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CALL—past, present and future

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Abstract

This article offers a critical examination and reassessment of the history of CALL, and argues for three new categories—Restricted, Open and Integrated CALL. It offers definitions and description of the three approaches and argues that they allow a more detailed analysis of institutions and classrooms than earlier analyses. It is suggested that we are currently using the second approach, Open CALL, but that our aim should be to attain a state of ‘*normalisation*’ in which the technology is invisible and truly integrated. This state is defined and discussed. In the final section the article proposes some ways in which this normalisation can be achieved—using ethnographic assessments and action research, for example—thus setting an agenda for CALL practice in the future.

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This article seeks answers to three questions: where has Computer Assisted Language Learning (CALL) been, where is it now and where is it going? It starts from the premise that if we are to maximise the benefits of CALL in future, we need to establish an agenda and a set of aims towards which to work. This in turn requires an analysis of where CALL has been in the past and where it is now—the future must learn from the past and present. Accordingly, it is structured chronologically, beginning with a reassessment of the history of CALL, followed by a brief assessment of CALL now. It concludes with a detailed discussion of where CALL could go in future and how we as a profession could help it achieve its maximum potential.

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Part 1: where has CALL been?

In his attempt to answer the first of these questions, Delcloque (2000) refers to five main literature sources and divides them into essentially two kinds:

1. The properly researched, objective historical accounts which attempt to summarize the progression and might include precise dates and a comprehensive list of sources.
2. The interpretative type which tends to draw more subjective conclusions about advances and trends in the field, thus analyzing its progression in a less objective manner. (Delcloque, 2000)

It is clear from Delcloque's tone that he prefers accounts of the first type for their supposed 'objectivity'—he considers Levy (2000) and Ahmad et al. (1985) to represent type 1 (as is his own), while Warschauer and Healey's (Warschauer and Healey, 1998; Warschauer, 2000) is considered to represent type 2. This attitude represents a depressingly limited view of the nature and role of history. If we are to use our past experience not only to know what has happened in CALL but also to understand it, then any history surely needs to be more than a mere recounting of supposed facts concerning software and hardware developments. It needs to offer analysis of what occurred and also why, particularly with regard to the actual use of computers in language teaching and learning.

I contend, then, that CALL needs something far closer to Delcloque's type 2 history. It is remarkable, in fact, that there exists no in-depth analysis of the history of CALL along the lines of, say Howatt's history of ELT (1984), and it is arguable that without it we cannot properly formulate an agenda for the future use of CALL. Of the main accounts mentioned by Delcloque, the first (Ahmad et al., 1985) focuses almost exclusively on the factual aspects of technologies—many acronyms but little analysis; the CALICO study (Sanders, 1995) relates only to North America and is again weighted towards 'facts' rather than analysis, while Levy's (2000) account admits to being only a review, rather than an in-depth discussion. Chappelle (2001) is similar. Other reviews of the history of CALL—too numerous to consider in detail here—do exist but are for the most part of the 'review' type, with insufficient attempt at critical analysis.

This—remarkably—leaves Warschauer and Healey (Warschauer and Healey, 1998; Warschauer, 2000) as the only substantive, systematic attempt to analyse and understand the history of CALL in anything more than 'factual' terms. This is regrettable—CALL surely needs to look in far more depth at its past and present in order to develop a fully appropriate role for computers in language teaching and learning. For this reason this article will revisit the history of CALL, and will take Warschauer's categories as the starting point, since they are the best available, as well as being familiar to many in the profession.

The three phases of CALL

Warschauer and Healey famously identifies three phases of CALL which he terms "Behaviouristic", "Communicative" and "Integrative" (Warschauer and Healey,

1998). He has discussed these phases of CALL in various places over the years, but has recently produced a summary reproduced in Table 1 (Warschauer, 2000), which we can use as a reference point. Despite the popularity of his analysis, this framework seems to me to have a number of significant weaknesses, which we can discuss briefly in turn.

