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A few cognitive issues in multimedia language teaching

Françoise Raby and Jacques Baille

Introduction

- 1 One of the paradoxes of language teaching is that it was among the first to incorporate media other than the textbook into the classroom with the introduction of audio-lingual material in the '60s. Yet it now seems to have difficulty integrating the computer revolution and multimedia into language teaching. On the international level two conflicting trends can be seen: on the one hand, multimedia language products are taking over more and more shares of the language educational market. According to Intercop, in 1995, 41% of multimedia sales in the US will be earned from the educational market; according to Frost and Sullivan, the figure for Europe will be 23% of the global multimedia market. On the other hand, even though policy-makers support research and developmental programs, they also betray a growing concern about the cost-efficacy ratio of New Technologies. Evidence of this concern can be seen in the launching of international programs aimed at studying the relation between the implementation of multimedia equipment and new educative technologies. Such evaluations seek to take multimedia results in the fields of learning and training into account.
- 2 In France, multimedia language teaching (MMLT) —which, statistically, primarily means the teaching of English— seems to be making its way slowly into higher education. More importantly, its future seems to be assured by the development of Language Resource Centres, which are a natural outcome of the institutionalisation of “open learning”, now considered a viable option in education: individualization of the learning process, self-learning facilities, guided autonomy, flexibility, etc. (Perrin 1992). The term “resource” refers predominantly, though not only, to the material supplied by multimedia equipment. Because they afford a flexible form of teaching, multimedia language centres are expected to solve, at least partially, the problem of the student “boom” which has

plagued French universities in recent years. Furthermore, it is claimed that they provide a more attractive pedagogy, a more authentic linguistic content and up-to-date cultural content. In a long article devoted to the challenge now facing French universities, because of the “language issue”, G. Courtois (1992) asserts that:

...all hopes now lie with the new technologies of communication, which associate, thanks to the video disk and the computer, the written, the audio and the visual message, and make it possible to devise more attractive and more flexible learning methods.

- 3 And yet, there is no doubt that the development of multimedia teaching still gives rise to polemical discussions in the teaching profession: in fact, the debate is still in full swing and those that press the cause of innovation are finding it difficult to silence those who stress its cost and its complex implementation. Patrick Suppes, while inciting both sides to “stand back”, compares the introduction of the instructional computer to other major educational innovations : written records, libraries, printing, mass schooling and testing. He points out how they all met with tremendous resistance and, in the case of printing, “...how slow the impact of a technological innovation can sometimes be” (Suppes 1992). To stand back is precisely the aim of both authors of this article. While considerable research has been carried out into the use of computers in education, not enough case studies and research are yet available about multimedia language teaching. Yet it is undeniable that the problems raised are of the same nature for both. Therefore, the bulk of the research and case studies about CAI, CMI, etc. may very well serve as a framework with a view to probing into foreseeable multimedia trends. For, although little evidence is yet available, companies selling multimedia courseware are emphatic about the learning successes of such equipment. Such claims need to be tested by research and experimentation.
- 4 Two problems are at the root of this contribution. The first one is that, in most cases, in the field of multimedia English training or teaching or learning, engineers and technicians have always been in the forefront, while teachers have always lagged behind, striving to devise a new pedagogy from the tools imposed upon them. This is a rather common complaint, often made by distressed sales executives of big companies, who feel that in many cases the teaching profession has hampered the development of multimedia training products instead of promoting it. The lack of collaboration between developers of technology and teachers has led to equipment being misused or ill-used. The question is: should the blame be placed solely on the teacher's fear of progress? When producing multimedia material aimed at teaching and learning, have manufacturers sufficiently taken into account the didactic side of the question?
- 5 The second problem concerns the notion of integration. The word is used by developers of technology, it is used by pedagogues, it is used by researchers in language learning. The question is: Is it not simply a blanket word? What does it cover? Or, more exactly, what does it cover up? Perhaps simply the fact that whatever improvements integration allows in term of space, time, ergonomy, etc., we don't really know, in terms of information processing, if an integrated environment automatically leads to an integrated learning process in the learner's brain.
- 6 In other words the purpose of this article is to try and demonstrate that technical patterns do not necessarily find their counterpart in terms of learning patterns, and that decisions to use multimedia for language teaching should include incorporating multimedia into the learning model and not merely using it as a context. Behind these

two questions lurks a more comprehensive one: is there a didactic specificity in multimedia language teaching?

