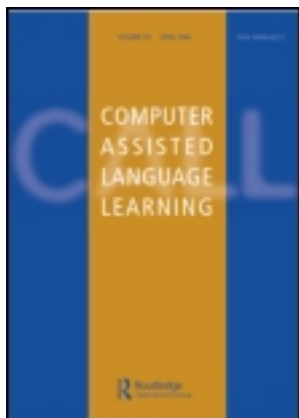


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BLINGUA. A Blended Language Learning Approach for CALL

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In this article we report on the first phase of a project designed to tackle the concepts of teaching and learning in a multimedia environment. The BLINGUA pilot project is exploring a pedagogical approach to delivering differentiated language learning and area studies skills. The first phase, which ran in Semester 1 (2004–2005), was delivered to a cohort of first year undergraduates of French at the University of Ulster. This paper presents the theoretical foundation to our approach and its application to a CALL environment as well as laying the foundations for an evaluation of the project using the principles of effectiveness research. Further papers will present the qualitative and quantitative findings in greater detail, drawing from data gleaned over two years. The authors designed and implemented this new approach with a view to developing student autonomy in the use of the multimedia environment and the practice of the 4 main language skills along with grammar based activities. We also explored the possibilities of delivering aspects of an area studies module by this means. The evaluation was based on a quasi-experimental study of the BLINGUA approach. The context was a treatment group whose blended learning experience was delivered according to differentiated learning styles, and a comparison group who were taught without knowledge of their learning style. Initial findings show that students respond well to the blended learning environment and especially one where this learning is delivered in the context of learning style differentiation.

Introduction

Blended learning has yet to establish a beachhead as an approach to CALL pedagogy in the era of post-communicative, integrative CALL. An attempt at a definition will draw together the different buzzwords and conceptual notions associated with the

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term. Epithets such as ‘eclectic’, ‘integrative’, ‘multimodal’, ‘multiple-method’ are circulating in the conceptual ether and all have a part to play seemingly. In the business training world, for example, blended learning is closely linked to the pragmatics of corporate training, as outlined in the online article entitled: “Blended learning—what works?” produced by the learning, training, and enterprise technology company, Bersin and Associates. Their definition of blended learning, based on business-based research started in 2001 is this: “blended learning is really the natural evolution of e-learning into an integrated program of multiple media types, applied toward a business problem in an optimum way, to solve a business problem” (Bersin & Associates, 2003).

A possible brushstroke CALL-based definition of blended learning might be to adapt the above definition to CALL as we now know it. We might wish to say:

Blended learning in CALL is the adaptation in a local context of previous CALL and non-CALL pedagogies into an integrated program of language teaching and learning drawing on different mixes of media and delivery to produce an optimum mix that addresses the unique needs and demands of that context.

This article is the first of a series of three papers reporting on the BLINGUA CALL-blended learning approach being developed at the University of Ulster. The first phase of the project was delivered in the first semester of the 2004–2005 academic year. The researchers focused on language and area studies teaching with first year undergraduate students of French at the University of Ulster, within the context of a brand new multimedia lab and an aging Médiathèque. This article will present our pedagogical approach for blended learning in the context of CALL. Some of the initial tentative findings will be given and commented upon. The second and third papers in the series will report on the next phase of the project to run during 2005–2006, and will give a more detailed report on the qualitative and quantitative findings and inferences drawn from a configuration of all of the data.

There are various factors that phase two of the project will address to increase the external validity of the conclusions (Chapelle & Jamieson, 1991, p. 49; Levy, 2000, p. 183). The authors are also mindful of the value of a configuration of data collection methods (Levy, 2000, p. 180), and Felix’s advocacy of a variety of data collection techniques (2000, p. 61). Levy cites Murray:

The point is that none of the research tools employed in this study, when taken individually, appear to offer a great deal of pertinent information. However, configured as a network, narratives, diaries/journals, video observation and interviews produced data which conveyed a picture of the learners’ experience from his/her point of view. (Murray, p. 191, cited in Levy, 2000, p. 180)

We hope, via our multiple-method study, to produce some insights that other language teachers and CALL practitioners will find useful.

