

Technology-Mediated Multilingual Learning Experiences: the OCOL (One Character One Language) model

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Abstract

Children, who are acquiring several languages from birth or at an early age, are typically raised in extremely complex and varied multilingual and multicultural environments. In their everyday life, these children are constantly exposed to several languages, different script systems and mixed cultural customs. Currently, few educational systems have been designed to specifically address their needs. In this paper, we discuss typical approaches to bilingual parenting and suggest several advantages to reenacting multilingual learning contexts in educational software. As an example, we propose the “OCOL” (One Character One Language) model: a simulation of the popular OPOL (One Parent One Language) strategy adopted by many multilingual families. A prototype is currently being developed in English and Japanese.

1. Introduction

The acquisition and development of several languages by young children is usually the result of extremely complex and varied learning environments. In addition to large individual differences, many external factors affect the acquisition and the development of bilingualism [1][3][8][12].

Social and political contexts contribute to shaping the learning experiences of multilingual children as much as familial circumstances. Some nations, for example Canada and India, are officially bi- or multilingual, whereas other countries have chosen a single official language, even if a multitude of languages are spoken within their borders [1] (for example China). Types of bilingualism include so-called elite and folk bilingualism. Elite bilingualism describes situations where bilingualism is a family choice. This includes intermarried couples and those who are living abroad for business or educational

reasons [4]. In contrast, folk bilingualism describes minorities who have not, to the same degree, chosen their multilingual environment, for example, immigrant workers. Elite bilingualism often successfully achieves biliteracy (i.e. literacy in both languages), whereas in folk bilingualism, literacy in the minority language is often not developed.

A complex set of personal circumstances and community factors contribute to form a very rich and unique learning environment for bi- or multilingual children. However, despite the fact that bilingualism is extremely common around the world, few attempts have been made to develop educational tools where multilingual learning contexts are reenacted. Typically, multilingual families and communities rely on a multiplicity of independent educational tools, each of which addresses only one of their children’s languages and cultures.

Bilingual books, where a story is simultaneously presented in two languages, are an exception to this and are available from a variety of publishing companies such as BOPO Bilingual Books [13] and Bilingual Books for Kids Inc [14]. In [11], Nicolas Kanellos, director of Pinata Press, asserts that “bilingual books have very complex agendas beyond language acquisition, that include the preservation of cultural practices, folklore, and history; enhancing minority children’s self esteem and social interaction; and building a culture of tolerance and resistance to ethnic stereotypes”.

As far as technology is concerned, more and more CD-ROMs and DVDs offer support where games and stories in different languages are deployed. However, with these systems, one language must usually be chosen at the exclusion of the other, before a game or a story can be played. In this situation languages do not cohabit as they normally do in a bilingual child’s environment.

Educational tools for the acquisition of a second language, such as CALL (Computer Assisted Language

Learning) systems, do not suit bilingual children's requirements. Bilingual children, at the age recommended by the software, are usually linguistically more advanced than their monolingual counterparts. Alternatively, tools for older and more advanced children do not fit younger bilingual children's interests. Furthermore, in these systems, the world is still essentially a monolingual world: children are not expected to exhibit a similar amount of knowledge in their first and second languages.

The purpose of this paper is to contribute ideas towards the development of educational tools that reenact the richness and complexity of a multilingual learning environment. In section 2 of the paper, we give a brief overview of the factors that affect multilingual acquisition and development and in section 3 we discuss several approaches to bilingual parenting. In section 4 of the paper, we propose the "OCOL" (One Character One Language) model: a simulation of the popular OPOL (One Person One Language) strategy adopted by many bilingual families. A prototype system is currently being developed in English and Japanese.

2. Multilingual acquisition and development

Two types of bilingualism, simultaneous and sequential bilingualism, have been defined, depending on when the languages are introduced to the child. In simultaneous bilingualism, two languages are introduced from infancy, whereas in sequential bilingualism, one language is introduced first. The age of three usually separates simultaneous and sequential language learning [7]. In many ways, the simultaneous acquisition of two languages is similar to monolingual development, with the child having the additional task of distinguishing between the two language systems [6].