Integrated multimedia instruction

- 7 “Educators and educational researchers consistently cite one factor as central to the full development of technology’s use —the classroom teacher” (OTA 1988: 87). In the educational market it is very clear that the target public of multimedia products is still the teaching profession. Manufacturers know very well that teachers, as specialists and potential users of the product, are the ones likely to influence spending decisions in schools or universities. Teachers also play the crucial role in the context of guided autonomy, in so far as they influence students, or not, to use the self-access centre. In a section entitled “Integrated language study”, Schwartz points out that integrated equipment can be a powerful tool but also warns:

Little research on this approach is available, partly because measurement of the word-processing applications depends on accepted practices and materials, and these are only now being published. In addition, the hypermedia applications are also very new or still under development. (Schwartz 1992: 45)

The notion of integration

- 8 Although little research is available, it would be interesting to try and see whether combining different media may lead to an integrated form of teaching. The notion of *integration* in the teaching process is not new. But usually in the literature on this subject the word integration is merely synonymous with “use”. Yet, as researchers have studied the *why?*, *what for?* and the *how?* of computer use, the notion of integration has taken on a qualitative meaning, the computer no longer being an “extra”, but an integral part of planned teaching practice (Van Den Akker 1988b; Fullan *et al.* 1987; Carmichael *et al.* 1985; Elder *et al.* 1987; Inspectorate 1986; Wiske *et al.* 1988).
- 9 As Van Den Akker points out “a real integration of computer use in the curriculum can only be realized when teachers recognize the surplus value of computer use” (Van Den Akker 1992: 71). The same applies to MMLT: to put it plainly, the real question is: will integrated media, i.e. multimedia, actually help to eradicate the drawbacks attributed to discrete media?

The “new” teaching model: improvements

- 10 In terms of space it is undeniable that multimedia workstations are less space consuming. Previously, a lab-room, even in its most elaborate form, had videos, language labs and computers at different workstations. A first improvement appeared when video was integrated into the language laboratory. Now, the micro-computer serves as a “support” tool for data collection, whether audio, visual or written.
- 11 In terms of time, however, the benefits are not quite so clear. Of course, one must acknowledge the fact that new systems, such as CD ROM or the video disk, make it possible for the instructor to process information more rapidly. Perhaps even more significantly, the teacher saves time when the students are able to access information on their own: discovering a text, doing an oral comprehension task, looking for vocabulary,

discovering a grammatical rule. Rather than being an 'input channel' the teacher now is free for more interesting pedagogical pursuits, such as designing lessonware and courseware, monitoring, tutoring, etc. Does this mean, for all that, that the instructor will really have more time? It may not, considering the tremendous amount of time that is required to plan and make up lessons. The question of "time", therefore, requires paying careful attention not only to the software, but also to the teaching material (courseware including some lessonware), which, combined with the equipment, constitute the teaching apparatus. In other words, in this context, it is again important to make a distinction between the part played by MMLT as a learning model, and the part played by MMLT in a teaching model.

- 12 One of the major assets put forward by MMLT companies is the greater amount of information that they provide. The following is an extract from a software brochure:

SPEAKER enables your teachers to retrieve all the available pedagogical material, either in videos, pictures or drawings, or audio documents, (such as audio cassettes), compact disks, and of course your own voice.

