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Removing e-Wrinkles: An extreme inter-facelift for an elderly HyperCard servant

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Introduction

A project to develop a comprehensive set of modules (see Appendix 1) for basic French grammar review and maintenance, and for audio-supported notion-oriented learning activities was begun in 1991 and completed in 2000. The total process involved some 8,000 hours for design, preparation of linguistic data, programming, trialling, and integration into the curriculum. HyperCard was chosen as the platform for the delivery because of its considerable flexibility, and because of the area of expertise of staff available for programming and design support at the time. The process was fruitful in terms of both software output, and teaching and learning enhancement. The conception, infancy, youth, and maturity of the project were fertile ground for research in linguistics, pedagogy, and software design (see Appendix 2).

There is probably no standard definition of old age in relation to language-learning software. This is no doubt partly because, as a result of unreliable resourcing, ephemeral staffing, fluctuating motivation, or changing curriculums and student needs, many materials fall into disuse before they have a chance to grow old. The materials in the Wollongong French CALL project, fully integrated into the assessment program for all French-language subjects, are still going strong, doing their job, and being appreciated by staff and students after almost 15 years. But the software, hardware, and institutional infrastructure supporting them have been showing clear signs of age. In 2004, a conjunction of academic commitment and university resourcing (see Acknowledgement) created the opportunity to conduct a major rejuvenation of the materials by converting them to either the university• fs principal learning management system or to personal computer applications that cross the Mac OS X-Windows divide.

This article reflects on the motivation, processes, outcomes, and prognosis of the successful operation to remove the wrinkles from the interface of an otherwise sound and spry e-learning resource. It will look in turn at the effects of the passage of time on the software and the learning environment; the nature of the conversion process and the problems encountered; the new face of the transformed material; and student and staff reaction to the new formats.

The Ageing Process

It is interesting that with software, as with people, observations on age and obsolescence come more often than not from ‘outsiders’ - people not interacting with it regularly. Student users of the HyperCard materials were by and largely oblivious to its age. That is no doubt largely because they were engaging with and appreciating its substance - the

linguistic content, the design and delivery - which did not age. The linguistic content (i.e. word or sentence-level grammar, or functions such as the expression of dates and times) had been chosen as the core of the material because in many ways it is an abstraction. It is a language that is used in countless situations every day, but it had not been presented in a 'realistic' environment such as a video dialogue, with real subjects or actors in real or lifelike situations. To have abstracted language in this way in a pedagogical environment where the byword is 'communicative' laid it open to a degree of criticism or to flat rejection by many teachers. It did not, however, negate its instructional value. Any physical contextualisation where images of clothing, furniture, motor vehicles, appliances, merchandise or signage, or even ambient music or the tone of a telephone, has the effect of fixing the communicative situation in space and time. The absence of such elements in the software meant that fifteen years on, its contents did not put students off by looking 'old hat' or 'retro' or 'wrinkly', and thus being perceived as somehow inappropriate or irrelevant to their world. This did much to protect the heavy investment of time, expertise, and resources that had gone into the development. In the domain of print materials, for example, it is as much the purely visual factor as any evolution in pedagogical theory that obliges foreign-language teachers to change textbooks every seven years or so.

Unfortunately, however, this relative obliviousness to its age on the part of students did not mean that the aging process had somehow been circumvented. 'Outsider' observations came from many directions and in many guises. They ranged from the casual remarks of linguistically myopic, content-insensitive, technology-focused IT specialists who perceived anything not operating on state-of-the-art systems and hardware to be of diminished importance and ipso facto to be consigned to the scrapheap, to the constructive input of senior academic executives who valued the contribution of the material but who, by their position, could view the issues of hardware, software, teaching practice and space allocation globally and in the context of wider university policies and trends, and were enthusiastic about maintaining a resource that they saw as unquestionably enhancing the curriculum profile of a domain for which they were considered responsible.

Such 'outsider' comments are not necessarily welcomed by the average conservative, a resource-bound lecturer who does not relish the thought of being forced by external factors to reinvest effort into a task which, from an academic perspective, is already complete. The realities that had given rise to the observations, however, were inescapable. They were the product of institutional policies on e-learning, teaching workloads, constraints of space and equipment, and the need to think to the future.

The infancy of the CALL project had corresponded with the period of general enthusiasm for embracing new technologies in education, and of almost unbridled, and often poorly informed, investment in ventures perceived as promising. It was a period when an external body was prepared to donate 15 computers (Macintosh Classics), and when the Faculty saw no problem in making a room available to house the machines and in funding its refurbishment.

Fifteen years on, the world is very different. A leaner, meaner, productivity-focused institution now views far less favourably the dedication of a room to a laboratory of desktop computers whose use is limited to students in only one of the Faculty• fs dozen or more majors. The university has moved to a policy of centralising IT facilities wherever possible. Space is now at a premium, and the area occupied by the laboratory is now sought after for other purposes - as a common teaching area, or to be divided into office

space for new staff or research students. After five or six years, and in line with an evolving Faculty policy on the shelf-life and optimal turnover cycle of all personal computers in its precinct, the Macintosh Classics, which had been quite adequate for running the software and still in satisfactory working order, were replaced by a set of Power Macintosh 6200/75 machines discarded from another area of campus where they were deemed obsolete, also adequate for running the software and in good working order. In addition, the changeover had involved the investment of a certain amount of time and effort on the part of the IT personnel for setting up and reloading the software on to the 'new' machines. After a further five or six years, and in line with the same Faculty policy, it was agreed that the Power Macintoshes, which were still running the software satisfactorily but were showing the first signs of becoming unreliable, should be replaced by discarded iMacs, now superseded by eMacs as the minimum standard for desktop machines allocated to academic staff. That changeover would likewise require the investment of time and effort on the part of the IT personnel whose services were being increased called on for proliferating Faculty demands. The software remained unchanged and entirely reliable throughout. But the need to be constantly upgrading the machines on which it ran, although virtually cost-free because it was always done using discarded equipment, required constant negotiation on the part of the academic staff, and commitment of time and effort by overstretched technical staff who at best must see the material as esoteric and the machines as outmoded and likely to require out-of-warranty maintenance. Moreover, there was the prospect that, with eMacs (OS X) being in line as the next round of discarded hardware, the capacity of the system to reliably support the HyperCard application (requiring OS 9 or below) would begin to diminish. In order to smooth the transition, Apple installed two operating systems on eMacs (OS 9 and OS X), but this consideration will not continue. To continue to run HyperCard on post-eMac machines would require Faculty IT staff to go through the complex process of installing the classic operating system onto each computer.