In our evaluation and content planning we have also been mindful of Chapelle's six principles to guide CALL evaluation (2001), which are also useful principles of design in themselves:

- *Language-learning potential*, i.e., the degree of opportunity present for beneficial focus on form: the two BLINGUA hours per week across the two modules involved at least 30% of the time focusing on form and syntactic structures.
- *Meaning focus*, i.e., the extent to which learners' attention is directed toward the meaning of the language: the BLINGUA project moved from rehearsal to meaningful communication in the cycle of every week's classes. Comprehension by definition is a focus on meaning. The TANDEM email correspondence from Week 4 sought through focus on student life in a Parisian university to give substance to the Mai '68 topic for example. Weekly news résumés based on digital online news broadcasts also focused on meaningful communication.
- *Learner fit*, i.e., the amount of opportunity for engagement with language under appropriate conditions given learner characteristics: the BLINGUA project diagnosed for predominant learning style and developed tasks to suit. Even the group that was not controlled for learning style shared the same conditions and activities and were given a degree of choice of activity.
- *Authenticity*, i.e., the degree of correspondence between the learning activity and target language activities of interest to learners outside of the classroom: the TANDEM project was aimed at giving students a need to communicate outside of the classroom and many of them did. All area studies topics covered were given a topical and up-to-date twist by means of online research activities to pre-selected web sites.
- *Positive impact*, i.e., the positive effects of the CALL activity on those who participate in it: the qualitative analysis of surveys and web logs that comes later in this paper reveals the positive impact this learning experience had on the participant students quite apart from any quantitative measurement of the impact on learning gains. While the latter was not always conclusive the former showed a clear positive effect on the interest and motivation of the majority of the students.
- *Practicality*, i.e., the adequacy of the resources to support the use of the CALL activity: again the analysis of the students' surveys show that for the most part they were very satisfied with the hardware and software provision as well as the paper-based resources in the Médiathèque.

The above sit well with Sutton's 10 practical steps for building successful blended learning programmes (2004). He cites a survey of over 1,700 training buyers and delegates conducted by QA,¹ which found that 81% of organisations believe that blended learning was an effective means of learning. His principles of blended learning programme design can be adapted easily in a higher education environment and include the principles of examining the fit between learners' roles and the design

of the programme and being aware of and allowing for individual learning preferences (Sutton, 2004).

Our experimental construct design is best labeled 'quasi-experimental' as the study involved a non-random split for the comparison and treatment groups, a cohort of less than 30 students overall and was taught in the context of an existing modular structure and content.

This review will paint a picture of the design and implementation phases of a longer-term study of a blended pedagogy for CALL. This review is divided into three sections. Section 1 will present the research questions underpinning the project. In Section 2 we report on the pedagogical approach developed for the modules' delivery, including the educational and CALL theory that informed it. Finally, our conclusions from the first phase will be drawn and recommendations made for the next phase. A fuller quantitative and qualitative analysis of learning gains and effectiveness of the approach will follow once adequate data have been obtained.

Section 1: Research questions

1. Was an *integrative or blended* teaching and learning approach in a computer-based environment more effective than a traditional classroom based pedagogy?
2. Would a CALL-based teaching and learning approach be possible that might allow students to learn according to their predominant learning style and would this be more effective than a CALL-based approach where the same (or similar) material was delivered but without differentiation according to learning style?

In exploring the above questions, developing an in-house approach to blended learning, and in devising an experimental approach that would evaluate its effectiveness we were faced with a large number of possibilities and variables. First of all, we needed to make a choice from the range of language skills taught.

Our experience in an earlier CALL effectiveness research project at the University of Ulster, the TOLD (Technology and Oral Language Development, 2003–2004) project, had been with just one skill, the oral skill, and this tight focus helped us to target quite precisely the learning gains made.

With the BLINGUA project we did not wish to have too narrow a focus, as our primary pedagogical aim was to develop an overall approach to the delivery of a module in a CALL context that we could then adapt to other modules and disseminate to teaching staff. Thus we wanted to evaluate progress in relation to as many skills and learning outcomes as were determined by the requirements of each of the two modules.

