

LEBANESE AMERICAN UNIVERSITY

THE EFFECT OF LANGUAGE WEBQUEST ON THE
HIGHER ORDER THINKING SKILLS OF LEBANESE HIGH
SCHOOL STUDENTS

By

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A thesis

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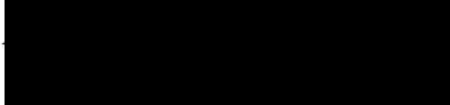
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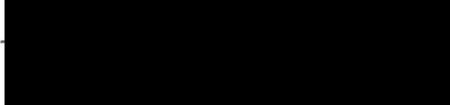
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Dedication

It is with humility and great gratitude that I dedicate this thesis to the people who mean the most to me

To my parents who always believed in me even when I did not believe that I could embark on journeys as far as this. Dad, you were the lighthouse whose beacon guided me and without you I would have been lost in the turbulent times that this thesis has passed through. I hope I have made you proud. Mum, no words could express the emotions I have at the end of this journey. There were times when I could have given up if it weren't for that look on your face wondering if I would finish or not. Thank you for all the hardships you were willing to take so that I could finish my work. You tolerated my chaos and sloppiness at home and you always expected the best as a result. You have tolerated my mood swings and short depressions with your patience and belief that I would come out of the tunnel with an "A".

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AN ABSTRACT OF THE THESIS OF

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Title: The Effect of Language WebQuest On The Higher Order Thinking Skills of
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The advancement in computer technology over the last forty years has affected many aspects of education. This advancement has prompted educators to gradually attempt integrating this technology into their classroom practices by using computer assisted language learning (CALL) programs. Moreover, this integration has further prompted educators to find a theoretical framework to govern their integration of information technology or IT. This paper attempts to study the extent to which CALL applications could affect students' higher order thinking skills. It also examines the effectiveness of a WebQuest on learners' critical thinking abilities and the practices teachers adopt to foster these abilities. The study is conducted through a mixed method causal-comparative design using purposive sampling of 48 students in three different classes. Results indicate that students who use CALL showed higher order skills such as critical thinking and problem solving in acquiring the target language than those who do not. However, the results also indicated that knowledge of use of computer key board skills and use of software and the internet could hinder learning if not dealt with efficiently. Implications for classroom teaching/learning and recommendations for future research are made.

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Chapter One

Introduction

General Background of the Problem

It has been more than forty years to the inclusion of computers in schools, and it is safe to say that computers are here to stay. However, much research has revealed that the effective use of technology is still not up to the full potential of computers or the internet (Maddux, 2003).

As early as the seventies, research has assumed that the mere exposure of learners to computers would surely lead to great benefits in the long run (Maddux, 2003). However, by the late eighties, research had identified that pure exposure to computers is not sufficient and that if students of different gender, ages and educational levels are taught some computing applications by any teacher, then these learners will develop some cognitive skills more than learners who receive traditional learning circumstances (Maddux, 1993). This generalization however disregarded the role of the teacher or even the specific nature of the computing tool to foster a reasonably sufficient quality rather than quantity of computing tool.

By the mid nineties, researchers have realized that with proper computer teaching tools come the need to tailor instruction to suit learner's needs. Yet, Maddux (1993) considers that the move from the eighties has not come easily and some institutions have remained at the second stage or that one of the eighties.

With time, Brucklacher and Gimbert (1999) considered that with the increase in computers and internet connectivity in schools, teachers could not stand still and adopt any computing tool regardless of the students' needs or knowledge; teachers and administrators

needed to effectively use these computing tools and include them in their curriculum to develop their learners cognitive abilities.

In his report to the New Zealand Ministry of education, Parr (2002) concludes that for computers and computing tools to be effective, the teacher and the administrator ought to look closely to the nature of the software, the learners' background knowledge in computing as well as the level of access the learners have at school and outside. Parr (2002) holds special emphasis on the educational context the teacher works in and how the teacher organizes this context so that the ultimate goal is achieved, and it is the learner-teacher interaction.

Similarly Lui (2005) concluded that since the 80's up till the beginning of the 21st century, technology has been integrated into the classrooms, but the design of integration has been absent. Teachers have added the internet or any other computer educational software without the major four stages of technology adoption or as Liu and Velasquez- Bryant (2003) labeled them: the planning, designing, implementing and evaluating stages of integration.

The absence of such integration has left teachers unable to evaluate their practices or modify the use of technology to suit the needs of their students. Moreover, Liu (2005) attributed the stagnation or the vicious circle the educators have fallen into to the speed by which technology was advancing. Liu points out to the fact that no sooner would the teachers master the tool at hand and would be at the evaluation stage of their integration than a new technology is released and they have to go back again and adopt it because administration deem it appropriate.

There have been schools that not long ago tried to integrate technology into the curriculum some of which Hokanson and Hooper (2000) deemed as ineffective. They have seen

some schools using the single-computer classrooms or the “ghettoized” computers which are often referred to as the computer lab. To Hokanson and Hooper (2000) both uses of integration are unproductive because in the former use there is minimal change due to the limited access every learner gets in the class and the absence of interaction between the learner and the teacher. Similarly, the latter use of technology, or what Hokanson and Hooper refer to as ghettoized access, can be considered segregation and not integration. The reason is that learning is divided between what the learner works on in the computer lab session, which could be once or maximum twice a week and material covered in the class which could be totally unrelated to what happened in the computer class.

The research on the integration of technology into schools is successful if computers foster collaborative learning and develop critical thinking skills as well as problem solving (Means & Olson, 1995). Therefore, when learners gain access to an abundance of online resources using inquiry based activities, the learners are engaged in the learning process and can perform tasks that go beyond the simple lower order thinking skills of Bloom’s Taxonomy i.e. knowledge and comprehension. Learners can analyze, synthesize and evaluate the resources and produce creative and relevant tasks to address the issue they are working on.

Despite the intensive research conducted on the effect of using technology in the classroom, some studies have focused on using technology in its primitive state stressing the lower order thinking skills and neglecting the higher order thinking skills in the curriculum.

A lot of research has confirmed that Computer Assisted Language Learning can be considered a step to transport the passive learners, seeking comprehension and knowledge material in L2 acquisition, to active and engaged learners able to analyze and evaluate material

they find using computers (Chapelle & Jamison 1986; Dunkel 1987). Chapelle and Jamison (1986) consider that CALL can only be effective if the quality of the L2 lessons targets the cognitive and affective abilities of the students. Only then will the learner interact with the material utilized and exhibit signs of higher order thinking skills. Dunkel (1987) has investigated the effect of CALL on L2 acquisition and considers that there is a need to conduct further research on the role CALL could have on learning, engaging and creating a learning centered student.

Statement of the problem

With respect to ESL Arabic speaking high school students, there is an increasing need to collect information about high school students' usage patterns of the internet for school work as well as the extent to which the patterns of use of the internet could increase the higher order thinking skills. High school learners have different patterns of use of the internet with very little awareness of the effect of such patterns on their thinking abilities. Because of the limited or even the lack of research on the effects of internet usage patterns amongst students in Lebanese high schools, teachers have left students to individually determine what to look for and how to use the internet in the research work that students are asked to present.

Therefore, if the tasks learners are requested to perform using the internet could develop students' higher order thinking skills, then such tasks ought to be included in the L2 curriculum as well as most subject areas taught at school. Furthermore, the extent of motivation that students exhibit using the internet need also be investigated and researched. The teachers need to study the effects of challenging tasks on their students thinking skills and tailor material that is both challenging and engaging. Surely, the identification of higher order thinking skills through the

tasks chosen could help teachers create language lessons that develop such skills and keep learners engaged and motivated. In other words when teachers use the internet and create tasks that help students develop their critical thinking skills, they are teaching skills rather than pure material to be covered because the curriculum has deemed right. Students' needs, motivation and engagement are at the core of the tasks and the results are meant for a life time.

Purpose of the Study

Means and Olson (1995) have indicated and proven that when learners use technology effectively, their potential for critical thinking, problem solving and cooperative work develops. Furthermore, Means and Knapp (1991) conclude that when learners are not provided with challenging tasks and are not requested to use their higher order thinking skills, then their teachers are underestimating their potential; they are simply teaching subject areas that are independent of each other and don't target the higher order thinking skills, thus depriving their students from developing thinking skills requested at their grade level.

The purpose of this study is to investigate these two conclusions within the Lebanese educational community. The study would measure the effect of technology, through an inquiry based activity, WebQuest, in improving the higher order thinking skills of high school students in Lebanon. For the sake of this study, we are going to call this school SHS. In addition to studying the pattern of technology use amongst SHS teenagers, the research would also investigate if teachers are aware of the higher order thinking skills and if the L2 learning activities tailor to these higher order thinking skills.

Rationale of the Study

A lot of researchers, studies and authorities in the field of technology, critical thinking and language acquisition, have come to the conclusion that ESL learners will exhibit higher order thinking skills if the activities they are requested to perform are engaging, challenging and involved the use of technology (Hegelheimer & Tower 2004). The abundant literature on CALL demonstrates that the quality of exposure to computer aided instruction can foster critical thinking abilities of learners.

For the above mentioned reasons it is worth investigating the effect of technology through an inquiry based tool, WebQuest , in developing ESL learners' higher order thinking skills, particularly analysis, evaluation and synthesis, by creating a brochure, evaluating a promotional ad and arguing for or against an issue of concern to teenagers. The importance of investigating this research study is that it could help teachers of L2 adapt the curriculum to satisfy learners' need to critically interact and produce creative analytical and evaluative material. The study data collected from these studies could be used to encourage decision makers in schools and teachers to adapt their teaching material and develop new material so that it could help learners develop their higher order thinking skills. Finally, it would be an extra added value if this study could also direct teachers to assist learners in the selection and evaluation of material they meet using the internet

Rationale for the affecting variables

The unfamiliarity of high school foreign language teachers with CALL approaches for L2 acquisition, lack of time, scarce training and patterns of use of technology by students are the

independent variables that have been selected to determine the effect of technology on the critical thinking ability of ESL learners.

In the last 20 years since the integration of technology into the classrooms, drills and word processing use has been pervasively used by teachers. Although many researchers had expected that educational technology would evolve and reach its potential with time, administrators and teachers alike have only recently considered that the use of computers in the classroom is a must and ought to be available to all learners. Rarely would a school use a computer integrated curriculum as a means of instruction by teachers of language or any other subject (McCracken & McCracken, 1995)

A second independent variable was the scarcity of time for teachers to allocate the development of activities that enhances thinking skills activities let alone higher order thinking skills. Teachers would disregard the use of open-ended questions, class discussions, cooperative work, and real life problem solving situations (Pogrow, 1987). It is essential to add that technology was evolving at such a high pace that teachers had little time to adapt and master computer teaching software before a new one would develop.

A third and important variable has the lack of teacher training in developing and tailoring learning experiences that are conducive to developing higher order thinking skills and problem solving. Most teaching was teacher based and evaluation was very traditional. As a result students could not benefit from technology if their teachers were incompetent in the use of technology and not comfortable in using the internet to develop critical thinking skills.

Much research considers that there were indirect causes for students' lack of ability in applying higher order thinking skills such as analysis, synthesis and evaluation. Harris and

Sullivan (2000) consider that the curriculum which is used by teachers has become obsolete and outdated thus change has become essential. Teachers and curriculum designers must engage students, and require learners to continue developing their technological skills in order to develop their autonomy and flexibility in learning which critical thinking is all about. Warshauer and Healey, (1998) therefore consider that since learners are mostly competent in knowledge, comprehension and application, they need to branch out in developing research skills that develop their higher order thinking skills.

Significance of the study

The significance of this study is that it examines the effect of a WebQuest on developing higher order thinking skills amongst ESL students enrolled in an intensive English summer course .

There is no quantitative research conducted on the use of technology and its effect on developing higher order thinking skills amongst ESL learners in Lebanese schools.

This study would offer Lebanese teachers, administrators and curriculum designers the knowledge about the positive effects of technology and its integration in the classrooms. This would also help teachers who are reluctant to use technology and would further assist them to use something as easy as the WebQuest to develop the curriculum at hand and help learners become thinkers and decision makers in a world that requires them to be so instead of being passive participants in the learning process.

Hypothesis

The use of an inquiry based tool like the WebQuest can increase the higher order thinking skills amongst ESL high school students.

Research Questions

The research questions to be investigated in this study are stated below:

1. Is the current situation of technology use in schools conducive to foster critical thinking?
2. How do teachers incorporate higher order thinking skills in their students' use of technology and what are some of the obstacles they have in incorporating technology in the classroom?
3. To what extent can an inquiry based learning activity, like a WebQuest, establish an increase in students' critical thinking ability?

Operational differences

For the purpose of this study, the following terms are defined as follows:

CALL: Computer Assisted Language Learning is using technology to practice in a variety of technology modes to provide effective feedback to learners, enable pair or group work enhance student performance, create an ease in interaction and individualize instruction to allow independence from single source information and motivate learners. (Lee, 2000b; Warshauer & Healey, 1998)

ESL: English as a Second Language can be defined as English for use in an English-speaking region, by someone whose first language is not English. The use of this term is restricted to certain countries. (Wikipedia 2010)

Higher Order Thinking Skills: It is a subcategory of Critical thinking ability which involves “providing students with multiple opportunities to practice and enhance their understanding of complex concepts that involve induction, deduction, credibility, and assumption learned”. (Ennis, Millman & Tomko, 2004, p. 2).

Inquiry Based Learning: Inquiry based learning is a teaching method that advocates involving students by providing practical activities and intellectual stimulation, all of which increases learning. Teachers assist learners by providing questions that are structured and often require research which could be supervised by the teacher or could require little intervention from the teacher (Bruce & Davidson, 1996; Larson & Gatto, 2004; Dewey, 1956).

WebQuest: A WebQuest is “an inquiry-oriented activity in which some or all the information that learners interact with comes from resources on the Internet” (March, 2004, p. 9).

Effective Use of the Internet: using the internet as an integral tool to accomplish specific teaching or learning objectives with the purpose of engaging students.

Collaborative Learning: Students learning is fostered when it is conducted in cooperatively instead of individually or autonomously. Also Collaborative learning involves the ability of the learner to be engaged in the learning process which leads to an increase in academic, personal, and social development. (Li, 2002)

Summary

This chapter discussed the current study. After presenting a general background of the study, the chapter stated the problem that has lead to the current research, the purpose, rationale and significance of the study. This chapter has also indicated the hypothesis on which the research is based. The following chapter discusses the literature review related to the effects of CALL on developing higher order thinking skills.

Chapter Two

Literature Review

Introduction

Learners of the 21st century live in an extraordinary era in human history because they are raised in a period where the entire world is nothing but a global village. News and mass communication are available at extraordinary speed making them more aware of variety of issues like the environment, health and international conflict. Educators, teachers and administrators feel that there is a need to raise a generation of learners who are caring citizens of the 21st century and who are competent in the tools that would make them succeed in whatever field they desire to be part of. The major question that educators and curriculum designers ask themselves is to what extent schools are utilizing technology and whether this integration has any effect on their learners' cognitive development.

Bauer and Kenton, (2005) consider that as teachers and educators attempted to approach the 21st century tools for the creation of a global citizen, they had to change their understanding of the nature of learning and particularly learning with technology. In their process to do so, it was not enough to be familiar with computer technology. Hooper and Rieber (1999) have investigated the stages that teachers follow to use computer technology in the classroom and have found that from the five phases which are: familiarization, utilization, integration, reorientation and evolution, teachers reach the utilization phase and stop. Hooper and Rieber (1999) continue to assert that the utilization stage is critical for the total integration because at the first sign of trouble in computers, teachers would give them up. However if educators and decision makers want change to occur, they have to move to the integration stage because only then would computers and the internet be used to serve a specific purpose or a task that is related

to a specific subject matter or the curriculum as a whole. For the purpose of the study, it is important to define what is meant by integration of technology, stages of integration, patterns of student usage of technology in the classroom, teachers' practices and concerns towards technology and strength, and describe some patterns of use of technology in the Arab world.

Definition of Integration

Technology integration is the act of using the computer and other technology tools to create projects that are both purposeful and meaningful so that they could engage and motivate learners to acquire skills of problem solving and critical thinking (Muir, 1994; Peck & Dorricot, 1994). The International Society for Technology in Education (ISTE, *NETS for Students*, 2000, p. 6) defined the effective integration of technology as a stage when teachers and students have the potential to choose the appropriate technology tools that would help them find, analyze, and synthesize information in a relatively appropriate time and then present a final product in a professional manner. Furthermore, the report emphasizes that integration is achieved when technology becomes an integral part of how the classroom works in that it becomes just like the blackboard or the desk which is used by all the learners.

There is a lot of literature on the methods of technology integration into the classroom (Alessi & Trollip, 2001; Geisert & Futrell, 2000; & Jonassen, 2000). It has become more than a belief but a clear cut fact that technology can improve the quality of learning as well as the methods of teaching. However, this does not necessarily mean that the results of the instructional process would necessarily be better than using the traditional methods of learning (SIIA 2000).

Integration of technology in the classroom means using hardware and software in the classroom to come up with a final product. It can also be integrated by establishing a relationship between technology and the curriculum or the subject matter taught in class. However it is noteworthy

that integrating technology in the classroom is a very complex issue and a challenging process for teachers, decision makers and students (Cooper 1998).

According to Weis (2004), 21st century students will not only need to use hardware and software successfully but they need to access, assess, synthesize and use information, individually and collaboratively, in an ethical manner to demonstrate to their readers, and in this case to their teachers, what they have learned. Another method of technology integration is when decision makers use technology as a means of support for teachers and students in order to meet the goals set by the school or educational decision makers (Mize & Gibbons, 2000; Ringstaff & Kelly, 2002; Byrom & Bingham, 2001; Honey, Culp & Carrigg, 1999). Mize and Gibbons (2000) have found out that only when there is a clear vision set by all members of the school be it administrative, IT department or teachers would integration succeed or else teachers would attribute their failure to lack of time and not lack of a common strategy or vision for integration.

Page (2000) considers that integration of technology in the classroom cannot be realized by just introducing the tools into the classroom but rather by evaluating their appropriateness to the objectives set by the curriculum designers or teachers. On a more general perspective, research has shown that there is more to integration than the evaluation of its effectiveness. In addition to the evaluation of its effectiveness, schools must have overall clear goals that go beyond teacher or curriculum goals set by decision makers (Byrom, 1998; Honey, Culp, & Spielvogel, 1999; Knight & Albaugh, 1997).