As a matter of fact, thanks to a video card, you can retrieve any kind of video pictures: PAL, SECAM, NTSC, coming from a video tape-recorder, a camera, or a TV set, or satellite TV. Drawings or pictures can be instantly captured thanks to the manual scanner integrated in SPEAKER. Thanks to the digitised card the audio documents are as easily digitised. Manipulating these sounds and pictures is facilitated by the graphic and sound editors entirely monitored by the mouse. *When the pedagogic script of the lesson is already written down, the implementation of a one hour CALL [sic] needs only four hours' preparation (20 to 30 less time than most authors' language [sic]).* (Our italics.)

- 13 More information can be processed as more and more information is collected, thanks to greater memory capacity. In terms of data collection, having instant access to up-to-date information from video recordings and networks, or tele-conferences, means undreamed of opportunities. But of course, for the great majority of English teachers in French higher education, such a teaching environment is still only a dream.
- 14 Indeed the storing capacities of integrated technologies are continually increasing. This is particularly interesting for both teachers and users who are now able to use computers not only as data banks but equally as record-keeping files. For each exercise the machine records not only the student's production but also the date, the score, and the time devoted to the exercise. All exercises can be printed. The scores of all exercises, including pronunciation exercises, can be presented as a series of graphs for evaluation.
- 15 Yet, in real terms, the amount and authenticity of information supplied to the teacher has not changed much. There may be greater choice and better quality documents. But this is due not to any greater understanding of the notion of integration, rather to technical progress. Already, in their discrete forms, the separate media afforded the same potential wealth. More importantly, this 'enrichment' may prove to be a double-edged sword since one wonders if the very wealth of the material with its highly sophisticated technological possibilities might not actually overwhelm potential users and discourage some teachers from engaging in the MMLT adventure!
- 16 In summing up the difficulties teachers have in incorporating the computer into their curriculum and classroom practice, Van den Akker gives the following explanatory factors:
- complex and time consuming preparation,
 - a lack of background knowledge and skills (causing a lack of confidence)

- great difficulties in changing the teaching role.
- insufficient view of possible learning outcomes. (Van Den Akker 1992: 13)

- 17 He then reports on his recent research project, and his successful efforts to alleviate these difficulties by providing teachers with "many carefully tested procedural specifications in curriculum material." (*ibid.*: 73) The courseware contained not only software information, but also subject-matter information, directions for lesson preparation and execution, educational software, some student material (*ibid.*: 73). No doubt, MMLT needs such courseware to be included in the MM package, for the question is not only that of teacher competence in manipulating the tool, but also of his or her competence in actually taking it into account as an instructional tool.
- 18 It is true that most courseware provides the teacher with the necessary software and lessonware materials. For instance, in terms of class execution, pre-planned routines are often supplied. Yet, in the case of MMLT, considering the complexity of the teacher's environment (classroom setting, equipment, students, environment conveyed via the machines), it is highly probable that the most carefully pre-planned routines will prove unable to anticipate all the problems which will emerge in the course of the execution of the lesson. Faced with a student's inability to access or process a particular piece of information, the teacher will have to decide whether the problem lies with the machines or with the student. Then he will have to resort gradually to alternative pre-planned strategies to ensure that the goal of the lesson is finally reached. In so doing he will have to display more and more background knowledge: knowledge of the courseware, content knowledge, linguistic knowledge, etc., and he will have to coordinate these different types of knowledge to help the student proceed with the lesson. Here, perhaps, lies the real notion of integration. In other words he will have to be an expert. Without the necessary training, it is difficult to imagine how language teachers can display such levels of expertise. Unfortunately, this type of training is not yet part of MMLT packages. Usually, firms offer a one-day training session that costs between FF 3,000 and 4,000. This is very expensive considering that the training is done by technicians and not by didacticians, and that the didactic content is only superficially looked into.
- 19 For the moment, despite the development of autonomous learning, the teacher remains an essential agent in MMLT. As MMLT develops further, the teacher's role will become more and more diversified. Already teachers have as many as three functions to perform: they are users, planners (authors), and researchers. These three roles, considering the enormous amount of time each requires, are becoming increasingly differentiated and will, eventually, end up as different jobs altogether.
- 20 The foregoing, by no means comprehensive reflections on the interaction of MMLT in the teacher's curriculum, have led us to the same conclusions as those often stated about computer integration: i.e., that they are powerful instructional tools provided that they are taken into account as such in a carefully planned didactic procedure.

