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The additional uses of CALL in the endangered language context

MONICA WARD
Dublin City University, Dublin 9, Ireland
(*e-mail: mward@computing.dcu.ie*)

Abstract

This paper considers the additional uses of CALL in the Endangered Language (EL) context. It briefly reviews ELs and reports on CALL for ELs in general. It then reviews the extra uses of CALL for ELs; these include changing negative attitudes towards the language, arousing interest in the language and contributing to language maintenance and documentation. In order to demonstrate the benefits of CALL for an EL, three examples are presented. Each of the ELs discussed in this paper could be considered to be on a different scale on the Fishman (1991) Scale for an EL. The first CALL application discussed is a program for Irish for primary school children. Irish is a Celtic language and is only regularly used by about 10,000 speakers in Ireland. The main aim of the program was to try to increase the children's motivation to study Irish, which is a compulsory subject in schools in Ireland. The second application is a literacy program for Tojolab'al, a Mayan language spoken in Chiapas, Mexico. Tojolab'al could be considered to be a relatively stable language (30,000–40,000 speakers out of an ethnic population of about 80,000 people), but it has very few literate speakers. The idea of this project was to develop CALL courseware to teach literacy, beginning with the letters and then progressing to words and phrases. The third example is CALL courseware for Nawat, an Uto-Aztecan language of El Salvador. The remaining 150 speakers of Nawat are mainly elderly and illiterate and this courseware aimed to document and develop courseware for the language, while the remaining speakers were still alive. The paper concludes with lessons learnt for ELs in general from these three specific examples. It surmises that despite the difficulties involved in the CALL for EL context, if a pragmatic approach is adopted, CALL materials can have positive social benefits, which probably outweigh its contribution to language learning in the short-term. The effort involved in CALL for ELs is definitely worthwhile.

1 An introduction to endangered languages

There are over 6000 languages spoken in the world today (Grimes, 2000). Krauss (1992) estimates that 90% of the world's languages will disappear in the next 100 years. Twenty-five per cent of the world's languages are spoken by fewer than 5000 people. Size alone though is not the determining factor in the health of a language. For example, many of the 850 languages spoken in Papua New Guinea are spoken by fewer than 1000

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people, but can be considered healthy as they are actively used as the language of the community.

Languages become endangered for many reasons. Skutnabb-Kantas (1998, 2000) cites several reasons for language decline including colonialism (e.g. Spanish in Latin America), linguicide (where officials try to 'kill' the language by banning it), lack of official recognition for the language and linguistic suicide: this is where the community of speakers consciously decides not to pass on the language to the next generation as they see no value in the language and prefer their children to speak the dominant local language.

In many cases, minority languages become endangered when the language loses its social role. If the language is not spoken in public and in the education system, its sphere of influence (and usage) is diminished. If children are educated in the locally dominant language (as opposed to their own language), they may not become literate in their own language and come to regard it as not being 'important enough' for education (and other formal activities). These negative attitudes can be dealt with in the home, but it is generally an uphill struggle.

Many of the world's languages are spoken languages with no established writing system. For example, in India there are many unwritten languages (Sharma, 2001), while some speaker communities have embarked on the establishment of a writing system e.g. Coushalta (Lee Grant, 2000). In recent years, some languages have adopted a writing system, but the issue of selecting a particular orthography can be politically and socially divisive. It can change the power structure in the community (with the literate having more power) and highlight political differences (e.g. selecting between the Latin alphabet or the Cyrillic one). So, while developing an orthography can positively contribute towards improving the situation of endangered languages, it is not without its problems.

There is a continuum for classifying endangered languages, from 'not thriving' and 'not threatened' to 'extremely endangered'. UNESCO (1993) and Terralingua (2000) have their own scale for languages, but this paper will use the Fishman Scale of Endangered Languages (1991). Fishman's scale ranges from 1 (not endangered), to 8 (where the language is only spoken by elderly people and will die with them). Factors such as speaker demographics and whether or not the language has a writing system are taken into account when trying to classify a language and gauge its state of endangerment. Languages can move along the scale as their usage and spheres of influence change. Unfortunately, most ELs move towards stage 8, but there are some success stories such as Hebrew, Basque and Maori that have moved in the other direction. See the Appendix for a summary of Fishman's Graded Intergenerational Disruption Scale for Threatened Languages.