But how fluent must a person be in each of the languages so that he or she is considered bilingual? The term *balanced bilingualism* is used to describe individuals who possess about the same level of fluency in two languages, compared to monolinguals. Few people are truly balanced bilinguals: one language is usually dominant, at least in some aspects of language use (for example reading), or in some specific domains (for example in the domain of professional activity). It is therefore preferable to consider several degrees of bilingualism [7].

The unbalance between the languages of a bilingual child may be due to a number of different reasons. Often, it is linked to an unbalance in the amount and/or quality of input that the child receives in each language.

It can also be linked to a lack of motivation and cooperation from the child, possibly because the second language is devalued in the local community, or because he or she does not understand the need for speaking the minority language. Changes in the environment, such as moving to another country or the family splitting, are also contributing factors in the unequal development of the two languages.

When one language is used at the exclusion of the other in some specific domains or for some specific purposes, a specialization of the languages operates: each language becomes specialized in the domain, in which it is mostly used. For example, a bilingual child may be fluent in the minority language for speaking with his or her family about family matters, but functionally unable to use this same language to talk about school matters, because he or she only uses the majority language at school.

Finally, literacy in one language rarely develops without formal education. When formal education is exclusively provided in the majority language, literacy in the minority language is not achieved. Despite the fact that recent studies have shown that bilinguals may have cognitive advantages over monolinguals [2], bilingual education is (particularly in the United States) often considered a controversial issue. Other studies [9][10] have also established that cross-linguistic transfers do operate between learnt languages and that transfer is not sequential but rather a concurrent process. These results should provide encouragement for bilingual education and for the deployment of specialized educational tools to teach biliteracy.

In brief, the acquisition and development of bilingualism is not a straightforward process. A lot of commitment is needed from both the child and the people who influence him or her linguistically.

In the next section, we discuss some common approaches to bilingual parenting.

3. Approaches to bilingual parenting

The two main approaches to bringing up bilingual children are the ml@h (minority language at home) and the OPOL (One Parent/Person One Language) approaches [5]. In the ml@h approach, both parents speak the minority language to their children, while inputs in the majority language are provided by the local community and at school. In the OPOL approach, each parent speaks one language to their child, usually their own native language. In a third approach, some families opt to speak one language during certain days of the week and the other language during the rest of the week.

Unfortunately, in practice, lots of problems and challenges arise. The main advantage of the ml@h approach is that children get a significant amount of inputs in both languages. However, this strategy presupposes that all members of the family are fluent in the minority language. A possible disadvantage of ml@h is the need to switch the home language following a move from one parent's country to the other parent's country.

While OPOL works well in one-to-one parent-child situations, in whole-family interactions it becomes impractical, unless all members of the family have at least a passive knowledge (i.e. a good understanding) of the two languages. When the approach is maintained during whole-family interactions, it results in situations where different people are speaking different languages within a single conversation. When monolingual visitors are added to the party, the whole strategy falls apart, as everybody must revert to the majority language. Other disadvantages of OPOL include the fact that children get less exposed to the minority language, especially if time spent with the parent speaking the minority language is little. In OPOL families, the first dominant language is usually the one spoken by the person who spends most time with the child.

In all cases, parents have reported that having the possibility of always speaking in their own language to their children allowed them to express more nuances and emotions, which was highly desirable. This requirement often dictates a family choice between the ml@h and the OPOL strategy.

4. The OCOL model

The “OCOL” (One Character One Language) model is an attempt to reenact the OPOL strategy in educational software, while getting around its disadvantages. In a typical OPOL family, different people, sometimes within a single conversation, speak several languages. The main concept in OCOL is the implementation of several software characters, each speaking to the other characters in their own language. An important assumption in the model is that all characters do understand the languages used by others. The characters are taking the roles of the parents of an OPOL family, whereas the child playing with the software gets situated in his or her own personal role of the bilingual child, in which he or she is expected to use both languages.

4.1. Prototype

A prototype is currently being developed to evaluate the benefits of OCOL. The version presented here is a first and early version. The languages used are English and Japanese and the system is designed for children aged 6 to 8.

