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COMPUTERS AND THEIR ROLE FOR THE TEACHING/ LEARNING OF LANGUAGES

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1.INTRODUCTION

It is our aim to evaluate in this paper how and to what extent computers can aid language learning. We will discuss central questions such as role of computers in promoting accuracy and fluency, possibilities computers offer for collaborative learning and principles according to which computer assisted language learning materials should be designed.

We will also refer to the results of our study undertaken in the ´Modern Languages Teaching Center´ at Sheffield University in which we had the opportunity to observe a group of students working with computer assisted language learning materials. Following these results we will suggest in what areas further research is needed .

2 .THE COMPUTER AS A LEARNING/TEACHING AID

We will consider now what may be the role of the computer in some of the programs that have been developed within different frameworks or approaches.

2.1. GRAMMAR BASED APPROACHES

In the first place we can distinguish grammar based approaches to language teaching which emphasise above all the conscious understanding of grammatical rules. Computer assisted language learning programs within this approach normally consist of various grammar and vocabulary drills in which students have to select the most suitable word to fill a gap in a given sentence. Schaeffer (1981:134) gives the following example of such kind of structural drill taken from a German program in which students are required to provide the correct form of the verb ´haben´ (perfect of the verb ´to have´) and its corresponding past participle:

· Wir……………….den Mann………………….. (suchen)

The main disadvantage of these kind of exercises is that they give students practice on sentences of the language which are totally unrelated to one another and in which the context does not go beyond that of each sentence. There is no communication in real sense.

2.2 FUNCTIONAL BASED APPROACHES

Over the last twenty years there has been a change of interest towards communicative aspects of the language. Evelyn and Olivier (1987) explore computer assisted language learning projects and point out how from programs focusing on drills and grammar, we move towards materials aiming to promote communication.

Within this line of research we find computer programs which are based on the assumption that communication can be regarded as a set of notions and functions such as asking for information, socialising, getting things done etc) which can be practised at various levels in different daily life situations . It is within this approach that some of the programs that we analysed in our study are devised. We believe that programs on this line represent a clear step forward in order to promote communication.

In the program *Learning to Speak Spanish* for example students are presented with different screens in which they listen to different speakers by means of interactive video. Learners not only see the characters talk but they also have access to the various visual clues (facial expressions, gestures etc) present in normal face to face conversation. This not only facilitates comprehension, but in so far as body language varies from culture to culture provides a means of acquiring an aspect of sociocultural competence.

In the communicative skills section students are prompted to produce an answer based on a particular situation. The answers students give may be varied as far as the selection of some vocabulary items as well as some word order patterns are concerned. For example, the computer may set students the following task:

• Situation: a member of staff in the airport asks you where do you prefer to sit in your flight. You have to tell him that you prefer to be seated next to the window in the non-smoking area. You

say………………………………………………….

Me quiero sentar junto a la ventana en la parte de no fumadores or

Quiero sentarme junto a la ventana en la parte de no fumadores.

The peculiarity that most called our attention however was the cutural information window in which some very useful tips were given to the students telling them about some traditional aspects of Spanish life, way in which to address people, Spanish way of thinking and so on. As an example of the last aspect mentioned, it was explained to students that Spanish people are very much family oriented and it is considered polite when meeting somebody to start the conversation asking about how different members of the family are doing.

Other programs we studied such as *Spanish at Home and Spanish Dialogues* present different speech acts such as apologies, requests and so on integrated within the context of real life conversations. The students first listen to a dialogue they choose from a main menu and then they are given the opportunity to participate in the dialogue they have just listened to by taking the role of one of the characters and recording their responses so as to hear them back in comparison with a model answer.

The strength of these programs is that although the students are interacting with the computer in a more or less controlled environment, the programs create the impression of real communication. The programs also offer students the possibility to practise the language at the same time that a combination of skills is provided. Students can talk and listen.

The main disadvantage of these programs is that they cannot recognise students´ answers that do not match the ones the programs allow for, therefore they may limit their creativity in order to use the new learnt knowledge in other contexts.

As a result of this limitation artificial intelligence programs able to process unexpected student input as well as to take into account some pragmatic parameters are being devised (Renie & Chanier 1995). In a study Lelouche (1991) describes one such system ´Pileface´ able to process natural language and which aids students in the acquisition of certain formulas of address in French taking into account the degree of familiarity between speakers, status of the interlocutors and context in which the interaction takes place.

2.3. COLLABORATIVE APPROACH

A communicative theory of learning emphasising the role of language as a socially constructed tool gives way to other important mode of communication: communication around the computer.

