.

## **INFORMATION PROCESSING**

Technology is a medium and strategy is a mental plan that learners undertake either to make their language learning as effective as possible, in case of learning strategies or to use them to overcome a specific communicative problem, in case of communication strategies (Mitchell, Rosamoud and Myles, Florence, 1998,p.90).

Learning and communication strategies originate from information processing models developed by cognitive psychologists: McLaughlin's information processing model (1987, 1990) and Anderson's model (1983, 1985). Soon, these cognitive processes found recognition among linguists. O'Malley and Chamot (1990) applied the model in the field of learning strategies, Towell and Hawkins (1994) in the field of

development of fluency, and Kasper and Kellerman (1997) in the field of communication strategies.

## **MCLAUGHLIN'S INFORMATION PROCESSING MODEL**

McLaughlin's model was based on that 'complex behaviour builds on simple processes' (McLaughlin and Heredia, 1996, p.213). Moreover, these processes are modular and can be studied independently. The main characteristics of McLaughlin's information-processing approach can be summarized as follows:

1. Humans are autonomous and active.
2. The mind is a symbol processing system.
3. Complex behaviour is composed of simpler processes.
4. Component processes are modular and can be studied independently.

McLaughlin views second language learning as the acquisition of a complex cognitive skill, since various aspects of the task need to be practised and integrated into fluent performance, which in turn requires atomization of component sub-skills.

Automization originates from the work of psychologists such as Shiffrin and Schneider who claims that the manner in which we process information is either controlled or automatic, and that learning involves a transformation from controlled towards automatic processing (McLaughlin, 1987). McLaughlin's model according to Mitchell and Myles, (1998) works as follows:

1. Learner's first resort to controlled processing in the second language which involves the temporary activation of a selection of information nodes in the memory, which requires a lot of attentional control, besides, it is constrained by the limitation of Short-Term Memory (STM).
2. Through repeated activation, sequences first produced by controlled processing become automatic. Automatic sequences are stored as units in the Long-Term Memory

(LTM), i.e. this can be retrieved rapidly whenever the situation requires it, with minimal attentional control. As a result, automatic processes can work, activating clusters of complex cognitive skills simultaneously.

3. Learning in this view is seen as the transformation from controlled to automatic processing via practice (repetitive activation).
4. This continuing transformation from controlled to automatic processing results in a constant restructuring of the linguistic system of the second language.

### **ANDERSON'S ACT MODEL:**

Anderson's Adaptive Control of Thought model is another processing model from cognitive psychology applied to aspects of second language learning compared to McLaughlin's model, it is more wide-ranging, and the terminology is different, but practice leading to automatization plays the same central role as in McLaughlin's. In addition to Short-Term Memory, Anderson poses two Long-Term memories: a declarative LTM and a procedural LTM (Anderson, 1985, p.232).

Mitchell and Myles, while illustrating what is meant by declarative and procedural knowledge, they use the metaphor of car-driving:

*In the early stages of learning to drive, however, knowing that (declarative knowledge) you have to do this does not necessarily mean that you know how (procedural knowledge) to do it successfully ...you go through a declarative stage before acquiring the procedural knowledge linked with this situation. With practice ... declarative knowledge becoming procedural.*  
(Mitchell and Myles, 1998, p.87).

According to Anderson, the shift from declarative to procedural knowledge comes in three stages (Anderson, 1985, p.232) as follows:

1. The cognitive stage: A description of the procedure is learned.
2. The associate stage: A method for performing the skill is worked out.
3. The automatic stage: The Skill becomes more and more rapid and automatic.

## **LEARNING STRATEGIES:**

O'Malley and Chamot felt the need to apply the ACT model in the field of language learning strategies (1990). Language learning strategies as defined by Oxford (Carter and Nunan, 2002, p.166), are 'operations [procedures] employed by the learner to aid the acquisition, storage, retrieval and use of information ... to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations'.

Learning strategies are related to the features of control goal directedness, autonomy and self-efficacy.

Goals, according to Dornyei, are the engine that fires language learning action and provide the direction for the action' (Dorney, 1998, p.60). Examples of goals are to use English fluently and accurately in business, to order meals, to ask directions etc. attainment of such goals is realized by aiming for Short-Term language goals, or as Dornyei calls (Ibid, p.60) 'proximal sub-goals' linked to specific language tasks.