While it is difficult to reverse the decline of a language, it is not impossible to do so. Some will question why anyone would bother saving a language, citing Darwin's survival of the fittest theory. However, language, culture and identity are all inextricably linked and without the language component, culture and identity can be weakened. Language maintenance refers to retaining the current spheres of usage of a language and to keeping the language alive. This is a suitable goal for languages that have a competent body of speakers who are interested in securing a future for the language. Language revitalisation refers to rekindling the language where there are only a few speakers, who

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perhaps do not use the language on a regular basis (e.g. stage 8 on the Fishman scale). Maintenance is hard and revitalisation is even harder. They require dedicated, committed people who understand the value and effort required to preserve a language and appreciate that it is a long-term process. Unfortunately, there is no blue-print for success, but lessons can be learnt from other communities and adapted to local circumstances.

2 CALL for endangered languages

CALL for the world's Most Commonly Taught Languages (MCTLs) is challenging, and for the Less Commonly Taught Languages (LCTLs) it is even more challenging, but it is most difficult for Endangered Languages. There are extra constraints that prevail in the EL context. These can be summarised as resource, knowledge and social issues. A more complete review of the constraints and rewards that exist in the CALL for EL context is available in Ward and Van Genabith (2003) – this section provides a brief review of these constraints.

Resource issues include limited financial and technical resources. The endangered languages of the world are mainly spoken in the poorest regions or amongst the poorest sectors of society in the developed world. Their speakers do not have the financial resources to spend money on the luxury of developing CALL resources: subsistence farmers usually have more pressing worries. Neither do they have the technical resources (e.g. modern PCs, regular supply of electricity) for CALL materials. There may also be the problem of lack of pedagogical skills for the language. The few literate speakers may have learned a second or foreign language (L2) using old-fashioned teaching techniques. There may be very little or no experience of teaching the language to a non-speaker, as very few people from the dominant language community would have an interest in learning a less prestigious, minority language.

Lack of knowledge about the language is another problem. In order to teach a language, one must have knowledge of the language. However, as many of the ELs are undocumented, there is limited linguistic knowledge available about them. Certainly a native speaker will have more than a limited knowledge of the language, but such people are rare in the EL context. The task then falls to others to prepare material on the language, but this is obviously difficult to do if aspects of the grammar of the language are unclear or unknown. A further difficulty arises if the language has no established writing system, as outlined in the previous section. Even if the communicative method of language teaching is used, focusing on oral communication, it is conceivable that the need to write could emerge as the learner progresses and the issue would have to be confronted.

Another issue is the social one. When developing material for a MCTL (e.g. English), we try to teach the language that would be used by native speakers. This means that we must have access to such speakers. In the case of English, for example, there are plenty of native speakers. We try to teach the language of speakers of different ages, and perhaps regions, to make the material more rounded. We would consider it pedagogically unsound to base all our teaching on the language of a few elderly speakers in some remote corner of the English speaking world. However, in the EL context, these are often our only native speakers. They may be illiterate, in poor health or may not want to

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spend time with an academic. In some cultures, there are problems with teaching the language to those outside the community, for example some Native American cultures wish to keep knowledge about the language within the community only. If the informant does not speak the language on a regular basis, some aspects of the language may be hazy and unclear. All of these factors contribute to the difficulty of developing language learning, let alone CALL materials, for ELs.

Assuming that the problems above can be resolved, there are further issues to consider. As CALL researchers, we are continuously trying to improve our understanding of what works in a given situation. We have some general guidelines, but we know that we must adapt them to each situation individually to ensure that they function as we would like. In the CALL/EL context, there is a problem of dissemination of information. Firstly, many CALL/EL projects are small in nature and their findings are not reported, so we cannot learn from them. Secondly, not all CALL/EL projects are university based, as community groups and individuals take it upon themselves to develop materials. This means that the usual channels of dissemination are not used. It is hard to find out what has been done already, what was successful and what changes would be recommended. Given the very limited financial resources available in the CALL/EL context, it does not make sense to repeat mistakes of previous projects, be they general CALL projects or CALL/EL specific projects. However, given the lack of overlap between the CALL community and the EL community, this is quite likely to happen.