Age does not weary software - its capacity for the repetitive delivery of routine instructional tasks with infinite patience is one of the most fundamental and significant advances of the medium. The same cannot be said, however, for its human overseers. The academic merit of the grammar review and maintenance modules in the project derives not only from their content but from the fact that the activities are an integral part of the curriculum. No matter how potentially valuable they may be in the abstract, that value is only realised if students use the materials. It is a fact of life that, virtually without exception, no matter how well-intentioned students may be at the outset, they only apply themselves to work that is designated as compulsory. Part of the meaning of 'compulsory' is that someone checks that it has been done. Among the numerous steps involved in the integration of the CALL grammar materials into the French courses are: preparing, posting and checking the sign-up sheets on which students indicate that they have completed the preparation; and, where necessary (i.e. where there is any doubt that the information supplied by students on the sign-up sheet may not match their actual performance on the computers - e.g. in the early stages of first-year courses), checking the scores on all 15 computers in the private study laboratory. The need for these steps arises largely from the fact that the individual machines are entirely independent, and that the idea of setting up any system of storing all results on an external server had had to be abandoned in the design phase because it raised more problems than it solved. From the student• fs point of view, this system is basically unproblematic. It requires little time or

effort to fill in particulars on the sign-up sheets; and, with rare exceptions, they only have to do it for 6 semesters. For academic staff, however, the task can become tedious when it has to be repeated with precision timing for a hundred or more students each doing between 4 and 20 compulsory computer preparation activities per semester, year in and year out.

There are two further sources of erosion of staff stamina arising from the HyperCard base of the activities. The first relates to amending the contents of activities. Because the academic staff member does not possess the necessary programming skills, any typographical or other errors (inevitable in such a huge body of data) detected in the contents by users had to be signalled to the programmer, who in turn had to unlock the stack, amend the contents, relock it, then convey it to the staff member so it could be replaced on the master copy of the data and loaded on to each laboratory machine. The second relates to scoring. Each of the HyperCard stacks included a card on which students' scores were recorded. With large numbers of students making numerous attempts at most of the compulsory activities, data accrues rapidly in this field and can become difficult to scrutinise. There is, moreover, an upper limit of 32,000 characters, after which the system fails unless programmed to clear current contents before opening. Rather than the administrator going into each compulsory test stack on each computer each semester to clear obsolete data from the score field to avoid the risk of finding that all the data it had contained had disappeared, a practice was adopted of simply reloading a fresh set of all test modules, with empty score fields, onto each computer prior to the beginning of each new semester. This was tedious but considered a worthwhile investment of time.

With time there also came a rising concern over whether eventual successors to the incumbent would be willing or able to familiarise themselves with the various management processes and take the time to implement them, regardless of the instructional merits of the activities.

Finally, individual activities on Mac-only personal computers in a single room in a building inaccessible outside of office hours are anomalous in an institution where e-learning is increasingly synonymous with remote-access, and with centrally administered and supported learning management systems linking staff and students campus-wide.

The Operation

All modules in the existing suite were handled in one of three ways: conversion to WebCT; conversion to Runtime Revolution applications; no conversion. The choice of the procedure to be followed in each case was governed by the form of the contents (text, audio, graphic), whether the activity was integrated into the students' formal assessment, and, in one case, by the linguistic content. If the contents were text only (or, in one case, text + graphics), and integrated into the formal assessment of a subject, the activity was adapted to the WebCT environment. If the contents included audio as well as text and were an integral part of a subject, the activity was converted to Runtime Revolution. Regardless of instructional merit, if a module was not an integral part of any subject or regularly used by the lecturer for teaching purposes, no attempt was made at rejuvenation. Each of the procedures will be analysed in turn in the sections that follow.

The WebCT Option

The conversion of the HyperCard grammar activities to the WebCT quiz environment represents a radical transformation. With the HyperCard modules, the designers had been the developers. This meant that the underlying approach had been one of creativity, of deciding how the activity should function, which instructional elements to include and how to prioritise them, and then using HyperText, at times imaginatively, to come up with the desired result. The designer had virtually complete control over screen layout, navigation, sequencing, pathways, feedback, scoring, randomisation, and definition of administrator privileges. With the services of a skilled designer, the teacher could inject himself into the software at will. The WebCT quiz template, with all its merits and limitations, is fixed. It is a case of 'one size fits all', and it was not designed by language teachers. Getting it to accommodate existing materials that had been designed independently of it and predated its conception by several years represented a considerable challenge.

To qualify for this treatment, modules had to be text-only and formally integrated into the assessment of a subject. 16 modules fell into this category: Adjectives; Adverbs; #Articles; #Comparison; #Future Tense; #Infinitive Government; #Infinitives and Participles; Passé Composé; Passé Composé/Imparfait; Present Subjunctive; Present Tense Verbs; Pronoun Objects; Relative Pronouns; Reported Speech; Translation Traps; Verb Kit; Verb Tense Recognition. (# indicates that the conversion of the module is not yet complete)

The pilot operation was carried out on the Present Tense Verbs module. It is the most used of all the activities, and there was the chance that prioritising its conversion would enable it to be trialled online by a large cohort of first-year students for whom the 80-item revision test was compulsory preparation for the end-of-session examination.

