COMPUTER-BASED LANGUAGE LEARNING MATERIALS AND LEARNER AUTONOMY: CLASSROOM PERSPECTIVE. A CASE STUDY OF KISII HIGH SCHOOL IN KENYA

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ABSTRACT

There are arguments by scholars for and against using computer assisted language learning (CALL) to enhance learner autonomy. This dissertation aims to investigate the role of computer assisted language learning in enhancing learner autonomy by reviewing the existing literature and undertaking a small scale case study at Kisii high school, Kenya. Teachers' and students' opinions on the use of computer based language learning materials for enhancement of learner autonomy were sought by the use of questionnaires. The study is significant because it will guide policy makers on the role of computers to learning; it will also contribute knowledge for study and reference and will help by making school managers and teachers to appreciate its role in the learning and training. A thirteen-question survey for students from Form one to Four of secondary level and an eleven-question survey for English language teachers investigated their opinions towards using computer based language learning materials to enhance learner autonomy. The learners viewed computer based language learning materials as useful in learning English language and enhancing their autonomy. Teachers acknowledged the importance of CALL but are not sure of how it would enhance learner autonomy. There was some agreement between the two groups that the use of computer and training in learner autonomy is crucial to supplement the teachers' efforts in class. This has implications for teacher training in the use of computer resources and learner training in both computer use and autonomy

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KEYWORDS: Computer Assisted Language, Learner Taxonomy, Computer Learning, Learning Material, Teachers' Role and Computer knowledge.

INTRODUCTION

English in the Kenya Schools' Curriculum

Learning English in Kenya is compulsory for all school going children and it is the medium of instruction in schools. It is given the largest number of teaching hours on the school timetable. For secondary schools (year 12-19) the number of lessons for English per a week (five days) is six for Forms one and two and eight for Forms three and four. This means that each day English is taught for an average of one hour twenty minutes. This is so because it is assumed to have the widest scope of coverage in terms of content. Despite this time allocated, the performance in English has been wanting in the Kenya certificate of secondary education (KCSE). This calls for urgent need to review the teaching methodology and this is what this dissertation is trying to attend to by focusing on a learner-centred classroom rather than a teacher-centred. This might address the situation where the learners practice English in the presence of the teacher and discard it in his/her presence.

The English curriculum is referred to as integrated English in which literature and language are combined. This is so because of the importance of communicative competence in the teaching of language, use of authentic materials, motivating the learners, and cultural awareness. This curriculum is designed by the Kenya Institute of Education and the examinations are set, moderated, and administered by the Kenya National Examinations Council (KNEC). In the curriculum, English, mathematics and Kiswahili are compulsory. The score in any of these subjects has an effect on the overall grade of the student. If the learner performs well in these areas, then the overall grade will be good but if there is a failure in any of these three compulsory subjects, then the grade will be lower. Kiswahili being a local language has been performed fairly well but English as a second language/foreign language is performed poorly and it is a concern to the education authorities. The performance in English becomes a serious issue because most of the university courses require a good grade in English for admission. This applies to universities locally and internationally where the Kenyan students would want to do their studies. For example seeking admission to UK or US universities require a good grade in English and good band in International English Testing System (IELTS) and TOEFL respectively.

Computer Assisted Language Learning in Kenya

Computer assisted language learning and learner autonomy in Kenya is a new concept. The way of teaching remains the traditional approach between the teacher and the learner. The teacher is assumed to know it all and if he has not presented anything to be learned then probably there is nothing to be learned. Computers have not been used for the teaching of English as they are not wide spread in my country. The reasons for this includes underdeveloped infrastructure more especially, electricity for powering the computers, lack of and huge cost of internet connection. A few schools now have computers for teaching computer literacy and school administrative matters like record keeping. Very few are aware that computers may be used as tools for teaching English. The institution where this research is taking place could be among the pioneer institutions for this purpose. The school has a reasonable number of computers and it has internet connection.

Computer Facilities That Support Learner Autonomy

Warschauer et al (1996:1) say that a major development in computer-assisted language learning has been the expanded use of the computer as a medium of communication. This, in turn, allows for computer learning networks of students within a class or across classrooms who share information and hold electronic discussions, documents, collaborative writing and organize cross-cultural exchanges. Proponents of computer learning networks claim that they are an excellent tool for fostering new social relations in the classroom, resulting in greater student empowerment. In student empowerment the teacher plays a limited role in the student learning which relieves the teacher from the many roles that he has traditionally played in the learning process.