3 Additional advantages of CALL in the endangered language context

This section reviews the additional uses of CALL in the EL context. It lists the extra uses of CALL over and above that of simply teaching the language. There is some overlap between the benefits and they are not listed in order of importance, as this will vary for each particular EL situation.

CALL can change negative attitudes towards the EL, especially amongst children. The EL is often associated with the elderly and perceived to be of little relevance to the younger generation. However, putting the language on the computer and showing it in a modern forum can demonstrate to the children that it can exist on the computer, that it can be on the internet just like the locally dominant language. It can help to dispel some of the old-fashioned connotations associated with the language.

The development of CALL materials can help arouse interest in the language. For example, CALL materials for Hawai'ian encouraged people in Hawai'i to take an interest in the language and now there are many students of the language. It can act as a catalyst for literacy training. Auld (2002) reports on a CALL project for Ndjébbana, an Australian indigenous language, that has encouraged its learners to want to be able to read in the language. In the case of Potawatomi, a Native American language, CALL provides a forum for cultural expression (McKinney, 1997). Potawatomi speakers are few in number and are geographically dispersed. This made communication in Potawatomi difficult. However, using electronic resources, Potawatomi speakers can now communicate with each other and with learners about cultural matters.

Another additional benefit of implementing CALL in the EL context, is that it can act as a vehicle for language documentation. There are several examples where the very fact of developing CALL materials has meant that the language has been documented for the first time online, at least in a way that is accessible to non-linguists. The ability to

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combine text and audio files, and in some cases, video files, provides a rich documentation format. Moreover, the format is one that is easy to share with others (as opposed to the 'tape-in-the-shoebox' syndrome, where tapes are archived, never to be seen again). Pawnee is one such case (McIlveen, 1997).

In order to develop CALL materials for any language, you need to have someone interested in the language and willing to teach it. In the case of ELs, the fact that someone is interested in the language can contribute to language maintenance and revitalisation efforts, for example, Unyææshæötká/Mingo (Mingo, 1997). There is also the multiplier effect to consider. In the case of Choctaw (Choctaw, 2002), when the community decided to develop language learning materials for the language, it meant that they had to consider how to teach the language. This led to modernisation of the language which in turn fostered a more professional attitude towards the language. These are all positive factors that can help reverse the decline of an EL.

4 CALL software template

This paper reviews three case studies relating to different ELs. The CALL materials developed for each language used the same underlying technology, which will be briefly explained in this section. A CALL template was used that was built using XML technologies. This means that the software is reusable, language independent and that it is relatively easy to create materials using the template. Goodwin-Jones (2000, 2001, 2003) and Ward (2002) highlight the benefits of the use of XML technologies for the development of CALL materials. The aim of the template is to enable development of CALL materials that incorporate 'good practice' in a broad sense, while at the same time avoiding 'bleeding-edge', or cutting edge technology and CALL practices. Text, sound and image files are combined in a clear and intuitive way. The developer can have language, vocabulary and explanation or grammar sections. There are interactive exercises (multiple-choice, matching and writing games) developed using modified Hot Potatoes software (Holmes & Arneil, 1998, 2001; Hot Potatoes, 2001). The fact that this template was used to produce the materials is not essential to the discussion; any template with similar characteristics could have been used.

5 Irish case study – CALL for Irish for primary school children

5.1 Background

Irish is spoken in Ireland. It is a member of the Celtic languages and on the Insular/Goidelic branch (along with Scots Gaelic, Manx and Shelta). Irish is difficult to classify on the Fishman scale. It is one of the two official languages of Ireland (the other being English) and all official documents are published in both languages. It also has a presence at university level. This would imply level 1, not threatened. However, this does not reflect the true situation of the language. It is supported by the government, and while people say they think the language is important (Ó Riagáin & Ó Gliasáin, 1994), their actions do not match the positive support for the language. The language is required for elementary or primary school, which would put it at level 4 on the Fishman scale. However, even though Irish is a compulsory subject, most of the primary schools

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in Ireland use English as the medium of instruction. Perhaps level 6 is the most appropriate level, which says that there is some intergenerational use of the language.

It is also difficult to say how many speakers there are. As always, it depends how you define speakers. As most Irish schoolchildren must learn Irish in school, practically everyone knows a few words of the language, giving a figure of over 3 million speakers. If a slightly stricter definition is used, there could be up to 1 million speakers. However, a more realistic figure is 10,000 – which is the estimate of the number of people who use Irish on a daily basis. These people are mainly located in the Gaeltacht (Irish-speaking) regions on the west coast of Ireland with a small minority in Dublin, and Waterford in the south. There are also some speakers in Northern Ireland.