The programmer kept detailed notes of the challenges of each conversion operation. Although it would be tedious and repetitive to reproduce them all in full, the following verbatim account of the first procedure (Stace, 2004) provides unique and useful insights.

"The process turned out to be a long and convoluted one, with several dead ends and problems arising - not all of which have been able to be resolved so far (March).

The process: Part A [Capture the text]...

1. Make a copy of the original HyperCard Test stack
2. Open and unlock the stack so that it can be edited
3. Unlock each of the (16 in this case) fields to access the text therein
4. Create a new Word document ready to receive copied text
5. In HyperCard, select the text in the first question and answer field
6. Copy the text
7. Move to Word
8. Paste the text
9. Save the Word document
10. Move back to HyperCard
11. Select and copy the text
12. Move to Word
13. Append (paste) the text to the Word document

14. Repeat for all 16 question and answer sets, finishing with tables containing all the text in the format:

QUESTION	ANSWER
Je vois que tu ..... (mourir) d'impatience.	meurs

WebCT required format:

- # Start of question: PTF003
- TYPE:S:
- :TITLE:PTF003
- :QUESTION:H
- Je ..... (mourir) de curiosité.
- :IMAGE:
- :ANSWERS:1
- :CASE:1
- :ANSWER1:meurs:100:0:20:0
- :FEEDBACK1:H
- :CAT:Verbs - Present Tense F
- # End of question: PTF003

The transformation required in this instance was relatively straight-forward, as there is only one, one-word response required (and possible) for each question. The problem was how to 'wrap' the batch text format around the questions and answers to be moved into WebCT. At first, it seemed that the Word table format could do the task, but there was a difficulty with the answer string - :ANSWER1: meurs:100:0:20:0 - how to insert the one-word answer into this line. The solution was to separate the components into separate columns and then recombine them after inserting the answer in the appropriate place. To automate this to some extent, I moved all the word tables into Excel, the relevant section organised as below:

:ANSWER1:	meurs	:100:0:20:0	:ANSWER1:meurs:100:0:20:0
:ANSWER1:	meurs	:100:0:20:0	:ANSWER1:meurs:100:0:20:0
:ANSWER1:	meurs	:100:0:20:0	:ANSWER1:meurs:100:0:20:0

The recombination of the answer string effected by using the concatenate function: =CONCATENATE(I1,J1,K1)

Once all of the text was moved back from Excel to Word, the next step was to save the Word documents in 'text' format (file.txt), as that is what is required by WebCT for its batch file format. Having done this and created a single large batch.txt file, the next step was uploading the file to WebCT. Initial problems occurred immediately.

Problem 1 - WebCT takes an age to deal with such a large batch file. On the fast UoW network it took 45 minutes to upload and process the single large batch file into the Quiz Question Database. This file contained 2142 questions and answers in the WebCT batch file format:

Problem 2 - in the WebCT Question Database, WebCT displays ALL the questions in any single category each time that category is selected, This also takes a very long time for a large set of questions. Unacceptably so, if all you want to do is make a simple edit to any of the questions in the category.

The solution for these problems was to go back to the original batch file and separate it back out into the 16 separate files that were originally used in HyperCard (the reason for this was that HyperCard could not accept more than 32k of text into any one field). The resulting files were then zipped together into a single file and uploaded to WebCT.

Once successfully (and more rapidly) loaded to WebCT, the next step was to import the batch text files into the quiz database in WebCT. This is a straightforward process, but it immediately raised another problem - that of dealing with accented characters. WebCT did not recognise that accented characters as saved as text only format by Word.

Problem 3 - the WebCT Question Database did not recognise the accented characters as saved by Word. This resulted in errors such as:

- Ils Ècrivent des lettres.
- Elles ont beaucoup d'idÈes.
- Elle mange trop de g,teaux.
- leur pere
- les trois premiËres pages
- un verre ‡ vin
- Excusez-moi de ne pas Ítre venu plus tÙt!

The solution to this problem, and the process to be followed for all such transfers, is to save the document as text only in Word, then copy and paste the document into a text editor (such as TextEdit). The TextEdit document then needs to be saved as a text-only file using the “Western (Windows Latin 1)” encoding. The accented characters in files saved in this way are correctly recognised and displayed by WebCT.

The process: Part B [Move to WebCT]...

1. Zip the files into a single file
2. Upload the zipped file to WebCT
3. Unzip the file into an appropriate WebCT directory
4. Open the WebCT Question Database
5. Import each uploaded file into the WebCT Question Database (repeating 18 times)
6. Allocate questions from 18 categories into 19 quizzes as below in Figure 1 taken from WebCT:

Figure 1: WebCT Table of Contents

Summary

The process has successfully moved content from the original format as shown in Figure 2 below, to the WebCT quiz environment. A sample quiz taken from the WebCT environment is shown in Figure 3.

