Computer Assisted Language Learning

(ENG517)

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Lecture- 01

Introduction to CALL

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Module -01

INTRODUCTION TO COMPUTER ASSISTED LANGUAGE LEARNING (CALL)

Topic No: 01-02

Definition; Introduction and Importance of CALL; A Broad discipline

Recent developments in technology and communication offer new opportunities for facilitating and improving the efficiency of language learning. Bearing in mind the importance of the latter in the context of expanding EU, Computer Assisted Language Learning (CALL) has become, with ever increasing rapidness, both an exciting and highly applicable in language learning practice area of research .

Constant growing in the field of IT terminology requires employing flexible learning approaches in order to facilitate students in improving the specific vocabulary . Multimedia programmes provide audio, graphics and video, vocabulary sources such as concordances, dictionaries and glossaries; the Internet offers an affordable, instant access to a vast variety of authentic texts, as well as an unprecedented opportunity for using the target language in real-time intercultural communication. However, the availability of technology does not constitute by itself language learning: there comes the problem of implementing technology in the language classroom.

1.1 Definition of CALL

Computer-assisted language learning (CALL), British, or Computer-Aided Instruction (CAI)/Computer-Aided Language Instruction (CALI), American, is briefly defined in a seminal work by Levy (1997: p. 1) as "the search for and study of applications of the computer in language teaching and learning"

CALL is the acronym for computer-assisted language learning. We will see that this field or significant parts of it sometimes go by other names, CALL seems to be the most widely accepted generic term. In this course, CALL will be used in a broader sense to refer to any endeavor involving the computers and associated technologies of all types' desktops, laptops, tablets, smart phones, mp3 players, interactive whiteboards, etc.in some significant way in language teaching and learning.

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1.2 Aim of CALL

Computer-Assisted Language Learning (CALL) is defined as "the search for and study of applications of the computer in language teaching and learning." (Levy, 1997: 1) The main aim of CALL is to find ways for using computers for the purpose of teaching and learning the language. More specifically, CALL is represented by the use of computer technologies that promote educational learning, including word processing, presentation packages, guided drill and practice, tutor, simulation, problem solving, games, multimedia CD-ROM, and internet applications such as e-mail, chat and the World Wide Web (WWW) for language learning purposes. There are several terms associated with CALL. CALL is variously known as Computer-Aided Language Learning (CALL), Computer-Assisted Language Instruction (CALI) and Computer-Enhanced Language Learning (CELL). The first two terms generally refer to computer applications in language learning and teaching, while CELL implies using CALL in a self-access environment (Hoven, 1999).

1.3 Introduction of CALL

The reasons why ELT teachers use CALL: · Computers can do some of the work of the teacher and provide great assistance to the learner even without the presence of the teacher (Pennington and Steven, 1992). · New technologies have seen computers become smaller, faster, and easier for the teacher to use (Evy, 1997). At present, well-designed CALL software is readily available to the teacher. · Technologies allow computers to do multimedia applications, incorporating video, sound, and text, and this capacity allows the learner to interact with both the program and other learners. (Felix, 1998). · The computer offers great flexibility for class scheduling and pacing of individual learning, choosing activities and content to suit individual learning styles. (Oxford and others, 1998) · The computer can provide a meaning-focused, communicative learning environment, which serves the purposes of communicative language teaching.

1.4 Importance of CALL

There are a number of ways to conceptualize field of CALL, but one useful way, especially for those just entering the field, is to divide computer use according to the functional roles of tutor and tool, concepts popularized for CALL by Levy (1997). A vocabulary flashcard program or set of online grammar exercises would represent tutor uses, where the computer in some way has a teaching function. A language learning activity involving a word processor, email program, or web search engine like Google would represent tool uses, where the computer has no overt teaching function. This distinction is sometimes reflected in an unfortunate division in CALL between those who see the computer primarily as a machine for delivering interactive language learning and practice material--the computer as tutor--and those who see it mainly as a means for learners to experience the authentic language and communication opportunities and enhancements afforded by computers--the computer as tool. Because most early CALL

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applications were tutorial and tool uses arguably dominate now, it is easy to think of CALL as evolving, leaving tutorial CALL as something of a dinosaur.