We decided then to let the modules determine the scope of our data and to use the traditional module assessments as a central plank of our data gathering, to which we would add a pre-post test as well as summative and evaluative impact surveys. An identical pre- and post-test is of course a necessary feature of data gathering as it enables one to measure like with like and measure learning gains exactly in a precisely focused skill, assuming other variables are controlled for. Module-specific

assessments, however, almost by definition cannot be identical and so it is harder to measure learning gains. For example, the typical assessment structure in both the modules in the project required an initial test set, mid-semester, as a homework to be completed over a week and then handed in for marking; this was then followed towards the end of the semester with a supervised 'class test' where access to notes and dictionaries was either not permitted or restricted. Nevertheless, the data gained from such an assessment structure can still yield useful results when submitted to, say a paired samples *t*-test by which the mean scores across the treatment and comparison groups are compared against each other and tested for significance. These tests were run for this phase of the project and the results will be aggregated with the results from phase two.

The following, then, were the main skills we focused on across the two modules FRE101 and FRE103,² covering between them grammar, reading comprehension, and writing in the target language. The pre-post test, devised from the TellMeMore education program (by Auralog), covered the following skills: dictation, phonetics exercise, grammar practice, text transformation, sentence practice, words and functions. This test included some phonetics and listening activities, as we were keen to reinforce the idea that oral and listening skills were integral to any language-learning module they were involved with, even though these were not going to be assessed as learning outcomes per se for this part of the module. It is also policy in the school to deliver classes as far as is possible in the target language.

The striving for an integrative and blended learning pedagogy extended in our minds to an attempt to deliver both language and area studies type content across a range of didactic axes:

- CALL lab—Traditional library.
- Teacher-centred—Student-centred learning activities.
- Drill-and-practice—Meaningful communication.
- Learning-style grouped—Whole class teaching.

Our aim was to test different combinations of the above and measure quantitative effectiveness and quantitative impact ultimately to determine whether such blended approaches were more effective than single modes of teaching. With a cohort no larger than 20 assessed over just one semester it has not been possible to complete all the assessments and evaluations we would have liked to gauge the effectiveness of such a broad range of variables. For example, only qualitative evaluations were possible for the first research question comparing our blended approach with a traditional classroom. This was because the treatment/comparison split was between two groups, both of which were taught in the multimedia classroom. While they did parts of each module in a traditional setting (see Figure 1, below) we did no quantitative data gathering that controlled for effectiveness across the different contexts. Students were, nevertheless, surveyed as to their reactions to the different contexts.

Our quantitative data gathering was confined mainly to comparing progress between two groups both taught in the multimedia classroom: the first (the comparison

Module code	Setting for grammar hour:	Setting for oral hour:	Setting for written French hour:
<i>FRE101</i>	Seminar room Teacher: Prof M	Seminar room Teacher: Lectrice G	E-lab [BLINGUA] Teacher: Leakey + Ranchoux
Module code	Setting for area studies lecture hour:	Setting for area studies seminar hour:	Setting for area studies: comprehension hour
<i>FRE103</i>	Lecture theatre Teacher: Prof M	Seminar room Teacher: Prof M	E-lab [BLINGUA] Teacher: Leakey + Ranchoux

Figure 1. Modular teaching context of the BLINGUA project

group) was taught using a blended learning approach confined to the multimedia classroom; we could, therefore, call it a form of integrative-CALL. This took place on a Monday afternoon. The second (the treatment group) was taught, on a Wednesday morning, using the same blended learning approach as the comparison group for the first six-week period and then divided up into smaller groups by learning style, whereby some of the students had activities devised for them appropriate to their learning style that would take them into the Médiathèque, a kind of learning resource base with paper-based reference and news materials, live satellite-TV, as well as archived recordings of news broadcasts and documentaries. All other activity took place in the multimedia classroom, where there was access to both language learning software (main programs used: TellMeMore, CLEF and Logifrench) and web-based materials (mainly online French TV news, and topic based web links, and the grammar drilling site: www.frenchlesson.org). Readers may wish to look at some of the activities used by visiting the project web site: www.arts.ulst.ac.uk/lanlit/french/research/blingua/index.html. This site only shows activities up to Week 6 (when the groups were taught differently), from which time lesson plans were stored on the lab server as we did not wish each group to know what the other group was doing.