Irish is 'needed' for government jobs as the public has the right to services in Irish, although informally the level required is very low. Parents are generally mildly positive about their children learning Irish, while the students are generally negative. Attitudes to Irish are formed by the time a student enters second level education. Until recently, the curriculum was based on the audio-visual method and was not particularly successful or popular. It is now being replaced by the communicative method. The students and teachers have reacted positively to the change, although it has taken a while for new books to filter into the system.

5.2 Project

The aim of the Irish CALL project was to see if the use of CALL materials would increase learner motivation and interest. Harris and Murtagh (1999) on their survey of attitudes to Irish amongst primary school children reported that students 'support' the idea of Irish in theory, but not in practice. They noted that attitude was very important to the learning outcome (a common finding in language learning literature), as was natural ability and parental attitude. They also state that weak students were particularly disadvantaged when learning Irish as they tended to 'switch-off' as they could not understand the teacher. They concluded that there was a need for new materials, curriculum and themes; these are currently being developed. The book by Harris and Murtagh (1999) is very comprehensive, but there is only one minor mention of IT in an appendix. Although there are only a limited amount of CALL materials available for Irish at primary school level, it is slightly surprising that the potential of CALL was overlooked. In a private communication, Murtagh explained that the focus of the book was on attitudes and the curriculum and that while IT was not considered, she welcomed the idea of developing CALL materials for the language.

The project took place in two schools – one a mainstream school and the other a disadvantaged school. The ages of the students ranged from seven to eleven years old and approximately 100 students took part in the project. Not all students participated in all components. The students were surveyed anonymously on their attitudes to Irish before the CALL component started. The teachers were provided with a brief introduction to CALL and the materials were developed in conjunction with them. The students contributed to the development of the CALL materials.

Figure 1 shows a screen from one of the Irish lessons about an accident. The images are from the University of Victoria's clip art for language learning collection (UVIC, 2001). The audio icons contain a link to either the whole of the text or an individual sentence. The audio elements of the courseware were spoken by the students themselves.

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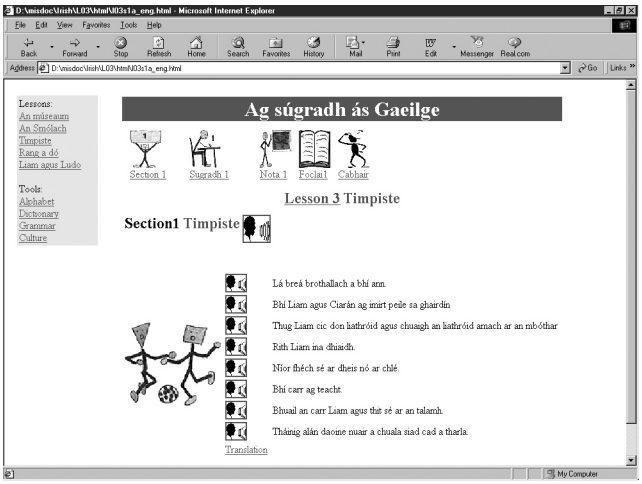


Fig. 1. Lesson page from the Irish courseware.

There are links to games also: multiple-choice, matching and writing exercises based on modified Hot Potatoes (2001) software.

5.3 Findings

In order to interpret the findings correctly, it is important to bear in mind that this was a pilot study and that some of the positive reaction can be attributed to the novelty factor and the initial enthusiasm that has been reported in other CALL projects. Table 1 summarises the findings. The majority of students would like to learn more Irish on the computer (60%). A majority (94%) would prefer to use the computer (40%) or a combination of the computer and classroom for learning Irish (53%), while only 6% preferred the classroom-only option. Many students said that the computer would make them more interested in Irish (41% maybe, 46% yes).