In reality, all aspects of CALL have continued to develop, and in this course, we do not attempt to rate one as being more important or useful than the other. In fact, it is possible, even preferable, to recognize these not as opposing philosophies but as end points along the same sort of language teaching continuum, analogous to the one that balances teacher-fronted and group work in a classroom. In other words, effective language learning can include elements of both. Consequently, in this introductory course, I will try to strike a balance between them so that you are better prepared to recognize the potential advantages of using neither, one, or both for a given teaching situation.

1.5 Perceptions about CALL

CALL (Computer Assisted Language Learning) is often considered a language teaching method, but this is not really the case. In traditional CALL, the methodology was often claimed to be based on a behaviouristic approach as in "programmable teaching", where the computer checked the student input and gave feedback (reward?) / moved on to an appropriate activity exercise. In modern CALL, the emphasis is on communication and tasks.

The role of the computer in CALL has moved from the "input – control – feedback" sequence to management of communication, text, audio, and video. Few people may realise that a DVD player is really a computer. Future domestic appliances will integrate and merge video, television, audio, telephone, graphics, text, and Internet into one unit as, in 2010, can be seen in newer generations of "mobile telephones / communicators".

How do we use CALL for teaching the less widely used and taught languages, for example? The starting point should not be that students sit at computers to learn a language. The starting point should instead be that students are learning a language and as part of that process sometimes sit at computers[1].

When planning to use CALL, it is important to understand how a language is learned; language learning is a cognitive process, i.e. it is the result of the student's own processing of language inputs. What is learned is mainly the result of this process and not just explanations, rules, and questions presented by a teacher or a computer. Based on her/his existing knowledge of the topic being worked on, the language and the language acquisition, the student processes the input and fits it into the language system s/he possesses. Language knowledge is not just recorded, but rather constructed by the student[2].

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One of the worst fears when dealing with CALL and distance / online learning has always been the social aspect. It has been believed that the computer mediated community would imply some lack of social relations. However, several presentations at EUROCALL conferences have revealed that distance learning classes using audio conferencing actually developed a strong sense of social community. (E.g. "The Loneliness of the Long-Distance Teacher: The Role of Social Presence in the Online Classroom." by Tammelin Maija from the Helsinki School of Economics, Helsinki, Finland and another presentation "Fostering (pro)active language learning through MOO" by Lesley Shield, Open University, Milton Keynes, United Kingdom).

CALL offers the language teacher and learner a number of activities that, when carefully planned as part of the pedagogical room, will help the learner learn a language.

1.6 Different Aspects of CALL

CALL is both exciting and frustrating as a field of research and practice. It is exciting because it is complex, dynamic and quickly changing—and it is frustrating for the same reasons. Technology adds dimensions to the already multifaceted domain of second language learning, requiring new knowledge and skills for those who wish to incorporate it into their professional practice or understand its impact on the language teacher and learner. Yet the technology changes so rapidly that CALL knowledge and skills must be constantly renewed to stay apace of the field.

1.7 Available Literature on CALL

The amount of literature in the field is impressive: there are thousands of published articles, almost 500 of which were considered in preparing this series. We have many promising and innovative ideas but only the beginnings of definitive answers as to how to use computers most effectively to support language learning. Despite this uncertainty, as computers have become more a part of our everyday lives—and permeated other areas of education—the question is no longer whether to use computers but how. CALL researchers, developers, and practitioners have a critical role in helping the overall field of second language learning come to grips with this domain. So what exactly does this exciting and frustrating field of CALL entail? Beatty (2003) offers the following characterization: "…a definition of CALL that accommodates its changing nature is any process in which a learner uses a computer and, as a result, improves his or her language" (Beatty, 2003: 7).