Within this context, we wanted to learn whether a blended learning approach that differentiates according to learning style might be more effective than a pedagogy that teaches the group as a whole and does not differentiate by learning style, also whether individual motivation and learning improves if the class is tasked by learning style, the type of student that learns best in this setting, the type of student that learns least well in this setting, and whether this typology (and learning style) can be influenced/ altered by appropriate teaching and learning methodology.

We wished also to control for language learning experience and experience in a computer-based learning environment and therefore employed two diagnostic

surveys at the start of the project that we had used in the TOLD project. These might, we felt, help us to determine whether prior learning and experience, be it language learning or ICT knowledge and skills make any difference to aptitude and progress via a modern languages multimedia classroom. For example, some of our evidence gleaned from the TOLD project suggested that less confident linguists perform better in such an environment, at least in oral language development.

The next section sets out the pedagogical basis for our approach from a theoretical perspective and seeks to place it within the evolution of language learning methods and CALL history. From that basis it outlines how the approach was realised in a teaching and learning context.

Section 2: A pedagogical approach for blended learning in the context of CALL

CALL pedagogy tends to fall in line behind the pendulum swings of language learning pedagogy and methodology (Decoo, 2001), though it has taken more easily to some approaches than others. The theory has not always driven the approach. The reasons for this may be due in large part to the qualities of the medium itself. As Levy states (1997, pp. 28–29):

... when empiricist theory [the predominant educational theory of the 1950s and 1960s] predominated there appeared to be a perfect match between the qualities of the computer and the requirements of language teaching and learning. With the advent of the communicative approach to language teaching, some writers began to say that CALL methodology was out of step with current ideas (Stevens, Sussex, & Tuman, 1986, p. xi), that the ideas conflicted (Smith, 1988: 5), and that CALL was not adaptable to modern methodologies (Last, 1989, p. 39).

One cannot deny that the unique capabilities of the computer to support drill-and-practice (i.e., behaviourist, habit-formation) methodology explains in large measure the continued popularity of behaviourist didactics, and the reintegration of much drill-based software such as Fun With Texts, CLEF, LogiFrench and HotPotatoes exercises into the language learning curricula of the current eclectic ‘post-communicative’ era.

Warschauer, as early as 1996, was talking of a third phase of CALL ‘integrative CALL’ following on from “behavioristic CALL” and “communicative CALL”, and states:

... the introduction of a new phase does not necessarily entail rejecting the programs and methods of a previous phase; rather the old is subsumed within the new. In addition, the phases do not gain prominence in one fell swoop, but, like all innovations, gain acceptance slowly and unevenly. (Warschauer, 1996, p. 3)

Blended learning takes from the strengths of the above but does not restrict itself to computer-based resources and methodologies. It will, in addition, draw on and aim, as part of a holistic approach, to integrate resources and methods of a non-computer nature such as paper-based resources, small group discussions, etc.

We decided that our approach should also reflect Carl Dodson's two stages training approach for communicative acts: the *rehearsal* stage and the *performance* stage. Dodson emphasizes the importance of allowing the student to pass from "medium-orientated communication" to "message-orientated communication" (1978, p. 48). Thus we tried to place drill-and-practice (rehearsal) type of activities early on in a learning phase. Students needed to know that such activities would lead on to a more meaningful outcome or task, such as a presentation to the group on a cultural topic they had researched (task-based learning rooted in authentic culture), or an emailed survey to a partner in France, that would then inform further written or spoken communication (language as social practice).