Reinders H. and N. La zaro 2007:119 give a report by CaballoRodri'guez and Ruiz Madrid on multimedia system of interactive Autonomous Language learning, developed by and implemented at a consortium of tertiary institutions, that aims to promote learner autonomy, it analyses students profiles through a range of tests... and a learning style test that mediates the students, access to the materials and activities. An important objective of developing a learning profile is to encourage selfreflection on the part of the students and on their preferred ways of learning. Completing the profile gives students access to a range of learning materials and activities that together form different path ways. in tune with the student preference. The computer prompts students to set learning objectives and plan their learning, encourages strategic learning, and gives opportunities for self-access.

Teachers' Role in CALL and Learner Autonomy

Teachers have a special role to play in CALL and learner autonomy. There are some areas of language that can not be acquired autonomously for example writing and reading. They need to be taught to the learner before the learner is set free to practice autonomously. Learner autonomy will succeed if the teacher is well prepared and understand his/her role. Their knowledge on learner autonomy and computer technology may determine the degree of success that they will encounter as they prepare to teach using technology. They need preparation and updating of their knowledge as technologies keep on changing. The development of learner autonomy will depend on the initiatives the teacher takes. In this process the teacher and the learners should interpret the syllabus jointly and in the process the learner will understand what is expected of him/her in the learning process. The teachers' role should change from purveyor as it is traditionally to counsellor and manager of learning resources (Healey, 1999: 44).

At the lowest level of independence a learner might be willing and able to work unsupervised but in every other respect be dependent on a teacher or advisor for direction (Sheerin, 1997:58). This confirms what is mentioned elsewhere in this dissertation that learners will never have complete autonomy in their learning process. The teachers have specific roles of identifying relevant materials on the target language, counsel the learners on their learning, and play the role of scaffolding and mediation. The teacher can also organize group work to enhance collaborative learning and link the learners with native speakers of the language. Learners in their independent learning need preparation and support on the path towards greater autonomy by the teacher. The support could be in the form of evaluation, reanalysing their needs and setting further objectives (Sheering, 1997). The teacher's role in teaching language is compounded by the fact that language is a tool for personal development. In this respect (Warschauer, 2002:457) points out that flexible, autonomous lifelong learning is essential to success in the age of information technology.

PURPOSE OF THE STUDY

This being the case, the purpose of study is to investigate if technology use would enhance learner autonomy in an African context especially Kenya. It will investigate secondary school students' and the teachers' attitude towards the use of computers and the enhancement of learner autonomy, (Levy, 1997).

LIMITATIONS OF THE STUDY

The study is limited to Kisii School and as such generalization might not be possible. It was also limited to students who had access to computer assisted learning

MATERIALS AND METHODS

Research Design

A descriptive research was used for the study. The design was used because it's the best when the research questions are used. The major purpose of descriptive research is the description of the state of affairs that exists at the present, Kothari (1990). The advantage of descriptive research design is that it helps current effects as they affect people or organizations that it has attempt to control events as it is based in events on their natural state.

Data Collection Instrument

The researcher used questionnaires to collect data. The questionnaires were used because they were faster, less costly and cover a wide area of sample frame. The questionnaires were issued by hand delivery to respondents to cut down postage costs and save time for data collection. Unstructured questionnaires were used to allow the respondents to explain themselves as they wish. The questionnaires were administered by the researcher to ensure a higher rate of return and response.

VALIDITY AND RELIABILITY OF RESEARCH INSTRUMENT Validity

Best and Khan (1992) describe validity of research instruments as the degree to which it measures what is intended by the researcher. This is judgment made better by a team of professional experts in a particular field Mugenda and Mugenda (1999) and Cohen (1998). The instruments were presented to my college supervisor who examined the content of the instrument and made necessary corrections.

Reliability

Mugenda and Mugenda (1990) describe reliability of research instruments as the measure of the degree to which a research instrument yields results after repeated trials. The researcher piloted the study instruments on the non-sampled members of the population to assess the reliability of the instruments after a period of two weeks. The researcher went to collect the filled questionnaires.