Furr, Ragsdale and Horton (2005) assert that as the role of computers in the classroom has gone beyond physical presence, it is imperative to study the stages of integration and if this integration has been effectively used and has served the results it was meant for.

The integration of computers has gone through three stages which Maddux (2003) consider pivotal in the understanding of the use of technology in the classroom. Stage one is mainly characterized by the understanding that the mere introduction of hardware would have positive effects on the learners' educational performance. Dunkel (1987) looks at stage one of computer integration as a failure not because of the pedagogical framework of using computers in the classroom but because the assessment of these practices was inaccurate. Computers were first generation which involved basic language and lack of mainframes. Researchers at stage one who studied the effectiveness of using computers in the class versus using traditional methods of learning such as textbooks and chalkboard have found no difference whatsoever between either use.

However, Torkelson (1977) considered that researchers failed to find a difference in effectiveness of computer use at this stage because they have failed to ask the right questions. Instead of looking into the design of the software or the design of the teaching methods employed, researchers focused on the medium or the tool itself making the research at this stage inconclusive to the tools and inaccurate (Torkelson 1977; Clark 1983).

Stage two of integration is considered a pivotal point in the process of integration because teachers and learners by the late eighties and mid nineties began using "tutorial software" as Morrison (1988) calls them in order to assist learners to practice what is learnt in the class. This abundant software was designed as mere drill and practice tool and as post- assessment of traditional methods of learning. Maddux (1993) examined the research conducted during stage two of the process of integration and has come up with the conclusion that the trend at the time was that if learners, regardless of age, gender or even IQ, received instruction using computers for an unspecific period of time, they would surely improve in cognition or in any performance

level more than learners who receive traditional type of learning. Maddux claims that stage three has failed to arrive or that at least integration has stagnated between stages two and three.

Maddux (2003) attributes this stagnation to the failure of teachers and decision makers to view technology in the classroom beyond an extension to traditional print resources, and application methods. However, Richards (2004) claimed that stage three has become effective when teachers finally realized that if technology is used not just as subject specific but across the curriculum and if technology is used in a focused manner on skill development, then integration of technology will become successful in the teaching and learning process. Therefore Kimber (2003) concludes that to achieve and utilize technology most effectively, teachers must become designers of approaches to integrating technology in learning instead of being mere transmitters of technology in learning.

Richards (2005), consequently, has found out through a number of case studies that stage three of integration has arrived and has become effective. Teachers in stage three have utilized computers to develop student-centered learning by reinforcing practices like problem based learning, project work, and inquiry based activities and all these practices have ensured successful learning on the part of students. Similarly in another case study conducted in the United Arab Emirates, Almekhlafi and Almeqdadi (2010), the research findings stress that teachers are becoming high users of technology for student- teacher interaction, collaborative communication, independent learning, and understanding of subject matter. However, a key question that the literature review must address is if there are factors that influence students or teachers use of technology which could affect integration and how they can be overcome.

Students' Patterns of Technology Use

When it comes to the patterns of use of technology, it is imperative to look at the many factors that determine the quantity and the quality of use of technology. Research shows that socioeconomic background is a factor that determines the quality of computer use. Ware and Warschauer (2005) points out that teenagers coming from low socioeconomic background tend to use the internet and computers at the very basic level at home and in class. Similarly, Facer and Furlong (2001) have concluded that low income students are poor users of the internet and are mostly seen playing video games and using social networking sites such as Messenger and chat rooms. Becker (2000) has studied students uses of computers outside school and has concluded that computers are used for education and entertainment, but this access is determined by the socioeconomic background of the students which widens the digital divide further and further between the haves and the have not. Similarly, in a national survey conducted in the USA in 2000, (Ronkvist, Dexter, & Anderson 2000), the data revealed that there were differences in computer access between schools based on their socioeconomic background and these differences were not related to the number of computers but the quality of access.

In an educational context, student access to technology is often revealed in the amount of exposure to technology within the curriculum rather than as a subject matter that is given once or twice a week. Becker (2000) considers that although physical integration of technology has been increasing rapidly, computers are not often integrated within the curricula but rather are used as a subject matter where learners study about the computer rather than use it in their learning process. Becker (2000) continues to say that even though technologically schools have become

better equipped with an adequate and, in some places, advanced infrastructure, schools have not been able to completely integrate computers in the class.

Surely the factors that affect the use of computers among students is highly related to the factors that affect teachers' use of technology in their work.

Factors Affecting Integration of Technology in the School

Much research focuses on the factors that affect integration of technology in the classroom (Becker 2000; Kimber 2003; Richards 2005; Almekhlafi &Almeqdadi 2010). These factors could be categorized under organizational, technical and individualistic aspects that need to be addressed to insure the success of integration. The literature looks at the factors with equal degree and they are interconnected and could sometimes overlap. The technical factor includes lack of access to computers, inadequate infrastructure, outdated hardware, and inappropriate software (Finn, 2008). However, research considers the technical factor not as important as the individualistic and organizational factor. Hinson, LaPrairie and Herman (2005) argue that the presence of state of the art infrastructure is not the key factor that would encourage teachers to implement or integrate technology in the classroom. Similarly, Cuban (2001) states that regardless of the sophistication of the technical hardware and systems present, teachers and administrators will not be able to utilize these tools if they are not adequately trained to use them intelligently and this problem would directly affect the usefulness of this hardware or software.

The second key factor that affects the integration of technology in the classroom is the organizational factor. Lam (2000) considers that funding and equipment as well as insufficient time to test and work on lessons are key factors in integration. Mumtaz (2000) as a result, points

out that when schools have high quality of technology resources, teachers are good practitioners of technology in the curriculum. Gray (2001) adds that the process of planning the technology, seeking the support of the community and administrative body, as well as working on staff and administrative development are important factors that could overlap with individualistic factors which will be discussed next. It is worth noting that staff development is key in integration because according to Lawless & Pellegrino (2007) administration and decision makers need to have knowledge, that is grounded in research findings, about how best to integrate technology, computers as well as learning so that it could be effective and successful. Ritchie (1996) considers that the commitment of the administration is key in implementation of technology in the curriculum which could facilitate all other obstacles that could hinder integration.

Other factors influencing integration could also include quality of leadership, the relationship between external exams like national examinations, university entrance exams and technology, and the relevance of technology to instructional needs of students (Hardy 1998; Reynolds, Terharne, & Tripp, 2003, Qablan, Abuloum, & Abu Al-Ruz 2009). Hardy (1998) further adds that when schools receive insufficient ongoing support, fragmented knowledge, their integration of technology would stop at utilization stage and would lead to teachers' abandonment of technology as a whole.

The last very important factor, that affects integration of technology in the classroom, is individualistic and specifically teachers. It has become a general truth in the last ten years that teachers play the most important role in determining the quality of integrating technology in the classroom. Hardy (1998) considers that teachers' confidence is the first and important factor that influences integration of technology in the classroom. Furthermore, there is enough evidence that

because learners are more competent in using computers in and outside class teachers are not comfortable using computers in front of their students in case teachers show a certain incompetency in using technology (BECTA, 2004; Lee, 2008; Fryer, 2003). Russell and Bradley (1997) consider that the main cause of this anxiety is that teachers are afraid of getting stuck whenever a problem happens and consequently would not know what to do about the problem. This inability to solve a problem could lead teachers to lose their power in the class (Fabry and Higgins 1997). In response to this situation, Wang, Ertmer and Newby (2004) consider that if teachers have direct training and clear focus or goals set by them or the administration then their confidence and competency in using technology would grow.

Another factor that could affect integration of technology is the aspect of training and time. Vannetta and Fordham (2004) have considered that when administration is willing to invest in teacher training to use technology, teachers would be willing to change their attitude and become motivated to use technology. Similarly, Mize & Gibbons (2000) look at scheduled training sessions as pivotal in enhancing teachers' confidence in using technology and would also keep them up to date with the changing IT. To keep with the factor of training, Fabry and Higgs (1997) assert that because teachers are innately resistant to change, they are not only required to be trained in using the technology but also to learn how to change the way they teach using the technology. This would necessarily require teachers to give up the paradigm of teacher-centered classroom and design a learner-centered classroom and their learners are more likely to work cooperatively, actively and be more engaged in the learning process (Mize & Gibbons, 2000; Waxman, Lin & Michko, 2003).

A further factor that is related to teachers' attitude to integration is the factor of time. Lam (2000) looks at time as a factor teachers give to explain why they are or are not able to use

technology in their classrooms. This excuse, according to Lam (2000), is often attributed to teachers inability to handle the level of anxiety technology could create so they would drop integration and would give lack of time as an excuse. Vannatta and Fordham (2004) consider that when teachers are willing to put in more time than is required by their job description, and when administration is willing to utilize ongoing training, then teachers would confidently use technology in their classrooms. Finally, Shuldman (2004) regards technology integration as successful not only when enough time is give for teachers to implement it but also when schools receive funding for this ongoing development process.

Integration in the Arab World: Some Facts and Findings

In spite of the abundant research on technology integration in schools worldwide, there is very little evidence of research conducted on integration in the Arab world, let alone its effect on learners. In the last 20 years, a few studies have qualitatively or quantitatively explored the issue of integration in Arab Schools.

Kibbi (1994) was first to conduct a study on the integration of technology in Private schools in Lebanon particularly in the Greater Beirut district. 206 of the 411 Private Schools which were part of the study responded to a questionnaire about integration of computers in schools and the problems associated with it. Kibbi (1994) finds that integration of computers in Lebanese private schools has fallen short of the goals set by the ministry. Of the most outstanding findings were that there was a serious lack of funding for the purchase of computers, software and maintenance. Another finding which is key failure of implementation of technology was the absence of governmental programs for the encouragement and support of computers in

education. Furthermore, there is little evidence of training of teachers to realize the full potential of computers in education.

However, the questionnaire has revealed that teachers agree that computers could have a positive effect on motivating students to learn, expanding attention span of learners and increase the interest of learners in any subject matter when computers are involved. Finally, it is noteworthy to add that the study has revealed that school principals were the decision makers behind integration and teachers were merely supportive of this decision, in other words integration was adopted without involving the teachers in the decision making process.

Along with this study, Feghali (2003) has looked into the state of technology integration in schools in Lebanon as a whole. The findings reveal that the Lebanese government has become more aware of the importance of integrating technology into the schools by adding computer classes as part of the new curriculum of 1998 and launching a project called SchoolNet on a national level which has attempted to link public schools using a central server controlled by the ministry of national education.

An additional effort has been made on providing schools with the hardware through the Office of the Minister of State for Administrative Reform Of technology (OMSAR) by issuing a tender for 2000 PCs for public schools and to be funded by a special schools fund. Furthermore, the report by ESCWA reported that international NGO's have donated to Lebanese schools computer labs and internet connectivity to 12 schools in all of Lebanon. As a result one can see that integration up to 2000 reveals that the integration of technology has had very limited perspective that confounded itself to hardware rather than true integration as revealed in the literature.

The situation in other Arab countries reveals attempts at studying the effects of integration on learners' achievement in all fields of study in a more qualitative and quantitative manner. Al Sagheer (2001) considers that because the UAE is becoming more and more a country attracting a diverse population from all over the world seeking business, the country is becoming dedicated more and more into creating global citizens who are more proficient in foreign language learning and thus schools, universities and companies are investing in this process and are utilizing computer technology that would make them learners ready to be 21st century citizen. There are attempts at mainly studying the effects of CALL on all levels of students.

In a study conducted in the UAE, Almekhlafi and Almeqdadi (2006) examines empirically the impact of Computer Assisted Language Learning on UAE elementary prep - students' improvement in English as a foreign language. He found that the users of CALL have exhibited evidence of improvement in second language acquisition compared to non users of CALL. In addition, the study revealed that that the users of CALL showed a positive attitude to overall language learning.

Another Arab country, Jordan, has been attempting to reform the country's educational system by introducing information and communication technology (ICT) to change the way teaching and learning has been taking place at schools there (Al-Jaghoub & Westrup 2003). The main aim behind this integration was to develop confidence, creativity, productivity in using new technology, particularly in ICT, and understanding of latest effects of technology on the society (Ministry of Education, 2003).

Qablan, Abuloum, and Abu Al-Ruz (2009) conducted a study on the use of ICT in a female public school from the perspective of in-service science teachers, students, school principals and lab supervisors. The study revealed several flaws and obstacles which deem integration as failure. First, on the hardware level, there was a poor student –pc ratio and insufficient maintenance of PC and specifically poor PC internet maintenance. Teachers and principals complained that teachers were reluctant to use computers as part of their curriculum because their schedules were very tight, they had to meet with deadlines regarding their end of year exams and they often had conflicting classes with other teachers to use the lab. Another set of obstacles, external to the school set up, that hindered integration were attributed to the relationship between the school community and the outer community of the school. First, 50% of students did not have computers or internet access at home or parents were unwilling to give their children permission to access the internet outside the house thinking that this would be a waste of time. Also, due to the pressures on the school to stay up to the standard in their official exams, there was focus on learners to pay more attention on studying for these exams and not utilize ICT to enhance their learning skills and develop their cognitive abilities.

Country	Year	Researchers
Lebanon	1994 & 2003	Kibbi (1994) , Feghali (2003)
UAE	2001 & 2006	Almekhlafi and Almeqdadi (2006) , Al Sagheer (2001)
Jordan	2003 & 2009	Qablan, Abuloum, and Abu Al-Ruz (2009) Al-Jaghoub & Westrup 2003).

Table 2.1 Examples of Research on Integration in the Arab World

Critical Thinking

Traditionally schools were places that pass on knowledge from teachers to students. Teachers would be the primary and only source who would provide and control students' access to knowledge in terms of when and how students would interact and respond to the knowledge provided. Coughlin (2010) describes these schools as mere "certification mills" which provide the learners with a certificate verifying that some sort of learning has happened. However changes have taken place in the 20th century to what the function of school is. Schools are no more certificate mills but have become places that include not only books but media that makes access to learning motivating, engaging and interactive. Therefore, Coughlin (2010) considers that if such places are able to transform learning to an engaging process and learners to critical thinkers, then the learning process is no more shallow and superfluous but radical and involves deeper aspects of knowledge acquisition.

Definition of Critical Thinking

Upon reviewing the literature of critical thinking, there is little agreement among the body of experts that there is no common or unified definition of critical thinking. Some have described it as creative thinking, reflective thinking, the true evaluation of assumptions and reasoning or the application of logic. Due to critical thinking's wide range of definitions, many researchers have decided to set stages that could help learners acquire these thinking skills. Further studies have shown that there is a controversy whether critical thinking can be taught through utilizing some activities to develop such thinking skills or if critical thinking can only be performed in context of the curriculum or the subject areas. The literature review attempts to highlight these issues with as much solid evidence as possible.

The Socratic method of critical thinking is considered the beginning of what scholars call the critical thinking method. He has put major emphasis on ideas and their role in shaping the individual's actions and behavior in society. Capossela (1996) looks at the Socratic dialogues and considers them to be the oldest and best example of critical thinking in action. Dewey (1933) is considered the first scholar to give critical thinking a clear definition by coining it with reflective thinking, defining it both as "active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends" (Dewey, 1933, p. 9). To Dewey, only when learners establish connections and relationships in any body of knowledge, then learning becomes more than just rote memorizing of information.

There are many levels of critical thinking that have gone through an evolutionary process and research has identified many stages that this process of thinking takes. Bloom, Engelhart,, Furs, Hill, & Krathwohl (1956) suggested a construct of critical thinking that has been adopted by educators ever since. It talks about six thinking processes mainly knowledge, comprehension, application, analysis, synthesis and evaluation. According to Bissell and Lemons (2006), the first two categories of basic knowledge and secondary comprehension could be looked at as the lower order thinking skills because they require little critical thinking Application, analysis, synthesis and evaluation are considered the higher order thinking skills which Scriven and Paul (2001) considered as the guide to belief or action. This is because when learners actively conceptualize the applying, analyzing and synthesizing or evaluating of information collected from observation experience and reasoning, they are critical thinkers of the higher order.

Halpern (1984) has added to Dewey's definition of critical thinking an important aspect which is the necessity of focus on the part of the learner. When the learners focus on analyzing a

problem, and making an inference or a decision, then they are developing their critical thinking. Halpern, also considers that critical thinking can be improved with hard work, practice, and diligence. Siegel (1988) considered that critical thinking needs some educational framework so it can be utilized in the school context. He considered that learners needed to act in the educational environment rather than have the inclination to do what they are supposed to do. It is rather more important to act than decide what to do.

Ennis (1989) has added to Dewey's definition of critical thinking. He considers that thinking takes place when the learner's decision-making ability is developed. Only then is such learner thinking in a reasonable and reflective manner. Thus, Norris and Ennis (1989) clearly define critical thinking as the ability of the learners to seek logical information, use resources that are valid and trustworthy, take into consideration the point of view of others, stay away from making judgments when there is insufficient information and seek depth rather than breadth of information.

Paul (1992) defines critical thinking as the thinking that is governed by rules and is often self-directed by the learners themselves. Paul considers that critical thinking can be of two types. First, critical thinking of the weak sense is thinking which is bias and prejudice that serves the interest of a certain group. Another type of critical thinking which Paul advocates is the strong sense critical thinking process that takes into consideration that knowledge must not be bias and should be fair to all sides and parties. Thus objectivity is the supreme form of analysis which Paul considers key in critical thinking.

Therefore, Paul (1989) considers that teaching critical thinking could fail if learners are taught to identify assumptions, test premises, make inferences and identify illogical

generalizations without learning to understand and critically identify learners' own biases, prejudices and misconceptions. Therefore Gong (2005) and Elder and Paul (2008) agree on the premise that learners who are taught to be fair and aware of their own prejudices can be learners who are willing to look at controversial issues in a wider perspective disregarding self interest and capable of judging these issues in a more objective fashion.

Subject Matter Or Curriculum

There are two opposing opinions regarding the teaching of critical thinking. Tsui (2002) considers that critical thinking can be taught through subject matter and content area covered by students along the academic year. Thus all levels of thinking can be taught through incorporating them in the subject matter. However, Logan (1976) and Keeley (1992) stress that the above approach is not sufficient to increase student ability to critically think to the level teachers or curriculum wants them to. Thus, there are other aspects that need to be taught or included in the curriculum itself rather than subject matter to help individuals think critically and act rationally.