Furthermore, we drew on good practice advocated by educationalists in the field of HE. In particular our design approach was informed by Race's learning cycle, which highlights the interrelationship of five factors underpinning successful learning:

1. Wanting: motivation, interest, enthusiasm.
 2. Needing: necessity, survival, saving face.
 3. Doing: practice, trial and error.
 4. Feedback: other people's reactions seeing the results.
 5. Digesting: making sense of what has been learnt, realizing, gaining ownership.
- (Race, 2001, p. 7)

Blended learning almost by definition is eclectic. The BLINGUA project has itself, in many ways, been eclectic, too, both in its trialling of different teaching and learning methods (at times teacher-centred, at others self-study or *parcours* and learning style driven) and in the choice of software and online resources, alternating as it did between the more behaviouristic CLEF and Logifrench programs on the one hand and the more open-ended, customisable HotPotatoes program, *parcours* (i.e., learning paths) of TellMeMore and home-produced web-enhanced learning activities, on the other.

There can be dangers in an eclectic approach. The *smorgasbord* of activities may, first of all, lack an overriding pedagogical logic or progression. The magpie's nest is never very neat. Teacher and student may lose track of where the activities are leading, especially if they perceive the goal to be merely the perfecting of different language skills, rather than, say, meaningful communication, task-based learning "grounded in cultural authenticity" (Lafford, 2004, p. 33) or "language as social practice" (Kramsch, 1993, cited by Lafford, 2004, p. 30). A blended approach will, therefore, strive to develop tasks and learning activities or sequences of activities that are both integrative and show clear progression from *input/tutorial* to *rehearsal* and culminating in *meaningful communication*. Race's 'wanting' and 'needing' elements were addressed in our language teaching by a clear communication from the beginning that all drill-and-practice work would lead towards meaningful communication. In the BLINGUA project we added a final phase, that of *reflective learning*, thus integrating Race's feedback and digesting elements into our methodology. We did this by means of student managed web logs, paper-based logs and student interviews.

To evaluate the BLINGUA approach and gauge its exportability to other in-house modules or beyond we will need to obtain further qualitative and quantitative data to ensure sufficiently rigorous internal and external validity (Chapelle & Jamieson, 1991). We were conscious of past criticism levelled at weaknesses of much effectiveness research. In light of various constraints such as pressures of timetabling, small class sizes and attendance, it has often been difficult for module tutors to address the inadequate length of teaching and learning so as to measure educational outcomes with any certainty as to their rigour (Schmitt, 1991; Reeves, 1993). In citing these authors in his insightful article entitled “A theoretical foundation for the development of pedagogical tasks in computer mediated communication”, Salaberry (1996) calls for more rigour in the treatment of qualitative and quantitative analyses.

For cohorts numbering less than 30 students there are at least two possible solutions for the obtaining of sufficient data to be able to assume normality: one can either carry out time-series analyses where you repeat within the year or year-on-year the same or similar trials; alternatively one may recruit the collaboration of other HE institutions willing to carry out the same trial. The former is the easier option, though is more time-consuming. Both alternatives risk the skewing of data through alterations in the variables, such as having a different environment, different class tutors, differences in module outline, objectives, class contact hours, and so forth.

For the BLINGUA project we decided to run the project over two years within the same institution in order to raise our total numbers to $N = 30+$. Thus for this initial paper only brief reference is made to our initial quantitative and qualitative findings.

To encourage student ownership of their learning a dedicated BLINGUA web space was developed. From Week 1, this web space was made available online to students. All teaching and learning related administrative documents such as lesson-plans for the first cycle and/or the pool of activities were uploaded to this space for the students.

The 12-week lesson plans were designed prior to the start of the module delivery and communicated to the students, via the web and the networked teacher drive. An initial six-week cycle enabled the staff to evaluate the diagnostic surveys, establish what the students' dominant learning styles were, and develop materials accordingly. It also enabled the students to become familiar with the new environment and tools for language learning.

The delivery of the module itself was split into two hours to accommodate timetable clashes. This reduced the student number to an average of 10 students, thus enabling a great degree of peer support and guidance to the students. We then had two groups, a Monday group and a Wednesday group for which the course structure and progression remained identical in nature and content during the first six-week cycle.