Rationale for the Methodology

The questionnaires were found ideal in this study due to time constraint, distance and financial resources. They are recommended since the researcher can collect huge data in a short period of time, they offer some cost benefits, save the researcher time, effort and, financial resources (Dornyei, 2003:9). Dornyei cautions that although they are fairly effective, if not well constructed they can produce less reliable data or valid. This is the reason as to why the researcher of this study had to do a pilot study with the first questionnaire given to students and confirm a few other emerging issues in the second questionnaire. Dornyei (2003) advises that the questions on the questionnaire need to be simple and straight forward to be understood by everybody. This may affect their

reliability as they do not give room for in-depth investigation of an issue.

RESULTS AND DISCUSSION Computer Literacy Level

The study found out that all the 51 participants reported being computer literate but of varied levels. The following two tables indicate their computer literacy level and the purpose of computer use.

Table 1: Computer Literacy Level Source: Field Data 2011

Computer literacy Level Total Percentage Respondents Advanced 09 17.64 Intermediate/average 37 72.54 Beginner 05 9.8 Never touched 00 **Total respondents** 51

From the table 72% of the respondents had intermediate level, while 17% had advanced level with only 9% being beginners

Table 2; Purpose for computer use

| Purpose | Total | percentage |
|--------------------|-------|------------|
| Word processing | 38 | 74.5 |
| Spread sheet excel | 30 | 58.8 |
| Writing emails | 38 | 74.5 |
| Browsing internet | 41 | 80.3 |
| Playing games | 34 | 66.6 |
| Studving | 41 | 80.3 |

Source: Field Data 2011

From the above tables it is notable that they rate themselves differently in their computer literacy level. This is important as computer knowledge was the basic tenet on which this study was based. Their understanding of computer use is important since they are meant to learn through it without the teachers' perpetual presence. In the absence of the teacher they are expected to explore the internet, write emails to friend to enhance their writing skills and browse various sites which offer English language teaching materials like the BBC and the British Council. It is also encouraging to note that the learners are able to do very many activities with the computer ranging from the basic word processing to internet browsing. 80.3% reported browsing the internet and studying as the main activities they do with the internet. 74.5 % use the computer for writing emails and word processing, which are beneficial language learning activities.

From the study it's noted that almost all the respondents think the computer can be a good tool for teaching English and they could prefer it to using text books. 98.3% are of the opinion that the computer can be used in the teaching of English while 94.1% prefer computers to text books for this purpose. The tables below indicate their specific responses.

Table 3: Computers for Teaching English

| Response | Total | Percentage |
|-------------------|-------|------------|
| Yes | 50 | 98.3 |
| No | 01 | 1.09 |
| Do not know | 00 | 00 |
| Total respondents | 51 | |

Source: Field Data, 2011

Table 4: Computer Preference to Text Books

| Response | Total | Percentage |
|----------|-------|------------|
| Yes | 48 | 94.11 |
| No | 02 | 3.92 |
| Not sure | 01 | 1.96 |
| Total | 51 | |

Source: Field Data 2011

Table 5: Activities for Learning English

| Activity | Total | Percentage |
|----------------------------|-------|------------|
| Reading materials | 31 | 60.78 |
| Listening materials | 27 | 52.94 |
| Feedback of learning tasks | 30 | 58.82 |
| Interactive activities | 29 | 56.86 |
| Correct grammar | 32 | 62.74 |
| Visual materials | 38 | 74.50 |
| Correct spellings | 33 | 64.70 |

Source: Field Data 2011

From the above activities learners are aware of what they think the computer may be able to offer in the teaching of English. They think it can correct spellings, correct grammar mistakes and access many reading materials with the computer use. These are some of the basic skills taught in language and with the students discovering these activities; it means they may study more on their own. However, it does not mean that they can do away completely with the text books as they have been designed and approved by the curriculum development body, i.e. Kenya institute of education. The books could be used as a guide as they discover more in the internet and use the computer for more learning activities.

The secondary school curriculum requires the learners to have a good level of the four skills of language learning. It is upon this principle that the text books approved by the Kenya institute of education have the four skills of language (reading, listening, writing and speaking) on every chapter to be taught in a week. This means that the six or eight lessons of English for Forms 1and2, 3 and 4 respectively per week should be apportioned for these areas of language learning. The text books will remain a guide of what is expected of them as they search for more information on the internet and use any other computer based language learning material. Software like hot potatoes may be used to create interactive exercises so that the learners can get instant feed back on learning tasks they are doing on their own. This would make it possible to keep on with language practice unlike where they try an exercise and get stuck and wait for the teacher to give the feed back. However, we may not be sure for how long the interest on the use of computer could be

sustained. There is a possibility of the learners preferring it for now as it is a new teaching tool but as time goes by they might be bored with it or treat it just like the text books.