Perkins (1995) considers that the above approaches are nothing but part of a whole and the second most important part is the second curriculum or what he calls meta-curriculum which involves the development of cognitive abilities of the learners as well as learning facilitation and training for skill acquisition. Thus, Dlugos (2003) suggests that designers of the curriculum must evaluate all the content areas and measure the extent to which critical thinking skills are employed in the teaching process and consequently add these skills to the main concepts of these areas. Such skills are very essential for bringing up a learner who can be ready for the 21st century.

The term 21st century skills involves the learners ability to be responsible for their own learning, to find and judge the nature of the knowledge researched, to plan and organize whatever learning task assigned and finally to be able to self evaluate the nature of the material at hand or what can be called the skill of collaboration, critical thinking, and self direction (Marzano, Pickering, & Pollock, 2001; Halpern, 1984; & Dweck 2000). Shakirova (2007) considers the 21st century critical learners are those who develop their own learned thinking abilities to deal logically and effectively with social and practical problems. Therefore, if education experts can identify which skills the learners of the 21st century need to function in the real world , then it is in the opinion of many that skills like critical thinking , innovative thinking and autonomous evaluation of the learners performance can be taught , applied and also evaluated (Coughlin, Garcia, & Reifsneider, 2009; Dweck, 2007; & Zimmerman, Bonner, & Kovach, 1996).

Stages of Critical Thinking

It is necessary at this stage to identify the stages and benefits of integrating critical thinking in the curriculum. To Siegle (2004), there are four stages in shaping critical thinking of learners. First teachers must present learners with knowledge that is relevant to their everyday life. The second stage is for learners to be encouraged to understand knowledge in a critical sense. The third stage is to encourage the learners to reflect on the task at hand and to express their opinions and attitudes towards these issues. The last stage to develop critical thinking, according to Siegle, is to come up with a conclusion that suggests solutions which are often based on the data provided or researched.

Similarly, Elder and Paul (2008) consider that learning any new skill for critical purposes requires three stages. First, the learner needs to understand the main features of the skill, and then apply those features to solve the problem presented by the instructor. The final stage involves evaluation of the work produced. Such three steps will create learners who can self assess the product they have come up with, in addition to the help of guidelines set to the learners by their instructors. Therefore, the end of such education is autonomous learners who are capable of critically synthesizing, analyzing and evaluating knowledge at hand.

Only at this stage will the learners be able to apply what they are learning and would come to realize the worth of what they are acquiring. At this stage leaning will be a motivating act and not a tedious boring one. Elder and Paul (2008) consider that it is important for learners to approach the leaning process through understanding the logic of what and why they are learning what they are learning. Consequently if readers or learners of a text are capable of interacting with the text and understanding the meaning the author wants to convey, the learners have established a critical understanding of the text.

Benefits of Learning for Critical Purposes

It is necessary at this stage to ask of the reason why critical thinking needs to be incorporated in the educational fields. According to Siegel (1988), thinking critically enables learners to respect the others, and empowers students to be self reliant in determining important choices in their future life. Furthermore, teaching critical thinking will enable learners to apply the principles learned in one domain on all other domains of learning. Finally, learners will be effective decision makers because they have acquired the skills that will help them effectively

evaluate the solutions reached and choosing which ones could be the effective ones rather than the right ones.

Therefore, since critical thinking is defined here as something that can be taught, it intersects with the WebQuest which stresses the use of higher order thinking skills which Anderson and Krathwohl (2001) describe as mental practices that give learners the chance to develop factual, procedural, conceptual, and a variety of thinking patterns .

Literature on WebQuest

Technology use in ESL classrooms is still at its elementary stage in 3rd world countries, yet it is not the case in countries which are either manufacturers or even designers of software. However, just because 3rd world countries are mere users of technology, it is very unwise to utilize technology in its simplest of nature i.e. emails, social networking or at most blogging. Literature in the last 15 years has shown that using online activities can have a positive influence on higher order thinking skills especially when learners are required to evaluate online material upon performing research work (Fox & MAcKeogh, 2003; Hopson, Simms, &Knezek, 2001). On a more advanced level, when learners are provided with a focus, they have a positive attitude towards the use of technology. They take control of their learning, become more self directed, seek more abstract online solutions, and attempt to decide or evaluate the relevance and effectiveness on the solutions suggested upon completion of the work (Fox & Mackeogh, 2003; Halpern 1984).

Research has proven that using web-based activities enhances learners' higher order thinking skills. In Kanuka (2005) action research study of five types of web-based teaching methods namely nominal group, debate, brainstorming, invited guest and Webquest, the last of which

revealed significant effect on strengthening higher order thinking skills as well as empowering learners with 21st century tools.

Dodge (1995) defines WebQuests as inquiry based activities whereby most information that learners interact with comes from the net. March (2003) who worked with Dodge modified the definition of WebQuests to become more concrete and educationally rounded.

A WebQuest is a scaffold learning structure that uses links to essential resources on the World Wide Web and an authentic task to motivate students' investigation of a central, open-ended question, development of individual expertise and participation in a final group process that attempts to transform newly acquired information into a more sophisticated understanding. (p.42)

March's definition attempts to incorporate scaffolding with transforming newly acquired information into more advanced forms of learning. WebQuests operate on an educational framework that promotes a set of strategies such as motivation theory, questioning –schema theory, thematic instruction, authentic assessment, and learner-centered psychological principles. These strategies of learning have long existed but the importance of the WebQuest is that it has utilized them all in order to assist the learners develop knowledge on the web into a more advanced form of learning that develops their critical thinking abilities. Knowledge at this stage is authentic because the information presented is compelling and attractive to the learners which they have to transform into authentic task which the WebQuest requires them to do.

March (1998) explains that WebQuests have three important benefits on students learning for the future. First, by using WebQuests, learners are motivated to learn because the quality of information presented is authentic and problematic which encourages the learners to think of solutions for the problem, test the validity of the solutions and evaluate the effectiveness of the solutions if they were applied in real life situations.

Second, WebQuests develop higher order thinking skills of learners because they don't only look for information but also analyze, synthesize and transform the information into something new because they are adding their own point of view. Learners are thus scaffolding their knowledge by approaching the final target step by step when combining their prior knowledge with the new information they utilize for the different tasks they are required to perform. Bransford (1985) considers that learners become critical thinkers when they are provided with problem solving activities that demand developing knowledge and skills rather than using preexisting knowledge of the learners.

The last benefit March (1998) gives for WebQuests is that learners work in groups to complete the tasks at every stage. This approach is key in enhancing learner-centered approach. It, therefore, enhances collaborative work because learners who are confronted with problems using the WebQuests for the first time could seek assistance from those learners who are more competent in using the computers or have better computer research skills.

Design of a WebQuest

A WebQuest could be short term or long term. Short term WebQuests usually take one to three days to cover and is utilized to teach learners a new concept. A long term WebQuest, however, is designed to take a longer period of time to build on prior knowledge and scaffold the new information with the old one. It is divided into five major sections. It starts with an introduction that provides some background information that learners need to start from. The next step is a task that explains the problem that the learner is required to solve. It is important that the task must be done collaboratively, often in groups of four and that the problem selected be engaging and authentic.

The process section involves a detailed description of the tasks that need to be done with a web link to every task required. It is very important that the process section be broken into clearly described tasks. The web links could include web documents, online interviews conducted via video conferencing, searchable databases, and online books. These links are very helpful because users use these various links to form their own conclusions on the task at hand and they are also required to discuss their findings with their group to create their final project. The strength of these links lies in the fact that learners are not left to wander off and become overwhelmed with the amount of information provided or even digress and lose focus which is essential in their acquisition of higher order thinking skills.

A further key section of the WebQuest is the evaluation section where learners are offered rubrics to help them self evaluate their projects or final products based on standards set by their teachers. This part of the WebQuest greatly enhances the learners higher order thinking skills because it addresses the evaluation level or the highest order of Bloom's taxonomy. It also expects students to evaluate their peer's collaboration and research skills in an objective manner regardless of their own prejudices. This section also empowers learners to be more self directed and autonomous in the process of knowledge acquisition.

The last section of the WebQuest is the conclusion which is the ending part of the WebQuest and which reminds the learners what they have learnt. This section could also trigger learners interest in other domains related to the topic which Seigel (1988) considers important in the development of the critical thinker. In short, the WebQuest is designed to develop several learning constructs such as critical thinking, knowledge application, social skills and scaffolding learning (March, 2007).

WebQuest and Critical Thinking

There is a lot of research that insists that inquiry based activity and particularly WebQuests are key factors that empower learners and nurture their critical thinking skills. Vidoni and Maddux (2002) look at WebQuests as the tools that utilize critical thinking skills because they employ higher order thinking skills such as analysis, synthesis and evaluation in all the stages that WebQuests go through.

Weinstein (2000) on the other hand considers that his critical thinking framework meets perfectly with all the stages that WebQuests go through. This framework involves six components that go parallel with all the steps of WebQuest design. First, Weinstein (2000) considers that critical thinking requires learners to identify appropriate selection of knowledge that meets with the requirements put by teachers. Consequently, WebQuests that are properly prepared, reviewed and filtered by teachers provides learners with a clear focus for the task at hand. Second, critical thinkers need to be exposed to primary information sources which are abundant on line and this would help them have the ability to argue and reflect on their judgment of facts. Similarly, WebQuests expose learners to primary sources of knowledge which they collaborate to understand and analyze.

A third component of Weinstein's framework (2000) is that learners critical thinking is enhanced when learners investigate the knowledge at hand and weigh or assess which piece of information could be utilized and which could be discarded therefore this method of thinking is non-routine in nature. WebQuests are nonlinear in design so learners often click on one website provided by the teacher and decide to click on a link which could either give depth to their knowledge about the topic or they would consider irrelevant. It is noteworthy to say that this

nonlinear design does not mean that learners are totally free to wander off from the topic at hand but it gives them the freedom within a structure so that they could still feel that they are in control (Dodge 1997).

Weinstein considers that critical thinking's fourth dimension is the presence of criteria which learners need to reflect on and take into consideration when analyzing or supporting a claim or an argument. Therefore, upon using WebQuests learners form their ideas based on the research suggested by the teachers, retain the information, and eventually critically evaluate the soundness of their arguments. Learners retention is due to the fact that learners are not only challenged but also interested in the information researched (Gee, 1990; Sankaran, Sankaran, & Bui, 2000).

A fifth and important element of Weinstein's critical thinking is the aspect of self correction which he considers essential. Learners who are constantly scrutinizing their work based on a criteria provided by the teachers or by the abundant knowledge retained along the research done, will surely possess critical thinking abilities that they can use in all aspects of the learning process. On a parallel path, because educators prepare WebQuests which offer contrasting perspectives and points of views, students often approach WebQuests in a reflective manner and eventually work in groups to evaluate the appropriateness of the product which they will hand in. This product is often evaluated by the teacher and learners look at the feedback not as a grade but an evaluation of individual, peer and teacher's input.

The last stage of Weinstein's critical thinking dimension is that the critical thinkers see knowledge in relation with the context they are working on, decide on the relevance of their product to the context given and then reflect on what types of changes need to be done to meet the satisfaction of the required task. When learners use WebQuests they are not limited to the

class environment and could often embark on activities that could help them further understand the concepts taught in class, critically analyze the product they have come up with and decide how related it is to the task given, and re-evaluate their outcome based on collaborative brainstorming and peer discussions (Alessi & Trollip, 2001).

The findings of research have revealed that WebQuests are effective tools which encourage students to study issues and tasks in a more profound manner and thus encourage critical thinking. Kanuka (2005) sees that learners are not only required to finish a task but also to analyze their findings and finally come up with a solution which is assessed and re-evaluated continuously in collaboratively as well as individually through rubrics provided by the teacher or through the feedback given by team members which the process in all WebQuests requires the learners to follow.

Felix (2002) considers that WebQuests are true chances for developing critical thinking because learners are constantly participating in meaningful interaction through the use of authentic and up to date material which will be transformed collaboratively to a context that is meaningful to the learners. Crawford and Brown (2002) consider that based on Bloom's taxonomy (Bloom et al., 1956) of higher order thinking skills, WebQuests possess the elements to develop these skills because the learners are required to go through or analyze a large amount of knowledge sources until they synthesize the information by creating a product that demonstrates their understanding of the task and offers an authentic solution which is evaluated for validity and credibility over and over until it meets with the rubrics provided by the teachers or peer evaluation.

In a study conducted by Murry (2006) on the role of WebQuests in developing higher order thinking skills on seventh graders, Murry was able to find that WebQuests had a very crucial role in generating these thinking skills because they use sequential activities, where learners evaluate information provided, synthesize or transform knowledge into a product like a PowerPoint presentation and finally evaluate the product through the use of rubrics given for each task accomplished.

Since WebQuests drive learners to work alone or collaboratively, it is evident that there is a shift in the learning paradigm from the teacher oriented classes to student oriented learning environment. Educators have placed emphasis on the constructivist approach of learning by stressing inquiry oriented learning, problem solving tasks which are highly dependent on the individual learners' performance and the scaffolding of knowledge. Simina and Hamel (2005) look at WebQuests as the perfect learning tool that is mostly dependant on social- constructivism allowing learners to construct their knowledge of L2 in groups through utilizing meaningful activities that are often authentic and engaging to students in their pursuit for improving their higher order thinking skills.

However, there is a danger for WebQuests that the literature warns educators against. Vidoni and Maddux (2002) consider that WebQuests have become so appealing to educators that they are willing to unquestionably adopt one without analyzing if the process used is conducive to developing learners critical thinking or not. Thus, teachers should take extra care to identify the elements that they wish to develop in their learners' cognition which are appropriate to their developmental stage. Another danger is that WebQuests seem to assume that all critical thinking should take place in collaborative methods disregarding that there are individual differences in

terms of grade level, age or even learning style, and some learners can't work unless individually.

WebQuests and Language Learning

The field of second language learning, specifically ESL, is one of the fields of education that has been greatly affected by technology and the internet particularly because of the position of English as a global language and the most predominant among languages online (Crystal 1997). The internet has provided educators with the chance to use its diverse features to assist learners with language acquisition. Cunningham (2000) and Lee (2000a) consider that the internet plays a key role in the publishing, communicating, and informing learners of a language be it L1 or L2. Grabe and Grabe (2001) similarly look at the internet as a search engine for collecting information which language learners can use to build knowledge of the target language or learn content. Therefore, given the background information on WebQuests and their interdependency on the internet, it can be concluded that they could be used to teach content in L1 as well as offer chances for language learning in L2.

Koenraad and Westhoff (2003) have suggested a set of guidelines to remember when designing a WebQuest to successfully teach a language. First, they consider that the tasks should motivate learners to utilize the target language being taught both in the language used in the WebQuest and in the product the WebQuest requires of the learners. Also, the material presented in the WebQuest should reflect real life situations that learners would have to encounter in real life. Finally, the key guideline for designing a successful WebQuest is to create tasks that promote collaboration and significant communication amongst learners in order to foster engagement and critical thinking.

If language learning WebQuests are designed with the learner's engagement, interest, and collaboration, then there are many learner centered advantages that could come out of this pedagogical tool. Dudeney (2003) recognizes that WebQuests are capable of introducing the internet into the language classroom, fostering critical thinking abilities and highly motivating learners especially that they are being introduced to authentic tasks that could go beyond the target language and overlap with any other discipline.

Another advocate of using WebQuests is Ge Stoks (2002) who considers that when learners are engaged in a WebQuest task, they are exposed to the target language while browsing or surfing the net to find relevant information which Lin (2009) calls comprehensive input. Therefore, by browsing and surfing such input, learners are utilizing key skills in language acquisition which are skimming and scanning and consequently applying higher order thinking skills when evaluating the relevance of the material researched which could eventually improve their language comprehension.

Abdullah (1998) and Ikpeze and Boyd (2007) look into authentic material and problem solving, which is existent in WebQuests, as the best tool to bridge the gap between the real world and the school environment. Therefore, when students try to solve the problems posed by the tasks, they use the language to come up with solutions found on the internet and communicate them to their audience by writing or by speaking. Consequently, learners use WebQuests to learn to listen, speak, read, and write.

These four skills emphasized in the WebQuests are a result of scaffolding which studies show that such a construct affects students' achievement (Baylor 2002; Bereiter & Scardamalia, 1984; Cho & Jonassen, 2002; Lim, Plucker & Nowak 2001). Scaffolding helps learners learn better through a structured process which requires learners to transform what they read or hear

into some new form of output and this is what the WebQuest is all about at the end product stage (Dodge 2001).

Because scaffolding is at the heart of a WebQuest, a well designed language WebQuest is characterized by connecting new information with prior knowledge and by trying to connect what is learned with what language is needed to communicate in the future (Luzon, 2007). Laborda (2009) looks at WebQuests as highly effective tools that could assist learners to develop their verbal skills when they engage online with their fellow students or orally with their audience using authentic language that includes appropriate and accurate content. Luzon (2007) stresses that if learners do not necessarily have the chance to conduct verbal exchange online, learners could be requested as part of their task to reach agreement- as part of the collaborative nature of the WebQuest - online using English as language of consensus.

Chuo (2007) has empirically studied the effectiveness of WebQuests on learners writing performance and was able to find a significant difference between those who participated in a WebQuest -incorporated writing class versus those who joined a traditional writing class. Chuo (2007) attributes the effectiveness of WebQuests on enhancing students writing performance to the nature of language WebQuests which are designed to include input, elicit interaction and call for output, all of which are key elements in language acquisition (Chapelle, 1997; Pica, Holliday, Lewis, & Morgenthaler, 1989).

It is imperative to look at the nature of the input and output as part of the scaffolding of learning that the WebQuests provide. Dodge (2000) considers that there are three types of scaffolding that are used in a language WebQuest: reception, transformation and production. At the reception level learners understand, collect, and record information from the sources provided at the resource section of the WebQuest. At this point learners use secondary sources

like video, dictionary, and any other source to clarify any difficulty in understanding texts with hard vocabulary or any comprehension obstacle. Learners could consult online guidelines to learn how to create timelines, take notes or even create concept maps.

The second type of scaffolding that the WebQuest entails is transformation. Learners are requested to transform information into new forms such as comparing and contrasting data, creating cause effect charts, or even making templates that they could go back to it when they need to decide the worth of the information collected. Finally, the last stage which is the output stage of the WebQuest, Dodge (2000) refers to it as the production scaffold when learners utilize the templates they prepared at the previous stage to produce a specific writing format. Devitt (1993) looks at these templates as very helpful tools to increase learners' awareness of language and genre.

