Modern languages and CD-ROM-based learning

Elaine Pawling

Elaine Pawling is a teacher at High Storrs School, Sheffield where she is responsible for the development of ICT in modern foreign languages and coordinator of a video conferencing project with a school in Germany. This article was begun whilst she was a part-time lecturer on the PGCE course in the Division of Education, Sheffield University. In 1995 she managed the production of a video for BECTa on training strategies and models to promote IT use in foreign language lessons at Keystage 3. She has contributed to a book entitled Teaching and Learning with Multimedia (Collins, Hammond, Wellington, 1997) on the subject of cultural images in foreign language applications. She can be contacted at High Storrs School, High Storrs Rd, Sheffield. Email: e_pawling@highstorrs.demon.co.uk.

Abstract
This article investigates the nature of language learning using CD-ROM packages. The research explores cognitive processes and alternative learning experiences which contrast with conventional delivery modes in foreign language teaching. The article concludes that CD-ROM can promote vocabulary acquisition, pronunciation and independent learning and has a major contribution to make to the development of language teaching and learning.

Modern languages and CD-ROM-based learning

The setting up of learner-oriented/constructivist exploratory learning (Laurillard, 1993) is a desirable but unachievable pedagogical goal for most foreign languages teachers, for whom the delivery of a languages programme has to take an instructivist form. Good languages teaching is to be fair interactive (as opposed to narrative with the teacher as narrator and pupils as listeners) necessitating constant pupil responses and engagement with the language, yet this interaction is teacher-led, teacher-controlled and by necessity homogenous, hence the long-standing demand for setting for language learner groupings.

More recently teachers have endeavoured to introduce more flexible, resource-based ways of learning languages which enable greater student control and autonomy. At post-16 level this has often taken the form of open access language centres. A good resource-based classroom will include activities to promote all four language skills such as: a reading corner, a listening station with headsets, a games corner with board games, pairwork activities and writing tasks, and well funded and innovative departments might even include video and computer stations. These activities are set up at various points in the classroom and children will move from one activity to another. The most
important factor for languages teachers is that students can take responsibility for their own learning. I observed this recently with a student teacher who was trying out flexible learning for the first time with a Y7 French group. The pupils moved around the activities purposefully and effectively and there were no signs to indicate that this was a “challenging class”.

Teacher mobility allows for differentiation in terms of support and self-conscious pupils feel far less exposed than when rehearsing language in large groups. In the main, pupils of any age react well to working independently, provided that the support of the teacher is readily available. The problem for the teacher is that s/he does not have control of the learning which becomes non-linear and positively chaotic. This can be unnerving for languages teachers who, perhaps more than most subject areas, are most comfortable with a didactic style of teaching for methodological or logistical reasons.

CD-ROM is potentially a liberating instrument for teachers and learners alike in that it has the special facility of incorporating practice in all four language skills mentioned above in a multimedia package using video, text, photograph and sound. There is much evidence, not least teachers’ own experience, to suggest that computer-based learning is very motivating for children. However, teachers and researchers have to measure the pedagogical value of using a computer as opposed to any other tool in the promotion of learning (Hammond, 1994). Reeves (1995) in an article on “A model of the effective dimensions of interactive learning”, emphasises the need to prove the pedagogical advantages of using computers as a tool for learning:

“Although we may be enthralled with its media features, ultimately CBE (computer-based education) is only a vehicle for the pedagogical dimensions we wish it to carry. As a vehicle it may be more efficient or less costly than other vehicles, but it is the pedagogy it enables that determines its ultimate effectiveness and worth, not its media characteristics.”

The purpose of this research was to evaluate the feasibility and effectiveness of CD-ROM as a tool for resource-based, student-centred foreign language learning. The research focused on two case studies.

**Case study 1: King Edward VII School**

The first case study involved vocabulary acquisition using an application called Directions 2000 which can best be described as a multimedia dictionary based on the vocabulary prescribed for Keystage 4/GCSE. There are three parts to the application: a lexicon which is the dictionary component, a browser section which covers vocabulary areas by topic beginning with the solar system, and moving right down to the minutiae of everyday life such as the contents of the bathroom; a games section which includes a treasure hunt and a tour round a French castle.