Inconsistencies

Warschauer's discussions of the phases of CALL show significant differences in different publications—for example, Structural CALL was previously called Behaviouristic CALL (e.g. Warschauer and Healey, 1998). In the table reproduced here (2000) it is dated as 1970s–1980s, whereas previously it was described as “conceived in the 1950s and implemented in the 1960s and 1970s” (Warschauer and Healey, 1998). Likewise, communicative CALL—here dated to the 1980s and 1990s—was previously said to have “emerged in the late 1970s and early 1980s” (Warschauer and Healey, 1998). This slippage occurs with ‘Integrative CALL’ also, which in the table is dated to the 21st century, while in 1998 it was said to be already in existence.

Though these inconsistencies are not particularly important in themselves, they are peculiar, and avoidable. A more thorough historical analysis should surely attempt greater consistency in terms of chronology.

Table 1
Warschauer's three stages of CALL

<i>Stage</i>	1970s–1980s: Structural CALL	1980s–1990s: Communicative CALL	21st Century: Integrative CALL
<i>Technology</i>	Mainframe	PCs	Multimedia and Internet
<i>English-teaching paradigm</i>	Grammar-translation and audio-lingual	Communicate [sic]language teaching	Content-Based, ESP/EAP
<i>View of language</i>	Structural (a formal structural system)	Cognitive (a mentally constructed system)	Socio-cognitive (developed in social interaction)
<i>Principal use of computers</i>	Drill and practice	Communicative exercises	Authentic discourse
<i>Principal objective</i>	Accuracy	And fluency	And agency

(Warschauer, 2000).

What are these phases?

Throughout Warschauer's discourse these categories are considered 'phases', with rough dates attached. However, he also offers disclaimers as to the historical validity of these phases. For example:

The three stages mentioned above do not fall into neatly contained timelines. As each new stage has emerged, previous stages continue. Current uses of computers in the language classroom correspond to all three of the paradigms mentioned above. (Warschauer and Healey, 1998)

This seems ambiguous—are they historical phases or are they not? If they are historical phases, how is it that all three coexist together today? And if they are not in fact closely related to historical periods, then it is surely unwise to speak of them as phases at all and to attach dates to them. In some places, furthermore, Warschauer speaks of these three categories as 'paradigms' or 'perspectives' (e.g. Warschauer)—which only adds to the conceptual confusion. This, then, is a second aspect of the analysis which needs clarification.

Unclear criteria

Of the three categories, the first, Behaviouristic CALL, is perhaps the most plausible and would attract most agreement. But the other two categories are far less satisfactory. In the first place, language teaching in general still operates today very much within a communicative framework in many teaching contexts, so it is confusing for teachers to hear that 'communicative CALL' is no longer with us—the use of the term itself is not helpful. Secondly, it is not at all certain that the term 'communicative' is being used as language teaching methodologists would use it. Warschauer refers to Underwood (1984) for his definition, where it is suggested that communicative CALL

- * focuses more on using forms rather than on the forms themselves;
- * teaches grammar implicitly rather than explicitly;
- * allows and encourages students to generate original utterances rather than just manipulate prefabricated language;
- * does not judge and evaluate everything the students do nor reward them with congratulatory messages, lights, or bells;
- * avoids telling students they are wrong and is flexible to a variety of student responses;
- * uses the target language exclusively and creates an environment in which using the target language feels natural, both on and off the screen; and
- * will never try to do anything that a book can do just as well. (Underwood, 1984)

This list is curious for a number of reasons—for one thing, there is no mention of communication at all, which is obviously central to communicative language teaching (CLT). Although the list includes aspects which are certainly part of CLT, and

has a general communicative ‘flavour’, without the central features of human communication and interaction it would be difficult to term this ‘communicative CALL’ in any useful sense.