The system is designed as a story and the plot features two children: a bilingual boy from England named Bob and a bilingual girl from Japan, named Aiko. When entering the system, both characters greet the child in their own language. Bob always speaks English and greets the child in English and Aiko always speaks Japanese and so greets the child in Japanese. The child is then given two options: he can either go to England, where Aiko will be guided by Bob, or go to Japan, where Aiko will be a guide for Bob. In each country, the child can then choose to explore Bob's or Aiko's school or home. In future versions, he will also be invited to visit museums, parks and cultural attractions. Dialogues are implemented between Bob and Aiko, where vocabulary in both languages is used to talk about the relevant domain (school, home, park, etc.) (Figure 1).



Figure 1. Aiko is guiding Bob during his visit to Japan

To further differentiate between the languages, a male voice for Bob and a female voice for Aiko are used. As an additional cue, each language is printed in its own colour: English always appears in blue, and Japanese in red. These colours remain the same throughout the application.

As the child is given a ‘tour’ around the country of his or her choice, exercises are integrated into the story. For example, if the child is taken home by Aiko, there will be vocabulary exercises to learn about what is found in a typical Japanese home (Figure 2).



Figure 2. Visit of a Japanese home

Each story is followed by literacy exercises that exploit the vocabulary just learnt. As an example, the popular card exercise is adapted to the multilingual environment: a word card in one language is shown and the child has to turn over other cards to find the corresponding word in the other language (Figure 3).



Figure 3. Literacy exercise

Navigation in the system is implemented in such a way that the child can easily select a country, for example Japan, to learn about a culture and its artefacts, or a domain, for example school, to explore the domain in both languages.

4.2. Discussion

The primary aim of the OCOL model is to increase a bilingual child's interest and motivation in learning his or her languages. To this end, the approach is to reenact a realistic bilingual learning environment. Primary anticipated benefits are balanced bilingualism, biliteracy and biculture.

In contrast with other CALL systems, the same level of linguistics is used in both languages throughout the application. Both languages hold a position of equal prestige and importance. The child is assumed to be a native speaker of both languages. In fact, as truly

balanced bilinguals are rare, it is expected that, based on the cross-linguistic transfer theory [9][10], the child will improve by transferring knowledge and skills from one language to another. The software can contribute to correct the unbalance between the amount and/or quality of input that the child receives in each language. In particular, the child is encouraged to extend his or her vocabulary into domains in which he or she typically uses only one language (for example at school).

Another anticipated advantage of the OPOL model is that the child's strengths and weaknesses in each language should rapidly become apparent to the child himself. In its present shape, our system offers opportunities to increase the child's exposure to cultural elements of other countries where his or her languages are spoken (other English speaking regions, for example North America, Australia, but also India, can be added to or substituted for England).

The prototype was presented to a 6-year-old English Japanese bilingual child and was well received. The child enjoyed reading the English expressions corresponding to familiar Japanese objects. For example, "built in wardrobe" is written as "おしれ" (oshire) in Japanese, which she would never have known how to express in English because oshire is a feature of every Japanese home but she had never come across a built in wardrobe in England. She found the number games easy in English, so she rapidly switched to the number games in Japanese and enjoyed learning how to write numbers using kanjis (Chinese characters used in Japanese).

5. Conclusion

In this paper, we presented an approach to the design of bilingual software for bilingual children. The aims of the software are to correct the unbalance between the languages, develop biliteracy and provide greater exposure to other cultures. The main concept is a simulation of the popular OPOL approach to bilingual parenting.

In its future versions, the OCOL system that was presented here will include more interactivity and more cultural elements. Its graphical design will also be improved and the characters will be fully animated to comply with current standards in children software.

The OCOL model remains to be tested in a systematic way with bilingual children and their families and educators. In the very near future, the prototype will be demonstrated to teachers and children of a Japanese language Saturday club in London. In the first place, questions that need to be answered include:

Are the children confused between the two languages in the application? Do they spontaneously look for elements they do not yet know (as was the case of the little bilingual girl who selected the Japanese numbers that she did not know as well as the English numbers)? What do parents and teachers think about the “mixing” of languages in a single story?

Much more theoretical and empirical research needs to be done in educational technology dedicated to multilingual children. This paper presented some early work in the domain.

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