By Week 6, once the learning styles analysis results were available, we opted to communicate only to students within the Wednesday group what their predominant learning styles were. The activities were for the most part exactly the same across the two groups, the main difference being that the Wednesday class was grouped by learning style and each sub-group directed to tasks that we judged best suited that learning style. The Wednesday group was informed of the need to stick to activities

specifically matching their learning styles. The second group was freer to roam between the activities for as long as one “main” activity was completed along with one ‘optional’ activity during the session. In this group the teacher maintained a more ‘hands-on’ approach, for example, using the broadcast function of the Robotel SmartClass[®] platform to broadcast to the whole group either the instructions or the individual activities such as online listening tasks.

Clearly the issue of matching activities to learning styles raises epistemological questions as to how the match should be made. The process we adopted was three-staged: first, students completed an online questionnaire (available on the university web site) which told them their predominant learning style; then we, the teachers, developed a series of activities that we judged suited the respective styles. Students were then shown the full range of activities available to their style and given what, in effect, was a guided choice of activity. No claims can be made that these activities were empirically proven to be ‘appropriate’ to those given learning styles. The creation and field-testing of a bank of such differentiated activities is doubtless an important next step.

The following is a summary of the kinds of blended activity that took place in each group. Language learning activities for the comparison group involved more whole group teaching than small group teaching. It was more behaviouristic than constructivist, in that much of the activity was built around directed grammar drill-and-practice activities, and used the following four electronic resources:

- TellMeMore[®] (v.5) grammar rehearsal activities (Auralog, France).
- CLEF grammar tuition and practice exercises (University of Guelph, Ontario, Canada).
- Logifrench verb tuition and practice/test exercises (WIDA Software Ltd, London).
- The web site: www.frenchlesson.org (now seemingly inactive).

The treatment group, on the other hand, while having access to these same resources was allowed more freedom to roam both between and within these programs which were categorised according to suitability to the different dominant learning styles. Also they had access to the paper-based resources in the Médiathèque, such as dictionaries, grammar reference books and photocopied grammar exercises, some of which the students could correct themselves. The freedom of the treatment group could be classed as semi-autonomy, as they were guided in the direction of activities that most suited their learning style.

Likewise for area studies activities the two groups were differentiated by the criterion of degree of teacher-directedness in the delivery, freedom of self-access to, and choice of, topic and activity. In the treatment group those with a predominant reading learning style were given access to the Médiathèque (situated next door to the e-lab) and the paper-based magazines and newspapers (as well as online articles); those with a visual style predominant were directed to analogue or digital recordings of French news or documentary programmes; those with an auditory style predominant were also pointed to heard texts or news recordings; and those with a

kinaesthetic style predominant were given a free choice from all the activities. Analysis of the qualitative data for this first cohort is encouraging with students in the treatment group clearly appreciating both the diagnosis of their learning style and the subsequent customisation of their learning to fit this. Quantitative findings are less clear in their message, the main reason for this being the fact that the project is only in its first year and the sample size is still small.

To conclude this section we emphasise that this paper is by no means making any claims for having developed a blended learning pedagogy for global dissemination, with data possessing of universal external validity. It is a report outlining the theory, design and initial implementation of an approach, with an outline of what worked well and what did not. As with most humanities research few claims can be made as to the exactness of the science. Blended learning pedagogy in the early years of the post-communicative CALL era will most likely move out in a variety of directions, and as with previous swings of the CALL pedagogy pendulum some will be driven by theory, some by technological advances, some by market forces, and some by a mixture of all three. No one model will ever be able to claim to be the ultimate solution (Decoo, 2001). Nevertheless, we believe we are developing an approach to blended learning pedagogy based on sound educational and CALL principles and are gaining some useful initial insights into their impact on the ground. The final section will highlight our conclusions to date and outline recommendations for the next stage of the project.

Conclusions and Future Developments

This paper is a report on the design and implementation of a longer-term study of a new approach to CALL pedagogy. The intention for the next phase is to increase the sample size, run a time-series study over the course of a whole year next year and publish more conclusive results in the summer of 2006.

Our research questions addressed firstly the comparative effectiveness of a blended CALL approach and a classroom based pedagogy, and secondly the comparative effectiveness of two different blended CALL-based approaches—one where the material was customised to the learning styles of the students and the other where this customisation did not occur.