I decided to test the usefulness of the dictionary section of the package in terms of vocabulary acquisition and, working with pairs or triplets of children in Y7, 8 and 9 classes at King Edward VII School selected 10 items of vocabulary in French to “research” and then learn. Each pair or triplet (there was a total of 10 pupils) spent one
hour on the activity and subsequent interview. Initially a recording was made of the learners reading the list of words unsupported. The pupils were then shown how to use the application: how to “look up” the words; how to obtain an example of the word in the context of a sentence; how to get a translation of this sentence if required and, finally, how to record themselves. The students were clearly all computer literate given the speed with which they learnt how to operate the dictionary and could very soon be left to their own devices. They were told that their comprehension, pronunciation and recall of the vocabulary items would be tested after an interval of 15 minutes. The lexical items the pupils were asked to research were: “des haricots verts, une salade de fruits, un pain au chocolat, des moules, une glace à la fraise, la barbe à papa, des fruits de mer, des petits pois, une tarte aux pommes, un yaourt”.

Ellis (1995) outlines two kinds of vocabulary acquisition in second language learning namely an implied acquisition which is assimilated unconsciously and in context (eg, through reading) and an explicit method which involves the conscious appropriation of a particular word and “requires explicit learning processes with deep processing strategies like semantic elaboration and imagery mediation resulting in better acquisition”. Processes whereby inferencing takes place are more effective than the use of “marginal glosses” (vocabulary is given at the side of a text). Translated into the classroom situation the explicit method of vocabulary acquisition is promoted through imitation and repetition whereby the teacher incorporates a battery of presentation techniques using a variety of realia in order to present and to practise the language in as many different ways possible. eg sensory strategies such as passing objects around and saying them as they do so, association of new words with pictures, be they pictures in the form of flashcards or OHTs.

How then does this application fulfil the particular function of vocabulary acquisition? Firstly the photographs enabled the pupils to infer meaning. The pedagogical principles underpinning the design of the application were supported by the pupils’ articulations of metacognitive strategies. Several of the pupils mentioned the idea of imagery mediation in terms of inferencing and retention. “The voices sound more human than those on tapes and there’s a picture to help you understand what the word’s about”, (Mary) “The picture helps you remember the word.” (Mark) The pupils were also able to infer meaning from the sentence in which the lexical item was embedded, a form of semantic representation, which also supports vocabulary retention. Hence the sentences were approached by the students as puzzles to decipher, resorting to the English translation when the sentence proved too complex for their level. Assimilation of the vocabulary was facilitated by the fact that the learners could play the model sentences as many times as required at the click of the mouse, another technically enhancing feature of CD-ROM. As Simon said in the interview: “You can play it over and over. If you get it wrong you can listen again. You can hear it as much as you want and then you can record yourself.” And Sarah: “You can do it at your own pace and do it steadily so you get it right.” The learners themselves touched on one of the key issues in whole-class language teaching and learning: that of differentiation. Teachers are usually forced to target the middle ability band of a class as the benchmark. This means that in listening tasks in

particular both the weaker and the more able pupils are required to complete tasks that are not appropriate for their ability which leads to frustration or boredom. Multimedia allowed for differentiation in that the pairs could work at their own pace.

Repetitive practice and oral production of new word forms are crucial for the transfer of lexical items from a passive to an active state. Imagery mediation, semantic representations and oral production are forms of deep processing methods.