More significantly, this is no more than Underwood’s wishlist—it is obviously mistaken to define a historical phase on the basis of wishes alone, so if we want to establish the validity of the view that the 1980s represented ‘communicative CALL’, we need to explore actual practice at the time. Warschauer reports that during the ‘communicative CALL phase’ there were three main uses or ‘models’ of computer use:

1. First, there were a variety of programs to provide skill practice, but in a non-drill format. In these programs, like the drill and practice programs mentioned above, the computer remains the “knower-of-the-right-answer”; thus this represents an extension of the *computer as tutor* model. But—in contrast to the drill and practice programs—the process of finding the right answer involves a fair amount of student choice, control, and interaction.

This is certainly less restricted than previous software, but how is it ‘communicative’ exactly? If we take as a benchmark two notions criterial to CLT, namely that learners learn language in order to communicate, and that they probably learn to communicate best through the process of communication itself (Littlewood, 1981), then the examples given by Warschauer may have had useful roles in language learning, but are not noticeably communicative except in very limited computer–student communication. Furthermore, the actual interaction involved was extremely limited at the time. The second aspect of computer use in ‘Communicative CALL’ is described as follows:

2. In addition to *computer as tutor*, another CALL model used for communicative activities involves the *computer as stimulus*. In this case, the purpose of the CALL activity is not so much to have students discover the right answer, but rather to stimulate students’ discussion, writing, or critical thinking.

Here there certainly may be realistic and valuable communication, but this is not an inherent feature of CALL itself, nor is it particular to this phase. It could be achieved by other means, without a computer at all, so it hardly counts as evidence for this period being a communicative phase of CALL. The third area is this:

3. The third model of computers in communicative CALL involves the *computer as tool*. or, as sometimes called, the *computer as workhorse*. In this role, the programs do not necessarily provide any language material at all, but rather empower the learner to use or understand language. Examples of *computer as tool* include word processors, spelling and grammar checkers, desk-top publishing programs, and concordancers.

This, though useful, is clearly not particular to CLT. The computer acts as a tool for manipulating language or analysing it, not for communicating in it.

This suggests that the CALL software itself during this ‘phase’ in fact had very little to do with realistic communication at all. This suspicion is reinforced by examining literature from the period (e.g. Davies, 1982; Sanders and Kenner, 1983; Meinhoff, 1990; Kenning and Kenning, 1990) as well as from anecdotal evidence from those of us involved in CALL at the time. So if the two key aspects of CLT, namely the notion that learners learn in order to communicate and that they may learn to do this best through the process of communication itself, are apparently absent from so-called Communicative CALL, this must raise the suspicion that the term ‘communicative’ may not be appropriate to the software or the uses of CALL during the 1980s at all.

The case for this phase being actually ‘communicative’, other than in the wishes and ambitions of its proponents, is therefore far from proven. Particularly unclear is whether this phase is to be defined according to the *wishes* of its proponents, or to the *software* itself, or to the *use* of the software in class—the first area seems irrelevant, the second and third are by no means clearly communicative as we usually understand the term. During the period which Warschauer has termed ‘communicative’ (mostly the 1980s) I would argue that there was relatively little pedagogically useful communication going on in CALL, unless the teacher was unusually inventive in taking students *away* from the technology to get them communicating. This is furthermore confirmed by Warschauer’s own analysis:

by the end of the 1980s, many educators felt that CALL was still failing to live up to its potential. . . . Critics pointed out that the computer was being used in an ad hoc and disconnected fashion and thus “finds itself making a greater contribution to marginal rather than to central elements“ of the language teaching process (Kenning and Kenning, 1990, p. 90). (Warschauer, 1996)

Warschauer uses this to explain why ‘Communicative CALL’ gave way to his third phase, but we could equally take it as evidence that communicative CALL in the 1980s was never actually communicative at all in any significant way. I would argue that this should prompt us to re-evaluate the phases altogether, both in their nomenclature and in their dating—if the 1980s show little evidence of communicative CALL in practice, we need either to reassess Warschauer’s dates, or rename the phase, or completely revise the analysis.