MMLT learning models

Interactive teaching

- 21 As most advertisements now insist on the highly efficient interactivity of MMLT, we have decided to focus on this question. The *Collins COBUILD English Dictionary* (1986: 793), suggests drawing a distinction between interactive and interacting: interactive is defined

as: “allowing or relating to continuous two way transfer of information between a user and the central point of a communication system such as a computer or TV”, whereas interacting is defined as: “Of persons or forces: acting upon, or in close relation with each other.” The first definition accurately corresponds to the transfer of information that takes place in the man/machine system characterised by the multimedia environment, as defined above. But it is interesting to note that MMLT advertisers tend to switch, with no warning, from the notion of interactive to that of interacting:

The learner talks with the computer just like with a teacher. The teacher asks questions, the learner records his or her answers thanks to the microphone, *the computer answers him or her and corrects him or her in the most natural way.* (SPEAKER brochure [Our italics]).

Or, again:

The Magic computer: thanks to its integrated hyperdocument, the learner, using the mouse, indicates to the computer which object on the screen he wishes to pay attention to. SPEAKER then takes the necessary steps to go on with the lesson. (*Ibid* .)

- 22 Someone not conversant with this kind of advertising might conclude that the computer actually replaces the teacher, or native speaker, and that communication in open-ended language actually takes place, thus enabling the learner to practice oral expression freely. A closer look, however, makes it quite clear that the software advertised here offers nothing revolutionary in either the technology or in the content of the activities. In the first extract, for instance, it is clear that it is the teacher, and not the computer, who acts as a prompt. If the teacher is the questioner and the learner provides the answers, what part is left to the computer to play? Certainly not that of an interlocutor. Computers provide exercises with multiple choice questions, yes/no answers, or gap-filling. When the computer speaks ‘naturally’, it only participates in a drill or a structural exercise, known as elicited response, and not in an informal, open-ended conversation, as the advertisement suggests.
- 23 In the second extract the learner somehow responds to the computer. This in fact consists only in selecting an object for the computer to use. We do not know what the personified computer will make of that object as “SPEAKER immediately takes the necessary steps to proceed with the lesson.” This is an extremely limited kind of interactivity.
- 24 The claim made in advertising that the new media actually provide the necessary conditions for a real dialogue with the machine in open-ended language is pure fantasy and should be exposed. Furthermore, the question of man/machine dialogue is not only one of linguistic content, but also one of pragmatics. Research in cognitive ergonomics is under way, which should bring to light some of the pragmatic issues. For instance, it is already evident that the teacher’s ability to capture and process the great variety of signals put across by a group of learners (gesture, position, mimicry etc..) largely exceeds the capacities of a machine. For this reason, it is clear that a dialogue with a machine, although very efficient in “problem solving” (cf. Socrate, France’s SNCF computerized booking, or information service), can never emulate a “natural” dialogue. One experiment, carried out by Chin (1984), has clearly demonstrated this point. A group of students were asked to have a conversation with a computer, which was supposed to use open language, while others were talking on the same subject with a person. The students talking with the computer produced a kind of closed language in which deictics, ellipses, silences, hesitation markers were suppressed. As it happened, the computer was a sham,

or placebo, computer and they were actually talking to a human hidden next door. It seems clear, from this experiment, that when man talks to machines, he uses language differently.)