Example of such specific language tasks, the aim of rapidly but accurately reading English discourse of many disciplines which can be addressed by reading and understanding one such topic of discipline per week until good comprehension is matched by speed. Relevant learning strategies for accomplishing this weekly task include scheduling to read topics, skimming for main ideas, noting key vocabulary and guessing from the context, all of which might be

called strategy chain: a set of interlocking, related and mutually Supportive Strategies.

Also learning strategies help learners become more autonomous what requires conscious control of one's own learning processes. Self-efficacy, individual's perception that one can successfully complete a task or a series of tasks, can be enhanced as well (Banaduras 1997).

## **SOCIOLINGUISTIC PERSPECTIVES**

Sociolinguistics, or the study of language in use, is itself a diverse field, with multiple theoretical perspectives. Sociolinguistics is primarily concerned with language in use.

## **ETHNOGRAPHY OF SECOND LANGUAGE COMMUNICATION**

The ethnography of communication studies the social roles of language, in structuring the identities of individuals and the culture of entire communities and societies. Linguistic anthropologists such Hymes, Saville - Troike and others have studied the characteristics of speech events which have patterning and significance for members of a particular speech community (cited in Mitchell and Myles, 1998). Examples of speech events might be telephone conversations, service encounters, classroom lessons, job interviews, etc. The ability to participate appropriately in relevant speech events is an important part of communicative competence.

The ethnography of second language communication aims similarly to study contexts and events where participants striving to achieve communicative goals through the means of second language. However, roles and identities of participants may be much more problematic in cross-linguistic, cross-cultural encounters.



## **GATE KEEPING AND POWER RELATION IN SECOND LANGUAGE COMMUNICATION**

Many classroom studies in second language learning have noted the mismatch of power relationships between the teacher and students, with teachers seen as dominant figures who control the details of second language classroom discourse (Chaudron, 1988, pp. 50-4). Some recent sociolinguistic studies have also tackled the problematic social relationships in which adult second language learners can also find themselves. Adult immigrants, in particular, may regularly be subjected to discrimination and racial harassment. Yet they may depend for essential social goals and services on second language medium interactions with representatives of the majority community, gate keepers with whom they have to negotiate successfully to obtain, e.g. housing, jobs, health care etc.

The European Science Foundation (ESF) project on adult migrants undertook more sociolinguistically oriented work, and concentrated in particular on examining adult migrants' encounters with a wide variety of gatekeepers (Bremer et al. 1996). Bremer and her colleagues concentrate on how the participants in such unequal encounters succeeded (or detailed) in developing and maintaining mutual understanding. Another example of the diverse ways in which power relations can affect learners' participation in second language speech events is done by Losey (1995) who conducted a classroom study to examine roles of different ethnic and gender groups. Losey concluded to that unequal power relation can control both learner's overall opportunities and willingness to take part in second language interaction.

## **SPEAKER'S SOCIAL IDENTITY AND SELF-ESTEEM**

The concept of social identity has been borrowed from social psychology. As quoted in Hansen and Liu (1997, pp. 567-8),

social identity is defined as 'that part of an individual's self-concept which derives from his knowledge of his membership of a social group (groups) together with the emotional significance attached to that membership'.

The concept of social identity as such has come under criticism for being too static and too focused on the individual. A Canadian researcher, Bonny Norton Pierce called for a more comprehensive theory of social identity, one that 'integrates the language learner and the language learning context' (Pierce, 1995, p. 12). For Pierce, social identity is dynamic; it is described as "multiple, a site of struggle, and subject to change overtime (p.20).

Pierce conducted a study of small group of immigrant adult women, concentrating on changes in their social identity over time, and in particular, on their struggle to achieve the right to speak in second language settings. Pierce proved potentiality of identity change from submissive immigrant to caregiver able to speak and learn the second language.

The researcher reports a range of strategies employed by second language speakers, in response to such threats. At one extreme, they found examples of resistance and reassertion of the speaker's first language identity. At the other extreme, they found speakers whom worked hard during second language introductions to assert a positive, native-like identity (Bremer et al. 1996, p.100).

## **ETHNOGRAPHY OF SECOND LANGUAGE COMMUNICATION:**

According to Mitchell and Myles (1998, pp. 171-2), 'chances of using a second language are socially patterned, in ways that increase the difficulty of the learning task'. However, Bremer et al. (1996, p. 105) comment briefly on interactional patterns which seem most likely to lead to an increase in learning opportunities.