This definition, though rather broad, is nevertheless a reasonable starting point when we consider the range of articles that show up at CALL conferences, in CALL journals, and in CALL books. It does, however, give rise to two additional questions: **What do we mean by "computer"? And what do we mean by "improve"?** The first of these is an important question in defining the field because CALL as considered here does not include simply the canonical desktop and laptop devices we label computers. It also includes the networks connecting them, peripheral devices associated with them, and a number of other technological innovations such as PDAs

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(personal digital assistants), mp3 players, mobile phones, electronic whiteboards, and even DVD players which have a computer of sorts embedded in them (Levy & Hubbard, 2005). The second question, what does it mean to improve, can be answered with respect to a number of different perspectives:

- learning efficiency: learners are able to pick up language knowledge or skills faster or with less effort;
- learning effectiveness: learners retain language knowledge or skills longer, make deeper associations, and/or learn more of what they need;
- Access: learners can get materials or experience interactions that would otherwise be difficult or impossible to get or do;
- convenience: learners can study and practice with equal effectiveness across a wider range of times and places;
- motivation: learners enjoy the language learning process more and thus engage more fully;
- institutional efficiency: learners require less teacher time or fewer or less expensive resources.

We should note that in some of these cases this does not lead to improving language directly in Beatty's sense, but rather to improving the learning conditions in some fashion. It is also worth pointing out that, just as with other "assistance", uses of CALL can in some cases impede progress. In other words, while improvement in one or more of the areas above may be the goal of a given CALL initiative, that outcome is not always achieved. Practically speaking, we can further expand Beatty's already broad definition. CALL books and journals also include articles relating to the use of computers to improve teacher productivity and in teacher education, professional development, materials development, and language assessment. In terms of what appears in CALL publications and conference presentations, then the wider field of CALL encompasses any use of computer technology in the domain of language learning.

Source Reference:

1. Teaching and Researching Computer-Assisted Language Learning, 2nd edition by Ken Beatty Philip , First published in Great Britain in 2003, Second edition published 2010 © Pearson Education Limited 2003, 2010

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Module-02

THE SCOPE OF CALL

Topic No: 03-05

The scope of CALL; Technology Deriving CALL; The changing focus of research in CALL

2.1 Initial Stance

Throughout its history detractors of CALL, and indeed many of its supporters, have criticized the field as being overly "technology driven" at the expense of theory, research and pedagogy (e.g., Egbert & Hanson-Smith, 1999, 2007; Salaberry, 2001). Similarly, others have criticized the field for being too connected to general education rather than focusing on the unique qualities of language learning (Hubbard, 1987). In response to this a number of conceptualizations or frameworks have been proposed in an attempt to describe the elements of CALL adequately or to guide the field in what the individual authors contend is a more coherent direction (Bax, 2003; Chapelle, 2001; Colpaert, 2004; Hubbard, 1996; Levy 1997; Phillips, 1985; Underwood, 1984; Warschauer & Healey, 1998 and many others).

2.2 Full Integration of Technology into Language Teaching

At that time, two of the more influential views are those of Chapelle (2001), who links the design and evaluation of CALL tasks to a set of principles derived primarily from the research base of the interactionist perspective of second language acquisition (SLA), and Bax (2003), who views "normalisation" as the defining direction for the field, a state where technology is fully integrated into language teaching and ceases to be special or unusual, much like the textbook, pen, and blackboard of the traditional classroom. Although these CALL-centered frameworks have informed practice in some areas, notably courseware and task design and evaluation, most of the research and development of the field has been driven by external theories.

No need of a Discrete Theory of CALL

Levy and Stockwell (2006), for example, characterize CALL practitioners and developers as mainly consumers of theory developed for other purposes. This is not universally seen as a problem. Egbert & Hanson-Smith claim that "…educators do not need a discrete theory of CALL to understand the role of technology in the classroom; a clear theory of SLA and its implications for the learning environment serves this goal" (Egbert & Hanson-Smith, 2007: 3).

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Whether or not theories emerging from a CALL perspective would be of value remains an open question, but to date little progress has been made in that direction.

2.3 CALL will clear Educational Objectives

CALL has important potential for English language teaching. If used properly with clear educational objectives, CALL can interest and motivate learners of English. CALL can increase information access to the learner, provide flexibility to instruction and thereby better serve the individual's learning pace, cognitive style and learning strategies.