In summary, this chapter has attempted to discuss the issue of technology integration in schools and the potential of this issue on fostering critical thinking of learners. It has further examined the theoretical background of critical thinking and the many theories that have been proposed in the last thirty years to relate critical thinking with the advancement of technology. This body of research has further attempted to examine one pedagogical tool called "WebQuest" and investigated the effect of WebQuests on developing the critical thinking of learners in various subjects and classroom contexts. Finally, a special emphasis has been directed at the role WebQuests have on language learning and particularly ESL.

Chapter Three

Methodology

Introduction

The current study investigates if the use of a technology inquiry based activity could increase the higher order thinking skills in second language acquisition amongst high school students. It also investigates the extent that a WebQuest could establish an increase in fostering higher order thinking skills amongst students.

Purpose

The purpose of this research study is to investigate and study the effect of using technology on developing higher order thinking skills if an inquiry based activity such as a WebQuest is used. The hypothesis of the following study states that there is a sign or an increase in learners' higher order thinking skills if they are exposed to tasks that focus on synthesis, analysis, and evaluation. The study also examines the internet usage of Lebanese high school learners enrolled in a summer course to improve their English language skills. In addition, this study investigates the perception of teachers' use of technology and the quality of activities used pertaining to the developing of higher order skills.

Research Questions

1. Is the current situation of technology use in schools conducive to foster critical thinking?
2. How do teachers incorporate higher order thinking skills in their students' use of technology and what are some of the obstacles they have in incorporating technology in the classroom?
3. To what extent can an inquiry based learning activity, like a WebQuest, establish an increase in students critical thinking ability?

Design

Fraenkel and Wallen (2006) consider that the research questions are the determining factors that affect the design of the research study. There is no one right method whether quantitative or qualitative. Furthermore, the research questions, data collection as well as data analysis are determined by the research question (Gall, Borg, & Gall 1996).

The current study is an action research study using the mixed method design since the purpose is to measure if there is an increase in learners' higher order thinking skills when technology is used in the language classroom. This research is practical action research in nature which is defined as a method of data collection that can be administered in a variety of settings to improve the practice of certain teaching methods on the short term which will later inform a larger public (Mills, 2000) . This practical action research addresses a specific problem within the language classrooms and should result in an action plan to be later studied and evaluated. The purpose of this type of research design is first to improve the practice of teaching for higher order thinking skills and second to inform administrators of the effects of using technology on developing these skills.

The first part of the action research utilizes causal comparative research method using the quantitative test, Cornell Critical Thinking Test Level X to determine students' higher order thinking skills at the onset of the study before administering the inquiry based activity, the WebQuest. Upon completion of the intervention activity, students complete a student questionnaire that measures statistically how learners of English use the internet and if their use of the WebQuest is conducive to enhancing their higher order thinking skills. The quantitative method was used to analyze Likert-scale data found on the survey questionnaire. Also, at the end of the course students sit again for the Cornell Critical Thinking Test Level X to measure if the

inquiry based activity, WebQuest, has lead to a measurable increase in ESL learners' higher order thinking skills.

The second stage of the action research, teachers are interviewed to qualitatively assess the patterns they use in integrating technology to develop higher order thinking skills amongst their students. The qualitative methodology was used because of its broad knowledge which could give the researcher a bigger picture on what goes on in the teaching practices of this teacher (Fraenkel & Wallen, 2006). Furthermore, the interview was administered at the end of the study because according to Fraenkel and Wallen (2006) structured or semi structured open-ended interviews are best administered at the end of the study because they shape the researchers perceptions of how things are.

Sampling

The research hypothesis to be tested in the current research is if using technology in the classroom tends to increase the higher order thinking skills in second language acquisition. The target population is all high school Lebanese students taking an English language summer course at a private school in Saida. The accessible population is all the students in three classes at SHS. The sample is 100% (all the students of the three classes) of the students participating in the summer English course at SHS (See Table 4.1, page 58).

Due to the nature of the research question and because the researcher aims at measuring quantitatively the increase in higher order thinking skills amongst ESL learners, the action research study aims to focus on a single group of individuals and in this case it is the learners of English taking a summer English course. Random sampling is very difficult in action research particularly if conducted in schools, for as mentioned earlier the researcher's aim is to identify

the causes of the problem and to suggest an action plan to remedy this problem. Consequently the researcher cannot administer an action plan on a group of students and leave the rest.

As a result, the researcher has chosen a purposive sampling technique (Fraenkel & Wallen, 2006). By definition this technique uses nonrandom sample because prior knowledge given by their teachers suggests that they are representative of the population at school (Fraenkel & Wallen, 2006, p100).

Instruments

Action research has a major advantage in that it has the chance to utilize more than one set of resources known as triangulation (Merriam, 1988; & Yin, 1994). When several instruments of data collection are used the researcher can make conclusions that are more convincing and valid for the reader of the research study.

The instruments used in this action research study were The Cornell Critical Thinking Test Level X, a student survey questionnaire, and an open ended teacher interview.

A. Teacher Interviews

According to Fraenkel and Wallen (2006) interviews are effective tools to test a specific hypothesis that the researcher has in mind and they are often designed to obtain specific answers from the respondents. An open ended interview question (Appendix II) was administered by the researcher to find evidence of how teachers integrate technology to enhance higher order thinking skills and identify some of the problems that they face in the integration process.

B. Student Survey

The student survey (Appendix I) was developed by the researcher to study the pattern of internet use amongst learners of English and the quality of information that could develop the critical thinking ability of the learners. This instrument can't be considered formal because the

nature of the research study is that of action research making it possible for the researcher to use a self adapted instrument with no need for validation or even piloting. Fraenkel & Wallen, (2006) consider that researchers in action research often develop their own instrument to make them locally appropriate to measure a specific problem at the venue of research.

C. Cornell Critical Thinking Test Level X

The other instrument used to measure the extent that technology could develop higher order thinking skills as the Cornell Critical Thinking Test Level X. Royalty (1995) considers that this test is an efficient instrument because it does not measure critical thinking in specific disciplines but goes beyond the specifics and measures critical thinking abilities in general.

The Cornell Critical Thinking Test is divided into Level X and Level Z. Level X is a test meant to measure the critical thinking of learners from grade four all the way to high school. Since the subjects of this study were high school students, then Level X can be considered as appropriate for the students to answer the questions.

Level X test is a multiple choice question test with 71 questions each having three response choices. The test is divided into four distinct parts lasting 50 minutes in all. The CCCT, Level X, is a test that presents the readers with an ongoing story about the adventures of two groups of space explorers from the US. Since the first group of explorers who visited the newly discovered planet, Nicoma, disappeared, another group embark on a journey to know what happened to the first group. The examinees are required to respond to questions that entail clear thinking abilities which the authors of the test consider to be of a critical nature.

Part one of the exam includes 23 questions which once answered can't be reviewed. Section A of part I has 25 questions where questions 1 and 2 are example questions. This part is made up of a series of statements that test the learners' ability to judge whether a fact supports a

hypothesis or induction. Students are given a group of statements to be evaluated as evidence in support of, evidence against, or evidence neither in support of nor against a statement that is given by a health officer that all the explorers in the first expedition might be dead. This statement is found in the opening paragraph.

Section B of Part I consists of 24 items where item 24 of 50 is a sample question. In this part learners are required to evaluate if the first or the second of two statements is more reliable, equally reliable or unreliable. These statements relate to a number of events that happen at an empty village of small huts. Most of these statements are based on testing the credibility of observation and sources. Only two of these items, in this section, test the learners' ability to generalize the hypothesis given.

Part II of the exam is different from part I in terms of the examinees' ability to return to previous questions after they had answered them. Section A of Part II is made up of 15 questions where item 51 of 65 is considered a sample question. In this part of the test, the second group of explorers discuss what steps can be done to save group one in an inductive manner. This section tests the deduction ability like the first part of the test but asks to further decide what follows. Furthermore, this section includes questions that are not emotionally loaded but need interpretation in everyday language. Thus, the terminology used is kept to the minimum level of difficulty.

In section B of part II, questions 66 to 76 (item 66 being an example question) are made up of a "stem statement" made by one of the members of the second group at the end of the expedition. Every statement in this section is considered an assumption drawn from prior observation, which is determined as accurate upon the selection of one of the three responses

provided. The examinees answer this section to demonstrate how well they can justify the accuracy of the assumption.

Finally, part four of the exam measures the learners' abilities to judge what is assumed in an argument. Learners are given questions like: "If you say "In order to release the explorers, we must attack the village" you take for granted that the villagers will not release the explorers peacefully." Answers will include affirmation, denial or undecided.

Although the exam appears to be divided into four distinct sections, there is a great deal of overlap in the critical thinking process. The deduction identification items could be seen in part one and part three of the exam (Table 3.1). Therefore, Ennis, Millman and Tomko (2004) see that some items tested are assigned to more than one higher order thinking skill because there is no contextual line between observation and inference. Furthermore, with this interdependence of items on one another, it is equally hard to consider that an observation question is not a credibility item.

This interdependency, in addition to giving a general overview of the content the test includes, bears heavily on the question of test validity and provides a preview to the next section of the research study.

Aspects of Critical Thinking Incorporated in Level X
And Rough Assignment of Items Thereto

Aspects of Critical Thinking	Items of Level x
Induction and generalization	3-25, 48, 50
Deduction	52-65, 67-76
Observation	27-50
Credibility	27-50
Assumption	67-76
Relevance	3-25, 67-76
Meaning	Not directly tested
Disposition	Not directly tested

Table 3.1 Reprinted from Ennis, Milman, & Tomko, (2004)

Reliability and Validity

Test validity is defined as the degree to which a test is meant to measure what it is supposed to measure (Ennis 1982). However, the problem with the Cornell Critical Thinking Test is that there are three variables that should exist to establish validity. In addition to the test and the presence of content it is supposed to measure, there are the circumstances of assessment. These circumstances range from the use of idiomatic expressions that the learners are unable to understand or the fact that the learners are native or non-native speakers of English. For this reason it is difficult to establish validity, but the researcher could test the validity of the conclusions that could be made from the test scores (Ennis, Millman & Tomko 2004) when the test is administered under standard conditions.

Possible concerns with using the Ennis et al. (2004) as a general test of critical thinking include issues of both reliability and validity. Ennis et al. have designed and tested the reliability of their CCTT. However, not all forms of reliability are addressed by the test. Ennis and Weir (1985) claim that content validity “is still in the old fashioned sense”. Hence, construct validity seems most relevant for a general test of critical thinking; however, the authors do not claim that the test measures a representative sample of all possible skills included in the concept of critical thinking. Their argument is that predictive and concurrent validity cannot be examined “since there is no outside criterion for the ability the test was designed to measure” (Ennis et al. ,2004 p. 3). There is a lack of a widely accepted definition of critical thinking which prevents the development of adequate assessment instruments. These researchers believe that for psychological tests, there should be only one kind of validity: construct validity. Based on Messick’s suggestions (1989, p.6) information was specified that could be relevant to a construct validity judgment for level X:

1. Rationale: The test was built so that critical thinking ability can be based on several inferences to beliefs. From this point of view, it is not supposed to cover attitudes and dispositions of a critical thinker.
2. The reliability could also be based on the degree to which the test appears to cover the items in the rationale.
3. The reliability of the test was also perceived based on the reasonable judgment about acceptability of the answers. Several researchers commented on the use of the test. Tompkins (1989), for example, considered the test is useful for testing for critical thinking ability and that the realistic nature of the test can be considered as a measure of critical thinking but he criticized the paucity of validity and reliability data provided in

the test manual. Werner (1991) pointed out that “in assessing both evaluative and productive aspects of critical thinking, the test provides a holistic and naturalistic picture of critical thinking skills” (p. 495). In spite of this limitation, the Ennis-Weir Critical Thinking Essay Test was determined to be the most acceptable additional test for testing students’ abilities to evaluate an example of argumentation and to respond in argument form.

4. Validity: The approximate truth about causal relationships. This criterion judges the truth of research findings based on participants’ perspectives. One method of increasing validity is by gaining feedback on results from the participants, i.e. member checking. Guba and Lincoln (1981) described member checks as a continuous process during data analysis.

Gain from Pre-test to Post-test

The Cornell Critical Thinking Test has been designed to measure if the students’ critical thinking skills improved after the administration of an intervention program. Such a hypothesis was tested by determining whether the average gain of the students from pre-test to post-test was significantly positive. A number of studies have revealed that the difference in the means of the pre-test and post-test scores have shown significant results (paired t -test; $p < 0.05$) for overall critical thinking skills . From these results we can see that hypothesis given earlier is somehow confirmed

Rationale for using the Cornell Critical Thinking Skills Test

In the current action research study, CCTT Level X is utilized as the quantitative instrument to test higher order thinking skills to meet the purpose of the study. Reid (1998) considers that whenever a researcher is looking for an instrument to administer in research, one should have a list of questions that could guide the choice made. Ennis (1993) similarly considers researchers should not depend on a test solely because of the name of the publisher or the author. Ennis (1993) lists the following questions to be considered:

Is the test based on a defensible conception of critical thinking? How comprehensive is its coverage of this conception? Does it seem to do a good job at the level of your students? (p.182)

Upon looking at CCTT, Level X, the above guidelines are met because the test measures the various aspects of critical thinking where some sections are correlated with others. The same section could measure the credibility of sources as well as identifying assumptions which Ennis (2004) considers as aspects of critical thinking. Ennis et. al (2004) also has statistically proven that the CCTT , Level X not only tests critical thinking but also conceptualizes critical thinking with the teaching of critical thinking and even developing a curriculum that meets these needs. Finally, the CCTT Level X has met the purpose it was administered because the results of the pilot study have revealed that the level of the students and the level of the test concurred.

Procedure

The SHS accepted the proposal of this study and the principal gave the permission to the researcher to administer the action research in the teacher's classes (Appendix III-a). All the students participated willingly because they were informed that the purpose of the project was to test the possibility of integrating technology in the classrooms for the future. They were assured that the results of the test would remain confidential and presented no threat to any of the participants or the administration. (Appendix III –b and Appendix III-c)

The study was conducted in two different intervals: the first was a pilot study where students were asked to fill a background questionnaire (Appendix I) and the Cornell Critical thinking Skills test. Three weeks later, the students were asked to take the Cornell Critical Thinking Test another time.

The second stage of the study was conducted three months later during an English summer course where students were taking both English and math classes for the preparation of university entrance exams. Forty eight students in three classes participated in the action research; the corresponding teachers of these classes also participated in an open ended question interview conducted on the last week of the course. Also on the last week the students were asked to fill out a background questionnaire (Appendix I) The student questionnaire included some information on the students' academic level, pattern of access to technology, frequency of access and the quality of use of the internet.

The students were given classes that covered English language skills such as reading comprehension, vocabulary, listening, speaking as well as writing. In addition to these skills, the researcher prepared a Wiki space which included related articles and relevant information for the

entire summer course. As part of creating an autonomous learner, students were required to access this Wiki whenever they needed pointers to any assignment they had to work on.

A WebQuest titled “The Dangers of Drinking and Driving” (Appendix V) was created and posted on the Wiki (Appendix VI). In the WebQuest, students were required to prepare a brochure, give a speech and write a persuasive essay, all on the central issue of “Drinking and Driving”.

Pilot Study

At the beginning of the academic year a pilot study was conducted on grade 12 students in the same school referred to here as SHS. Ten students were randomly selected to take the Cornell Critical Thinking Test and fill out the student background questionnaire to give the researcher knowledge about the participants’ patterns of internet use. The same students were asked to retake the same Cornell Critical thinking test. The pilot study was administered to respond to the following concerns:

1. To establish if the test is reliable upon testing and retesting.
2. To measure the time it would take students to finish the test.
3. To determine the quality of technical problems that would occur during test administration.
4. To determine if students will have difficulty with vocabulary or content since this test is meant for native speakers of English.

Participants of the Pilot Study

Ten grade 12 students at SHS, 6 males and 4 females, sat for the Cornell Critical Thinking Test,. The students were almost of the same age and belonged to two different sections of grade 12. Five students were in the Science section and five were from the humanities section.

The ten students who participated in the pilot study did not participate in the current study since they have all graduated and will start their undergraduate study at the university.

Reliability of the Cornell Critical Thinking Test

The results of the pilot study reveals that the Cornell Critical Thinking Test is a reliable test because the overall score of the students on the post test did have significant gains from pre-test to post-test. An alternate hypothesis for the significant gains, however, could be attributed to repeated exposure to a similar test. This hypothesis would seem to imply that the score that a student received on an individual question on the pre-test would be correlated with the score that student received on the corresponding question on the post-test. This issue could be investigated in the future in the current research. . Moreover, the participants faced problems with the test upon administration. They had problems starting the test and two were unable to continue due to technical problems. Some terms were difficult to understand, but the administrator indicated that the difficult terms could be understood from context and would in no way affect the choices learners had to select. Some of these questions were:

1. What does “cot” mean?
2. Is a Kimono like a dress?

Students were able to understand that they could navigate backward only in sections two and three of the test but only forward in section one of the test; nevertheless, the participants stated at the end of the test that it was not difficult to take. Finally the pilot test showed that it took students 55 minutes to finish the Cornell Critical Thinking Test and the student background questionnaire.

The Current Research

Participants

The participants of this study were 48 students of a private school attending an English summer course that would enable them to sit for English entrance exams to universities in Lebanon. The participants were high school students both males and females from different classes including grade 10 and 11. Students came from both the English section where English was taught as a first foreign language and the other group came from the French section where English was taught as a second foreign language after French. In both sections learners have been taught English using imported and foreign textbooks that are meant for ESL learners (See Table 4.1).