Integrative CALL

Most doubtful of all, however, is the third category—‘Integrative CALL’. Warschauer suggests that in the late 1980s and early 1990s

[m]any teachers were moving away from a cognitive view of communicative teaching to a more social or socio-cognitive view, which placed greater emphasis on language use in authentic social contexts. (Warschauer and Healey, 1998)

This is a doubtful assertion. It would be difficult to adduce evidence that teachers at the time had a ‘cognitive view of communicative teaching’, or that teachers had

previously failed to think of ‘language use in authentic social contexts’. On the contrary, the use of language in authentic social contexts had surely been stressed from the very beginnings of CLT, and taken on board by some if not all teachers, and it is certainly a central part of CLT today—to imply that it is somehow ‘post communicative’ is odd.

Warschauer and Healey go on to enumerate a number of approaches which he claims to be ‘integrative’:

Task-based, project-based, and content-based approaches all sought to integrate learners in authentic environments, and also to integrate the various skills of language learning and use. (ibid)

Given that these are all used in CLT classrooms today, how can we accept the suggestion that these are not communicative but ‘integrative’? The value of integrating and integrative skills was recognised at least as long ago as the early 1970s (see e.g. Oller, 1972) and was a fundamental part of communicative approaches through the 1980s (Mitchell, 1994). So it is difficult to accept the suggestion that these features marked any new departure in language teaching, with or without computers.

The other aspect of integration which Warschauer and Healey mentions is the place of computers in the syllabus:

In integrative approaches, students learn to use a variety of technological tools as an ongoing process of language learning and use, rather than visiting the computer lab on a once a week basis for isolated exercises (whether the exercises be behavioristic or communicative). (ibid)

This, I agree, would be integrative. However, Warschauer and Healey’s discussion implies that this was part of computer use in the 1990—though again, evidence is difficult to come by. I shall discuss this in some detail below, but suffice it to say here that the evidence that CALL use changed significantly at some point in the 1990s, so as to warrant a new label of ‘integrative’, is contentious to say the least, and calls for more support. I suggest that the ‘once a week’ model still prevails in most institutions throughout the world.

In short, then, the ‘integrative phase’ is also suspect. If it is defined on the basis of approach to language and language teaching, then it is indistinguishable from mainstream CLT as it has developed; if it is defined on the basis of the use of computers in the syllabus or in classroom practice, then I suggest that there was no actual change at all. If it is defined as a new hope or ambition for CALL, then there may be some validity in the category—but that is hardly a sufficient criterion for suggesting that a new historical phase of CALL was born at a particular time.

The need for a new analysis

Warschauer and Healey’s analysis has proved a useful way over several years of conceptualising the development of CALL, and—as I noted earlier—he deserves

credit for his rare attempt to offer such analysis in the first place. However, as we have seen earlier, the formulation which he has proposed needs clarification and amendment in a number of areas:

1. it is not clear whether the phases represent clearly defined historical periods or even whether they are supposed to;
2. the validity of the characterisation of the 1980s as part of ‘Communicative CALL’ requires more support and tighter reference to mainstream CLT methodology if the term is to be acceptable, as well as clarification of whether we are evaluating *aims* or *use of software* or *software itself*, or some combination. It seems more satisfactory to rename that phase as it relates to that historical period;
3. the rationale for identifying a third phase, and then calling it ‘integrative’, calls for more support— in terms of attitude to language and language teaching it has not been clearly enough distinguished from communicative approaches, while the implied claims for actual integration of CALL into the syllabus and classroom practice require more support and, as I shall argue below, are doubtful.

It would seem necessary, as a consequence, to formulate an alternative vision of the history of CALL, one whose terminology is less confusing, and whose categories seem to fit better with the historical progression of CALL software, approach and practice. In addition, it should allow us to see clearly where CALL stands at the moment and where it can usefully go in the future. This is a large undertaking, and cannot be completed here; however, it is possible to sketch out how such an alternative vision might be framed.