2.4 CALL – Language Learner

CALL allows learners to control their own learning process and progress. Using effective and suitable software applications, CALL can provide communicative meaningful language learning environments. Good quality and well-designed CALL software can offer a balance of controlled practice and free communicative expression to the learners, including immediate feedback. In the future, with the advance of computer technologies, it is expected that CALL will be able to absorb some teaching functions. However, despite greater user-friendliness, and effectiveness, CALL will never replace the teacher. Like other new technologies, CALL is not a magic solution to language teaching. The effectiveness of CALL relies on how CALL is utilized to meet language learning goals for individualized learners in specific educational settings.

2.4 Technology Deriving CALL

(a) CALL Emergence

CALL emerged as a distinct field with the beginning of CALL-centered conferences and professional organizations that accompanied the spread of the personal computer in the early 1980s. No overview of the field would be complete without acknowledging at least some of the pioneering attempts that preceded this era. There were early efforts to teach specific foreign languages in the 1950s and 60s on mainframe computers (Beatty, 2003), but the first large-scale project was done with the PLATO system developed at the University of Illinois. This used a programmed instruction approach that provided students with practice material targeted to their presumed level along with feedback and remediation as needed. Levy (1997) notes that PLATO materials were developed for a number of languages, in particular French. The system was designed to maintain detailed records of value not only for the teachers and students but also for researchers.

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(b) Early Work with Micro- computers

Early work with what were then called "microcomputers, " such as the BBC computer, Apple II, and IBM PC, began to increase in the early 1980s. This new wave continued to include academic projects involving teams of designers, programmers and language teachers, but this era was also marked by the emergence of teacher-programmers, typically using the BASIC language to create activities for their own students. Meeting first as informal user groups at larger conferences, they were instrumental in founding organizations such as CALICO, the CALL interest section of TESOL, and EuroCALL.

(c) Random-Access Laser Videodisc

At about the same time that microcomputers were spreading, the random-access laser videodisc brought a new dimension to language learning in the 1980s, the beginnings of multi-media education. Several large-scale projects, such as Montevidisco, a simulation for learning Spanish, were developed during this time (Gale, 1989). Among the most ambitious undertakings in the history of language teaching was MIT's Athena Language Learning Project, an attempt to bring together interactive videodisc and artificial intelligence (AI) applications to revolutionize language learning.

(d) Artificial Intelligence Improvisation

Although the AI elements were not fully realized, the project did produce some intriguing materials, notably A la rencontre de Philippe, a participatory drama where students play a character trying to find an apartment in Paris (Murray, Morgenstern, & Furstenberg, 1989). In addition to academic initiatives, there have been hundreds of commercial software projects, a few of which have managed to survive and thrive. Two of the more successful enterprises in business terms have been Auralog (founded in 1987) with its flagship Tell Me More series and Fairfield Language Technologies (founded in 1992), creator of Rosetta Stone.

2.5 The Focus of Research in CALL

Although much of CALL has been driven by development and practice, research has also played an important role. Within the field, research has served to move CALL toward more promising directions but has also worked outside the field in giving CALL some credibility in the broader domains of applied linguistics and education.

2.6 Superiority of using computers over traditional language teaching

Early CALL research often focused on attempting to demonstrate the superiority of using computers over traditional language teaching. As a number of researchers have noted, this

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comparative approach had limited value, often leading to a "no significant difference" outcome (see Dunkel (1991) and Pederson (1987) for reviews). Although some studies have continued to compare the CALL vs. no-technology options, most now are either non-comparative or compare one version of a CALL activity with another, for example using captions vs. transcripts with online video (Grgurović & Hegelheimer, 2007).

2.7 Dominance of Quantitative Studies in CALL

Like other areas of second language learning, there are a variety of approaches used by CALL researchers. Although quantitative studies probably dominated in the early literature, qualitative and mixed-method studies are now common, especially in the area of computer-mediated communication (CMC). An edited volume by Egbert & Petrie (2005) does a credible job of covering the more dominant research approaches along with some less common ones, presenting criticisms and offering suggestions for improving the overall quality of CALL research.