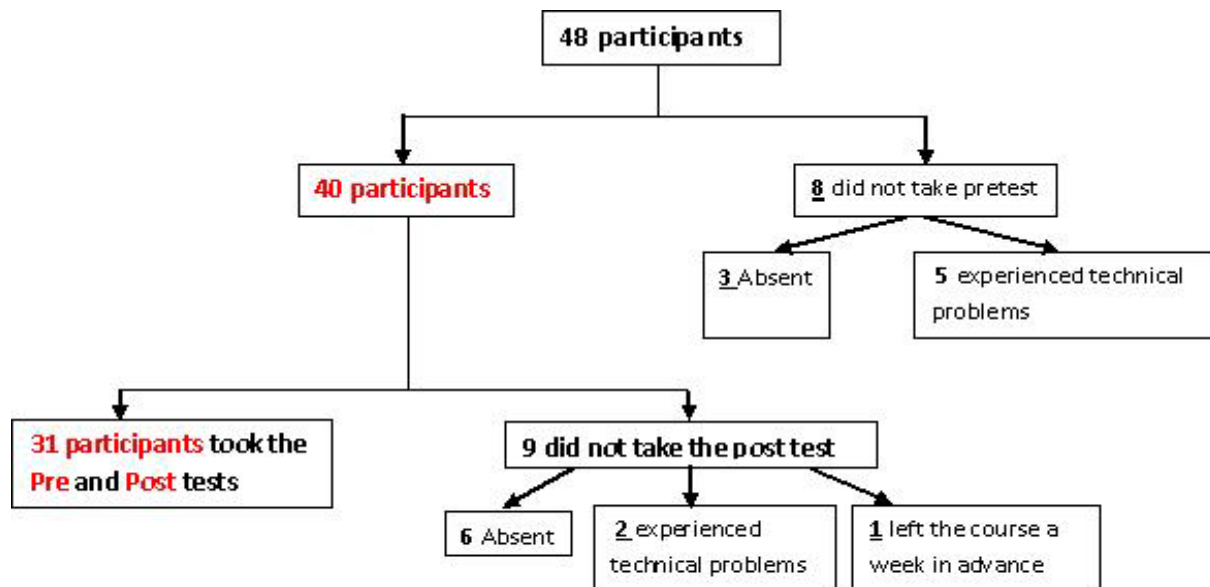
Students were enrolled in the study to test the effect of WebQuest Model intervention on promoting their higher order thinking skills. Cornell Critical Thinking Test was administered before and after the intervention. At the time for taking the critical thinking test pre intervention (baseline), 3 students were absent and another 5 students experienced technical difficulties (computer froze and they could not log in a second time). Moreover, 9 of the remaining students did not have scores on the critical thinking test at post intervention due to absence (n=6), technical difficulties (n=2) and dropping the English course (n=1). Thus, complete data on critical thinking at both pre and post periods were available for only 31 out of the 48 students (see figure 3.1). Note that the whole design was piloted on 10 students from grade 12 during the academic year.

During the pre intervention phase all participants also answered a structured questionnaire which included information on their gender, age, class grade, English as a second

language, in addition to questions related to the pattern of their internet usage, namely the frequency of usage (days per weeks, and hours per day), their behaviors (parents' permission to use internet in cafes, use of internet for school purposes, emails and social networking), and attitudes (feeling that they know how to use the internet, thinking that the internet will help them organize their work and learner's thoughts). Answers to questions on behavior and attitude were on 4 Likert scales ranging from strongly agree to strongly disagree. This was repeated post intervention because no identifiers linking the answers to this questionnaire to the test scores were taken at baseline.

Full data post intervention (that is on the critical thinking test and the structured questionnaire) were available for 37 out of the 48 participants.

Figure 3.1: Participants Recruitment



Profile of the participants

Table 3.2 Students by gender

Variables		n (%)
Gender	Males	12 (38.7%)
	Females	19 (61.3%)

This table illustrates the percentage of females and males in the sample studied. There were 19 females (61.3%) and 12 males (38.7%).

Table 3.3 Students by age

Variables		n (%)
Age	15-16 years old	11 (35.5%)
	17-18 years old	20 (64.5%)

This table illustrates the distribution of the participants regarding their age. The table shows that 20 of the students (64.5%) range between 17 and 18 years of age. Students who are between 15 and 16 years of age make up 35.5% of the sample.

Table 3.4 Students by class

Variables		n (%)
Grade	Grade 11	10 (32.3%)
	Grade 12	21 (67.7%)

This table illustrates the distribution of students with respect to the grade levels they are currently in. The percentage of students in grade 12 is 67.7% of the entire sample while only 32.3% of the sample is in grade 11.

Table 3.5 Students by their second language

Variables		n (%)
Foreign Language	English 3 rd language	16 (51.6%)
	English 2 nd language	15 (48.4%)

This table illustrates the distribution of the participants with respect to their foreign language learning. It shows that the students learning English as a first foreign language are 48% of the entire sample.

Profile of the teachers

The purpose of this action research is to study if teachers who utilize technology in the classroom use higher order thinking skills in their planning and look into some of the obstacles they face in their integration process. I have interviewed eight teachers in the foreign language department and was only able to include five teachers who not only have access to technology in their classroom but also integrate it in the curriculum. Only three teachers were willing to participate in the research. They were ready to respond to open ended questions about the extent that teachers were aware of the higher order thinking skills, whether they thought they were implementing these skills in the classroom teaching methods and assessment forms and also what obstacles they faced in their integration.

3.6 Teacher' profile

Teacher	Years of Teaching Experience	Years of integrating Technology
T1	20	7
T2	13	3
T3	12	6

Data Collection Methods

The researcher tape-recorded and transcribed the teacher's responses for the interview questions in an attempt to remove threats to the validity and reliability of the data.

The Statistical Package for Social Sciences (SPSS) was utilized to analyze the quantitative data from the questionnaires and the Critical Thinking Test Level X. The information collected from the student survey questionnaires were coded from 1 to 4 based on the Likert-scale score of each item. The information found in these questionnaires was entered into the SPSS program and analyzed.

Ethics

This study presents no possibilities of physical or psychological harm for the participants. Neither students nor teacher would be placed under any risk. Using questionnaires is an acceptable high school practice in Lebanese school if supervised by teachers under school knowledge. The consent of the students, teachers and the administration was obtained before

collecting the data. The participants' names were kept confidential only to the researcher and the statistician since it was important for the study to identify.

Research Assumptions

The following assumptions are important and embedded in this study:

1. The 3 classes are representative of ESL learners at SHS.
2. The 4 teachers are representatives of ESL teachers at SHS
3. Both teachers and students answered the items in the questionnaire and interview honestly and accurately.

Summary

This chapter discussed the methodology that was employed in the action research study. I explained the nature of the design, and the instruments used to collect data. Furthermore, the chapter discusses the procedure and the profile of both students and teachers. The following chapter will discuss the data collection and analysis.

Chapter Four

Data Analysis

Introduction

The purpose of the action research study is to investigate if the use of a WebQuest can increase the higher order thinking skills of ESL learners and the teachers' practices in the classrooms. The items in the students' questionnaires, teachers' interview questions and the Cornell Critical Thinking Test Level X were intended to be utilized to collect data related to the following research questions that were intended to be investigated in this action research study:

1. Is the current situation of technology used in schools conducive to foster critical thinking?
2. How do teachers incorporate higher order thinking skills in their students' use of technology and what are some of the obstacles they have in incorporating technology in the classroom?
3. To what extent can an inquiry based learning activity, like a WebQuest, establish an increase in students' critical thinking ability?

Statistical Analysis

Sample characteristics were summarized using frequency distributions for the variables age, gender, class grade, and English as a second language. The main outcome of the study, Cornell Critical Thinking Test, was summarized using the mean and median for describing central tendency and standard deviation and minimum and maximum values for describing variability among students. This was done for the overall score of the test and for its 4 subcategories (Induction, Deduction, Credibility and Assumption) and for pre and post WebQuest model activities were done.

Moreover, students' patterns of internet use, their attitude and behavior were summarized using frequency distributions. The weekly number of internet use was computed by multiplying the number of days per week a student uses the internet by the number of hours per day he/she logs on the internet. This variable was then summarized in a similar manner as the Cornell test scores (see description above).

To answer hypothesis three, we performed paired t-tests on the pre and post intervention scores for the overall critical thinking test and for its 4 subcategories. As the distribution of such scores is not perfectly normal a nonparametric test; the Wilcoxon signed rank test; was also used. The results for both tests are presented in the tables. Associations between the change in the Cornell Critical Thinking Test score and the demographic variables were assessed using the independent t-test and the nonparametric test Wilcoxon rank sum test.

To answer hypothesis one, associations between answers to the structured questionnaire and the test scores at the post intervention period were assessed using the independent t-test and Wilcoxon rank sum test. This was done using post intervention data as no identifiers for linking the critical thinking test scores with the answers to the structured questionnaire were taken at baseline.

A p-value of .05 or less was considered significant. All analyses were done using Statistical Package for Social Sciences SPSS (version 17).

Results

First we start by presenting descriptive statistics on the 31 participants for whom we have complete linked data in terms of pre intervention and post intervention test scores and post intervention questionnaires.

Sample Characteristics

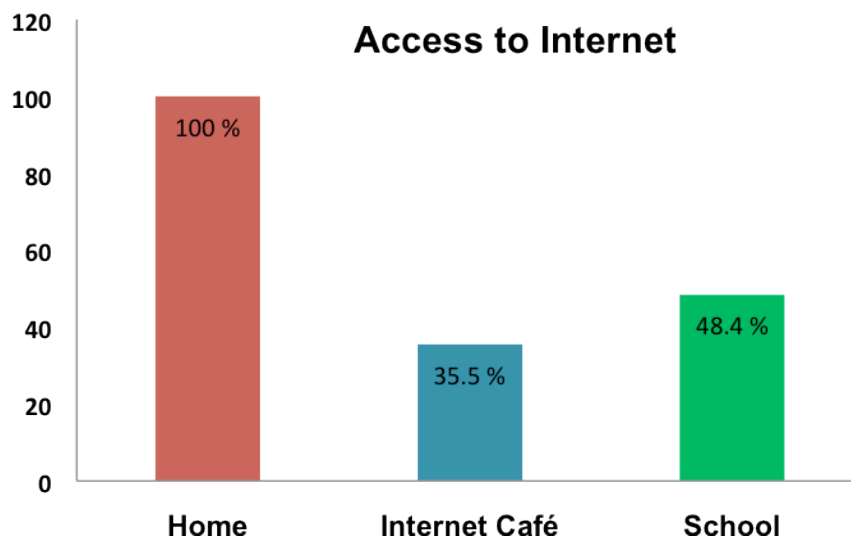
Sample characteristics are presented in table 4.1

The majority of participants were students in Grade 12 (67.7%), females (61.3%) and of an age ranging 17 to 18 years old (64.5%). About half of the subjects had English as their second language (48.4%) and the others as a third language (51.6%).

Internet Access and Patterns of students' Use

Internet access and patterns of use are shown in Figure 4.1. All subjects usually access the internet from home, with some accessing the internet also from schools (48.4%) and/or internet café (35.5%) (Figure2).

Figure 4.1: Access to Internet by participants who took pre and post Cornell Critical Thinking Tests (N=31)



Moreover, most of these participants access internet daily (67.7%) spending 1 hour (6.5%), 2 hours (38.7%), 3 hours (22.6%), 4 hours (16.1%), or 5 hours and more (16.1%) per day

on the internet . On average participants spend 18.5 (± 9.7) hours per week on the internet (see table 4.3).

Participants' Behaviors and Attitudes Towards Internet Use

Participants' behavior and attitudes regarding internet use are summarized in tables 4.4 and 4.5 respectively. The majority of participants (56.7%) either strongly agrees or agrees to always getting their parents' permission when accessing internet from internet café. However, their internet usage is not mainly for completing school assignments or research projects (strongly disagree and disagree 80.6%), but mainly for checking emails (58.0%), and for chatting and social networking (80.6%). Most of these participants claim that they know how to use the internet (80.6%), strongly agree or agree that the computer organizes their work (93.5%), and agree or strongly agree that computers help them organize thoughts and help students become better thinkers (90.3%).

Effect of WebQuest on Higher Order Thinking Skills

Analyses for hypothesis 3 are summarized in tables 4.6, 4.7, and 4.8. Overall, WebQuest was able to significantly increase critical thinking scores; as measured by Cornell Critical Thinking Test; from an average of 43.5 (± 9.4) points before being exposed to WebQuest to an average of 48.9 (± 12.1) post WebQuest (p-value $< .01$). Examining the 4 different aspects of critical thinking measured by Cornell Critical Thinking Test, namely Induction, Deduction, Credibility, and Assumptions, we observed that there was a significant increase in both the ability to deduce (p-value =.05) and do assumptions (p-value =.02). In the other two aspect; induction and credibility, an increase was observed however it did not reach statistical significance (p-value =.44 and p-value =.41 respectively) (Figure 4.3). Note that in terms of

significance there were no differences between results obtained using the paired t-test or the Wilcoxon signed rank test.

Note that this overall increase in critical thinking was borderline significantly (that is $.05 < p\text{-value} \leq .10$) associated with gender (p-value = .10) and Age (p-value = .08) but not associated with English as a second language (p-value = .72) nor with grade (p-value = .16). In particular, females and 17-18 year old participants showed better increase in scores than males and those in the age group 15-17 respectively. Also there were no major differences between the parametric and nonparametric tests used.

Effect of Current Technology Use on Fostering Higher Order Thinking Skills

For Analysis for hypothesis 1, we used all 37 participants for whom we had data on Cornell Critical Thinking Test and on the structured questionnaire post WebQuest. These 37 participants had characteristics similar to the 31 participants in terms of gender, age, and class grade distribution with only one difference where more than half of the sample had English as a third language (56.8%).

Associations between critical thinking and internet usage are presented in tables 4.9 and 4.10. Overall there was no significant difference in critical thinking between those who use the internet everyday and those who used the internet between 2 to 5 days per week. This was also true for all 4 subcategories of critical thinking except for the assumption subcategory. In particular, daily internet users had a lower score in the assumption subcategory as compared to those who used internet 5 times or less a week (p-value = .05). When examining the number of hours spent per day on the internet, we observed no significant difference in the critical thinking overall score or in any of the 4 subcategories. Moreover, no significant trends were observed when regression analysis using critical thinking score (or any of its 4 subcategories) as the

dependent variable and the number of hours spent per week on the internet as the independent variable were fitted (see table 4. 10).

Association Between Critical Thinking and Participant Behaviors and Attitudes

Finally association between critical thinking and participants' behaviors and attitudes regarding internet use are presented in tables 4.11 and 4.12 respectively. Note that for each question we grouped participants into two groups according to their answers in the following manner: those who strongly agreed or agreed are grouped together, and those who disagreed or strongly disagreed are grouped together. This was done since the sample size is too small to analyze 4 groups of participants for each question.

None of the behavioral variables: always having parents' permission when using internet at the internet café, using the internet mainly for performing school assignments and research projects, using the internet for checking emails, and using the internet for social networking and chatting were significantly associated with the overall critical thinking score nor with any of its 4 subcategories.

As for participants' attitudes regarding internet use, the only significant difference was observed between those who agreed to the statement that the computer organizes their work who scored significantly lower on the credibility subcategory of critical thinking as compared to those who did not agree (n=2) to such a statement (p-value < .01).

Table 4. 1: General Characteristics of the Sample (N=31)

Variables		n (%)
Gender	Males	12 (38.7%)
	Females	19 (61.3%)
Age	15-16 years old	11 (35.5%)
	17-18 years old	20 (64.5%)
Grade	Grade 11	10 (32.3%)
	Grade 12	21 (67.7%)
Foreign Language	English 3 rd language	16 (51.6%)
	English 2 nd language	15 (48.4%)

Table4. 2: Internet Access and Frequency of internet usage (N=31)

Frequency of internet usage		n (%)
Point of internet access	Home	15 (48.4%)
	Home and School	5 (16.1%)
	Home and Internet Café	1 (3.2%)
	Home, School, and Internet Café	10 (32.3%)
Internet Usage	Twice a week	1 (3.2%)
	3 times a week	1(3.2%)
	4 times a week	4 (12.9%)
	5 times a week	4 (12.9%)
	Every day	21 (67.7%)
Hours per day	1 hour	2 (6.5%)
	2 hours	12 (38.7%)
	3 hours	7 (22.6%)
	4 hours	5 (16.1%)
	5 hours and more	5 (16.1%)

Table 4. 3: Total number of hours per week of internet usage (N=31)

Hours of internet usage per week (N=31)	Mea n	Median	Std deviation	Min	Max
	18.5	15.0	9.7	4	35

Table 4. 4: Participants' Behavior regarding internet usage (N=31)

Behavior		N (%)
I always have my parent permission when using internet at internet café	Strongly disagree	7 (23.3%)
	Disagree	6 (20.0%)
	Agree	12 (40.0%)
	Strongly Agree	5 (16.7%)
I use the internet mainly for school assignments and projects	Strongly disagree	4 (12.9%)
	Disagree	21 (67.7%)
	Agree	5 (16.1%)
	Strongly Agree	1 (3.2%)
I use the internet mainly for emails	Strongly disagree	1 (3.2%)
	Disagree	12 (38.7%)
	Agree	17 (54.8%)
	Strongly Agree	1 (3.2%)
I use the internet mainly for chatting and social networking	Strongly disagree	0 (0.0%)
	Disagree	6 (19.4%)
	Agree	9 (29.0%)
	Strongly Agree	16 (51.6%)

Table 4.5: Participants' Attitudes towards using the internet (N=31)

Attitude		N (%)
I know how to use the internet	Strongly disagree	2 (6.5%)
	Disagree	4 (12.9%)
	Agree	17 (54.8%)
	Strongly Agree	8 (25.8%)
I think computer organizes my work	Strongly disagree	0 (0.0%)
	Disagree	2 (6.5%)
	Agree	17 (54.8%)
	Strongly Agree	12 (38.7%)
I think computers help organize thoughts and help students become a better thinker	Strongly disagree	0 (0.0%)
	Disagree	3 (9.7%)
	Agree	14 (45.2%)
	Strongly Agree	14 (45.2%)

Table 4.6: Frequencies of Cornell Critical Thinking Items: Induction, Deduction, Credibility, and Assumptions in the Pre and Post Tests (N=31)

Frequencies (N=31)		Mean	Median	St deviation	Min	Max
Overall	Pre	43.5	43.8	9.4	25.0	62.8
	Post	48.9	50.8	12.1	26.0	69.8
Induction	Pre	50.1	52.0	14.3	24.0	76.0
	Post	52.7	56.0	14.6	24.0	80.0
Deduction	Pre	46.5	50.0	17.9	12.0	75.0
	Post	53.5	54.0	19.0	20.0	87.0
Credibility	Pre	43.2	41.0	11.1	25.0	75.0
	Post	45.6	45.0	15.9	4.0	70.0
Assumption	Pre	34.19	30.0	17.3	0.0	70.0
	Post	43.87	40.0	15.4	10.0	70.0

Table 4.7: Mean Differences between Pre and Post Cornell Critical Thinking Tests and their levels of significance

	Mean (Pre)	Mean (Post)	Difference in Means	Paired T-test p-value	Wilcoxon Signed Rank Test p-value
Overall	43.5	48.9	5.4	<.01*	<.01*
Induction	50.1	52.7	2.6	.29	.44
Deduction	46.5	53.5	7.0	.03*	.05*
Credibility	43.2	45.6	2.3	.47	.41
Assumption	34.2	43.9	9.7	.01*	.02*

* Significant result; p-value ≤ .05

Table 4.8: Relation between Gender, Age, and Class grade and the scoring differences in Cornell Critical Thinking Test

Variables		Mean of the difference (Post-Pre)	T-test p-value	Wilcoxon Rank Sum Test p-value
Gender	Male	2.0	.07	.10†
	Female	7.5		
Language	English 2 nd language	6.4	.54	.72
	English 3 rd language	4.5		
Age	15-16 years old	2.3	.11	.08†
	17-18 years old	7.1		
Grade	Grade 11	2.4	.17	.16
	Grade 12	6.8		

† Borderline Significant result; .05 < p-value ≤ .10

Table 4.9: Relation between Frequency of Internet Usage with Post Cornell Critical Thinking Test scoring (N=37) using independent T-Tests and Wilcoxon Rank Sum Test.