In addressing the first question we were restricted to qualitative data as we did not measure the non-CALL experiences of students in this study. The conclusions to this first enquiry were for this reason limited to subjective reactions both concurrent to their experience and retrospective to it, rather than based on an empirical measurement of learning gains. While in themselves the diagnostic tools of weblog and survey are an insufficient measure of effectiveness, nevertheless, one can argue that improved motivation is more likely than a demotivating experience to result in improved learning gains. The students in large measure found the blended CALL experience a positive and motivating one and tended towards preferring the BLINGUA approach to the traditional classroom based learning. Percentages tipped between 56 and 88% in favour depending on the question. Our finding, that two thirds of students (68.8%) felt a 'real need' to have both a traditional and a multimedia

classroom in which to learn, was clear evidence in favour of a blended learning approach that included non-CALL activities over and above a purely CALL-based environment. Students felt they needed different contexts to fulfil different needs.

In terms of future work in this regard we feel that, while gaining such comparative feedback is always a useful exercise, in terms of gaining any new insights into student reaction to CALL experiences our findings from the first research question are not significantly different to what has already been learned by previous comparative studies stretching back to the 1980s. We are aware that such studies are no longer revealing much that is new and that the current emphasis is less on such studies as looking at “how technologies are impacting learning processes and as a consequence might improve learning outcomes.” (Felix, 2004, p. 127).

The BLINGUA approach steered away from being a comparison of a CALL with a non-CALL environment, rather it was a comparative study of two groups taught in a CALL environment, with the treatment group providing what Yildiz and Atkins call an “atomistic” study of the characteristics of new media in relation to “key factors associated with learning, the learner, and the learning context” (1993, p. 134).

The project has explored a relatively novel multimodal approach moving beyond Integrative CALL in that it drew on non-CALL material and settings when necessary, and focusing as it did on developing individualised learning paths adapted to dominant learning styles and a blend of different media, pedagogies, resources, and didactics, nevertheless from a quantitative point of view our results only reinforce feedback from other CALL permutations and previous comparisons of CALL-based learning with non-CALL learning.

It is, therefore, our second research question that we feel is the more interesting, and likely to produce the more useful and reliable data in the long run. The experience of teaching and learning differentiated by learning style was a satisfying one for most of the comparison group and the whole treatment group at a motivational level. Even though over the six-week comparison period, we were unable to prove significant learning gains when compared with the comparison group, the students’ web log entries from Week 6, when the controlled variable of learning style kicked in, reveal an increased motivational level. We cannot pretend at this stage to have sufficient data to yield generalisable results, yet the first phase of this project is already addressing the demand at an institutional level for studies in a real context, exploring and migrating teaching and learning to a CALL pedagogy ‘that works’. The next phase of the project will seek to gain fuller data and further insights into the learning processes involved in the new approach.

Our major challenge in taking the project further is to increase the sample size while at the same time ensuring reasonable internal validity. In the second year of the project (2005–2006) we plan to integrate the following amendments, to improve the construct validity and exportability of the project:

- Using a new cohort of students, also first year undergraduates of French.
- Using a different multimedia language-learning laboratory—since the autumn term of 2004 we have moved to a bigger and better multimedia lab.

- Running the project as a time-series study.
- Recruiting the collaboration of another university to increase the sample size.
- Running the post-test later than Week 6.
- Focusing on just one module, the area studies module FRE103, as this provided the best opportunity for using language in context and for meaningful purposes. Grammar and writing skills will still be tested for by means of pre- and post-tests.
- Delivering all three hours (lecture/seminar and comprehension class) of that module in the lab to ensure that the learning gains were more closely attributable to the teaching and learning within the CALL/BLINGUA context.
- Focusing more closely on the learning processes within one or two skills, or within a combination of skills such as those that the students found most useful/preferable in Phase 1 (combined listening and writing in the online news video summarising task).