"Whether they access the meaning from inference from context, by asking someone or by looking the word up in a dictionary learners must consolidate a new word if it is not to be an 'ephemeral knowing'. Deep processing techniques can serve as highly effective mnemonics." (Ellis, 1995)

The recording facility represented a powerful deep processing activity and for the pupils was the most attractive and motivating feature of the CD-ROM application. The students were required to imitate the native speaker role models by making a recording of each utterance and to compare their recording with that of the original. The pupils were initially nervous about recording themselves but as their confidence grew they tackled each new word with enthusiasm and because they were obliged to make a recording of themselves they listened to each sentence intently. An observation made with each of the pairs was that once the keyword was acquired and, as the session progressed, more attention was given to intonation as well as pronunciation. The pupils were trying to sound as authentic as the native speaker role models, and, despite all the amusement this caused, the imitative actions fulfilled a real linguistic function. This can very effectively support initial teacher presentation of new language. The students worked cooperatively and at no time needed the researcher’s support. The pupils were always on task with only one example of distraction. (The microphone for recording made an excellent karaoke prop.)

As a final linguistic test of recall, comprehension and pronunciation the photographs were printed off (another useful facility on the package) and used as a testing stimulus. The students were able to identify all the pictures with no problems and could list most of them from memory with very little, if any, prompting. There was a marked improvement in pronunciation from the initial recordings with the exception of “haricots verts”—only 1 person out of the 10 picked up the aspirate h.

The lexicon section of this application (other parts of the application appeared less effective), with its sound facility and interactivity, enabled effective, student-centred vocabulary acquisition. The linguistic justification for using such an application, combined with the evidence of motivation, make for a powerful rationale for the implementation of CD-ROM usage in foreign language acquisition. In addition to the already mentioned facilitation of differentiation in terms of pace of learning, several students commented on the non-threatening environment for language practice which the CD-ROM afforded. One very shy boy was very pleased with his success in pronunciation and recall. (He started at a lower base than the others as shown in his initial recording of the vocabulary.) I subsequently discovered from his teacher that he had not studied French before joining the Y9 class he was in. His progress was the most marked when
comparing the before and after recordings of the key words. This boy was very self-conscious in class and very keen to have such a tool at home. “The pronunciation is very important. I sometimes do it totally wrong. Here you can keep listening again. If you had one for yourself it’s better—you could have it in your room and learn in your own time.” (Nasral)

In a review of types of CALL programs for vocabulary instruction Goodfellow (1995) discusses the research process involved in evaluating computer-based vocabulary instruction. “Evaluation of computer-assisted vocabulary learning interactions has to address the issue of bringing together performance data and the learners introspections, which have to be considered in regard to the pedagogic intentions of the program and the learning outcome.” The performance data and qualitative data of this case study suggest a sound design of the application based on cognitive principles of vocabulary acquisition which are successfully combined with the unique characteristics of multimedia. Further research might concern itself with long-term retention of vocabulary learnt through CD-ROM-based instruction.

Case study 2: Kirk Balk School, Barnsley
There is a lamentable lack of applications in languages which promote student autonomy. Laurillard links the need for programs based on communicative methodology with the Vygotskyan notion of self-regulation:

“Within the Vygotskyan perspective a pedagogically sound approach has to exploit the learner’s capacity for self regulation. It is argued that there is little opportunity for self regulation in the structuralist drills or in the functionalist exercises and what second language teaching needs, therefore is a task-based approach that accords self regulation its proper place.” (Laurillard)

The attraction of the application we chose to use in the research study (Pris sur le vif) was that it seemed to promote pupil autonomy at the early stages of language learning and move towards a more constructivist notion of computer-based learning in that the students can move about the programme at will. Constructivist pedagogy (Reeves, 1994) concentrates on the “primacy of the learners intentions, experience and metacognitive strategies”. *Pris sur le vif* can be situated somewhere between instructivist and constructivist models in that it allows for non-linear progression and has many open-ended activities for the students to complete drawing on notions of creativity and cultural authenticity. This was clearly the main intention of the application designers and is emphasised in the introduction.

“*Pris sur le vif* is intended for student interaction and is not teacher-centred. Students explore communication and culture at their own pace by watching video clips. They interact by listening to authentic language, reading text articles, calling up maps and photographs and responding orally or in writing.” (Ballinger and Ballinger, 1994)

The package was used with a group of year 10 pupils at Kirk Balk School in Barnsley who had completed one year of French and were working towards GCSE. The pupils were more able pupils who were able to work independently but who felt less confident with French than with German because French was their second language. There were
11 students in all which made for four pairs and one group of three students. The students worked on the CD-ROM during their lesson time which took place on Wednesday afternoon and Friday morning. The CD-ROM sessions continued over a period of nine weeks with two weeks of Easter Holidays falling during this time. The case study was concluded with individual mini tests and interviews on one whole day. Students spent 20 minutes per pair on the CD-ROM and most pairs had three working sessions.