Forty-nine respondents use internet for a number of reasons. The following list indicates what the learners do with the internet from the highest to the lowest as they indicated in their response to the open question on what they do with the internet. They do; emailing, chatting, browsing different websites, reading news online, reading educational materials, seeking information on their class/school projects, researching, listening to music, playing games, and, getting information on science facts more especially those not clear with the teacher' presentation.

Forty-six respondents think that the above uses of internet help them to learn English but five are not sure. 90% of the students believe that these activities are helpful in the learning of English. These are indicators that learners may embrace learner autonomy with the computer knowledge they already have. The above list indicates that the students are aware of what the computer can offer in the teaching of English but they need guidance in order to locate the relevant materials related to general learning and the stipulated English curriculum.

Forty-six of the respondents regarded computer use as motivating for independent learning, while five felt that it is not motivating. In this question on motivation they made comments in favour of motivation and against. Those who think computers could motivate them to learn on their own stated that computers give them some degree of control and they could pursue what they want to learn at their own pace and their own way. They praised the internet by saying that with the internet you are connected with the world and email communication has made them have friends all over the world, more especially English speaking countries. They learn a lot out of exchanging e-mails. The learners said that with the internet they do not need to be carrying books and dictionaries around. They get all that they need for their learning from the internet. They may check the online dictionaries on any word they are not sure of and Microsoft Word program can correct spelling and grammar mistakes as they write. Other respondents have said that with the computer they could learn and entertain themselves at the same time. This makes learning enjoyable and motivating.

However, five respondents are not sure whether the computer can be helpful in their learning. These learners did not indicate much on the kind of activities they do with the computer. Their responses were generally limited to writing e-mails and downloading music which they view as entertainment only but not for language learning. In carrying out this study two groups of student emerged; those with fairy good knowledge on computer and those with

limited knowledge. In contrast between the groups those with good computer literacy level may make a better use of computer based learning materials than those with limited computer knowledge. This implies that learners require a basic training on computer literacy before they are introduced to computer based language learning materials. It is through this knowledge that they might be able to navigate through the computer and internet for their language learning needs.

Frequency of Computer Use

Table 6: frequency for Computer use

| Frequency | Respondents | Percentage |
|-----------------------|-------------|------------|
| Once | 01 | 2.70 |
| 2 or 3 times | 27 | 72.97 |
| More than three times | 09 | 24.32 |
| Total | 37 | |

From the above table it is notable that about 96% of the participants visit the computer more than twice a week to use it for various reasons. This may indicate that they have some interest to work with the computer but they may need some guide on what to do with it to benefit in their language learning. The following questions establish the time they spend, what they do and how the activities are related to language learning.

Time Spend on the Computers

Table 7: Time spent in computer room.

| Time | Frequency | Percentage |
|-----------------|-----------|------------|
| Less than1 hour | 06 | 16.21 |
| 1-2 hours | 26 | 70.27 |
| Above two hours | 05 | 13.51 |
| Total | 37 | |

Source: Field Data 2011

The results indicate that about 84 % of the participants spend more than one hour with the computer per a visit. It is noted that those that spend less one hour are form twos who are yet to know more about the computer use. During this visit most of them indicated that they browse the internet, write and emails, type their class essays, do the computer project by the examinations council, research on useful academic topics, search for revision materials, do practise on what has been learned in class, and play computer games. Are these activities useful for the learning of English? The following question responds to this?

The Usefulness of the Computer for Learning of English

Table 8: Computer usefulness in Learning English

| Response | Frequency | Percentage |
|-------------------|-----------|------------|
| Very useful | 22 | 59.45 |
| Useful | 11 | 29.72 |
| Not very useful | 03 | 08.10 |
| Not useful at all | 00 | 00 |
| I do not know | 01 | 2.70 |
| Total | 37 | |

Source: Field Data

The results indicates that they are of the opinion that computer is useful for the purpose of learning English as 89% gauge it as either useful or very useful. They supported this response by giving various reasons to the open question that asked them to support their views. These reasons include the use of online dictionary: the correcting of spellings though the computer might not give the correct word if it has other words which are closely related in spelling. They also benefit from the dictionary software that gives the pronunciation of words and different usages of the words. Learners also check some relevant reading material on the internet and read commentaries or guide notes of their literature set books like The Merchant of Venice by Shakespeare which was their literature set book at the time of this study.