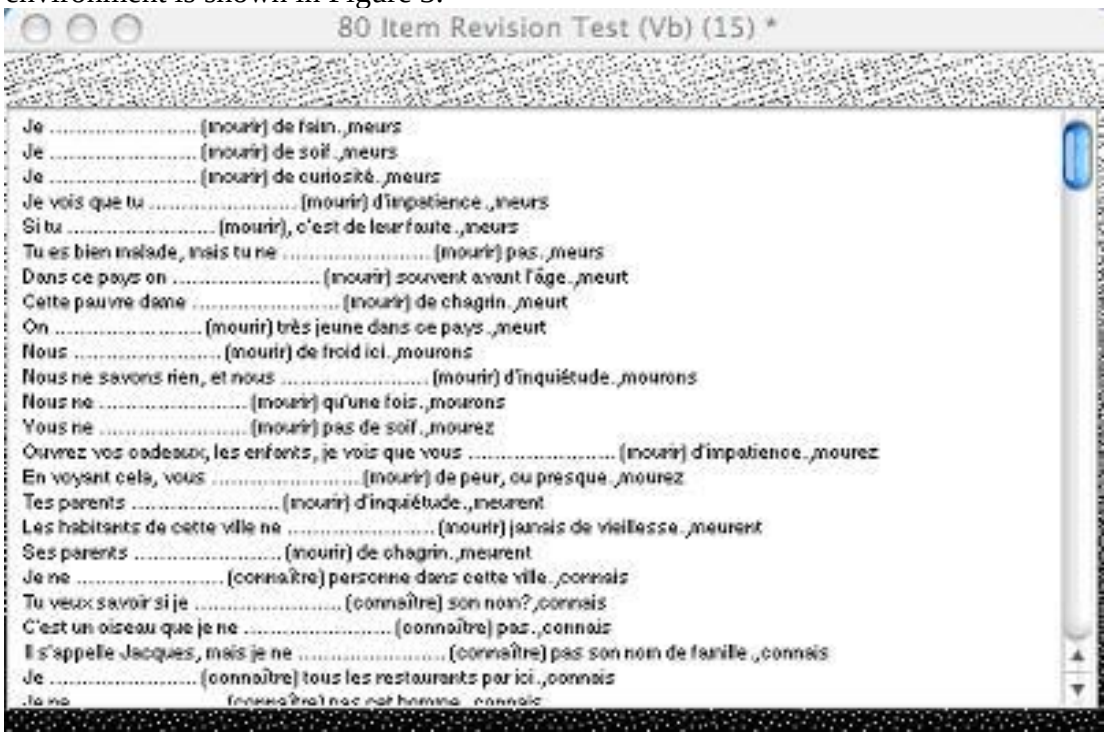

Figure 2: Example of original format of cues and responses

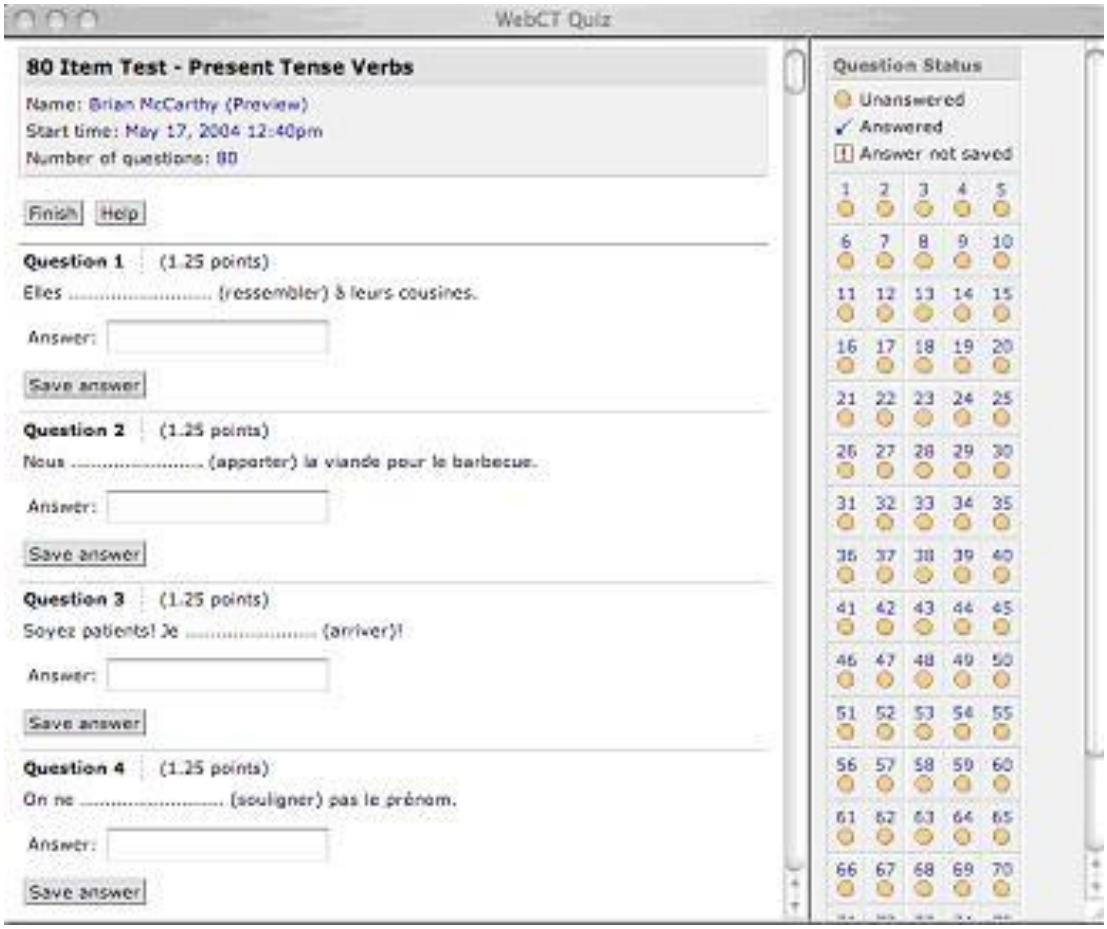

Figure 3: Sample "80 Item Test - Present Tense Verbs"

Each HyperCard module had been tailor-made to respond to the character of the particular grammar point it was reviewing. Design had been influenced by factors such as the level of difficulty of the point, the need to allow students to work on it either in discrete stages or as a comprehensive review, the level and type of discourse in which the grammatical feature normally occurred, whether there was a need to have students focus on conceptual as well as formal aspects, whether instantaneous scoring and linguistic feedback should be provided on the completion of each item, and whether or not students should be encouraged to access explanations and tutorial material online as they were doing the activity. It is therefore not surprising that the conversion of each module presented the programmer with additional challenges. Although the solutions were often ingenious and convoluted and required considerable research, it would be beyond the scope of this article to present them in detail here. Challenges included:

- adaptation to multiple-choice format;
- importing and formatting activities in which the number of correct responses ranged from 1 to 16 (e.g. use of Runtime Revolution to generate batch file codes uploadable into WebCT);
- provision of study cards and grammar notes readily accessible to students online;

- provision of supplementary information that had come as optional viewing, or as part of the feedback for each question on the way through the quiz in the HyperCard version;
- transferral of formatted data (e.g. underlining in the Pronoun Objects exercise) when WebCT batch files do not work with anything other than plain text;
- genuine randomisation; (At the top level, WebCT is unable to present questions randomly - e.g. if a verb review quiz has been designed to contain 20 questions covering all categories of verbs (3 regular -er, 3 regular -ir, 2 reflexives, 12 irregular verbs, etc), WebCT can pick randomly from the 'question alternates' from each subsection, but it is then unable to present the resultant set of 20 questions in random order. The use of 'pseudo-randomisation (i.e. re-establishing quizzes so that, although questions are always presented in the same sequence, that sequence is ordered in such a way as to minimise the likelihood of students recognising it) went some way to solving the problem. But there is still a strong risk that, as they are required to use the material often, students will become familiar with the pattern and use the position of the item in the quiz, rather than their comprehensive knowledge of the language system, as the main cue to providing the correct response. This risk can be reduced to some degree by presenting items one at a time, rather than in such a way as to allow students to view the full set of fake-randomised questions at one time.)
- replication of the sense of 'moving through' a passage; (In the Passé Composé/Imparfait activity, for example, passages could be as long as 500 words and contain over 60 gaps - i.e. points at which the student was required to supply an answer. Correct answers depend on the student• fs ability to respond to linguistic features of a unit of discourse larger than the clause or sentence, and often build on the answers given in adjoining segments.)
- reformulation of two-step activities (which cannot be replicated in the WebCT quiz environment) so that it required only a single response;
- use of html code to allow the importation of data so that its display in WebCT largely replicated that of the original HyperCard version (Figures 4 and 5 show the HyperCard starting point and the WebCT endpoint of the conversion for typical items in the Reported Speech activity)

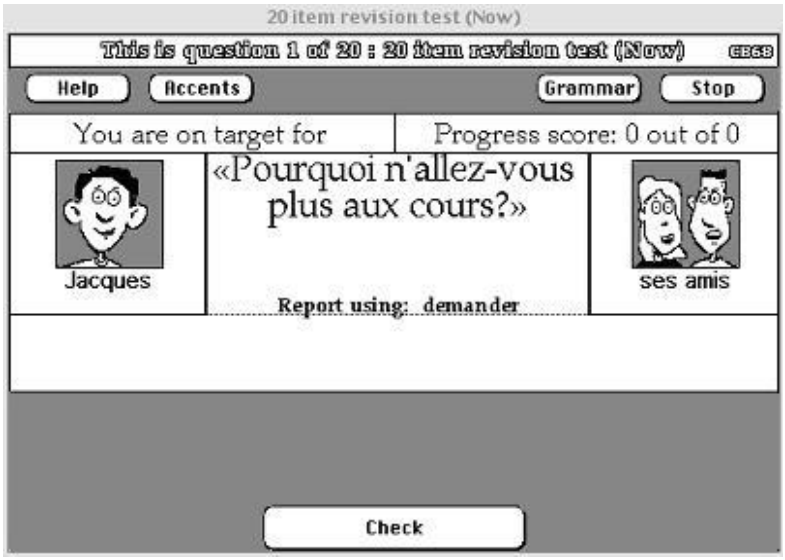

Figure 4: Original HyperCard display of typical Reported Speech activity

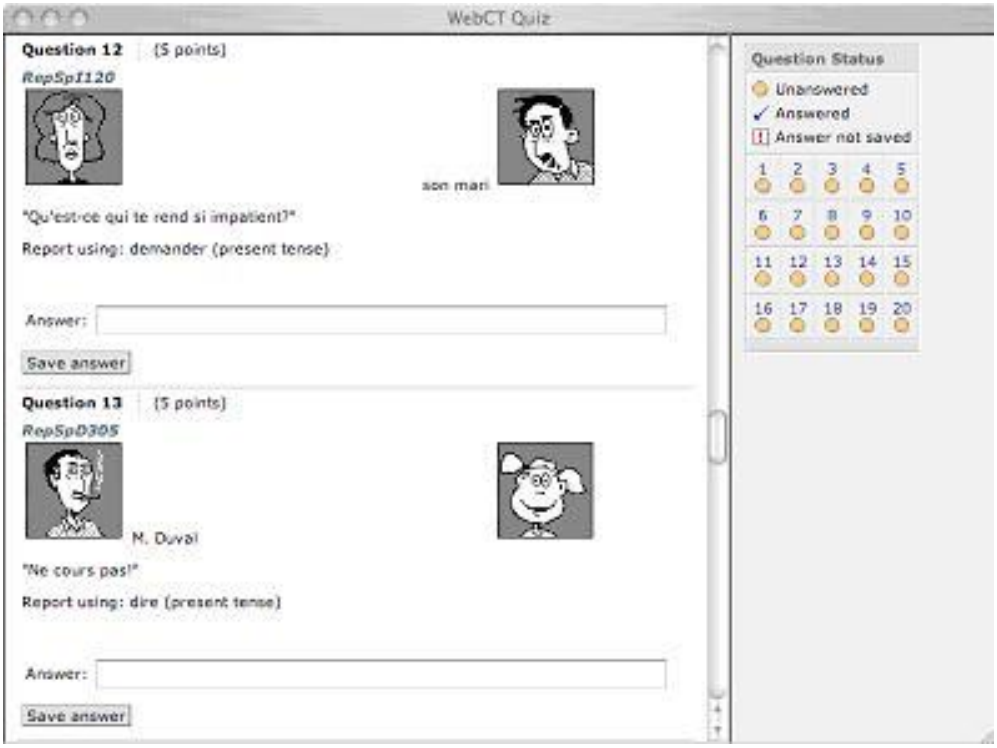

Figure 5: WebCT display of typical Reported Speech activity

The Runtime Revolution Option

A number of the HyperCard modules incorporating sound are, like the text-only grammar modules, an integral part of French language subjects, particularly at the beginner level. These modules (En tête-à-tête; Numbers (50, 100 and 10,000); Basic Expressions; Spelling; Proverbs) are structurally complex, and, although not exactly constructivist in concept, were designed to allow users to navigate freely within them, and to learn by reflection on and assimilation of the contents. They have a completely different 'feel'