The class teacher having looked at the application decided that the most appropriate topic to fit in with the scheme of work was the Shopping topic. The class teacher would use didactic methods of introducing the application and then cover the topic in the normal way.

The CD-ROM was housed in the library which was conveniently next to the French classroom. For the purposes of the study the school was lent a university computer (a Powermac) in order to facilitate effective use of the video facility on the application. Students worked through the tasks in any order they wished and were given time at the end of each 20 minute slot to explore the rest of the program at will.

There are seven main topics in the package: Les Jeunes, Le Lycée, La Musique, Le Sport, La Nourriture, La Communication, Les Transports.

The section on La Nourriture includes; Les plats préférés, Lieux de rencontre, Faire les Provisions, La Cuisine, Le dîner en famille. The tasks are set out in Table 1.

Peer facilitated learning
The most striking feature of the research was the extent to which the CD-ROM promoted collaborative learning. Computers are often seen as dehumanising tools for learning which promote an individualistic culture and which constitute a threat to teachers in that they will eventually be able to replace them. In his research on the relationship between social and cognitive factors in computer-based learning Light (1993) expresses this negative association as follows:-

“Many of the more negative images of the role of the computer in education associate it with the replacement of warm-blooded educational experience, grounded in social interaction, by a cold blooded, technologically controlled learning environment. This is in part an ideological matter of course, reflecting a tension between on the one hand a vision of education (and indeed of society) as a fundamentally cooperative venture and on the other a vision of education and society framed in terms of individual survival in a competitive world.”

Light in his chapter considers the extent to which computers can promote collaborative learning and also the ways in which this process of collaboration has cognitive outcomes as well as social ones.

The CD-ROM programme chosen was not designed to promote socio-cognitive conflict (problem-solving where learners put forward opposing theories) nevertheless the
pairings enabled mutual support and verbal interaction which resulted in successful learning outcomes. I have subsequently observed this in my own classroom, where a pupil who understands the workings of an application can readily induct a pupil new to the software.

The two most striking student and researcher perceptions of the CD-ROM facility were the way in which it gave them autonomy as learners and the promotion of “peer facilitation of learning” (Light). This was viewed most positively in the interviews by all 11 participants. The process of collaboration was viewed universally as a reciprocal arrangement:

Louise actually felt that the CD-ROM facilitated collaboration in a way that other classroom learning activities do not: It were easier than working in the classroom. There’s not as many of you and it’s easy to cooperate with each other and it’s quicker—it’s more fun as well.

It’s good working with somebody else ’cos they can like help you with their stuff and you can help them. (Gareth)

I enjoy working with other people ’cos you can learn off them as well sometimes. (Dean)

It’s alright like working in a group like. Like tell each other when something’s gone wrong or when they’re right or deciding which exercise to do and things. (Joanna)

Better with somebody else ’cos you can talk to them about it and discuss it. (Rachel)

It would have been harder on your own because there were some things that you didn’t know and some things that other people knew—could like confer. (Michele)

It were better with a partner well sometimes you knew some of the things but not others so apparently it helped you. (Helen)

Gender observations
Whilst the boys were markedly less communicative with each other than the girls when working in their pairs there were no gender differences in linguistic performance or student observations on collaboration. Equally the girls were no less enthusiastic about working with CD-ROM. This, I would suggest, lay in the collaborative non-competitive nature of the tasks. The pupils viewed each other’s linguistic knowledge and skills as advantageous rather than threatening. Research on girls and computer-based learning supports the importance of collaboration.