Towards an alternative analysis of CALL

In my analysis I shall not refer to ‘phases’—which implies a greater historical validity than is warranted—but to more general ‘approaches’. I call the first approach ‘Restricted CALL’. In terms of its historical period and its main features it differs little from Warschauer and Healey’s ‘Behaviourist CALL’, as can be seen in Table 2, but the term ‘Restricted’ is more satisfactory since it allows us to refer not only to a supposed underlying theory of learning but also to the actual software and activity types in use at the time, to the teachers’ role, to the feedback offered to students and to other dimensions—all were relatively ‘restricted’, but not all were ‘behaviourist’. The term is more comprehensive, more flexible and therefore more satisfactory as a descriptor.

The key dimensions—theory of learning, software, activity types, teacher’s role and so on—can all be seen in the first row of Table 2. The ways in which Restricted CALL fits these dimensions can then be seen in row two—for example, it sees the teacher’s role as being restricted to monitoring, the feedback restricted to closed responses and so on.

Row three shows the second approach, which I term ‘Open CALL’, since it is relatively open in all dimensions—from the feedback given to students, to the software

Table 2
Restricted, Open and Integrated CALL: an outline

Content	Type of task	Type of student activity	Type of feedback	Teacher roles	Teacher attitudes	Position in curriculum	Position in lesson	Physical position of computer
<i>Restricted CALL</i>								
Language system	Closed drills Quizzes	Text reconstruction Answering closed questions Minimal interaction with other students	Correct/incorrect	Monitor	Exaggerated fear and/or awe	Not integrated into syllabus—optional extra Technology precedes syllabus and learner needs	Whole CALL lesson	Separate computer lab
<i>Open CALL</i>								
System and skills	Simulations Games CMC	Interacting with the computer Occasional interaction with other students	Focus of linguistic skills development Open, flexible	Monitor/ facilitator	Exaggerated fear and/or awe	Toy Not integrated into syllabus—optional extra Technology precedes syllabus and learner needs	Whole CALL lesson	Separate lab—perhaps devoted to languages
<i>Integrated CALL</i>								
Integrated language skills work Mixed skills and system	CMC WP e-mail Any, as appropriate to the immediate needs	Frequent interaction with other students Some interaction with computer through the lesson	Interpreting, evaluating, commenting, stimulating thought	Facilitator Manager	Normal part of teaching—normalised	Tool for learning Normalised integrated into syllabus, adapted to learners' needs <i>Analysis of needs and context precedes decisions about technology</i>	Smaller part of every lesson	In every classroom, on every desk, in every bag

types, to the role of the teacher. Arguably, it is not completely open, but at least its main characteristic in comparison with Restricted CALL is its relative openness in these dimensions.

The fourth row shows the characteristics of ‘Integrated CALL’ (not integrative, as in Warschauer and Healey’s formulation). The key point about Integrated CALL—which sharply distinguishes it from Warschauer and Healey’s—is that it does not yet exist to any significant degree, but represents instead an aim towards which we should be working. I shall argue later that at this moment in the historical development of CALL we are still operating within the second approach, Open CALL, our aim being to move towards Integrated CALL in future. I shall indicate in the later stages of this article how this might be achieved.

Are these historical phases or not?

In general, my three approaches do coincide with general historical periods—Restricted CALL dominated from the 1960s until about 1980; Open CALL has lasted from the 1980s until today, with some Restricted CALL manifestations still observable and still valuable in their place (e.g. in grammar revision and checking). Integrated CALL exists in a few places and a few dimensions only, but is far from common, as I shall argue below. It is therefore possible to use this analysis as a guide to broad historical developments in CALL

However, this classificatory framework also offers a number of other benefits when contrasted with previous analyses:

1. The terminology prevents conceptual confusion with behaviourist or communicative approaches to learning or teaching [Warschauer and Healey’s did allow this confusion—even Delcloque mistakenly called the first phase ‘Behavioural’ (Delcloque, 2000)].
2. The classification is, I suggest, more accurate as a description of what happened in the past and is happening now.
3. The framework allows us to define our practice in some detail. For example, we might find that an institution is Restricted in some aspects, Open in others and Integrated in others, giving a clear idea as to its practice in all key domains of CALL practice.