Frequency		Overall Means (±SD)	T-test p-value (Wilcoxon Rank Sum test p-value)	Induction Means (±SD)	T-test p-value (Wilcoxon Rank Sum test p-value)	Deduction Means (±SD)	T-test p-value (Wilcoxon Rank Sum test p-value)	Credibility Means (±SD)	T-test p-value (Wilcoxon Rank Sum test p-value)	Assumption Means (±SD)	T-test p-value (Wilcoxon Rank Sum test p-value)
Internet usage	2,3, 4, or 5 times a week (N=12)	53.1 (±11.7)	.19 (.28)	55.0 (±15.3)	.78 (.83)	61.1 (±18.5)	.10 (.13)	43.8 (±13.7)	.52 (.42)	52.5 (±16.6)	.03* (.05*)
	Every day (N=25)	47.5 (±12.3)		53.3 (±16.2)		49.1 (±20.8)		47.4 (±16.7)		40.0 (±14.7)	
Hours spent/day	1 or 2 hours (N=18)	48.5 (±11.0)	.71 (.84)	55.1 (±15.9)	.67 (.66)	50.5 (±22.4)	.48 (.54)	46.2 (±13.7)	.99 (.90)	42.2 (±17.3)	.51 (.54)
	3 hours and more (N=19)	50.0 (±13.5)		52.8 (±15.8)		55.3 (±19.1)		46.2 (±17.8)		45.8 (±15.4)	

* Significant result; p-value ≤ .05

Table 4.10: Relation between the total number of hours spent on the internet per week and the scores of Cornell Critical Thinking Test after the WebQuest Intervention

Regression with total number of hours of internet usage per week	Slope constant	p-value
Post Overall	-.09	.48
Post Induction	-.06	.57
Post Deduction	-.02	.81
Post Credibility	-.06	.53
Post Assumptions	-.07	.50

Table 4.11: Relation between Participants' Behaviors in Internet Usage with Post Cornell Critical Thinking Test scoring (N=37) using independent T-Tests and Wilcoxon Rank Sum Test.

Behavior		Overall Means (±SD)	T test p-value (Wilcoxon Rank Sum test p-value)	Induction Means (±SD)	T test p-value (Wilcoxon Rank Sum test p-value)	Deduction Means (±SD)	T test p-value (Wilcoxon Rank Sum test p-value)	Credibility Means (±SD)	T test p-value (Wilcoxon Rank Sum test p-value)	Assumption Means (±SD)	T test p-value (Wilcoxon Rank Sum test p-value)
Always have Parent permission upon using internet at internet cafe	Disagree (N=13)	47.7 (±12.0)	.37 (.47)	53.5 (±13.7)	.86 (.97)	53.1 (±19.0)	.64 (.67)	44.2 (±16.9)	.59 (.79)	40.0 (±15.3)	.15 (.15)
	Agree (N=22)	51.6 (±12.1)		54.6 (±17.6)		56.2 (±19.5)		47.3 (±14.3)		48.2 (±15.9)	
I use internet mainly for School assignments and projects	Disagree (N=30)	49.6 (±12.4)	.77 (.84)	54.9 (±16.7)	.44 (.36)	53.3 (±19.7)	.83 (.84)	46.1 (±15.0)	.93 (.86)	44.0 (±15.9)	.97 (.84)
	Agree (N=7)	48.0 (±12.4)		49.7 (±9.8)		51.4 (±25.8)		46.7 (±19.5)		44.3 (±19.0)	
I use Internet mainly for emails	Disagree (N=13)	52.6 (±12.2)	.23 (.16)	56.31 (±14.7)	.51 (.39)	58.9 (±16.2)	.20 (.25)	50.6 (±15.1)	.21 (.19)	44.6 (±13.9)	.88 (.59)
	Agree (N=24)	47.5 (±12.1)		52.7 (±16.4)		49.8 (±22.3)		43.8 (±15.8)		43.8 (±17.7)	
I use Internet mainly for chatting and social networking	Disagree (N=6)	49.5 (±10.5)	.96 (.93)	54.7 (±15.1)	.90 (.85)	54.5 (±16.0)	.85 (.98)	44.0 (±10.5)	.71 (.58)	45.0 (±20.7)	.88 (.71)
	Agree (N=31)	49.3 (±12.7)		53.8 (±16.03)		52.7 (±21.6)		46.7 (±16.6)		43.9 (±15.6)	

Table 4.12: Relation between Participants' Attitudes in internet Usage with Post Cornell Critical Thinking Test scoring (N=37) using independent T-Tests.

Attitudes		Summary Means (±SD)	T test p-value (Wilcoxon on Rank Sum test p-value)	Induction Means (±SD)	T test p-value (Wilcoxon on Rank Sum test p-value)	Deduction Means (±SD)	T test p-value (Wilcoxon on Rank Sum test p-value)	Credibility Means (±SD)	T test p-value (Wilcoxon on Rank Sum test p-value)	Assumption Means (±SD)	T test p-value (Wilcoxon on Rank Sum test p-value)
I feel I know how to use the internet well	Disagree (N=8)	53.7 (±6.6)	.11 (.28)	62.5 (±14.2)	.08 (.12)	59.0 (±11.1)	.19 (.35)	45.9 (±14.4)	.95 (.82)	47.5 (±12.8)	.50 (.49)
	Agree (N=29)	48.1 (±13.2)		51.6 (±15.5)		51.3 (±22.4)		46.3 (±16.3)		43.1 (±17.4)	
I think a computer organizes my work and projects	Disagree (N=2)	63.6 (±8.7)	.09 (.13)	68.0 (±17.0)	.19 (.31)	66.5 (±17.7)	.35 (.43)	70.0 (±0.0)	<.01* (<.01*)	50.0 (±0.0)	.60 (.47)
	Agree (N=35)	48.5 (±12.0)		53.1 (±15.5)		52.2 (±20.7)		44.9 (±15.0)		43.7 (±16.6)	
I think computers help organize learner's thoughts	Disagree (N=3)	56.9 (±8.6)	.27 (.20)	58.7 (±6.1)	.59 (.55)	67.7 (±10.6)	.20 (.20)	58.0 (±8.0)	.18 (.17)	43.3 (±20.8)	.94 (.91)
	Agree (N=34)	48.6 (±12.4)		53.5 (±16.2)		51.7 (±20.9)		45.2 (±15.8)		44.12 (±16.2)	

* Significant result; p-value ≤ .05

Figure 4.2: General Characteristics of participants who took pre and post Cornell Critical Thinking Tests (N=31)

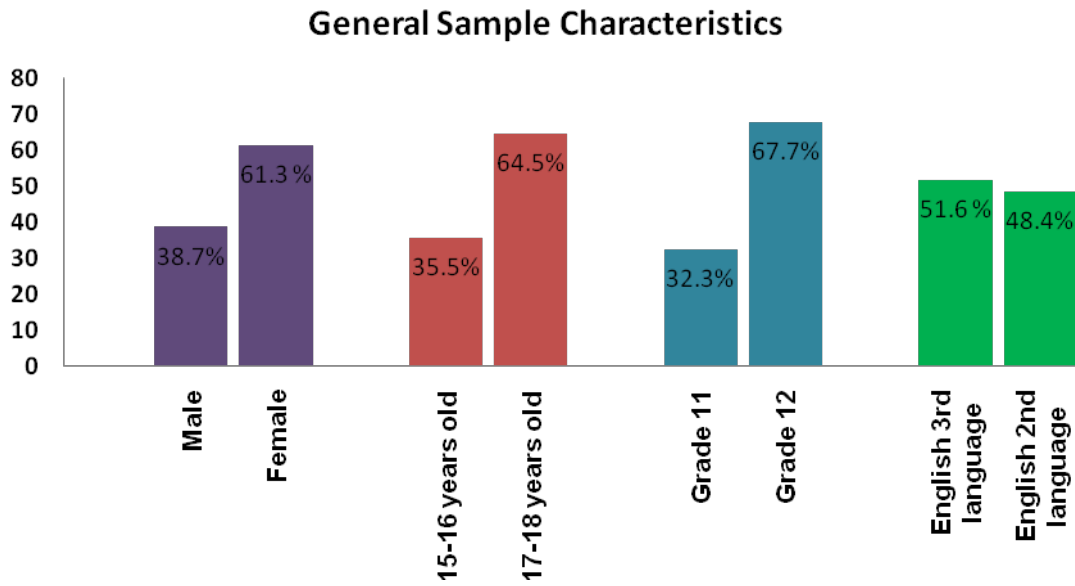
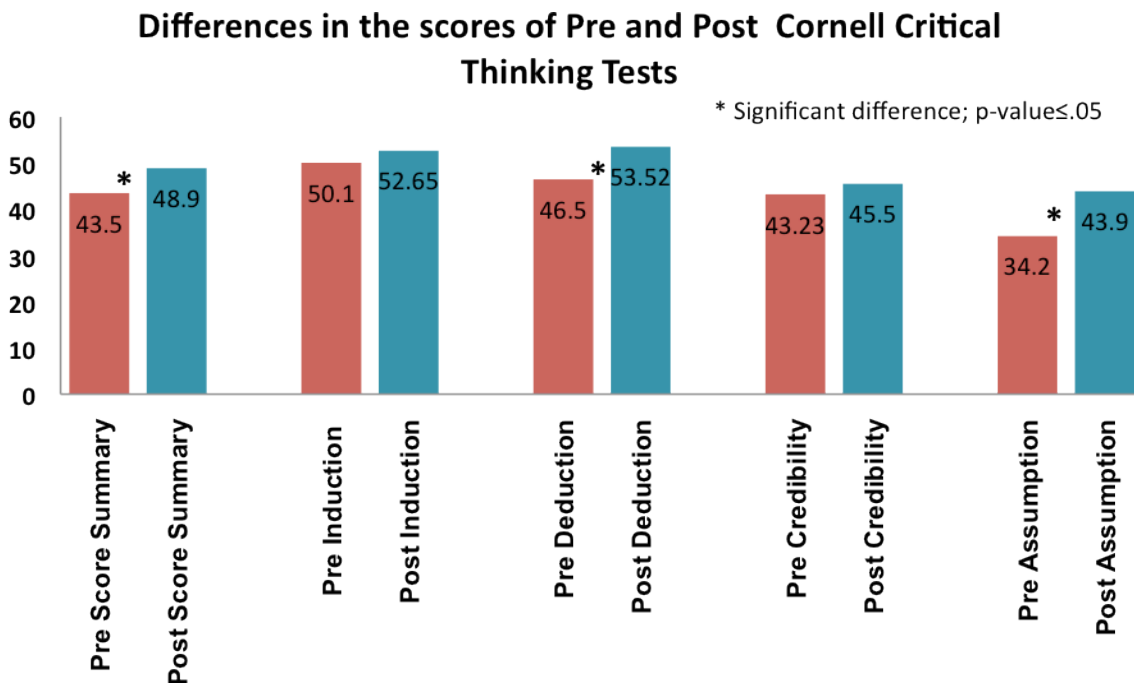


Figure 1.3 : Differences in the scores of Pre and Post Cornell Critical Thinking Tests



Chapter Five

Findings and Discussions

Maddux (2002) and Weinstein (2000) have empirically established a link between the use of the WebQuest and the development of all stages of critical thinking especially higher order thinking skills. Furthermore, Kanuka (2005) sees that when learners are required to work on a task like a WebQuest with features such as analyzing, deducing, making assumptions and evaluations collaboratively then learners' profound knowledge of content is established thus enhancing learners' critical thinking abilities. These findings have generated the case study research questions. The hypothesis of this study is that the use of a WebQuest could lead to an increase in learners' critical thinking abilities particularly the deduction, induction, credibility and assumption.

The research also attempts to study the practices of teachers who use technology and the obstacles they face while integrating technology in the classroom. The rationale behind this is to determine the extent of awareness of teachers of the higher order thinking skills and what the obstacles are which could affect integration. Finally, the use of the student questionnaire was meant to study the patterns of use of students to technology and see if these patterns have any effect on the development of their critical thinking abilities.

The results of this study demonstrate that there is a significant increase in learners' higher order thinking abilities if a WebQuest is used in the teaching of language. Also, the results have indicated that teachers are aware of higher order thinking skills and have a number of obstacles they complain of in school. Also, there is a borderline significance between the increase in critical thinking abilities and gender and age indicating a trend.

Investigating the Current Study's Research Questions

The following section will discuss the findings regarding the three research questions that were generated in this study. Each question will be discussed separately along with the literature related to it.

Research Question One: Is the current situation of technology use in SNS conducive to fostering critical thinking?

The results indicate that all students at SHS have access to technology at home but only 50% of students access technology from school. This indicates that students are not motivated to use technology in the school probably due to the nature of access they can have or because there is no complete integration of technology in the classrooms. Becker (2000) considers that even though schools could have the entire infrastructure and the equipment for learners to use, schools will not utilize such tools efficiently unless technology is integrated in the curriculum.

Furthermore, the questionnaire has revealed that 80% of students use technology for networking and only 20% use it for school work which explains the lack of significant difference in critical thinking between those who access the internet between 2 to 5 days per week. Ware and Warschauer (2005) and Facer, Sutherland, Furlong & Furlong (2001) point out that the socioeconomic background of learners determines the quality of access to technology. Students at SHS come from middle to upper socioeconomic background therefore the poor quality of access to technology can't be attributed to their socioeconomic background but there are other factors that could be responsible for this quality of access. Becker (2000) could explain this finding in that when students are not exposed to technology within the curriculum, then they tend to use technology for matters that could be considered insignificant and a waste of time.

Moreover, the study has revealed that daily internet users had a lower score in the assumption subcategory of the Critical thinking Skills Test Level X as compared to those who used the internet five times or less a week. Since assumption is the highest in higher order thinking skills as described by Ennis (1982), the quality of exposure to the internet could account for such a low score where the majority of the students (80%) utilize the internet for social networking and chatting rather than school work (20%).

A further significant difference was observed in the score of credibility subcategory of critical thinking test between those who perceived the computer as a tool to organize their work and those who disagreed with this statement. The sample size was very small and thus even if two students indicated that they did not consider that computers could organize their work, there will be a statistical significance in this matter.

Finally, there is a borderline significance associated with gender (p-value 10) and age (p-value 0.8). Maddux (1993) affirms through empirical research that cognition or performance level is not affected by age, gender or even language level. Therefore, this borderline significance could be attributed to the nature of the sample. The number of females (61.3%) in the study was relatively higher than males (38.7%) and the majority of students in the study were in grade 12 (67.7%) rather than grade 11 (32.3%).

Research Question Two: How do teachers incorporate higher order thinking skills in their students' use of technology and what are some of the obstacles they have in incorporating technology in the classroom?

The participating teachers in the interviews answered five questions which could be considered as subheadings for the research question two. When all four teachers were asked

about the criteria they set when planning their objectives for every unit all of them revealed awareness of the stages of critical thinking

T1 states:

The taxonomy is in mind when I plan the unit and I focus on the analysis and synthesis stages in the taxonomy in the assessment stage. Often the first stages of the unit, I start with the comprehension and application stages but later I go deeper to enhance my students' higher order thinking skills.

T2 states:

Blooms taxonomy is very basic in my plan. I usually have the pyramid in front of me when I set off to make my yearly preparation, unite plan and lesson objectives

T3 states:

I often focus on critical thinking of Bloom's Taxonomy

Given that all three teachers had already integrated technology in their curriculum, it only seems appropriate to concur with Paul (1992) that teachers who are aware of the importance of integrating technology in the classroom are necessarily aware of the stages of critical thinking and are willing to integrate both technology and critical thinking in their planning process.

In response to interview question two on the types of technology tools these teachers ask students to use to demonstrate their knowledge, comprehension and application of content learned, responses varied but revealed some significant answers. First, there seems to be little stress on the lower order thinking skills in students' productions and the tools mostly used are PowerPoint presentations

T1 explains:

I don't usually ask students to use technology for the low order thinking skills. However from time to time I ask students to use the computer to present a certain concept that I feel they can explain or outline the salient points.

T2 explains:

I think that I have trained students to use their lower order thinking skills to demonstrate their understanding by using power point presentations and some elementary research work at the lower level

T3 explains:

Often students or the library bring such games and consequently I look into these software and if I think they are appropriate for integration

It is worth noting here that teacher 1 and teacher 2 demonstrate their attempt to transform their classrooms from teacher centered classrooms to student centered classroom in terms of their students' application of the lower order thinking skills they demonstrate. Thus, they are more successful at integrating technology and fostering critical thinking amongst learners as Coughlin (2010), Halpern (1984) and Richards (2005) assess the relationship between critical thinking and the shift from teacher centered classrooms to student centered classrooms.

When asked about how the teachers would know that their students have met the objectives set and what evidence, product, or end task they required, three teachers explained the necessity of giving students guidelines called either rubrics or questions to be completed upon finishing the lesson.

T1 explains

I often provide them with criteria or rubric and they often meet with this rubric and they know that they are required to meet with these rubrics.

T3 explains

I often pose questions that I expect learners to master by the end through the use of technology, students are often encouraged to induce, deduce and evaluate and make assumptions that I expect of them

When teachers in SHS provide learners with such criteria they are in concurrence with research that emphasizes that learners take control of their learning, become more self directed, seek more abstract online solutions, and attempt to decide or evaluate the relevance and effectiveness on the solutions suggested upon completion of the work (Fox & Mackeogh, 2003; Halpern 1984).