from the revision-focused, scored grammar quizzes. Constraints of time and resources precluded the option of redesigning these activities from scratch and they could not be accommodated on WebCT. Runtime Revolution was chosen as the tool for carrying the modules forward because of its stated ability to be able to open and work with native HyperCard stacks and create from them standalone applications that could operate in either Macintosh OS X or Windows environments.

The largest and most indispensable of these modules, 'En tête-à-tête', was chosen for the pilot operation. It is the computer-based support for a set of classroom paired-speaking activities containing the text and sound of 300 situational dialogues, and some 75% of the oral mark for each semester in first-year French derives from their mastery.

Apart from the painstaking individual extraction and reformatting of anything that had been treated as an external function in HyperCard (i.e. colourisation script, and the 4,429 individual sounds), the conversion process and production of standalone applications for OS X and Windows proved relatively straightforward, with little requirement for recoding. Fonts, and consequently, text fields, had to be changed to make them compatible with Windows. The new-format activity could now operate on virtually any personal computer, and the opportunity was taken to improve its dissemination and functionality by publishing a Book + CD kit containing 3 versions of the material: the dialogues presented in pair-work cue card format - for classwork; the cues and responses for each situation presented sequentially - for individual, non-electronic private study; and the multimedia CD-ROM to provide students with the audio support so important in any private-study of oral work.

Similar problems associated with sound, colour, layout, and fonts were encountered in the conversion of the other modules, but the process is now almost complete. It is proposed to disseminate these as a separate CD-ROM.

The No-Operation Option

Software surgeons are at times required to make tough decisions. A number of modules in the original suite contained extensive sets of discovery or game-like activities, most of them designed to reinforce basic aspects of the French language. They had involved some of the most elaborate programming and multimedia combinations. Except for the 'Shopping' module, whose sound and the text was irretrievably linked to the now superseded French franc, their linguistic content was virtually ageless. They would have made excellent resources for the average secondary school classroom. But, because they were in no way formally integrated into the formal university assessment process, - there is a limit to how much work it is reasonable to expect the student to for a given subject outside of class - for more than a decade their use had been limited to casual exploration by the occasional student with a few idle minutes to fill in the computer laboratory. These modules included ID Kit (name, age, address, profession, nationality); Clockworks; Date; Dis bien bonjour! (greeting and leave-taking expressions); Grid Games (numbers and alphabet game); Pot-Pourri (France and French general knowledge quiz); Read Your Way Around France; Roadsigns; Shopping; Weather Station; and Bons Mots (French expressions commonly used in English). They were simply not paying their way in academic terms, and their life-support system (i.e. a heavy investment of time and resources into upgrading) has been turned off.

The fate of some modules (VocaBuilder; Articles; Comparison; Future Tense; Infinitive Government; Infinitives and Participles) remains in the balance. They are of high linguistic value, and could be delivered online, but they are either non-integrated or have been constructed in such a way as to make extraction from their original HyperCard from very difficult.

Student Reaction

Virtually everything that has been said to this point has been presented from the point of view of the teacher-designer or the programmer. There has not yet been an opportunity to glean feedback on the two-platform CD-ROM delivery of multimedia modules, and the fact that unintegrated modules have been abandoned may never even be noticed by students. There has, however, been considerable feedback from users concerning WebCT delivery of the grammar exercises, since all students were required to complete all their compulsory computer preparation for grammar quizzes online throughout the second semester. Essentially it has come in two forms: email messages from students encountering various problems during the running-in period of the online activities; and responses to a simple questionnaire completed by students familiar with both the old and new modes of delivery. In both cases, the comments had been reflected in questions addressed to the lecturer in person, and to discussions between students overheard in corridors and classrooms. The email messages fall into two broad categories: relaying problems arising from WebCT functions or malfunctions; and comments on the content or structure of specific exercises.

WebCT Problems

A very small number of systemic problems related to the WebCT platform accounted for the great majority of emails. With a hundred or so students working from different personal computers at home or in the central facilities on campus, each machine with its settings, and each student with a different level of computer literacy, potential problems were bound to surface very quickly!

The first was the problem of students having to type accented characters such as é, û, ç, or ï accurately if their answer was to be marked correct. Constructive collaboration between students and staff produced a range of solutions. The first was to make a ‘Typing Accents’ page available to students online which they could keep open on their desktop as they completed their exercises. It contains two tables, one for Macintosh users, the other for PC users, displaying information such as “to type• c Grave accent (à, À; è, É; ù, Ù), press coption +` (grave accent), the letter” (for Macintosh users); or “Hold down the Alt key, type the number on the numeric keypad, release the Alt key: Character - à, Lower Case - alt + 0224, Upper Case - alt + 0192 (for PC users). Students also have the option of copying and pasting the accented characters directly from the instruction screen into their answers. Students learned by trial and error that, for Windows, keystrokes used for typing accented characters in word processing applications (e.g. for grave accent, typing CTRL+` (grave accent), then the letter) do not work in the web environment within WebCT. Another solution, quickly abandoned, was to change the language setting of the keyboard from US to French to allow students to correctly type accented characters. This

does work, but many of the characters are in different locations, making the keyboard unnecessarily tricky to use. Care also had to be taken that students used the Western (ISO Latin 1) browser setting, without which accented characters do not retain the accent information. Two other copy-and-paste solutions were suggested by students. One was for them to create a Word document containing all the accented characters and leave it permanently available on the desktop of their home machines; the other, for use in cases where they were required to rework the entire cue sentence (e.g. to put it in the past tense), was to copy the cue question within the quiz, paste it into the answer box, and then adjust the pasted sentence as required. In the early stages, this solution also revealed cases where anomalous spaces had been introduced into the HyperCard text to accommodate the highlighting function.