Table 1. *Summary of findings from the Irish CALL courseware project*

Question	Response
Would you like to learn more Irish on the computer?	Yes (60%) No (13%) Maybe (27%)
Would you prefer to use the computer or the classroom to learn Irish?	Classroom (6%) Computer (40%) Both (53%)
Would the computer make you more interested in Irish?	Yes (46%) No (13%) Maybe (41%)

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5.4 Observations

Unfortunately, several minor problems occurred during the project. There were some errors in the CALL material itself which should have been eliminated, but they did not cause any major problem, and served as a valuable lesson in going forward. The students liked the games element best. They considered the matching 'easy', the multiple-choice 'good fun/too easy' and the writing 'harder'. The headphones that the students used were not in particularly good condition but they stuck with them. The younger group of 7 to 8-year-olds needed more guidance than the 10 to 11-year-olds. All the students had the necessary minimal computer skills. The teacher collaboration was important and they gave quite a lot of time to the project. Afterwards, they reported that they were sceptical about the time invested versus the benefit to the student balance of the project, but were willing to continue with a modified approach to the project.

6 Tojolab'al case study – CALL for teaching literacy

6.1 Background

Tojolab'al is a Mayan language, spoken in Chiapas, Mexico. It could be classified as a stage 5 language, where the language is very much alive and used in the community. There are approximately 36,000 speakers out of a community of 80,000. It is still the dominant language for many speakers. Most of its speakers are illiterate. This project took place with the Centro de Investigación de Salud de Comitán (CISC – the Heath Research Centre for Comitán). CISC works on health related issues with the Tojolab'ales and would like their community health workers to be literate. There are currently no CALL materials available for Tojolab'al, although the author has worked with Furbee (1974, 1976a, 1976b, 1981) to develop a sample CALL lesson for the language.

6.2 Project

The aim of the project was to develop a literacy teaching program for Tojolab'al. Furbee suggested this idea based on her review of CALL materials developed using the template described above and wondered if it could be developed to teach literacy. There were three target users groups: the completely illiterate, the semi-literate (those who can read the alphabet) and the L2 literates (those who can read in Spanish but may have never read in Tojolab'al). It was assumed that the learners were active speakers of the language. The literacy materials were developed using a modified version of the template described in section 4. As no literacy skills could be assumed, all of the instructions had to be available in audio form. They were recorded by two literate native speakers: Aguilar Méndez and Méndez Vázquez. The materials (the alphabet, words, and a story) were developed in collaboration with the native speakers. The alphabet was for the non-literates, the words for the semi-literates and the story for the L2 literates.

6.3 Difficulties

There are several different orthographies for Tojolab'al. The alphabet is similar to the

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Spanish one, as most of its literate speakers also speak Spanish, the locally dominant language. A further difficulty is that the morphology of the language is unclear. For example, Lenkersdorf (2001a, 2001b, 2002) writes the name of the language as 'Tojolab'al' while Furbee (1997b) suggests that perhaps 'Tojol ab'al' is more appropriate. In either case, the meaning 'correct language' is the same and there is no difference in the spoken form, so the difficulty only arises when committing it to its written form.

Another obvious difficulty of developing CALL literacy materials is the lack of computers in the community. This means that any potential users can only use the program when they visit CISC. While this may seem an almost insurmountable obstacle, the target users will often visit the CISC office in Comitán in the course of their normal work, so they will be on-site anyway.

An example from the alphabet page is shown in Figure 2. It shows the letter 'a' in upper and lower case forms, along with the relevant graphic ('ajan' is the word for 'corn'). The audio icons speak the letters and the word. There is an arrow to move on the next letter and two games icons on the bottom of the screen. The layout of the page is deliberately sparse, so as not to distract the learner who is assumed to be a novice computer user.

The initial version of the CALL materials has been released to CISC. The courseware has been installed on a machine in the CISC office and is also available on CD. Aguilar Méndez has been trained in how to teach others to use the program and the tutor's manual has been written in Tojolab'al and Spanish. CISC is now responsible for the roll-out and follow-up of the materials.