Other benefits include: reading poems on the internet and listening to English lyrics: exchanging emails and blogs with their friends as a way of communication between them and their friends within the country and other countries: researching and searching the internet to accomplish assignments given in class, for example literature assignments: reading journals and magazines on the internet: They read sample resumes/curriculum vitae, recommendation letters which boost their writing skills. Other participants indicated that they participate in essay writing competitions with other interested learners globally and they read speeches of prominent personalities in the world. This helps them with learning speaking skills and writing speeches. One reports that with email writing English learning has become practical. The Microsoft thesaurus is also helpful in their learning of English. This summarises what the learners find useful with the computer and what they read in English on the internet.

From the above analysis the learners are realising that there is some use of the computer in their language learning process. It turns out that almost all of them have learned something from the computer even though it has not been coordinated as class work. Due to this, they have indicated different levels of learning from the computer depending on how much they have discovered on their own. It could be necessary for the teachers to find out how much the students know from computer use so that they may program some structured learning.

Teachers' Responses

Fourteen teachers participated in this study and their responses are interesting and fairly contradictory of the learners'. While the learners feel that computers can enhance learner autonomy, the teacher express uncertainties but agree on the importance of using computer in the teaching of English. Some teacher participants are not computer literate and this explains why they are not sure if computer based language learning material can boost learner

autonomy. They may need some training on computer literacy and be introduced to the role of the computer as a teaching tool. In this training they would be introduced to the internet resources that could be useful in teaching of English.

The study noted that teachers' computer literacy stood at 57.2 % while 42.8% were found not to be computer literate. Those literate use the computer in typing examinations, keeping student records, down loading teaching materials, grading and analysing student performance, and, teaching materials to supplement the class textbook. 14.28% are aware of internet resources for teaching English while 85.71% are not aware. They claim that computers are new machines for them and not many teachers have knowledge of their potential and use. 35% have had a chance to use computer or some form of ICT to teach English. One stated that he/she downloads sample materials like curriculum vitae, official and recommendation letters, encyclopaedia and uses the internet for reference during lesson preparation. This indicated their limited knowledge of internet resources like the English programs that can be used for listening skills, the corpus, hot potatoes and webquests. An introduction to these facilities could assist them in their teaching.

On learner autonomy, 57% think that computer based language learning materials can promote learner autonomy, 28% are not sure, while 14% think it can not. They gave varied reasons to backup their opinions. Those who think it may support learner autonomy gave reasons such as; it saves time, it has many reference materials, learners can use computers to do assignments, research on topics to be covered in advance or study more after class, it gives immediate information and feedback, it is good for research and information analysis, students will have more time to research on their own and it may store a lot of information to be revised later. Those who felt that computers may not support learner autonomy gave reasons like students could spend too much valuable time on playing computer games not related to language learning, hence, they need instructor/teacher to guide them. This could be associated with the respondent's interpretation of learner autonomy. These respondents think that learner autonomy mean teachers completely out of the learning process which is contrary to the definition of autonomy in learner centred classroom. This form of autonomy is one that recognizes and embraces the role of the teacher but advocates for more responsibility being passed to the learners. Teachers would spend more time in preparing their work, identifying relevant learning sites and materials, and monitoring the learners' progress.

Teachers asked on their role in learner autonomy with CALL, indicated very significant roles to the extent of showing that they are not ready to let it go. Even those that are supporting learner autonomy still have indicated so much to do which learners may do on their own. This is understandable since the concepts of learner autonomy and computer assisted language learning are new to them. Some of the roles the teachers indicated include; giving out more practice exercises, mark and analyse the capability of students through their research from the internet, coordination and facilitation of the curriculum, giving learners tasks and check if they are following internet directions and computer commands, guide the learners to relevant sites, providing them with equipment they need like hardware and software. Most of the listed are significant roles of teachers but there are some that learners can do on their own. For example learners can get feed back on some computer exercises like hot potatoes exercises which mean teachers do not have to mark them.

On enhancing student performance in examination, teachers also gave divergent views. 50% are of the opinion that computer based language learning materials can enhance student performance in examinations, 7.14% do not think so, while 42.85% are not sure. This opinion links closely with the percentage of teachers that are computer literate as indicated at the beginning of this section. This will almost be the same in the question finding out the use of specific computer based material. The teachers that are not computer literate have only taken the response of not being sure. Those that think that examination performance would be improved have mentioned reasons like the studies being student centred, computer offering detailed reference and information and they can give immediate feedback unlike textbooks. They also add that students can visit the stored information for revision and online materials several times to master the concepts which might be beneficial for their exams. The students may have a good command of the language because of exposure to good language models over the internet. This would enhance their performance in listening and speaking sections of the examinations. Teachers with limited computer and internet experience have little to say on this issue because they have never tried it since they might not be aware of the enormous internet resources for teaching English.