The potential snares of “hyper” flexibility

- 25 Many didacticians and teachers would readily support Krashen’s view that acquisition will not actually take place in a classroom context, where the environment as well as the language used do not have much in common with everyday conversation in a naturalistic environment. Therefore, they would also agree that any new pedagogical tool which could simulate real settings and pragmatic contexts, would be likely to facilitate acquisition. This militates in favour of MMLT. Yet research has shown that information processing, in the case of human/computer interaction, is an extremely complex process, and that many problems arise where no one actually expected them. In an article focusing on cognitive engineering, Wood and Roth accurately remark:

Understanding the factors that produce complexity, the cognitive demands that they create, and some of the cognitive failure forms that emerge when these demands are not met is essential. (Woods & Roth 1988)

The “getting lost” syndrome (Woods & Roth 1988)

- 26 All teachers that have monitored students working on a computer programme have, one day or another, been confronted with the following situation: a learner is placed in a problem solving situation, such as at the bank where he wishes to open an account. But he doesn’t know what procedures to follow, and so the computer tells him where to go in the bank, what to ask, and what to do. Pictures help the learner to easily encode and process the context and to understand the instructions. Some graphic help is also provided. The learner follows the first procedures and everything goes along fine. Then, invariably, he calls the teacher: he is lost. He does not know where he is in the activity, and what step to take next, although he has perfectly mastered the situation and the task, and has the linguistic resources to carry the latter out. Where then is the snag? It lies in the fact that, in terms of attention and time sequence, the learner was unable to follow the commands delivered in the frames. And this all the more so as he had to cope with two kinds of frames, one type presenting software procedures and another concerned with the content of the lesson. At a certain point he realised that he was unable to process all the information. What is interesting to note is that he would have been perfectly capable of performing the tasks, i.e. go through all the procedures, if they had been presented to him or her in a book. This is an example of how a case situation is transferred as such from a textbook into a multimedia environment without enough attention being paid to the necessary changes required in term of information processing. While using or devising multimedia courseware such problems should be taken into account. This example may seem anecdotal, but it is in fact quite significant in so far as it brings to light the question of accessibility and availability in human informational theories.

Education and training tend to assume that if a person can be shown to possess a piece of knowledge, in any circumstance, then this knowledge should be accessible in any condition where it might be useful. (Woods & Roth 1988: 12)

- 27 In contrast, researchers have proved that in order to retrieve and use his or her knowledge, the learner should also possess the necessary skills. “Skill performance” depends on the context of the problem solving situation. Glaser (1984) speaks of “trigger” conditions or the “conditionalizing” of the knowledge. In the case of MMLT, this raises the following question: a variety of researchers have shown that some knowledge is accessible in one context and remains inert in another (Bramford *et al.* 1986; Gick & Holyoak 1980; Kotowsky *et al.* 1985). This is equally true of linguistic knowledge. The problem then is to make sure that the chosen context (pictures, sound, text) will actually generate the desired knowledge. If not, the learner may draw the conclusion that the knowledge is absent, whereas it is there but inaccessible because not “triggered” by the context.

MMLT and foreign language learning theories

- 28 To most researchers in foreign language learning the acquisition process (natural), as well as the learning process (instructed) (Krashen 1985), demands that interaction take place. Most researchers agree that the learning process may facilitate acquisition, but they differ in the emphasis they put on different learning stages. Some view the reception phase as essential whereas others claim that production is as essential as reception. It is perhaps relevant to try and evaluate, tentatively, how MMLT fits into the framework of such theories.
- 29 Rod Ellis contrasts what he calls reception-based hypothesis (interaction can be hypothesised to contribute to learning via reception and comprehension of the L2), with production-based hypothesis (interaction contributes to learning via the learner’s attempts to produce samples of L2).
- 30 “Reception-based theories”, (the frequency hypothesis, the input hypothesis (Krashen 1985), the interaction hypothesis (Long 1983), all more or less claim that the more information you get, the more acquisition takes place. In this approach, it is true that multimedia teaching can greatly increase and diversify the amount of information provided to the learner. The question, though, is how much information will be encoded? How much intake will take place? In other words, considering the biological limits of the brain, how much information will actually be processed? Krashen supports the view that this information should be comprehensible to start with, in order to be integrated into the learner’s interlanguage (Krashen 1985). Information is made comprehensible by inference from the context, and by simplified utterances in the course of the interaction. A multimedia context, with its combined sensory channels, may help build up a richer context. On the other hand, one may doubt the computer’s superiority over the teacher to provide simplified utterances suitable to the learner’s existing interlanguage capacities. The interaction theory adds to the input theory the pragmatic side of interaction. Therefore, comprehension and acquisition require not only simplification, but also the negotiation of meaning; in other words, communicative strategies are needed. (*ibid.*: 107). In an MMLT environment it is true that learners will find some relevant clues in the contextual information to help them build up strategies and, for a same situation, change their representations, or ask for further information. Yet, in dealing with the activities suggested, the learners will run into difficulty if the programme doesn’t provide them with the procedures they actually need to implement these strategies.