6.4 Observations

The reaction to the materials was positive. Aguilar Méndez, who has experience teaching literacy in the community reported that it would be enjoyable to use it to teach literacy, compared to blackboard and chalk. Although the program was designed for

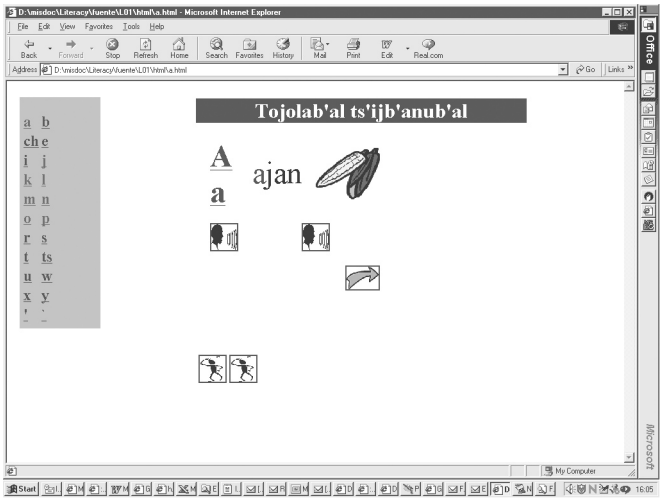


Fig. 2. Page for the letter 'a' from the Tojolab'al literacy courseware.

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self-instruction, it could just as easily be used in conjunction with a human tutor. The program was tested for novice computer usability by a 60+ year old woman who had never touched a computer before, but who was literate and not a Tojolob'al speaker. She had little difficulty using it, even the matching part where some difficulty was anticipated. It was also tested by a 'rusty' literate seventeen-year-old Tojolab'al speaker, who really enjoyed the story element of the courseware. Apart from some very simple pieces in primary school, it was the first time that he had read something in his native language.

Only small modifications were required to the template in order to build the courseware and the development was not difficult. The development of the training guide was especially interesting. Aguilar Méndez and the author worked together to translate the Spanish version of the training manual into Tojolab'al. There were many new terms and concepts to explain. For example, 'hard disk' is just 'disco duro' in Spanish – a literal translation. However, in Tojolab'al we considered 'head', 'centre' and finally decided on 'brain' as the most adequate translation. Both my collaborators on the project enjoyed the process. They commented that they enjoyed thinking about the language as they had never had to do that before. Aguilar Méndez is also a writer, as well as a health worker, and won a literary prize for one of his stories in December 2002. He is interested in publishing more of his stories via the CALL courseware.

One unanticipated user group that was suggested was that of Tojolab'al language learners. Although they are few in number, some Spanish-speaking members of CISC are interested in learning Tojolab'al – just a few words can help them in their work, even if it is just to be more sociable in the community. They could use the program to learn some basic vocabulary, especially as the images convey the meaning of the word and each word has an associated audio file.

7 Nawat study – CALL for an extremely endangered language

7.1 Background

Nawat, also known as Pipil (Campbell, 1986), is an Uto-Aztecan language spoken in Western El Salvador. It could be classified as a stage 8 language on the Fishman scale – there are only a few elderly people who speak the language, and most of them do so infrequently. Grimes (2000) estimates that there are approximately twenty speakers, although recent investigations indicate that 150 might be a more accurate number. It is a moribund language that is not being passed on to the younger generation. Most of the speakers are illiterate – several academics working on the language have only met with one literate speaker. The language has low social status and prestige. Most Salvadorians believe that the language is already extinct.

7.2 Project

The aim of the project was to develop language learning materials for Nawat. This was based on the assumption that a little effort can go a long way and yield benefits. A pragmatic approach was adopted. The courseware developer was a Nawat beginner, who worked with two native speakers, only one of whom was literate, and an anthropological linguist who was an L2 speaker of the language. The philosophy was that it was better to

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produce something simple than to produce nothing at all. Also, if CALL courseware could be developed for Nawat under these non-optimal circumstances, then perhaps other language communities would be inspired and see that it was possible for them to develop suitable materials for their language. More details of the project are available in Ward (2001b) and Ward and Van Genabith (2003).

The materials were developed using the CALL template outlined in section 4 above. There was one male and one female speaker. The lessons comprised of text, games, sound and images. The target user was assumed to be a complete beginner, with minimal computer handling skills. Figure 3 shows an example page from the Nawat courseware.

The courseware is available online in Ireland (Ward, 2001a) and El Salvador (UDB, 2001). It is also available on CD and in printed form and these are available for copying in several locations in El Salvador.

7.3 Observations

There has been a positive reaction to the courseware in El Salvador. It has helped to raise awareness of the language, especially amongst the non-Pipils in El Salvador. There has been positive reporting of the language in the local newspapers, TV and radio. Several CALL workshops on the courseware have been held involving the universities, national culture organisations and girl guides. It has acted as a forum for cultural expression. Paula López, the female informant, recorded her own original song in Nawat and this is now available with the courseware. Another important outcome is that the courseware and the process surrounding its development and distribution has acted as a conduit for interested parties to meet and to work together on Nawat related issues.