For this reason I shall use these alternative descriptors in what follows.

Part 2: where is CALL now?

Open CALL

In the case of Open CALL, we can see that from around 1980 there was a gradual awareness that previous approaches had indeed been Restricted, and that new approaches were needed. In this sense, attitudes to using computers were more open

(as can be seen from Underwood's list reproduced earlier) and were certainly becoming more humanistic (cf. Stevens, 1992) but mostly owing to technological limitations related to hardware and software it was not possible to use computers for realistic communication in a CLT vein until the advent of effective CMC, the web, widely available email and so on. (see. e.g. Sanders and Kenner, 1983, for contemporary discussion.)

Nowadays, however, it is indeed possible to use computers for genuine communication, as we can see in discussions such as Motteram (2000). It would therefore be possible to argue for a more genuinely 'communicative' role for CALL from around 1995 onwards, at least in terms of software. However, this Open aspect of the technology and software is by no means matched by an Open attitude in other key areas of implementation such as teachers' attitudes, administrators' attitudes and timetabling. Furthermore, much software being produced today is still of a relatively Restricted type. For this reason, we could argue that in general terms we are in an Open phase of CALL, but that each institution and classroom may also exhibit certain Restricted and even Integrated features. In terms of true integration of CALL within language teaching and learning (which has been a goal for decades—see e.g. Sanders and Kenner, 1983), we are still a long way from achieving it, and it is important therefore to start to reconsider how the profession can move towards that general aim.

Part 3: where is CALL going? Integrated CALL and normalisation

In order to understand the extent to which CALL is truly integrated into a classroom or into an institution or into a particular teacher's practice, we can draw usefully on research into the diffusion of innovations (e.g. Rogers, 1995), looking at how an innovation comes to be accepted and effective in its new domain. However, let us start by identifying an end goal for CALL. In my view the clearest way of defining this goal is through the concept of 'normalisation' (see Bax, 2000). This concept is relevant to any kind of technological innovation and refers to the stage when the technology becomes invisible, embedded in everyday practice and hence 'normalised'. To take some commonplace examples, a wristwatch, a pen, shoes, writing—these are all technologies which have become normalised to the extent that we hardly even recognise them as technologies.

Normalisation is therefore the stage when a technology is invisible, hardly even recognised as a technology, taken for granted in everyday life. CALL has not reached this stage, as evidenced by the use of the very acronym 'CALL'—we do not speak of PALL (Pen Assisted Language Learning) or of BALL (Book Assisted Language Learning) because those two technologies are completely integrated into education, but CALL has not yet reached that normalised stage. In other words, one criterion of CALL's successful integration into language learning will be that it ceases to exist as a separate concept and field for discussion. CALL practitioners should be aiming at their own extinction.

CALL will reach this state when computers (probably very different in shape and size from their current manifestations) are used every day by language students and

teachers as an integral part of every lesson, like a pen or a book. Teachers and students will use them without fear or inhibition, and equally without an exaggerated respect for what they can do. They will not be the centre of any lesson, but they will play a part in almost all. They will be completely integrated into all other aspects of classroom life, alongside coursebooks, teachers and notepads. They will go almost unnoticed.

Most importantly, CALL will be normalised when computers are treated as always secondary to learning itself, when the needs of learners will be carefully analysed first of all, and then the computer used to serve those needs. Elsewhere I have tried to discuss in detail what this means for CALL and the teaching of grammar, vocabulary and language skills (Bax, 2000). Technology will then be in its proper place.