- 31 The production-based theories advance that production of L2 is not just the result of acquisition but actually is part of the learning process. The “output hypothesis” (Swain 1985) does not refute the input hypothesis but seeks to qualify it. For Swain, the flaw in the “input hypothesis” is that comprehension does not automatically entail the acquisition of grammatical accuracy. Production is thus seen as an opportunity for learners to try and implement their linguistic resources, thus becoming aware of the importance of grammatical accuracy, i.e., of “pushed language rules”, in getting their message across. Studies supporting this view have shown that communicative competence did not only include grammatical knowledge but the capacity to activate it in specific situations (performance). Swain suggests that pushed output facilitates performance, and that production, contrary to comprehension, may help the learner to move from semantic to syntactic processing (Ellis 1990).
- 32 The “discourse hypothesis” (Givon 1979) emphasizes the difference between informal/unplanned discourse—which is developed in the pragmatic mode—and formal planned discourse, which is developed in a formal/syntactic mode. Ellis comments: “Because different kinds of knowledge and different processes of language use are involved in different discourse types, it cannot be expected that the acquisition of one style will facilitate the use of another style. The term “style” refers here to the learner’s internalised linguistic competence.” (Ellis 1984) In terms of production, MMLT does not offer anything revolutionary. Software still offers drills rather than goal driven activities. Some courseware, however, by implementing the principles of the communicative approach, does try to build up situations in which both formal and informal language are needed. Such problem solving, goal driven situations may well be effective, not because they actually simulate a natural environment, (see supra: Man/machine interaction), but because they simulate parts or aspects of a real context. As such, they may be worth taking into account in a learning model based on the construction of a context.

Conclusion

- 33 The great variety and instability of the theories of language acquisition compel us to approach the multimedia factor very cautiously. We do not know what improvements new technologies may bring in terms of language acquisition, but at least we can be sure that they will help researchers improve their understanding of the learning process. This calls for a few remarks concerning second language learning research. One question implied in this article, and which is pervasive in educational research, is that of general learning models. Recent research in cognition provides us with three main types of models: structuralist models, heuristic models, and semantic models. Piaget and the Geneva school best represent the structuralist trend, although they are very often ignored or distorted. They define cognitive development as the progressive construction of structures that are at the same time stable and mobile, called *schèmes* (in reference to Kant). These unconscious *schèmes* both assimilate the real world and adapt to the real world, so that only that which can be reduced to structures of class computation and propositional computation can be known. A new reality can be assimilated only by reference to the formal properties of classes and relations, (the properties of addition, the properties of multiplication, of propositional transformations...), since only these formal properties provide the cognitive apparatus with the necessary mobility. The Geneva School aims to establish a syntax of the mind. This was previously considered appropriate

only to scientific thought, whereas now it seems relevant to reevaluate the dialectical process assimilation/ accommodation, and the notion of regulation, in reference to linguistic content, something which was largely ignored by Piaget himself.