It is often said that one of the main advantages of computers in language learning is that they make it possible to individualise the teaching-learning process. However, the learner working alone is seen as isolated and deprived of the many advantages that working with other peers around the computer may offer. In

cooperative groups students have the opportunity to discuss and learn with understanding. Students may correct errors among themselves in a more successful way than when they are pointed out by the teacher at the time that the input they negotiate becomes more memorable (Pennington 1991).

The patterns of group interaction that this approach may present are very varied: students may use the computer as a source of information in order to help them interact (deciding which path to choose, trying to solve a problem, doing a cloze task and so on).

The role of the teacher in this kind of environment may appear at first reduced, however it is nothing of the kind. The success or failure of a particular task may depend upon the groupings of students the teacher organises (O´Malley 1992). Other important roles that the teacher may perform in this kind of environment are ´task setter´ and ´counseller´. This view of learning encourages a gradual development of pupil autonomy.

3. MATERIALS DESIGN

We have just seen different roles the computer may have within different approaches. We will turn now to consider how computer assisted language learning materials should be designed.

To gain an understanding of how particular computer assisted language learning materials can be used most effectively to facilitate the second language acquisition process it is necessary to ask questions about lesson features, learner characteristics and learning processes.

A) LESSON FEATURES

Language teaching approach

We may distinguish here two main approaches concerning the design of computer assisted language learning materials: inductive and deductive approaches. The programs described under the functional approach to language teaching would fall under the inductive approach. This approach focuses upon multiple exposures of a given item under different contexts. At the same time students are exposed to carefully managed input to ensure that the forms they meet are not too complex for their level.

This approach to designing materials however is not without problems, since its reliance on induction may create for some learners too great a cognitive load. This is the main reason why many tutorial programs based on explicit approaches to language learning are still being produced. Some examples would be the programs *Spanish Syntax I* and *Spanish Pronunciation Guide*.

In a *Spanish Syntax I* a hypertext (non-linear text linked with cross-references) illustrates various tree diagrams in which different functions (Subject, Object, Verb etc) are indicated by means of labels with different colours. Students may choose to click with the mouse on the so labelled ´Hotwords´ which will immediately give them more examples and information about particular words or parts of speech. After this, students are offered multiple choice exercises, or sentences to translate.

Spanish Pronunciation Guide is another tutorial program aiming to aid students in the pronunciation of Spanish sounds. Students may choose from the menu to work in any screen they prefer (vowels, diphthongs, familiar and unfamiliar consonants and challenging consonants). Different words are arranged in columns throughout the different screens and students can listen to them whenever they click on the words with the mouse in any order they want.

Students may also request pronunciation hints from the system. For example, in order to pronounce the consonants ´p´,´t´,´k´ (non aspirated in Spanish) the computer tries to make students aware of the contrast of these sounds with their aspirated English counterparts.

Finally in the middle between inductive and deductive approaches we increasingly find programs to teach grammar, vocabulary, reading and writing that incorporate games and puzzle elements within a tutorial format. This is the case of the program *Triple play Spanish.*

Students listen first to a dialogue (e.g couple ordering their meal in a restaurant). After this, they are presented with a screen showing the same pictures but with bubble dialogues at the bottom of the screen. Then learners by means of clicking on the bubbles with the mouse are able to listen to their content and drag them to their appropriate places. If students are wrong the bubbles come back to the bottom of the screen till they succeed in completing the task.

Students in our study when asked which kind of programs they liked most tended to choose programs either within an inductive approach or programs that combine a tutorial element within a game format. This suggests that teachers should not abandon the explicit teaching of the language, but they may try to disguise it under a motivating gaming environment which simulates language use in real contexts.

Help cues

It is interesting to observe how recent software programs offer students varied help cues that grant learners greater control over their own learning. In this way, it is possible to cater more actively for individual differences than is possible with other media. For example in *Triple play Spanish* students may request the computer to listen to an utterance slowing it down as much as they want by clicking on the ´tortoise help button´. In the same way, students may click the ´extra help button´ when performing the speaking test in the program *Spanish at Home* so that the computer provides them with the word they are looking for. It is important to notice that these various types of help do not appear automatically but as a result of the student´s request who as a result may become more aware of his learning process.

Role of correction

Correction is one aspect in which computers if compared with teachers are much more versatile. They can correct students´ errors immediately and as many times as they want. However, computers´ main disadvantage is that they may not be able to analyse the specific reason for a student´s error or suggest how he could improve his performance.