These features are not widely observed at the moment—hence my objection to the notion that we are currently in an Integrative phase. In fact it may take several years for these practices to become commonplace. However, it is possible—and, I suggest, imperative—to plan for this normalised state and then move towards it—indeed this offer and structure our entire agenda for the future of CALL. The first step is to identify the criterial factors which normalisation requires. The second is to audit the practice of each teaching context in the light of these criteria; the final step is to adjust our current practice in each aspect so as to encourage normalisation. Following this procedure will give each institution and teacher a clear framework within which to audit progress, and within which any obstacles to integration and normalisation can be identified and dealt with.

Diffusion of innovations

How can normalisation occur? The literature on the way in which innovations become gradually accepted in social groups is summarised and best exemplified by Rogers (1995) (see also McCormack Brown, 1999 for a useful summary). The discussion of that body of research is highly pertinent to CALL. For our purposes, however, we also need to add to it certain elements such as the definition of the end-goal for CALL in terms of normalisation. We also need to identify some of the key stages towards that goal. Drawing on Rogers (1995), then, but adding and altering some details to suit our particular purposes and contexts, we can summarise the probable progress of CALL towards normalisation as follows:

Stages of normalisation in CALL:

1. *Early Adopters*. A few teachers and schools adopt the technology out of curiosity.
2. *Ignorance/scepticism*. However, most people are sceptical, or ignorant of its existence.
3. *Try once*. People try it out but reject it because of early problems. They can't see its value—it doesn't appear to add anything of 'relative advantage' (Rogers, 1995).
4. *Try again*. Someone tells them it really works. They try again. They see it does in fact have relative advantage.

5. *Fear/awe*. More people start to use it, but still there is (a) fear, alternating with (b) exaggerated expectations.
6. *Normalising*. Gradually it is seen as something normal.
7. *Normalisation*. The technology is so integrated into our lives that it becomes invisible—‘normalised’.

Two fallacies in our approach to CALL

Taking account of our analysis above of Restricted and Open CALL, I would suggest that many teachers and indeed institutions, in many areas of their use of CALL, are currently at stage 5 and 6 of the progression towards normalisation—most people in language education would recognise that CALL does have a relative advantage (now that the communicative potential can at least be realised through web technology), but we are still at the stage where the majority of teachers are nervous of it. In addition, they are over-optimistic of its powers and potential, since the other side of the ‘Fear’ coin is ‘Awe’—many people still see CALL as having a greater potential role in language learning than is in fact likely. The fact that we are still in the Fear/Awe stage can be illustrated by the first of my illustrative examples:

Case 1. At a seminar at a university, a teacher was presenting some new software which he had helped to design for teaching vocabulary. At the end the audience of academics and fellow teachers asked questions, all concerning things the software could *not* do. There was a general air of disappointment that it had no on-line dictionary, or grammar check, and so on.

I have chosen this simple anecdote deliberately, since it represents what I see as a common attitude to CALL which needs to be addressed. At the time I noted down the fact that none of the audience commented on the features of the software as presented, nor discussed the contextual aspects of how it might be used or how particular groups might respond to it, nor how other classroom factors could be combined with it. The audience seemed to have two assumptions:

- (a) that the software should be able to do everything, and
- (b) that if it had more features then it would be inherently more effective.

Instead of addressing the role which the software could play within the wider classroom context (a small role, but a useful one) their expectation seemed to be that it should either do everything and replace current technologies such as dictionaries and even the teacher, or it was not useful. This attitude, which is relatively common in my experience, illustrates what Healy has identified as “unreasonable and unfounded fascination and belief in . . . [computer] technology’s educational power” (Healy, cited in Haughton, 1999: 2). I would characterise it as a key fallacy in users’ perception of computers in education (and in other spheres) at this moment in our progression towards normalisation. This is our excessive ‘awe’ of computer technology and the belief that it can do more than it can; it is to put technology on a

pedestal—the Omnipotence Fallacy. (cf. the ‘wow’ factor identified by Murray and Barnes, 1998).