- 34 Heuristic models, such as the General Problem Solver, launched in 1959 by Simon and Newell, and still the best known, identified human rationality as a polyvalent and context-free computational activity. The three notions of “state”, “goal”, and “means” defined heuristic procedures whose final purpose was the building up of a solving algorithm. Of these attempts, (see Dreyfus 1972; Dreyfus & Dreyfus 1985), there remains only the hazy notion of problem- solving. The ignorance of context and language effects has confined these ambitious programs to solving guessing games or riddles, elementary maths problems, or computer programs for chess games.
- 35 A third trend emerged in the 1970’s and 80’s. This is the semantic trend, with an even more recent logico-semantic version. Drawing on research on semantic memory (Collins & Quilliam 1969; Tulving 1972), semantic models bestow a structuring power on life events and the contents to be acquired, giving thus a part to context and content that had been denied to them by both previous trends. The semantic trend has led researchers to devise models in which the memory is seen as a series of frames (Minsky 1975), or scripts (Shank & Abelson 1977). Yet, these new models, when applied to language learning, betray their limits. The specificity of natural languages does not lie so much in the fact that they describe stereotypical forms of social life as in the fact that they describe unexpected events with which the subject/learner has to cope. In other words, on the one hand, the context can be seen as an aid to retrieving and memorizing the meaning of words and sentences, but, on the other hand, words and sentences can be seen as an aid in the building up of a context.
- 36 To a great extent, didactics appears either to ignore, or refute general learning models in favour of models focussed on the content of a specific discipline, such as second language linguistic content. This seems to us to be a kind of blind alley, in that academic knowledge, such as applied linguistic theories, is identified with the learner’s mental model, a dangerous assumption. In other words, models that properly account for language structures and functions do not necessarily apply to the learner’s mental processes. On the other hand, discipline-focussed didactics, such as didactics for foreign languages or for history, often import concepts from other sciences such as sociology, social psychology, psycho-sociology, which constitutes another form of misleading generalisation.
- 37 In any case, it is very clear that a holistic, irrefutable didactics of second language acquisition, or learning, has not yet been developed, and the reflections we have tried to contribute to the debate are quite open to discussion. We suggest basing the didactics of multimedia language teaching and learning on psycho-linguistic models which embrace cognitive as well as linguistic research.¹ Such endeavours can only be carried out in the scientific framework of experimental didactic research, as opposed to the subjective realm of holistic didactic research which, in the best of cases, pays lip service to the scientific method by transferring scientific concepts into well-meaning discourse, and, in the worst of cases, purely and simply chooses to ignore it.

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NOTES

1. We plan to carry out some research (both theoretical and experimental), using the student population of the language Centre of Pierre Mendès-France University, in Grenoble, as a sample population. This research will associate different laboratories in the University, among which the Educational Sciences Research Laboratory.

ABSTRACTS

What will the effects of the multimedia revolution, in terms of language teaching, be? Multimedia at present means integrating equipment into teaching, but this does not necessarily entail an integrative cognitive process of learning. Applied linguistic research has not yet provided a model that can answer the question of whether or not multimedia tools impose a new cognitive structuration of the linguistic content. The development of multimedia language teaching, therefore, calls for a new type of didactic research aimed at establishing new learning models.

Quels seront les effets de la révolution multimédia ? Le multimédia signifie l'intégration des équipements, mais cela ne signifie pas pour autant une intégration des processus cognitifs. La recherche appliquée en linguistique ne permet pas, pour le moment, de répondre à la question de savoir si le multimédia impose une nouvelle structuration des contenus linguistiques. L'introduction du multimédia dans l'apprentissage des langues devrait donc favoriser un nouveau type de recherche didactique visant à établir de nouveaux modèles d'apprentissage.

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AUTHORS

FRANÇOISE RABY

Françoise Raby enseigne au Centre des Langues vivantes de l'Université Pierre Mendès-France-Grenoble 2 ; elle est membre du Laboratoire des Sciences de l'éducation.

fanchon.raby@gmail.com

JACQUES BAILLE

Jacques Baille enseigne au Centre des Langues vivantes de l'Université Pierre Mendès-France-Grenoble 2 ; il est membre du Laboratoire des Sciences de l'éducation. Jacques.Baille@upmf-grenoble.fr