This fact makes us think whether responses evaluated in terms of ´right´ and ´wrong´, as is the case with many tutorial programs is of any use to students. As a result, there have been attempts to create intelligent tutoring systems which are able to understand learners´ input and correct any grammatical errors. Schwind (1990) describes a system which is able to analyse and explain students´ errors.

This system constitutes an interesting application of natural language understanding. When an error is diagnosed, the system indicates only within what noun phrase or verb phrase the error has been detected without giving any other details encouraging the student to correct his error. If the student does not succeed in giving the correct answer, the system proposes a question which suggests the problem. For example, this tutorial for German produces the question ´Which case does this verb take?´. Supposing the student still does not succeed or understand, the system explains him the grammatical rule in question with some examples if necessary.

These characteristics resemble some of the features found in the tutorial Spanish Syntax I. The students may make use of an ´explanation button´ which will give them some hints in order to discover the nature of their errors.

The role of correction in tutorials is important as the theory of language underlying them encourages and avoidance of errors. In contrast programs devised under a communicative view to language teaching do not rely so much on error correction as it is a fact speakers may make mistakes in natural conversations. The programs falling under an inductive approach do provide for help cues but may leave the students in charge of judging the correctness of their own responses (e.g. by comparing them with model answers). Students may also be corrected for example in *Spanish at Home* or *Learning to Speak Spanish* but it is just once they have chosen to have their answers corrected.

Role of feedback

We consider feedback in its broadest sense to include any information the program communicates in response to specific input. A program may indicate whether a learner´s response to some exercise is correct or incorrect through words, graphics, sound or some combination of these types of output. However we consider as more beneficial for students that some commentary concerning the incorrect response is given, since it makes students more aware of their own mistakes and encourages them to take responsibility for their own learning.

B) LEARNER FEATURES AND PROCESSES

Any piece of software should be designed with a particular group of users in mind. Learner needs, interests, style of learning should be taken into account. Recent software for example makes available for students different kind of options as a means of accommodating different learning styles. By storing grammar rules and examples of actual usage in a help file it is possible for the teacher to cater at the same time for the learner who likes to be given rules at the outset and for the one who prefers to have a chance of deducing them.

Another possibility that some programs offer is to vary the level of difficulty according to learner requests at the time they can exit from an exercise before the end by means of a quit facility (*Triple Play Spanish*). In this way learners are allowed to try out exercises without having to continue what may be too easy or too difficult a task.

More sophisticated artificial intelligent programs (Renié & Chanier 1995) are able to adapt themselves to learners pace and speed of learning.

Recent developments in computer assisted language learning focus upon the processes that go on in the learner´s head when learning. One of the most compelling applications of this principle is a hypertext system (non- linear text linked by cross-references). Hypertexts to practise reading, writing, vocabulary learning (Goodfellow 1995) etc with the aim to emulate learners´ learning processes have been devised.

An interesting aspect of hypermedia materials is that they are process oriented, thus designers seek to make learners more aware of their learning process (Fox et al. 1995).

Teachers then have to make sure first of all about the learning assumption that inform the materials they are using or designing.

4. THE STUDY

 In this section we are going to report on an experiment undertaken in the Modern Languages Teaching Center at Sheffield University (U.K) in which we had the opportunity to observe a group of students working with some Spanish programs.

Aim

The aim of our study was to find out how useful students thought CALL materials could be in order to help them with their Spanish and in what way computers may help most. At the same time we tried to find out what may be the influence of other related aspects. Following this, we identified three main research questions:

a) *In which areas computers may help most?.*

b) *Which are the factors that may influence different learning experiences?(e.g, students´ attitudes towards the programs, students´ learning style, appropriateness and level of the materials, role of computer literacy, previous experience using computers for language learning and so on).*

c) *Which are the implications for language learning and teaching and what further research is needed?*

Methodology

To obtain our data we designed two different questionnaires which we administered to students at the beginning of the five week period that our observation lasted and at the end of it so as to compare them.

At the early stages of our research, it was clear that the numbers would not be able to

generate any statistically significant results. As a result it was decided to select at random a number of six questionnaires belonging to six subjects who took part in our research. In this project we were more interested in the qualitative aspects of it that could help us to offer some insight into our research questions.

Apart from the data we obtained from the questionnaires, we also profited from the fact that students came with their tutors to the CALL room making it possible for us to observe them more closely.

The Spanish programs students could practise with were varied since they fall under different approaches (inductive and deductive ones).

Results

We are aware that our results cannot be generalised due to the small number of our sample and the short period of time that our research lasted. However, it is hoped that we will be able to highlight possible trends and offer useful suggestions for further research.