Parallel to this first fallacy is a second, which is characterised in the common assumption that the key or only factor in successful implementation of the technology is the technology itself—what we could call the ‘Sole Agent’ fallacy. It tends to be accompanied by a neglect of the many other factors required in successful implementation—and explains why in the illustrative example above the audience ignored all issues to do with how the software would mesh with students’ needs, or the teaching and learning environment. In principle, professionals would nowadays recognise that many other factors are crucial in successful CALL, but in practice many teachers, students and administrators and others in language teaching and learning are still at the Fear/Awe stage, part of which includes this Sole Agent fallacy. Here is another illustration from my own experience:

Case 2. A small private language school proudly announced the opening of a new computer centre with 12 new computers, the latest technology and the latest software. Four years later, it is almost unused and is being redesigned and redesignated to teach computer skills to local businesses.

Why was the facility underused? Interviews with teachers indicate that although a lot of time and money had gone into the purchase of equipment and furniture, all the other crucial factors in successful CALL implementation had been ignored—training for teachers, administrative and pedagogical support, integration into the timetable and so on. In short, the director of the school had made the same fallacious assumption that the mere existence of the hardware and software is the only relevant factor in achieving successful implementation or normalisation, when clearly it is not.

Overcoming the two fallacious attitudes to CALL

If—as I suggest—these mistaken ideas are widespread in language teaching and learning, at all levels and in all contexts, and represent an obstacle on the road to successful normalisation, it is clearly imperative for the profession to seek to overcome them. What can we do to counter these two mistaken ideas, which (a) place CALL on a pedestal and (b) assume that the technology alone will solve the problem, and thereby ignore all the other key factors in achieving integration?

I would argue that a crucial first role for CALL is to emphasise and analyse the host of other factors, besides the technology and software, which must be accounted for in the move towards normalisation. All those involved need to be made aware that successful implementation of CALL requires close attention to many areas—technology, software, teachers’ attitudes and so on. It should be the role of CALL practitioners to study those factors and then to communicate them to the wider language teaching profession in an ongoing attempt to undermine the fallacious view that computers alone are sufficient.

To this end the kind of ethnographic study exemplified by Chambers (2000) demonstrates how a meticulous ethnographic analysis of a context can draw out the

factors encouraging the integration of CALL and the factors standing in its way. This is in line with the argument put forward by Motteram (1999), who is surely correct in arguing that we need more careful qualitative—I would argue for ethnographic—analyses, in order to understand CALL better. Ethnographic studies can help to identify the many interlocking and overlapping factors which have to be taken into account in implementing change in a target institution, and allow us to target our efforts more precisely. This is the effect of Chambers' study (op. cit), which can serve as a useful model for other institutions seeking to move towards the normalisation of CALL.

At the level of the individual teacher a potentially fruitful procedure for achieving normalisation is to carry out careful action research into integration. This is well illustrated by recent work by Cole (2001), which demonstrates that a careful attempt to use CALL in a thoroughly integrated way can not only yield results in terms of student response, but can illuminate the factors which affect or hinder normalisation.

A proposed agenda for CALL

In conclusion, then, we have identified a possible future agenda for CALL. Our aim can be the normalisation which I have described, in which CALL finally becomes invisible, serving the needs of learners and integrated into every teachers' everyday practice. This will almost certainly require changes in technology, in the size, shape and position of the classroom computer. It will require change in attitudes, in approach and practice amongst teachers and learners; it will require fuller integration into administrative procedures and syllabuses.

Secondly, we have identified the means of achieving this goal. I argue that we need more in-depth ethnographic studies of individual environments to elucidate the relationship between the factors just mentioned. We also need action research in individual environments to identify barriers to normalisation and ways of overcoming them.

This will not be an easy process. However, if we take our aim to be normalisation, and then work for ways of achieving it efficiently, computers can finally achieve their proper place and true potential in the classroom.

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