7.4 Impact

When a language is in such a perilous position as Nawat, every little helps. The

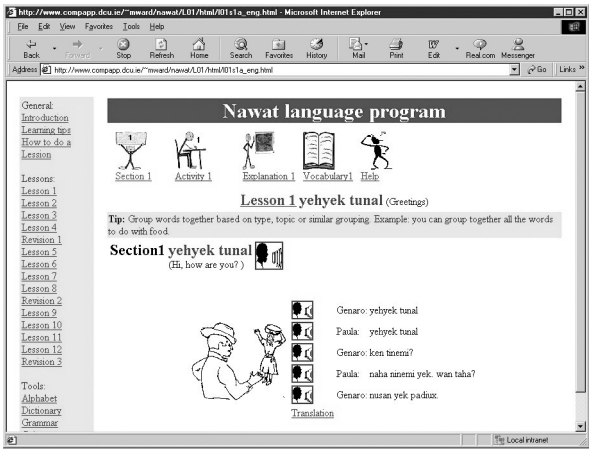


Fig. 3. Example page from the Nawat courseware.

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language has been documented, with various degrees of accuracy, by several authors, with Campbell (1986) being the best work on the language. A Nawat bibliography is available at Ward (2001c). The CALL courseware can also be considered a form of language documentation, with the added advantage that it combines the text and audio files together. The release of the courseware was the first time Nawat was put on the internet and the first time it could be heard by those outside a small group of linguists.

However, the biggest impact that the courseware has had, is on the future direction of the language. A group was formed in December 2002 to help revive the language. The catalyst was the CALL courseware. This group has grown in number, although it is still very small, and is based in the Universidad de Don Bosco, El Salvador. It aims to produce professional quality language learning materials that will be available in printed and online formats. It aims to raise awareness amongst speakers of the value of their language. By working with people in the community, more speakers are being "discovered". Werner Hernandez, who has studied for over a year with Genaro Ramírez (the literate male informant), is competent enough to converse with speakers and encourage them to 'admit' that they speak the language. While there are many difficult obstacles ahead, including thorny political issues, there is some cause for quiet optimism.

8 Conclusion

CALL for ELs is difficult but not impossible. Language learning need not be the only use of CALL in the EL context – there are many other potential uses including language documentation, a forum for cultural expression and to arouse interest in the language. This paper gives examples of CALL in the EL context from languages on three different stages of the Fishman scale of Endangered Languages (1991) and with different applications in mind. Irish, an endangered but somewhat protected language is a compulsory subject in Irish schools but students are generally not very motivated to study it. A project to investigate if the use of CALL materials would make the subject more interesting for the students has produced some initial positive results, which will be used to develop more comprehensive CALL materials for primary school students in Ireland. In the case of Tojolab'al the need is for literacy training for its speakers. The developed materials are now available for use and CISC recognises that it must incorporate them into part of their organisation's development program. Aside from the materials themselves, the people involved in the project have learnt a lot and have been encouraged in their language related tasks. The final example comes from Nawat, a severely endangered language from El Salvador. This project has had the greatest impact of the three projects. The developed CALL courseware is publicly available and has acted as a catalyst for larger and more ambitious projects to help rescue the language.

This paper has sought to show that CALL can have an impact in the EL context over and above that of language learning. The three examples illustrated may well not be the best examples but they are real-world examples that have had an impact 'warts-and-all'. The social impact of CALL in the EL context is probably more important than the immediate language learning gains. Given the limitations involved, a pragmatic approach is required. It is difficult but it is definitely worthwhile.

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Appendix

Table A.1. *Fishman's (1991) Graded intergenerational disruption scale for threatened languages*

Stage	Current Status of the Language
8	Only a few elders speak the language.
7	Only adults beyond child bearing age speak the language.
6	Some inter-generational use of language.
5	Language is very much alive and used in the community.
4	Language is required in elementary schools.
3	Language is used in places of business and by employees in less specialized work areas.
2	Language is used by local government and in the mass media in the minority community.
1	Some language use by higher levels of government and in higher education.

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