As regards to our first research question ´*In which areas computers may help most*?´ we can observe that students´ ratings in some of the areas in which they thought CALL materials could help them increased after the experiment specially in their role to learn more new words and phrases, cultural aspects of the language and to develop speaking skills.

As far as the usefulness of the computer to aid the learning of grammar pronunciation and listening practice is concerned students after having worked with the CALL programs considered it as ´very useful´. The changes that took place in these areas, however, are not so noticeable if compared with the previously mentioned ones where nearly all students changed their ratings from ´not very useful to ´useful ´ or ´very useful´.

We will briefly deal now with our second research question ´*Which are the factors that may influence difference learning experiences?*´.

As regards students´ attitudes towards the programs they developed a positive attitude favouring the ones falling under an inductive approach. It may be possible that students´ learning style (we based our research in the framework suggested by O´Malley and Chamot 1993) may have had an influence upon these results. The majority of students in our strategy questionnaire stated that when they speak they pay attention to the forms of the language but are mainly interested in getting their meaning across. It may be a possibility that students using this cognitive strategies favour the use of programs under a functional approach as they may offer them the possibility to practise with the language in situations where it not necessary to understand every word to achieve a certain degree of success.

We also analysed students´ metacognitive and affective variables. It is interesting to note that four of the six students very often check upon their learning progress and try to be aware of their own processes of learning. As Wenden (1995) suggests it may be that students working with CALL programs in an autonomous way make a greater use of metacognitive strategies.

As regards students affective variables results are rather mixed. Most of the students like working independently but at the same time they enjoy working with their peers in the classroom or outside the classroom.

As regards the appropriateness of the materials students considered them appropriate since they matched their learning objectives: learning basic Spanish through situations which may be encountered in daily life contexts. The students also acknowledged the positive effect of individualised instruction and immediate feedback (although these are not features of the materials themselves but are characteristic features of computers).

Finally the effect of computer literacy was not found to be significant, since students who rated their computer literacy as ´excellent´ or ´very good´ were not as successful as students who rated it as ´good´.

Implications for language learning and teaching and further research

The data analysed in this study suggests that the contribution of CALL to language learning and teaching is still limited and should be further researched. We examined how CALL may contribute positively to help students´ learning process in many different areas: to learn new words and phrases, to develop knowledge about cultural aspects of the language and to develop speaking skills.

Many teachers for instance consider that teaching vocabulary is difficult, since it is not always easy to select some basic patterns students are surely going to need. We feel that CALL has a big role to play here (Seedhouse 1996, Hogan-Brun and Whittle1996), since students using the programs may be able to select and pay more attention to the items which are more relevant to them.

It is also interesting that students considered computers useful in order to learn cultural aspects of a language motivating them to go to the country and learn more about its culture. CALL contribution in order to aid the sociolinguistic aspects of the language represents a promising area in which further developments are taking place.

The third area in which students thought CALL may help was in the development of speaking skills. Although students cannot carry out a free conversation with the computer they are able to interact with it (by means of listening and recording model answers or typing them into the computer). In this way the computer simulates real conversations with the students relieving them from the pressure that interacting in real life contexts involves.

Students also acknowledged the usefulness of the computer to learn grammar as well as to aid pronunciation and listening comprehension.

Students recognised as an advantage of the computer, if compared with the teacher the fact that it can provide individualised instruction and immediate feedback. These points have important implications for learner autonomy.

Computer programs offer learners greater choice of place, style of working, level of language at which to work etc. The quality of feedback can usually be tailored to the students´ linguistic needs (within the scope of the software) but to date it is not possible to tailor the feedback to the affective needs of individual learners; for example a teacher can sense if a student is having a bad day and can choose to offer suggestions in a tactful or encouraging manner. A computer program may only be able to offer limited suggestions as to how to improve performance or avoid repeated errors.

As regards the factors that may influence students´ learning experience further research is needed. It may be that depending on students´ learning style (strategies used, ability to work independently), motivation, level of proficiency and so on some programs may be more useful than others.

5.CONCLUSION

We have examined throughout the paper how the different tasks in which the students engage are going to determine the kind of language use and learning that goes on.

Broadly speaking we distinguished between two different approaches to CALL (deductive and inductive ones) focusing correspondingly upon specific items of the language and language used in context.

The results of our experiment suggests that CALL materials which focus upon the form of the language in meaningful contexts may be adequate for a large number of students, since all the students that took part in our research developed a positive attitude towards the materials.

These results however are not clear-cut and further research is needed to find out how CALL should be used and which are the main factors that may influence its success.

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