In sub question four, teachers reveal their confidence in the role technology could play in shaping their students' critical thinking abilities and seem to agree with the literature on the effect of engagement, interest and motivation when using tools for instruction. Teachers confidence in the role of technology in enhancing critical thinking has lead researchers like Chapelle & Jamison (1986) and Dunkel (1987) to consider that CALL can be considered a step to transport the passive learners, seeking comprehension and knowledge material in L2 acquisition, to active and engaged learners able to analyze and evaluate material they find using computers.

T1 states

When technology is incorporated in the classroom, students look at you as if you are speaking their own language and this makes them more engaged in the classroom

T2 states

It also engages students in class activities and most students become interested in the lessons given. Students in class are so interested there are no discipline problems which is very helpful for the teacher

T3 states

On the student level, technology tailors to all styles of learning. Visual learners find what engages them, oral learners could access the diverse oral sources in technology, tactile learners could create projects using the various graphic features of paint brush and others and since I encourage group work , learners who like to work in groups often give each other feedback .

From their responses, it becomes clear that teachers have become aware of the necessity researchers like Muir, (1994) and Peck & Dorricot, (1994) have placed on using the computer and other technology tools to create projects that are both purposeful and meaningful so that they could engage and motivate learners to acquire skills of problem solving and critical thinking.

Finally, when asked about the obstacles they face while integration, teachers have emphasized the technical factor.

T1 explains:

My most basic concern about integration is hardware and internet set up

T2 explains

The most prevalent problems are in hardware. Access to the internet might be interrupted by power failure or absence of connecting

T3 explains

I think that the problems that hinder my integration is mainly related to hardware issues like computer freeze, virus issues that are very difficult to solve in our school

Therefore, all four technical factors such as access to computers, inadequate infrastructure, outdated hardware and inappropriate software, which Finn (2008) consider as integral to integration seems to be present in SHS which makes it difficult to integrate technology in the classroom. However the interviews reveal that teachers are still insistent on integration by going around the problem or obstacles and attempting at improvising as T 2 explains:

“so I often resort to places that have fast broadband capability and would download them on my computer so that I could use it in the class”

All three teachers insist that another problem they have is that there is no ongoing training at SHS to help teachers properly integrate technology in their classrooms and any attempt at mastering a technique is purely individual in nature as teachers state.

T1 states

Training is not existent and integration is often teacher initiative.

T2 states

So as you can see we don't receive enough training on solving such problems or any kind of technology training for that matte

T3 states

I don't receive constant training in the process of integration.

As can be concluded teachers in SHS are only a small sample that concur with Kibbi (1994) that there are no government plans to train and integrate technology in the schools and the obstacles faced are pure organizational and can't be attributed to teachers because the interviews revealed willingness as well as personal initiative to utilize whatever is available in the teaching process.

Research Question Three: To what extent can an inquiry based learning activity, like a WebQuest, establish an increase in students' critical thinking ability?

This study revealed that the WebQuest which is an inquiry based activity can increase the higher order thinking skills amongst learners. This is very clear since the students' critical thinking abilities showed a significant improvement after being exposed to the WebQuest. This verifies Kanuka 's (2005) findings that the WebQuest has a significant effect on enhancing the higher order thinking skills as well as giving 21st century learners with the right tools survive.

According to authorities (March, 1998; Maddux, 2002; Weinstein, 2000; Felix, 2002; Crawford & Brown 2002) in the integration of technology in the classroom and its effects on learners' critical thinking, WebQuests have proven their worth in increasing the higher order thinking skills of learners of all subject matter including languages. The results of this action research study reveal empirically that students' overall critical thinking skills score - in one Lebanese school- has been significant making the WebQuest a very good tool to use in the classroom to improve critical thinking. However, examining the four subcategories of higher order thinking skills, this study has revealed that there was a significant increase in the both learners ability to make deductions and assumptions in contrast to a borderline significance in the

other two subcategories: induction and credibility. This could be attributed to the sample size (n=31) who were able to sit for the Cornell Critical Thinking pretest and posttest.

Also this case study results on the Critical thinking post test have revealed a borderline significance in the overall increase in critical thinking associated with gender and age but not with grade level and English as a first or second foreign language. It has been explained in research question one that the borderline significance of the increase in critical thinking of females and older students could be attributed to the sample size. A further finding in this study is that WebQuest can increase the critical thinking abilities of learners regardless of the level of foreign language, be it first or second foreign language. This finding supports Cunningham's (2000) and Lee's (2000) finding that L1 and L2 are equally affected when using the internet in a focused manner. Furthermore, the action research finding clearly agrees with the research (Grabe and Grabe, 2001; GeStoks, 2002) that utilizing the internet for an informed purpose would be a very good opportunity to improve language acquisition be it first or second foreign language.

Finally, because the nature of the case study's attempt to establish a relationship between the learners' patterns of use of the internet and learners achievement on the critical thinking post test, the study has resulted in a significant finding in that students who used the internet on average of 18 hours a week for social networking and chatting scored low on the critical thinking test post test. This result further concurs with Dodge's (1997) and Weinstein's (2000) nonlinear use of the internet. In their words, when learners use the internet in a nonlinear mode without a focus, their critical thinking abilities would be compromised. The results in our action research study reveal that the quality of access to the internet can direct the critical thinking of learners and not the quantity of hours spent online. Students who spent 80% of their internet use on networking tended to score low on assumption stage of the higher order thinking skills.

This chapter discussed the three research questions that were the bases of this study. It discussed the patterns of use of technology amongst Lebanese students and their attitudes and behaviors towards technology. It further studied the methods teachers utilize to foster higher order thinking skills and the obstacles they face in integrating technology in the classroom. Finally it has quantitatively investigated if a language WebQuest could positively affect the higher order thinking skills. The following chapter will discuss the implications of these findings in the classroom, the limitations of the study and the recommendation for future research.

Chapter Six

Conclusions and Recommendations

Major Findings

The major findings of the current action research are divided into three conclusions: the impact of the pattern of students' use of technology on their critical thinking, the pattern of teacher use of technology and the obstacles they meet, and the impact of a WebQuest on the critical thinking of learners. The results showed that the more unfocused exposure to the internet does not necessarily mean that students' critical thinking would improve. This revealed that the quality of exposure is much more effective than the number of hours spent surfing the internet for social networking and chatting. The second major finding is that teachers who integrate technology in the classroom are very aware of critical thinking and the higher order thinking skills but integration of technology is mostly an individual decision and the obstacles faced are mostly technical in nature. The third major finding is that there is qualitative evidence that WebQuests have the potential of increasing the higher order critical thinking abilities of learners.

Implications within the Classroom

A misconception has prevailed in the second half of the twentieth century that computers will eventually replace teachers, yet educators and decision makers have become fully aware that teachers who know how to use technology in the classroom will be replacing teachers who don't know how to use technology. Moreover, learners of the 21st century can no more be taught in the same way that twentieth century learners have been instructed. The changes that have occurred in the last thirty years necessitate a change in focus on utilizing the tools of the 21st century to improve learners' critical thinking capabilities. It is worth noting that at this stage, learners have become proficient in the use of technology very rapidly and are often considered experts in utilizing this technology outside the classroom. The challenge arises in the ability of teachers in

trying to motivate learners to utilize this expert knowledge in the classroom in a way that assists them achieve maximum learning

Furthermore, the role of the teachers in the classroom has to change in term of the tools they use in their teaching process and the way these tools can best be utilized to achieve their potential. However, such a change for both learners and teachers has fallen short because students are still taught in traditional teaching methods and teachers are either resistant to change or they are faced with the red tape that sometimes is set by the decision makers in schools. Therefore, the implications of this action research study within the classroom can be directed towards the learners and teachers engagement in integrating technology in the school and on the use of WebQuests in the language classroom.

Teachers and Students Engagement in technology

The first step towards incorporating and benefiting from this research is to realize that learners' access to technology in the classroom is determined by the quality of access rather than the quantity of hours spent using this technology. To encourage learners to access the internet for educational purposes, teachers need to create interactive chances and offer incentives and to students to encourage them to use the internet effectively for educational purposes. This can be achieved by readjusting the existing lessons in the curriculum so that learners would use technology and particularly the internet to produce certain tasks either prior to the actual exposure to the lesson or as post assessment to the lessons. The tasks required at this stage would have to be relevant to students' interests and would involve their engagement in the tasks as well. To be aware of students' interests, teachers can distribute a short questionnaire at the beginning of the school year to know the topics of interests to students. Therefore if there is more than one

WebQuest to be used for the subject matter, the questionnaire would offer the teacher with a variety of topics to pick from to tailor for the diverse students' interests.

Students often use technology and the internet the most at home and the least at school. Therefore, within the home environment, teachers must design lessons that demand internet use prior, during and post exposure to the lesson. Furthermore, to make sure that the quality of the research is beneficial to the learner, teachers must provide learners with research rubrics or teach them the skills of evaluating websites that are helpful in their search process. Teachers must also provide learners with printables requiring specific tasks like outlining of important points of the articles read at home and by doing so, teachers would be sure that the resources were read fully and not in summary or briefly. This step would not only minimize students' exposure to inappropriate material but would also make the learning process student- centered.

As for the school access to technology, learners must have more opportunities to use computers in the school. Computer labs, class computers and libraries must be available to learners at any time during the school day and as for the control of the quality of access, social networking and chat websites can either be monitored by network administrator or could be banned on campus.

To successfully integrate technology in the classroom, teachers and administration ought to reconsider the limited teacher training opportunities in utilizing technology. School administration need to realize that not only is investing in hardware important, but investing in teacher training would surely give the reward of teacher confidence in the use of technology and a learner who is more productive and creative rather than a mere consumer of the tools that technology has to offer. Furthermore, teachers, coordinators and administrators must require that

lesson plans need to involve integration at all levels: Setting up background knowledge, ongoing assessment and lesson evaluation.

Using WebQuest in the Language Classroom

Since WebQuests are highly beneficial in improving learners' critical thinking, teachers need to increase the frequency of WebQuest use in the curriculum upon planning for their yearly distribution. In addition ESL teachers should always assess these WebQuests and determine if the tasks required at each phase are conducive to higher order thinking skills.

Given that the WebQuest is a tool that improves critical thinking of learners, teachers who intend to prepare their own WebQuests need to look carefully at the resources they assign for every task in the target foreign language. Teachers must choose the articles that are suitable in their level of difficulty as well as the length they need to be covered because the time spent on any activity would appositively or negatively affect language and knowledge acquisition. Therefore, teachers are encouraged to check Sox and Rubinstein-Avila (2009) rubrics for preparing appropriate WebQuests for ESL students.

If topics of WebQuests were somehow unfamiliar to learners, teachers should provide language learners with pre activities to activate learners prior knowledge on the issue of the WebQuest which is a key step in helping learners improve their critical thinking abilities even at the lowest level.

In the case that the class has diverse learners with different learning styles, it is key to prepare WebQuests that cater to visual, auditory, tactile, kinesthetic, group, and individual ESL learners. For visual learners, WebQuests are considered excellent tools because they are in themselves filled with instructions and information that the learners need. For auditory learners, teachers could upload films or short documentary for resources so that these learners could

benefit the most. Teachers wishing to address the tactile learners could require in the task section for the learners to prepare a map or make a model to present as a pre lesson activity or an end of lesson project. For kinesthetic learners, the tasks could require the learners to conduct fieldtrips or conduct interviews of experts in the field the WebQuest is on and in the Second language that students are learning. As for group and individual learners, the nature of the WebQuest fosters collaborative leaning making it an excellent tool for learning. Individual learners though could have a problem in using WebQuests because they would feel uncomfortable to work in groups, so teachers could require them to individually find resources that are helpful for the set up of a certain WebQuest using the evaluation rubrics set by the teacher.

Because the research has shown that second or third foreign language learners' critical thinking abilities are not affected differently by the use of WebQuest, teachers must incorporate this tool equally in their curriculum. However, special attention should be given to the length of the WebQuest and the quality of resources available. As mentioned earlier in this chapter, time allotted to the WebQuest has to be studied carefully especially that second language learning is allotted more number of hours than third language learning.

Limitations

1. This study was conducted in a private school and the results can't be generalized on all the population of high school learners.
2. Only three teachers were interviewed in this study
3. The sample size was too small to establish that the frequency of internet usage could impact the learners' achievement on the Post Cornell Critical Thinking test.
4. The small sample size makes it difficult to be able to detect statistically small effect size.

5. The analysis of hypothesis one should have been done using pre-intervention (baseline) data , however due to lack of identifiers it was done using post-intervention data where attitude and behavior towards internet usage of students might have already changed due to intervention.
6. The intervention tool didn't tailor for all the learning styles of the students.
7. The number of females was more than the number of males in the study which could explain the borderline significance in the mean of the difference in the pre-post test.
8. Validity of the Cornell Critical Thinking Test in the Lebanese context could not have been assessed as individual results per question were not provided by the software company.
9. Computer technical problems could not be resolved as per the instruction of the software company and this resulted in loss of participants both at baseline and post intervention.

Recommendations for Future Research

To my knowledge, this is the first study in Lebanon and in the Middle East to have used WebQuests as an intervention tool to improve critical thinking. The interventional design of the study is considered golden standard in proving causal relationships. Even with this small sample size, I was able to show that the WebQuest improves critical thinking. This research can serve as a baseline to further research in the fields of second language acquisition, at the primary and intermediate school level, in public or private schools. Moreover, this study could serve as a baseline to empirically research the extent to which the current usage of technology in the Lebanese schools could be modified to foster the critical thinking abilities of learners.

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Appendices

Appendix I

Student Survey

Name:

Please take a few moments to answer the following questions. Thank you! Indicate your response by checking the appropriate letter.

Part I

1. Circle the age group you are in:
 - a. 12-14
 - b. 15-16
 - c. 17-18

2. Circle the class you are currently in :
 - a. Grade 10
 - b. Grade 11
 - c. Grade 12

3. Circle the foreign language you learn in the school
 - a. French
 - b. English

4. Circle your
 - a. Male
 - b. Female

Part II

(Circle the letter that corresponds to your response)

1. Where do you have access to the internet:
 - a. Home
 - b. Internet Café
 - c. School
 - d. All the above

2. I use the internet
 - a. Twice a week
 - b. Three time a week
 - c. Four times a week
 - d. Five times a week
 - e. Every day

3. How many hours do you spend a day using the internet?
 - a. 1 hr
 - b. 2 hrs
 - c. 3 hrs
 - d. 4 hrs
 - e. 5hrs and more

Part III

Circle the response by checking the appropriate letters (Only one response per question)

SD= Strongly Disagree D= Disagree A=Agree SA= Strongly Agree

1. If I use the internet at an internet café, I always have the permission of my parents or a grown up.

SD____ D____ A____ SA_____

2. I use the internet mainly for school assignments and research projects.

SD____ D____ A____ SA_____

3. I use the internet mainly for emails.

SD____ D____ A____ SA_____

4. I use the internet mainly for chatting and social networking (Facebook, msn, Yahoo, Flickr, e-body, Skype)

SD____ D____ A____ SA_____

5. I feel that I know how to use the internet well

SD____ D____ A____ SA_____

6. I think a computer organizes my work and projects.

SD____ D____ A____ SA_____

7. I think computers help organize learners' thoughts and help students become a better thinker.

SD____ D____ A____ SA_____

Appendix II

Interview Questions

1. What criteria do you set when planning your objectives for every unit?
2. What technology tools do you ask students to use to demonstrate their knowledge, comprehension and application of content learned?
3. How will you know that your students have met your objectives? What evidence, product, or end task do you require?
4. What are the advantages of integrating the computer in the class on improving learners' critical thinking?
5. What are some problems you encounter with using technology in the classroom?

Appendix III

Researcher's Requests and Consent Forms

Appendix III- a

Administration Request Form

Dear Principal

I would like to request your permission to use WebQuest to test the effectiveness of this tool on students' critical thinking abilities. The target students are grades 10 and 11 both English and French Section.

The objectives to be met in this lesson are selected from the curriculum that is dictated by the National Educational Center for Research and Development (NECRD) and the yearly plan of 2009-2010. The students' projects will include research skills, referencing tools and argumentative writing on the current issue which is this year *car accidents and reckless driving*.

Students will be required to complete a questionnaire at the end of the project and fill out a one hour electronic critical thinking test using the school computer labs. The students will be required to work on a unit which is considered a current issue in accordance with the curriculum that I have included in the yearly plan. This inquiry based learning task will cover 3 sessions, in addition to these dates: June 22nd and July 15th on which the critical thinking test will be administered before and after the use of the WebQuest. The data collected will be used for a study I am preparing for my Master's Thesis.

I anticipate that this program can create an increase in the critical thinking abilities of learners. The results of my study will remain confidential and will be shared with you prior to publication. The name of the school will not be included in the thesis study and students' names will not be mentioned.

I will only need to collaborate with the computer department so that I could use the computer lab to use the critical thinking test, as for the project presentation , it can be shown in the class using the projector and the computers found in the Secondary building.

Zeina Bizri

March 1st 2010.

Appendix III- b

Teacher Consent Forms

Cover Page

Teacher Name:

Gender:

Subject

Class:

Years of Teaching:

Years of using the internet for educational purposes:

My name is Zeina Bizri and I am conducting an action research study in SHS to find out how teachers at SHS incorporate higher order thinking skills in their students' use of technology in the classroom and what are some of the obstacles that teachers face while integrating technology in the classroom. I am going to ask you a number of questions on the way you conduct teaching in class, your patterns of use of the internet and the obstacles you face in the process of integration. This interview will be tape-recorded so that I can come up with conclusions to be used in the result of the action research study. The interview data will be strictly confidential and the data will not be shared with anyone.

Appendix III- c

Student and Parent Consent Form

I agree to participate in the study titles. The effects of WebQuest on developing learners higher order thinking skill: An Action research in an ESL Classroom. The purpose and the nature of this research study have been explained to me by Ms Bizri. I understand what is being required of me and if I have any questions, I know that I can contact Ms. Bizri by email at any time . I also understand that I am free to quit this study at any time.

Student's Name: _____

Students Signature: _____

Date: _____

Parent Consent Form

Parent's Name: _____

Signature: _____

Date: _____

Please ask your child to return this consent form to his or her English teacher as soon as possible.

Thank you

Appendix IV

Teachers Interview Transcripts

Teacher 1

Q 1 What criteria do you set when planning your objectives for every unit?