The second major system-related problem arose when students, on completing a compulsory quiz (which might have contained as many as 80 items) discovered that the system froze. The fact that this happened to numerous students, many of them very computer literate, suggested that it was in no way due to ineptitude on their part or to substandard personal computing facilities. The less self-assured students allowed the surge of frustration to pass, then proceeded to retake the test. The more IT-savvy came up with solutions, all revolving around coming back into WebCT, reloading the same quiz, submitting it unattempted, then clicking on 'View Results', which caused the invisible score to rematerialise. Their sharing of solutions with the lecturer and fellow students provided a valuable paragraph for the raft of user information in the support material being prepared for distribution to all students at the beginning of next semester.

There were other minor problems with screen refreshment (depending on the browser used), sizing of displays, and accessing WebCT (particularly for students who had not been required to use the system for the other subjects in their course). These were invariably ironed out with regular use.

Content of Specific Exercises

As is only to be expected in the transfer, often by roundabout means, of a corpus of over 45,000 quiz items from HyperCard to WebCT, a few items still contained typographical errors - even though a procedure for notification and correction of such glitches had been in place across more than 10 years of active service of the HyperCard software. Such problems were seldom if ever critical in getting a student 'over the line' with required minimum scores in compulsory preparation activities. There was only one instance in which the text of a significant section of a module was accidentally corrupted during transfer, and this was promptly rectified.

The Questionnaire

At the end of the first semester of implementation of the compulsory use of WebCT for online preparation, the opportunity was taken to gather comments from the two cohorts of students who were familiar with both the old and the new modes of delivery. Before the change to WebCT, second-year students had had 3 semesters of HyperCard-based work in the computer laboratory, and third-year students 5 semesters. Students were simply asked to indicate areas in which they found the WebCT interface to be superior and areas in which they found the HyperCard interface superior.

Advantages of WebCT

The facet of WebCT delivery most appreciated by students was its convenience. Virtually without exception, students commented on the advantage of being able to work on the activities from home or from anywhere that had an internet connection. Respondents who had to commute 50 or more kilometres between home and campus noted their relief at no longer having to make a special trip when the preparation was due on a day they did not have to come to the university for lectures. And half of them made specific reference to the 24/7 availability which meant that, in slotting it into their daily schedules, they did not have to take account of laboratory closing hours and so could sail closer to the wind when it came to meeting deadlines. Related to this was not having to worry about coming in to do preparation (perhaps last-minute), and finding the laboratory full. Some students, with a slightly longer-term view of the situation, realised that the new mode of delivery would make it possible for them to continue revision outside of session times and possibly further into the future. Feedback features that were clearly appreciated were the fact that it was possible to come back and view a record of individual mistakes and scores in any test at any time (this helped analyse errors), and that it was possible to view all scores for all tests. Other comments related to ease of navigation; the use of colour; the fact that any type of computer could be used; the possibility of using other internet aids at the same time; the possibility of spreading completion of a single exercise over several sittings; and not having to put up with distraction of other students having social meetings in the laboratory.

Advantages of HyperCard

The most appreciated facets of the HyperCard activities in the computer laboratory were the instant feedback provided after each item ('You know if the answers are wrong straight away, and why'); the provision of progress scores ('So you don• ft end up going through all the questions only to find you fve missed the required score by one or two questions. This saves time.'); and the ease of typing accented characters. Several students had noted that some valuable exercises had still not been taken across to WebCT and were concerned that they might no longer be available to them. One aspect of the old system that many students commented on was the social dimension. Many had developed a habit of dropping into the room as a productive way of filling in time between lectures. They realised with genuine regret that web delivery of the material would mean the loss of highly valued opportunities provided by the laboratory for mixing with fellow students, finding support and encouragement, and developing friendships. Features of the old software receiving positive comments were the clearer, less busy screens and bigger fonts, the ease of access to online grammar help, and general user-friendliness. The computers in the Modern Languages laboratory were seen as generally more readily available than those in other labs on campus; they did not require internet connection, and therefore were less likely to crash and did not have quotas on usage; there were not the typical distractions of home (television, phone, interruptions by family members); and the more formal arrangement of laboratory-based preparation made some students less tempted to leave preparation till the last minute.

The same goodwill that had been evidenced by students in the first incarnation of the material in the early nineties was still clearly present in the classes of 2004. They

value the contribution the materials are making to their progress and are eager to contribute to the refinement process, often with the investment of significant personal time. They sense that they are pioneers and enjoy the challenge. Students also appreciated having the opportunity to provide input via the questionnaire and put considerable thought into their responses, so their comments, as summarised above, can be taken as an accurate indication of the gains and losses of the changeover. The transformation has been a distinct success from the student user• fs standpoint.

Conclusions

One cannot pretend that the new interface is in every respect an improvement on the old. It would have been better if some of the appealing character lines on the countenance of the old servant (constant feedback, progress scores, easy typing of accented characters, freedom from the vagaries of the internet, and social interaction with fellow students during learning) had not been removed. But there is really little point in dwelling on what has been sacrificed in the conversion operation since failure to have acted would have resulted in the eventual loss of these qualities in any case.