“The issue of gender differences in computer use is inextricably tied up with the issue of individual versus collaborative modes of working. Where computers are associated with individual or perhaps competitive modes of working, girls tend to find them alienating. Where associated with collaborative modes of working girls are likely to be just as enthusiastic and achieve just as highly as boys.” (Hoyles, 1988)

Collaboration and cognitive skills
An example of verbal interaction and peer support promoting learning could be seen in the vocabulary learning exercise which evolved from the photos section. Pupils were invited to learn the captions under the 14 stills. The photographs clearly acted as a
visual stimulus and worked effectively as an aide-mémoire. Having run through the captions once or twice and said them out loud the pupils covered up the caption and in turn tried to remember them and to again say them out loud. This proved an enjoyable and challenging activity. Partners “helped out” where hesitation occurred and inevitably learners became more fluent the more the exercise was attempted. In the final “test” which was conducted individually learners were able to describe from memory the 14 photographs seen ranging from at least the names of the shops (eg, la crémerie, la boulangerie) to the fuller more elaborate descriptions (un marché en plein air, des olives de toutes les couleurs (twice) “quelques fromages” (twice). The combination of classroom practice and the exercises embedded in an authentic context and learnt collaboratively had served to consolidate newly learnt vocabulary and to promote the acquisition of new vocabulary. All students had learnt more passive vocabulary and the most able had acquired some active vocabulary (des olives, en plein air, le haut, le bas). This was articulated by Clare and Michele: “You learn vocab in class and then can come and improve on it here … Learn new words and how to link sentences up and how to write sentences properly”.

The opportunities for speaking practice afforded by the CD-ROM were articulated by several participants in the interviews. Even though there were not many specific speaking exercises as such (two recording exercises) the learners were aware of having spoken a fair amount of French. This was due to the amount of verbal interaction which occurred around the computer between each pair—unstructured pairwork generated by the students themselves.

Clare and Michele: It helps saying out loud. (They felt embarrassed talking in front of the whole class.)

Helen: You do more speaking like only two of you on’t computer and you like go into more detail than you’d be able to do in’t lessons.

Clare: Advantages are that it’s using passive vocabulary, you’re speaking more because there’s only two of you when you’re working on it you’ve got more of a chance of speaking than when you’re in’t classroom even though there’s only twelve of us you don’t get as much chance to speak. You don’t feel more embarrassed like if you do … somat wrong you just laugh about it and then just carry on.

Which activity did you enjoy? (Researcher)

Speaking—nobody to laugh at you if you made a mistake—see if you did it alright or not—see what you sound like.

Student autonomy
The Kirk Balk students were able to work on any task within the “Faisons les Courses” section which they did judiciously and with a view to their own linguistic development. They did not stick with the easier exercises indeed they felt challenged by the more
difficult trolley exercise and returned to this several times. That is not to say enjoyment did not play a part in their choice; several partnerships often returned to the exercise of remembering the caption underneath the photos.

Examples of self regulation
Listening exercise.
Shall we number them and then go back?
Photos
One more run through. I think we need it.
Text
Do you want to translate this sentence? (proceeded to do this very successfully reading from the screen)
Video
Shall we look at the translation?

What else can we look at on this?
What are navets?—Get dictionary.

What do you want to do now?
Any more of them photo things to do?
Let’s listen to recordings from last time.

The notion of autonomy had an obvious appeal for the students. They contrasted the control of learning afforded them by the CD-ROM with a perceived passive role in the classroom which is articulated in the idea of having to listen to the teacher all the time.

Researcher: Would you like a CD-ROM in the classroom?
Daniel: Yeah because it’d help us very much. You wouldn’t have to listen to’t teacher all the time. You can just go and get a CD-ROM and explore it and stuff on the topic you’re doing.
(The idea of exploring in foreign language lessons is something very new and exciting for all involved in foreign language acquisition.)

Gareth: Good to learn off ’cos can do things on it instead of being just shown things.
Researcher: So it gave you more control?
Gareth: Being able to learn yourself things what you want to learn.

Lee: Helps you learn more when teacher’s not there and you don’t get interrupted more like in class. You can learn more in a shorter amount of time. You can go through large conversations and know what the translation is and there’s also activities.