Blooms taxonomy is very basic in my plan. I usually have the pyramid in front of me when I set off to make my yearly preparation, unite plan and lesson objectives. However I often leave the objectives for modification to tailor to my students' needs. The changes often take place as a shift from higher order to lower order thinking skills.

Q 2 What technology tools do you ask students to use to demonstrate their knowledge, comprehension and application of content learned?

I have recently learner that Bloom's Taxonomy could be applied to integration of technology. I have only recently started applying these levels on teaching second language. I think that I have trained students to use their lower order thinking skills to demonstrate their understanding. However I am still testing and experimenting with the higher order thinking skills.

Q3. How will you know that your students have met your objectives? What evidence, product, or end task do you require?

My students are often required to present power point presentation, use movie maker and create a blog or wiki to explain, compare contrast, construct, or reconstruct and evaluate their work. I have been using this process for the last three years. Sometimes, learners make oral presentation and written products without using technology but students are more motivated if they use

technology at this stage. Finally, every concept or lesson must have one technology outcome provided by students at the end stage.

Q4. What are the advantages of integrating the computer in the class on improving learners' critical thinking?

Computer is very basic in my teaching process. IT is very interesting and it makes teaching very interesting and it is the 21st century style of life. When technology is incorporated in the classroom, students look at you as if you are speaking their own language and this makes them more engaged in the classroom. Remember that you are speaking the language that they favour.

Q 5 What are some problems you encounter with using technology in the classroom?

My most basic concern about integration is hardware and internet set up. I have problem downloading films and excerpts due to the broadband conditions in Lebanon so I often resort to places that have fast broadband capability and would download them on my computer so that I could use it in the class. Also, Sometimes the computers used in the class might freeze, so I often have my personal laptop for emergency cases. So as you can see we don't receive enough training on solving such problems or any kind of technology training for that matter. I don't think that time is a problem in integration and no it doesn't affect the amount of content I cover. Time is not wasted when integrating technology and I am often directed to uses by the student and this doesn't intimidate me. Students love to teach you and they don't lose respect of me if I tell them I didn't know about a certain use.

Teacher 2

Q 1 What criteria do you set when planning your objectives for every unit?

After years of experience ,I don't literally set a specific criteria . However I ultimately realize that I am targeting Blooms taxonomy indirectly particularly higher order thinking skills. The taxonomy is in mind when I plan the unit and I focus on the analysis and synthesis stages in the taxonomy in the assessment stage. Often the first stages of the unit , I start with the comprehension and application stages but later I go deeper to enhance my students higher order thinking skills .

Q 2 What technology tools do you ask students to use to demonstrate their knowledge, comprehension and application of content learned?

I don't usually ask students to use technology for the low order thinking skills. However from time to time I ask students to use the computer to present a certain concept that I feel they can explain or outline the salient points. This could be done through presenting a word document. I often ask students to demonstrate their analytical skills and their evaluation skills more in the later stages of the unit.

Q3. How will you know that your students have met your objectives? What evidence, product, or end task do you require?

I often provide them with criteria or rubric and they often meet with this rubric and they know that they are required to meet with these rubrics. Students are asked to present power point presentations by comparing and contrasting , diagramming and creating or producing a written form at the end of the unit.

Q4. What are the advantages of integrating the computer in the class on improving learners' critical thinking?

Technology is very important in the classroom. It widens the scope of understanding of students. Technology also brings them rich content. It also engages students in class activities and most students become interested in the lessons given. Students in class are so interested there are no discipline problems which are very helpful for the teacher. Also when technology is integrated in the units, teachers often cover more than the traditional method of teaching. The teacher could be introduced to new things that students know. It is not intimidating but the contrary I find it educational rather than threatening.

Q 5 What are some problems you encounter with using technology in the classroom?

The most prevalent problems are in hardware. Access to the internet might be interrupted by power failure or absence of connecting. Time is not a problem but on the contrary the teacher often uses technology and finishes tasks more quickly. It saves time. Training is not existent and integration is often teacher initiative.

Teacher 3

Q 1 What criteria do you set when planning your objectives for every unit?

I often focus on critical thinking of Bloom's Taxonomy. This criteria however comes indirectly. I don't set them in front of me and also it depends on the lesson . Some lessons can't accommodate for higher order thinking skills so I use such lessons as background information for further lessons where I can use higher order thinking skills. .There is no order of using this taxonomy for sometimes I plan my lesson focusing on higher order thinking skills yet they have to be based on previous background.

Q 2 What technology tools do you ask students to use to demonstrate their knowledge, comprehension and application of content learned?

I use games which I find in language software. Often students or the library bring such games and consequently I look into these software and if I think they are appropriate for integration I go ahead and include them in the curriculum. However sometimes I might know of this software after I make my plan so I would keep it aside and try to use it later.

Q3. How will you know that your students have met your objectives? What evidence, product, or end task do you require?

I am pro student centered classes. Therefore upon introducing the lesson, I often pose questions that I expect learners to master by the end through the use of technology students are often encouraged to induce, deduce and evaluate and make assumptions that I expect of them. They sometimes use power point presentations, movie makers, concept maps, and diagramming to establish a certain relationship between characters in the same reading lessons or between

themes. However, because I feel I need to be slightly in control of the classroom, I often choose the best group that was able to give appropriate answers to the posed questions and they get to start first in their presentation.

Q4. What are the advantages of integrating the computer in the class on improving learners' critical thinking?

There are advantages for both teachers and students. On the teacher level, it facilitates teaching and through the abundant tools in technology, it saves time and physical energy . On the student level, technology tailors to all styles of learning. Visual learners find what engages them, oral learners could access the diverse oral sources in technology, tactile learners could create projects using the various graphic features of paint brush and others and since I encourage group work , learners who like to work in groups often give each other feedback .

Q 5 . What are some problems you encounter with using technology in the classroom?

I think that the problems that hinder my integration are mainly related to hardware issues like computer freeze, virus issues that are very difficult to solve in our school. Other issues could be software related. Sometime students prepare projects that are not compatible with the software found on our computers so they end up both working on the project and downloading the software so that they could present their work. This leads to time waste and this is probably due to the absence of computer experts in every building in school. Also , I don't receive constant training in the process of integration so sometimes I depend on my students expertise so I tell them, I am the language expert and you are the computer experts .

Appendix V

Class WebQuest



Let's Boycott Drinking and Driving

A Web Quest For High Schoolers
Created by: Miss Bizri



Introduction

You are on the most wanted list ! Your expertise in persuasion and knowledge of facts makes you the person for the mission. Here is your mission should you choose to accept it. There has been a number of incidents where 18 year olds have had a number of car accidents because of drinking.


Cont'd

- Consequently the minister of interior , the deputy in your district , and the mayor in your town need your help. They want you to head a campaign held by the three parties to sway teenagers from drinking and driving and to convince them of the dangers that lurk behind this practice.

Task


Since teenagers and 18 year olds prefer to see things , you need to be much more creative to convince your audience.

The approach will be effective on condition that you know what you are talking about. You are being paid to do the following:



Conf'd

- Become knowledgeable about drinking and driving and issues surrounding its use
- Design an information brochure that list myths and facts about drinking and driving
- Deliver a speech to an audience on the issue of drinking and driving
- Write a persuasive essay on the effects of ads on alcohol consumption



Process

A. Keep important notes on all activities done during this assignment including research, student questions, projects, addresses and important organizations

Continue Process

- B.** Get into groups of four students and go through the four phases
- i. **Phase one:** Gaining background knowledge
 - ii. **Phase two:** Design a brochure on myths and realities of drinking and driving .
 - iii. **Phase three:** Prepare a speech that you will present to a group of teenagers before end of school year party.
 - iv. **Phase four:** Write a persuasive letter on the effects of alcohol advertisements on teenagers' alcohol behavior.

Phase One

- Conduct research on drinking and driving and drinking and based on research done try to answer the following questions:
 1. *What disease are caused by drinking?*
 2. *What makes teenagers and 18 years olds drink?*
 3. *What keeps them drinking?*
 4. *What role does alcohol companies play in alcohol consumption?*
 5. *What percentage of students begin drinking?*
 6. *What programs are available to help people with drinking*

Continue Phase One

- While writing and taking down notes, brainstorm as a group on the points you want to put in you brochure and speech to convince the group.



Resources

- www.yaerd.org/under21.htm
- www.alcoholmd.com/you/driving/main.asp
- www.aap.org/advocacy/chm98dnd.htm
- www.Chp.edu/besafe/adult/02drinkdrive.php
- www.focusas.com/alcohol.html
- www.cspinet.org/booze/collfact1.htm
- www.hwysafety.org/safety_facts/qanda/underage.htm





Phase Two

- Lots of students hear from their peers about drinking and its effects on driving. Therefore you are to design a brochure that carries in it the myths and realities about drinking and driving.
- Select the myths that are mostly circulated among teenagers and reveal the truths in some creative way
- Put them together in the worksheet provided to help you later write your brochure
- Use Word Publisher to publish your brochure in a logical order that will be very revealing and convincing.



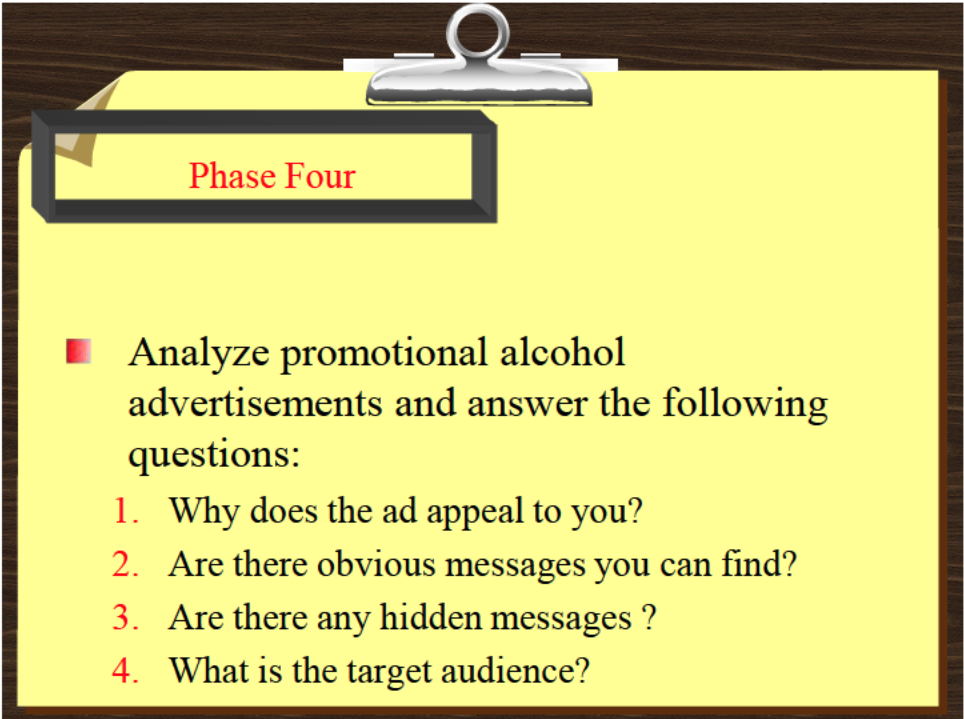
Resources

- www.epnnfieldk12.mi.us/sadd/drinking_and_driving.htm
- www.Ereleases.com/pr/2001-12-21e.html
- www.factsontap.org/collexp/myths.htm
- www.Pbs.org/justone/just04.htm



Phase Three

- After conducting your research in both phase one and phase two begin to work on your speech .
- Make sure you include all the necessary research to make your audience's ears stand up.



Phase Four

- Analyze promotional alcohol advertisements and answer the following questions:
 1. Why does the ad appeal to you?
 2. Are there obvious messages you can find?
 3. Are there any hidden messages ?
 4. What is the target audience?

Continue Phase Four

- Conduct further research on the effects of ads on teenage drinking behavior .
- Write your final product as a persuasive letter to a teen friend of yours whom you think might be on the threshold of committing to drinking and the behavior that comes with it.

Resources

- www.foxnews.com/story/0,2933,120514,00.html
- www.nyu.edu/clases/keefer/joke/bolde.html
- www.aap.org/adweary/chm98fac.htm
- www.camy.org/factsheets/index.php?factsheetID=1
- www.aphru.ac.nz/projects/alcohol/advertising.htm#children



A graphic of a yellow notepad with a silver clip at the top, set against a dark wood-grain background. The word "Evaluation" is written in a black serif font on a white rectangular label at the top of the notepad.

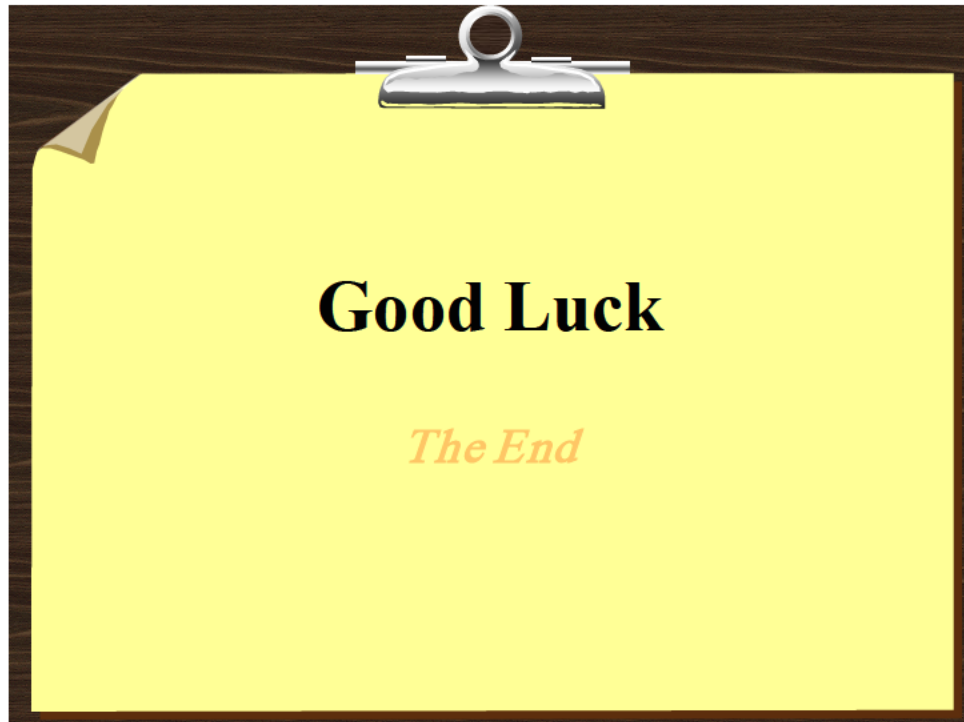
Evaluation

- [Rubrics for Brochure](#)
- [Rubrics for speech](#)
- [Rubrics for letter writing](#)

A graphic of a yellow notepad with a silver clip at the top, set against a dark wood-grain background. The word "Conclusion" is written in a black serif font on a white rectangular label at the top of the notepad.

Conclusion

- ✿ Through this web-quest you should have a better comprehension of the dangers that drinking and driving can cause not only to teenagers but at any age.
- ✿ Surely you have acquired some substantial information about this issue that you did not know before.
- ✿ I hope that by the end of the web-quest you have become aware of the issues related to drinking and driving.



Good Luck

The End

Appendix V-a

Rubrics for Brochure

Teacher's Name: _____

Student's Name: _____

Category	4	3	2	1
Required Elements	The brochure includes all required elements as well as additional information	All required elements are included	All but one of the required elements are included in the brochure	Several required elements are not there
Grammar	There are no grammatical mistakes in the brochure	There is one grammatical error	There are two grammatical mistakes	There are more than 2 grammatical mistakes
Graphics-Relevance	All graphics are related to the topic and make it easier for the reader to understand. Citation is available	All graphics are related to the topic and most make it easier to understand. . All borrowed graphics are cited	All graphic relate to the topic. Most borrowed graphics have a source	Graphics do not relate to the topic Or several borrowed graphics do not have a source
Creativity	Several graphics reflect high degree of students creativity in their creation and display	One or two of the graphics reflect students creativity in their creation and display	The graphics are made by the student but are based on the designs of others	No graphics were made by the student.
Attractiveness	Exceptionally attractive in design, layout and neatness	The brochure is attractive in terms of design, layout, and neatness	The brochure is acceptably attractive though it may need some work on neatness	The brochure is messy, and very poorly designed. It is not attractive

Total Number of points 35%

Rubrics for Speech

Appendix V-b

Rubrics for Speech

Teacher's Name: _____

Student's Name: _____

Individual Grade:	4	3	2	1
Content & Organization of Speech	Starts with a very catchy anecdote and states the purpose of the speech with a clearly stated thesis. There is a smooth transition from one idea to another. The ending leaves the listener wondering.	Start with a catchy anecdote states the purpose of the speech with a clear thesis. There is smooth transition from one idea to the other but there is not enough support.	Starts with a general statement but lacks interest. There is a brief thesis statement. There is smooth transition from one idea to the other. The conclusion is two sentences.	Short introduction with no thesis statement. No supporting details to the argument and a sudden ending
Voice Projection	Speaks clearly and distinctly all the time with no mispronounced words	Speaks clearly and distinctly but mispronounces one word.	Speaks clearly and distinctly most of the time. Mispronounces more than one word.	Often mumbles or can't be understood. Mispronounces more than three key words.
Posture and eye contact	Stands up straight and looks relaxed and sure of oneself. There is eye contact with all those in the class	Stands up straight. Establishes eye contact with every one in the classroom	Sometimes stands up and looks straight and establishes eye contact	Slouches and often bends or rocks. Does not look at people during the speech

Total number of points 20%

Appendix V-c

Rubrics for Argumentative Essay

Rubrics for Writing

Teacher's Name: _____

Student's Name: _____

Category	4=Exceeds the Standard	3=Meets the Standard	2=Partially Meets the Standard	1=Does not meet the standard	Score
Quality of information	The argument is clearly expressed and the writer has given his opinion and provided very good support	The argument is expressed and the writer has supported most of his opinions with 2 sentences about each	The argument is expressed, but the writer does not support his stand	Work is incomplete and there is lack of depth in support	
Content	Information is very well organized with well constructed paragraphs.	Information is organized with well constructed paragraphs	Information is organized, but paragraphs are not well constructed	The information appears to be disorganized	
Grammar and spelling	No mistakes	Almost no mistakes	Few grammar or spelling errors	Grammatical errors and spelling mistakes	

Total number of points 45%

Appendix VI

Wiki World Wide Web Address

www.wikispaces.summer-at-rhhs.com