In any appraisal of Computer Aided Language Learning materials, the complete picture can only be built up by looking in turn at all four elements of the term: the computers, the aid, the linguistic content, and the instructional merits. In the WebCT and Runtime Revolution versions of the material, delivery is still computer-based and embodies all the advantages of the medium in the domains of flexibility, interactivity, efficiency, storage capacity, objectivity, and multimedia configurations, that distinguish it from the conventional print-based presentation. The material is still a valued aid whose capacity to support learning has been considerably enhanced through the possibility of remote access from any type of personal computer 24/7. The extensive linguistic foundation (more than WebCT 45,000 quiz items covering 12 key grammar points in over 150 activities, most with online grammar notes, and the suite of situational dialogues and other materials in Runtime Revolution) remains intact. And the instructional design for all converted activities is virtually unchanged. Technological evolution had made it necessary to consider reconfiguring the software, and the linguistic content and instructional value justified responding to that imperative.

For the academic who administers student use of the materials, there are some very clear and welcome improvements. The first is the elimination of the chores of preparing and posting sign-up sheets for over a hundred students who between them complete some 45 different compulsory preparation activities each semester, and checking scores on individual machines. The management resources in WebCT make it possible to display and export as an Excel document a table of the best score achieved by each student in a given activity at any time. This makes it possible to easily capture the exact state of play with any group of students at the moment of the prescribed deadline. In rare cases when students have been prevented from reaching the required minimum score as a result of errors arising from typographical errors in the stored data, they can print out the problem item and show it to the lecturer concerned who can then make a manual adjustment to the mark. The WebCT quiz records are also a rich source of data for future research into error analysis. A second major improvement is that, unlike HyperCard, with WebCT the programming-illiterate academic can amend the text of any defective text in quiz items,

instructions or online notes at a single location quickly, easily, and permanently. Moreover, because students have such ready access to the text of their quiz, they are more inclined to notify the lecturer of problems, either via printouts or email (an easy option as they are already working online). This has already accelerated progress towards the longstanding goal of providing a resource whose text is completely error-free.

The size of the corpus and the variety of activities meant that the conversion process pushed the boundaries of the WebCT system. It allowed the programmer to correspond with the Development Team and to push for a number of bugs and limitations to be resolved in upcoming releases. It also happened that the programmer was a person very much in touch with the university• fs policies and practices surrounding the use of WebCT. As the HyperCard conversion exercise took place at the same time as deliberations into future directions in learning management systems in the institution, the programmer was well placed to provide constructive input. His communication to decision-makers of the insights gained during such a challenging and extensive conversion process have optimised the chances that any future LMS adopted by the institution will not only continue to accommodate the delivery of the new online activities, but will enhance it.

Any adaptation of the data now on WebCT to future generations of LMS is highly unlikely to involve such fundamental, intricate, labour, and resource-intensive processes. It would, therefore, appear that the new lease on life that the operation has granted the old HyperCard servant will extend its working life for decades to come. Provided that its future academic employers value its services and are prepared to assume responsibility for maintaining them.

Reference

Stace, R. (2005) unpublished Study Leave Report, University of Wollongong

Acknowledgement

The project was undertaken on the initiative of Ray Stace, Manager of Educational Development Services at the University of Wollongong• fs Centre for Educational Development and Interactive Resources (CEDIR). Ray has been programmer, IT consultant, and joint designer throughout the life of the project. He has spent approximately 1540 hours of his study leave in 2004 to conducting a review of the University of Wollongong French Computer Assisted Language Learning materials, researching possible software solutions and avenues for conversion, and converting the existing HyperCard stacks into the WebCT quiz environment, or to applications allowing delivery onto MacOS X and Windows, to ensure their continued availability into the future. Without his conviction of the pedagogical merits of the material and his dedication to ensuring their survival, there is every chance that they would have eventually succumbed to old age. The instructional returns for the expertise, time, and resources invested in their development over more than a decade would have dried up, and a unique and highly valued facet of the university• fs foreign language teaching program lost.

Appendix 1: Full Listing of HyperCard Modules

Grammar Review and Maintenance Modules: Adjectives; Adverbs; Articles; Comparison; Future Tense; Infinitive Government; Infinitives and Participles; Passé Composé; Passé Composé/Imparfait; Present Subjunctive; Present Tense Verbs; Pronoun Objects; Relative Pronouns; Reported Speech; Translation Traps; Verb Kit; Verb Tense Recognition

Other Learning Activities: Basic Expressions; Bons Mots (French expressions commonly used in English); Clockworks; Date; Dis bien bonjour! (greeting and leave-taking expressions); En tête-à-tête (cued dialogues); Epelez S.V.P (spelling aloud in French); Grid Games (numbers and alphabet game); ID Kit (name, age, address, profession, nationality); Numbers; Pot-Pourri (France and French general knowledge quiz); Proverbs; Read Your Way Around France; Roadsigns; Shopping; VocaBuilder; Weather Station

Appendix 2: Research Publications generated by the HyperCard project 1992-2004

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- McCarthy, B.N. (1994). CALL Software Design: Moving from the Notional to the Concrete. ReCall - Journal of the CTI Centre for Modern Languages, University of Hull, England, in association with EUROCALL , vol. 6/1, 19-26
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- McCarthy, B.N. (1994). Designing Materials for Computer Assisted Language Learning: Some Preliminary Considerations, BABEL - Journal of the Australian Federation of Modern Language Teachers' Associations, vol. 29/3, 24-27, 36
- McCarthy, B.N. (1995). Grammar Drills: What CALL can and cannot do, ON-CALL - The Australian Journal of Computers and Language Education , vol. 9/2, 30-41, http://www.cltr.uq.edu.au/oncall/mccarthy92a.html

- McCarthy, B.N. (1995). Realism and Reality in CALL Software, ReCall - Journal of the CTI Centre for Modern Languages, University of Hull, England, in association with EUROCALL, vol. 7/2, 36-46
- McCarthy, B.N. (1996). Fully Integrated CALL: Mission Accomplished, ON-CALL - The Australian Journal of Computers and Language Education , Vol 10/2, 15-28, http://www.cltr.uq.edu.au/oncall/mccarthy102.html; also published in ReCall - Journal of the CTI Centre for Modern Languages, University of Hull, England, in association with EUROCALL , vol. 8/2, 1996, 17-34
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