*The data we have analyzed show that the discourse of minority interactants who seem to be conscious of the learning issues and of the necessity to work on their ability to understand ...their majority patterns involves:*

- *the use of metalinguistics comments on understanding and non-understanding and attention to the linguistic issues;*
- *initiative rather than dependency in their relationship to the majority partner in the interaction;*
- *a sensitive management of issues of face;*
- *an awareness of the issues in general.*

*(1996, p. 105).*

## **SECOND LANGUAGE SOCIALIZATION**

Some ethnographic studies of second language learning have also focused more explicitly, on 'socialization through language and socialization to use language' (Ochs, 1988, p.14). Jerri Willet like Ochs in her study, links research methods drawn from ethnography (participant observation and interviewing) with Vygotskian sociocultural learning theory and with activity theory. She is interested in the contributions of social class and gender to the structuring of learners' experiences and opportunities to develop second language competence. She stresses that:

*Language socialization, however, is not a one-way process by which learners blindly appropriate static knowledge and skills. It occurs through the micropolitics of social interaction ... people not only construct shared understandings as they struggle to further their individual agendas ... in the process of constructing shared understandings through negotiation, the social practices in which the interaction is embedded are altered and the relations, ideologies and identities are reshaped.*

*(Willet, 1995, p.475).*

## **TECHNOLOGY AND SECOND LANGUAGE LEARNING AND COMMUNICATION:**

The world now has achieved huge advances in technology, and educational technology is not an exception. Starting by traditional audio-taped material, and now rising highly in the sky of a virtual reality. As mentioned in chapter one of this study, technology and its application shape an authentic source aiming at facilitating both learning and communicating.

## **ANALYSIS AND DISCUSSION**

### **Paradigm:**

As mentioned in chapter 3, the paradigm of this study is both qualitative and quantitative, the first is represented in impressionistic observation practiced in the computer-inhered session and led to dividing the sample in each class into two groups, Pierce and Willett. The second is represented in the test and the questionnaire carried out by the students and is presented numerically.

### **Data**

The collected data in this study include age, socio-economic status and students' performance in both of the computer-enhanced session and in the test. Age may help disclose the progression of the students through basic school,\* whether students have been left back once or twice in previous grades. Socioeconomic status may reflect students' familiarity with technology and aptitude of interaction and going along with others. Performance may help disclose psychological factors and students' lack of awareness.

### **Presentation**

Presentation will involve frequency distributions and percentages in two steps, individually, in which data of each

school is presented, and collectively, which presents data of the four schools.

**Individual presentation:**

**Khartoum Al-jadida School for Girls**

**Table (1)**

Range	14	15	16	17	Total
	2	6	0	2	10

The higher age is 17 and realized here by two students and both of them are classified within the category of weak performance. Since aged regular admission in basic schools is 6, age of normal second year student in the secondary school should be 15. This may indicate that progression of the two students through their basic school was not straightforward, and they might have been left back once or twice in pervious grades.

**Socioeconomic status:**

	Positive		Negative	
	Pierce	Willett	Pierce	Willett
	4	5	1	0
%	20%	100%	20%	0

There is only one negative socioeconomic status and it is within Pierce group.

**Performance**

	Pierce	%	Pierce	%
Good	0	0	2	40%
Weak	5	100%	3	60%
Total	5	100%	5	100%

No one of Pierce's group achieved god performance though its members showed noticeable interaction during the computer-assisted session, and the opposite is right, 40% of Willett's group achieved good performance though they did not show noticeable interaction. This means that 40% of Willett's group who achieved good performance might intemedated from

participation by some psychological factors, such as lack of self-confidence or might be unaware of their language proficiency. The same applies to Pierce's group whose members all failed to achieve good performance, but in an opposite way. This means that their socioeconomic qualify them to be confident interactors who are familiar with technology or they may be unaware of their language proficiency.

Anyhow, good performance is achieved only by two students form Willett's group which is not expected.

### **Hypotheses of the study:**

H1 There is a statistically significant variance in students' performance due to psychological factors.

H 2 There is a statistically significant variance in students' performance due to social factors.

H 3 There is a statistically significant variance in students' performance due to lack of awareness.

## **CONCLUSION**

### **Findings:**

From the primary and secondary sources of the study the researcher concludes to the following:

1. Technology can play a vital role in improving student's communicative competence.
2. Many students have good communicative skills, but they hesitate in exhibiting such skills due to psychological factors.
3. Many students are not aware of their language proficiency. They either give good impression as interactors, or they achieve weak performance in addition to their reluctance in participation.

## **Recommendations**

The researcher recommends the following:

1. Necessity of using technology in teaching communication in secondary schools.
2. Teachers should use different techniques to eliminate fear or speech anxiety.
3. Language proficiency should be given good care when teaching communication.

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