For training on writing skills, the teachers had to give their opinion if they would allow their learners write emails and blogs. 50% said yes, 7.1 % said no while 42.85% are not sure. This again confirms their position and level of computer literacy. For those who would allow the learners to engage in blog and email writing feel that it could improve their writing skills and the learners might access other learning materials from the internet and friends. Writing of blog and e-mails makes it real communication than when students are doing imaginative writing. They also reported that this will enable the learners to exchange ideas in writing as this would improve their written language. The others have expressed fears that they would not be sure of what the students

would be writing in those emails. They could be doing what is not related to the curriculum and their examinations. This indicates how much the teacher would want to keep an eye on what the learners are doing. On internet use to teach English also mixed results were recorded. While 36% think that it can be useful. 26% think otherwise and 36% are not sure. They said that it can be useful because it is the modern way of getting exact information including the most current updates. It is bound not to be region specific in curriculum development which means the learners can get more information for general knowledge besides curriculum requirements. The others think that it can not unless the users are taught computer skills and they express fear that not many schools can afford the huge costs that go with internet connections. purchase of computers electrification. They think that the text books are serving the purpose adequately. Besides the cost of technology installation and teacher training, none is sure of the benefits of computer language learning materials over the ordinary textbooks.

CONCLUSION

The study has shown that computer based language materials have a potential of encouraging learner autonomy. It stands out clearly that the benefits of computer in teaching English are not theoretical but practical and fairly enriching to the learners and relieving the teacher of unnecessary work which the students can do on their own.

REFERENCES

Agota, S and A. Szabo (2000). Learner autonomy.A guide to developing learner responsibility. Penny Ur senior (ed). Cambridge: Cambridge university press.

Arnold, N. (2007). Reducing foreign language communication apprehension with computer-mediated communication: A preliminary study. System (35): 469-486.

Barnett, L. (1993). Teachers off Computer Technology Guidance and Self Access. System 21 (3): 295-304)

Beatty, K. (2003). Teaching and Researching Computer-Assisted Language Learning. London: Pearson Education.

Benson, P. (2006). Autonomy in language Teaching and Learning.Language teaching 40 (1) 21-40. Cambridge University Press.

Blin, F. (2004).CALL and the Development of Learner Autonomy: Towards an Activity-Theoretical Perspective. ReCALL 16 (2): 377-395.

Chapelle, C.A (2004). Technology and Second Language Learning: Expanding Methods and Agendas. System 32 (2004): 593-601.

Crabbe, D. (1993). Fostering Autonomy From Within The Classroom: The Teacher's Responsibility. System 21 (4):443-452.

Dornyei, Z. (2007). Research Methods in Applied Linguistics. Oxford. Oxford University Press

Dudeney, G. and N.Hockly, (2007). How to teach English with Technology. Harlow:Pearson/Longman.

Felix, U. (2008). The unreasonable effectiveness of CALL: What have we learned in two decades of research? ReCALL 20 (2): 141-161.

Figura, K. and H. Jarvis, (2007). Computer-Based Materials: A Study of Learner Autonomy and Strategies. System 35 (2007): 448-468.

Frey, C. (1977). 'A method To Study the Effects of Media in The Classroom' in T. Bates and J. Robinson (eds) Evaluating Education Television and Radio. Dorset: The Open University Press.

Gulbahar, Y. (2007). Technology Planning: A Road Map to Successful Technology Integration in Schools. Elsevier. Computer and education 49:943-956.

Holec, H. (1981). Autonomy and Foreign Language Learning. Oxford: Pergamon Press.

Kessler, G. (2007). Formal and Informal CALL Preparation and Teacher Attitude toward Technology. Computer assisted language learning vol. 20 (2):173-188.

Lantolf, J.P and Appel, G. (1994). 'Theoretical Framework: An Introduction to Vgostskian Perspective on Second Language Research' in Lantolf and G. Appel, (eds) Vygotskian Approaches to Second Language Research. New Jersey. Ablex Publishing Corporation.