At this stage our priority is less to obtain watertight data than to develop a pedagogical approach that works for staff and students and that can be exported to new contexts and modules. We are faced with the age-old dilemma with which all effectiveness researchers must contend, as expressed by Levy, when discussing Yildiz and Atkins (1993, p. 134):

... whether to aim for high internal validity through laboratory-based methods where variables can be carefully controlled, while running the risk that equivalent results may not be achievable in the real classroom setting; or to aim for authentic use, which, while satisfying the need for studies in real contexts, raises the likelihood that the findings cannot be generalized beyond the specific context where the evaluation takes place. For CALL the number of variables involved... makes it difficult to reach any conclusion on the viability of CAL 'on any concrete and measurable grounds (see Ahmad *et al.*, 1985, p. 119; Hirvela, 1989, p. 64). (Levy, 1997, p. 30).

Whether we were measuring the approach itself or merely the materials used may also be in question. In answer to this we can state that both groups measured used the same activities and were taught by the same teachers in the same room, so differences in progress can be put down more to the difference of approach than of activity. However, that is not to say that other factors, such as time of day (one class was a morning class, the other an afternoon class) and individual student ability differences (possibly significant given the small sample size), did not play a part.

BLINGUA represents first and foremost the search for a pragmatic pedagogy that will engage the greatest number of our students (and staff) across the greatest number of language skills and in-house modules in a way that will motivate all involved to perform at a higher level. The data collection methods involved we hope will become part of an ongoing monitoring and feedback structure that will ensure value-added learning, establish effective review procedures and provide an increasing amount of statistical evidence, quantitative and qualitative, for an effective approach that may evolve in time to become an exportable model of blended-CALL pedagogy.

Notes

1. QA is the name of a quality assurance training company based in the UK. Its URL is <http://www.qa.com/default.aspx>. In 2005 it was named training company of the year by the Institute of IT Training. Brian Sutton is its Chief Educator.
2. FRE101 is a French language module and FRE103 an area studies module, both taught to first year undergraduates of French at the University of Ulster (Coleraine Campus). See the URL: <http://prospectus.ulster.ac.uk/modules/topics/topic-FRE-CE.html>.

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Appendix. Data collection methods

Our choice of data collection methods was determined by the principles of triangulation and configuration to ensure rigour as well as richness in depth of the analysis (see Levy, Felix and Murray reference, in Section 1).

1. *Pre- and post-test*. A test assessing the four skills as well as grammar and vocabulary lasting for 45 minutes was sat in Weeks 1 and 5. We used TellMeMore content and its tracking functionality for data collection. This test will complement the other traditional assessment procedure for the respective modules.
2. *Language experience questionnaire*. This asks for data such as language qualifications, number of foreign languages studied, amount of time spent in the country of the target language, and student confidence and fluency levels across the range of language learning skills. An overall percentage rating was obtained for each student. This was correlated with student progress (post-test percentage less pre-test percentage).
3. *ICT use survey*. This collects information on student access to and use of a range of common ICT applications, email and the web for personal and study purposes. It also gathers data on student use of mobile phones. An overall percentage rating was obtained for each student. Again this is correlated with student progress.
4. *Learning styles questionnaires*. An online survey was conducted to assess each student's predominant learning style. The following learning styles are in the frame: visual, auditory, kinesthetic, reading. Our aim in conducting these surveys

of learning styles was to inform student and staff decisions regarding learning paths and study routines and to inform staff decisions regarding CALL pedagogy, lesson planning and the make-up of learner groups.

5. *Journals.* Students were given an online log at the start of the project and were asked to list their goals for progress in their language and area studies development from a checklist of skills and then, for each session, to record their impressions of the lesson, what they enjoyed, did not enjoy, found motivating, frustrating, etc. They were asked to comment at the end of the session on what they thought had worked well, and make suggestions as to how it could have been improved.
6. *End of semester evaluations.* Students completed an online evaluation at Week 12 of their perceptions of the semester's work and the CALL-based learning experience.
7. *Class tests.* The traditional class tests were conducted and progress between the first (home-based) test in Week 6 and the final (class-based) test under examination conditions was analysed. Two compared means analyses were carried out, one between subjects analysis comparing the treatment and comparison groups' relative progress, and the other comparing the two group's respective progress with that of the previous year's progress over the same period doing the same modules but without the benefit of the CALL environment.