2.8 Absence of Established Norms for CALL Research

The absence of established norms for CALL research may be seen as a weakness of the field, limiting its ability to come up with established findings. However, the wide range of areas covered by CALL and the fact that it draws on so many distinct theories and disciplines (Egbert & Petrie, 2005; Hubbard, 2008; Levy, 1997), make it difficult to determine what such norms would be. Levy & Stockwell (2006) illustrate this quite clearly in their chapter on research by contrasting two articles in computer mediated communication that look at a similar phenomenon but through very different lenses, one interactionist (Fernandez-Garcia & Martinez-Arbelaiz, 2002) and the other socio-cultural (Darhower, 2002).

2.9 CALL Design and Evaluation

Although many CALL projects have been designed organically, or with respect to general instructional design principles, attempts have been made by a number of scholars to characterize the unique qualities of CALL. Perhaps the most elaborate design framework to date is that of Colpaert (2004), which creatively blends engineering principles and pedagogical approaches and is specifically oriented toward the creation of language courseware. Another important work in this area is Levy (2002), who categorized the uses of the term design in a corpus of 93 CALL articles from 1999, including not only design of artifacts (e.g., software), online courses, and materials, but "design as a principled approach to CALL, including approaches to the design of CALL tasks" (Levy, 2002: 60). Closely tied to design is evaluation.

2.10 Three General Approaches

Levy and Stockwell (2006) recognize three general approaches here: checklists, methodological frameworks, and applications of SLA principles. Checklists, especially those used by teachers and others to determine whether or not to use a given program in their classes, have been and remain the most common approach to the evaluation of both software and tasks. While they have

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limitations, used appropriately they can be a valuable tool in the software selection process (Susser 2001).

Sources:

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2. https://web.stanford.edu/~efs/callcourse2/Invitation-to-CALL-Unit1.pdf
3. https://web.warwick.ac.uk/CELTE/tr/ovCALL/taseapCALL.pdf
4. http://web.warwick.ac.uk/CELTE/tr/ovCALL/booklet1.htm

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Lecture- 02

The Brief History of CALL- I

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Module -03

A BRIEF HISTORY OF CALL- I

Topic No: 06-07

CALL in the 1950s and 1960s; CALL in the 1970s

Early first-person accounts of the history of CALL are something of an endangered species. It is important to preserve such history not just to give a sense of the changing focus of CALL over time, but also to ensure that researchers do not overlook earlier issues and developments and waste time reinventing the wheel.

This lecture, we will review some early developments in CALL and features significant CALL programs which illustrate what is both possible and desirable in CALL. It will highlight several developments of hardware and software by noticing that how the arrival of desktop computers prompted more teacher-led research. In general, we will talk about developments in web technologies presenting teachers and learners with simple tools to fashion a new generation of learning experiences.

3.1 CALL in the 1950s and 1960s

(a) Introduction of computer in education

The first phase of CALL which was called Behavioristic CALL, conceived in the 1950s and implemented in the 1960s and '70s, was based on the then-dominant behaviorist theories of learning. Programs of this phase entailed repetitive language drills and can be referred to as "drill and practice" (or, more pejoratively, as "drill and kill").

Drill and practice courseware is based on the model of *computer as tutor* (Taylor, 1980). In other words the computer serves as a vehicle for delivering instructional materials to the student. The rationale behind drill and practice was not totally spurious, which explains in part the fact that CALL drills are still used today. Briefly put, that rationale is as follows:

* Repeated exposure to the same material is beneficial or even essential to learning

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* A computer is ideal for carrying out repeated drills, since the machine does not get bored with presenting the same material and since it can provide immediate non-judgmental feedback

* A computer can present such material on an individualized basis, allowing students to proceed at their own pace and freeing up class time for other activities.

The first computers used for language learning were large 1950s main-frames that were only available at university campus research facilities. These presented particular organizational problems as learners had to leave the classroom and travel to a computer, for instruction; a lack of processing power meant that there were no class sets of computer terminals. The high cost of these early machines and demands upon them for pure research meant that time allocated for teaching and learning was limited.