Metacognitive strategies
Because the experience of learning French through the medium of CD-ROM constituted such a novel way of learning for the students at Kirk Balk interviews held during and
after the CD-ROM sessions encouraged the students to think about and articulate metacognitive strategies:

“A learning strategy that involves thinking about or knowledge of the learning process, planning for learning, monitoring learning while it is taken place, or self-evaluation of learning after the task has been completed.” (O’Malley and Chamot, 1990)

The active development of cognitive strategies is a prerequisite for pupil autonomy. It is lamentable that teachers have so little time to actually discuss the process of learning with their pupils.

“Students without metacognitive approaches are essentially learners without direction or opportunity to plan their learning, monitor their progress, or review their accomplishments and future learning directions.” (O’Malley and Chamot)

The very fact that their opinions would be sought as well as their linguistic development tested, I believe, was a factor in the responsible and mature way in which the pupils at Kirk Balk participated in the research. Which leads me to the issue of “teacher redundancy” in computer-based learning. The whole process of learning with CD-ROM was a social one, pupil-pupil in terms of the verbal interaction, negotiation and collaboration, pupil/teacher/researcher in terms of requested intervention, a minimal amount of direction and linguistic correction and discussion of the medium and learning processes.

Pupil comments
Clare: That article one like translating that—at first I thought oh I’ll not be able to translate this—it were quite easy—like you pick keywords out and worked out what they meant.

Clare: At first I think I found like when you were directing trolley round’t supermarket like putting accents on different letters. But like as I’ve got more practice I’ve got quite good at doing that.

Clare: I think it helps because you’re using vocab you’ve learnt to translate French into English to work out what things mean. Like when we were doing classroom issues like learning vocab, writing it down and then using it to make sentences and then like doing exercises with it—but there you’re using it in a different way—It’s hard to explain but you’re using it like differently because it’s more like you learn different passive vocabulary as well.

Motivation
The successful linguistic outcomes of the study lend even greater potency to the issue of motivation in computer-based learning. There was 100% positive response to CD-ROM as a tool for language learning.

I’d have one at home
I don’t usually like computers but this has been alright. Good in lessons. More interesting than a book. There are graphics—can hear it read out to you, people saying it ... can follow while saying it
Good I want one
More interesting the more you use it.—You find out how to use it better—like the speaking one. You do each exercise twice—the supermarket one three times but I haven’t found it boring. I think I know pictures and directions well. I’m not sure about le and la. ... like an alternative to boring work. It’s not plain—’cos of pictures—people talking makes it more interesting.
It’s useful and it’s more interesting than working through books.
It’s a lot more interesting. The more you use it the more confident you get.
It’s been alright ’cos it’s fun to do and you don’t get stuck in the classroom all the time.
I think it’d be useful (to have one in the classroom) ’cos there are so many different topics on it ... there’s music and young people—or just like as a change from being in’t classroom just to go on computer and look through just do’t exercises—it gives you a chance to like revise things as well.
It helps you. It’s just easier to use like than just copying out all the language from the blackboard and it helps you. It gives you exercises that are easy to do and everything ... like you get into all of language.

Finally the cultural authenticity underpinning the exercises in the form of video clips and photographs of France and Quebec did not go unnoticed by the students who developed a clear awareness of the difference between the two accents.
I found it very useful. It’s good to see how different accents—Paris and Quebec French—different accents and how fast the speed ... how fast the people speak.

The application Pris sur le Vif with its sound underpinning pedagogical principles justified by the learning outcomes and affective responses of the Kirk Balk pupils is clearly the product of the joint expertise of IT specialists and teachers of foreign languages. Given its success with this small group of pupils the limited access pupils generally have to CD-ROM supported learning is regrettable. This is due to funding, or rather lack of it, for hardware, software, staff development, technical classroom support and teacher-led action research. It is hoped that case studies such as these will support the funding and implementation of ICT-based language learning in schools and that further action research might be undertaken to prove the linguistic advantages of ICT-based learning in the delivery of the languages curriculum and in the promotion of language learners for life.

References