(b) **Reasons of computer usage in language learning process**

Nonetheless, the importance of finding ways to efficiently and scientifically teach language, particularly for military purposes, led to time and funds being made available for language research. Parallel research also took place on subjects such as machine translation which would, in turn, provide insights that would influence CALL.

In many of these projects, Cold War (1945–91) political motivations were often involved in funding, particularly those based on American insecurities about the Union of Soviet Socialist Republics' (USSR) advances in science after the USSR's launch, on 4 October 1957, of Sputnik, Earth's first artificial satellite. The first CALL programs created at three pioneering institutions: Stanford University, Dartmouth University and the University of Essex (The Scientific Language Project), all focused on the teaching of Russian although, eventually, other languages were included as well (see Ahmad et al., 1985 for a summary).

3.2 Applications used for the language teaching and learning

a) PLATO

Among the first and most significant applications for the teaching and learning of language at the computer were those used on the Programmed Logic / Learning for Automated Teaching Operations (PLATO) system, developed in 1959 by the University of Illinois working with a business partner, Control Data Corporation. PLATO combined some of the best CALL features being developed at other universities but differed from many other attempts to use computers to teach language in that PLATO's computer and its programming languages were custom-

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designed for the purpose of teaching language, as well as a range of other university-wide disciplines.

Much of PLATO's first-language learning work was done in teaching Russian using a grammar translation approach. The focus was on translation of Russian documents, especially scientific documents.

PLATO: Pioneer application

Initially, PLATO's interface consisted of teletype machines for inputting and outputting information. As display technology advanced, a screen and eventually even a touch-screen were used. Because the work on and with PLATO and similar large systems was so well funded and available to an academic elite, subsequent developments to do with miniaturizing computer tended to offer only limited improvements in pedagogy. As a pioneering platform, PLATO set a standard for educational computing, influencing a generation of educational software developers.

By early 1976, the original PLATO IV system had 950 terminals giving access to more than 3500 contact hours of courseware, and additional systems were in operation at CDC and Florida State University. Eventually, over 12,000 contact hours of courseware was developed, much of it developed by university faculty for higher education. PLATO courseware covers a full range of high-school and college courses, as well as topics such as reading skills, family planning, Lamaze training and home budgeting

b) Simulations

Simulations are instructional scenarios where the learner is placed in a "world" defined by the teacher. They represent a reality within which students interact. The teacher controls the parameters of this "world" and uses it to achieve the desired instructional results. Students experience the reality of the scenario and gather meaning from it.

A simulation is a form of experiential learning. It is a strategy that fits well with the principles of Student-Centred and constructivist learning and teaching.

Simulations take a number of forms. They may contain elements of:

- a game
- a role-play, or
- an activity that acts as a metaphor

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Simulations are characterised by their non-linear nature and by then controlled ambiguity within which students must make decisions. The inventiveness and commitment of the participants usually determines the success of a simulation.

The earliest language-learning programs were strictly linear, requiring each learner to follow the same steps in the same fashion with rewards in the form of points for correct answers and advancement to a more difficult level. The tasks were essentially adaptations of traditional textbook exercises and did not take advantage of special features of the computer. However, it was soon realized that the special nature of the computer could be brought into play to allow for branching choices, such as those found in a simulations approach.

(c) Importance of simulations

The importance of simulations is that they create challenges for learners to explore multiple links and see the consequences of different actions and inputs. This turns the computer-based classroom, or computer-based environment (e.g. a learner at a home computer), into a place where participants learn through the frequent making of errors in a non-threatening way. If learners are assigned to work together on a simulation or task, there is the advantage of encouraging exploration and collaboration as learners share their methods.

3.3 CALL in the 1970s

Communicative CALL

The second phase of CALL was based on the communicative approach to teaching which became prominent in the 1970s and 80s. Proponents of this approach felt that the drill and practice programs of the previous decade did not allow enough authentic communication to be of much value.

Communicative language teaching (CLT), or the communicative approach, is an approach to language teaching that emphasizes interaction as both the means and the ultimate goal of study.

Language learners in environments utilizing CLT techniques, learn and practice the target language through the interaction with one another and the instructor, the study of "authentic texts" (those written in the target language for purposes other than language learning), and through the use of the language both in class and outside of class.

One of the main advocates of this new approach was John Underwood, who in 1984 proposed a series of "Premises for 'Communicative' CALL" (Underwood, 1984, p. 52). According to Underwood, communicative call:

* focuses more on using forms rather than on the forms themselves;

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* 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 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

3.4 Introducing of microcomputers in Kit form

In 1975, microcomputers were first sold in kit form (Merrill et al., 1996). This spurred the development of small applications on computers such as the Timex-Sinclair and the Commodore Pet. Many of these platforms were extremely limited by their processing power.

3.5 Timex-Sinclair

The Timex-Sinclair, for example, had a processing capacity of 16K; for purposes of comparison. For perspective, this is equivalent to 417 million single spaced pages of text, or about 75 per cent of the capacity of a human brain. High-end mainframe computers continued to be available and used for CALL research throughout the 1970s and 1980s at university laboratories and commercial institutions.

3.6 Introduction of Videodisc Technology

One focus of CALL research during this period was videodisc technology, a high-volume storage system. Unlike videotape, videodisc players featured rapid access to multiple points or 'chapters' on a disk and had better pause, or freeze frame, features along with the possibility of advancing one frame at a time through a set of video or still (e.g. photographic) images or images/pages of text.

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3.7 Compact Disk Read-Only Memory (CD-ROMs)

The format was initially replaced with Compact Disk Read-Only Memory (CD-ROMs) as they had a greater installed base in personal computers and featured a format that was smaller, more convenient and less prone to warping. However, CD-ROMs did not carry as much information as videodiscs and were soon to be replaced by the larger volume media DVD.

The high speed and storage capacity of videodisc technology made it possible for computers to go beyond models of instruction commonly used on less powerful computers that generally relied upon textual exercises.

Bush and Crotty (1991) list several possible advantages of videodisc learning: priority of listening over speaking; through modelling and special efforts to create a low-anxiety atmosphere.

Source Reference:

1. Teaching and Researching Computer-Assisted Language Learning, 2nd edition by Ken Beatty Philip , First published in Great Britain in 2003, Second edition published 2010 © Pearson Education Limited 2003, 2010

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Module -04

A BRIEF HISTORY OF CALL - II

Topic No: 08- 10

CALL in the 1980s; CALL in the 1990s; CALL in the 21st century

4.1 CALL in the 1980s

In the late 1970s and early 1980s, CALL was undermined by two important factors. First, drilling and rote learning approaches to language learning had been rejected at both the theoretical and the pedagogical level. Secondly, the introduction of the microcomputer allowed a whole new range of possibilities. The stage was set for a new phase of CALL.

In 1988 Pederson made an assessment of the CALL methodologies. The main points of that assessment were:

1. Meaningful Practice
2. Encourage development of language
3. Students differences and difficulties better documented
4. Difference may affect strategies, gains and attitude in CALL
5. More positive attitude from students if the CALL is made by their teacher
6. Teachers have to secure the needed computer resources
7. Many teachers dissatisfied with the software

In 1980s, the language teachers not only played a role in developing CALL material rather also get involved in using them effectively with students. CALL commentators stressed the importance of carefully integrating CALL work into the broader curriculum. They emphasized that CALL materials were not intended to stand alone rather should be integrated into broader schemes of work. Also development of word processing and programs and applications associated to it were developed to use in language teaching process.

These applications includes:

(a) Macario

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Gale (1989) describes Macario as an early videodisc program for learning Spanish. It was developed at Brigham Young University and was an attempt to create learning materials by adapting existing materials, in this case a feature-length commercial video. The video was made into an interactive format by adding a pedagogical layer and using it to teach listening skills. Such materials can be considered authentic as they were originally intended for use in non-educational purposes by native speakers of the target language.

This approach of building on existing materials has the advantage of avoiding the high cost of video production while allowing the freedom to tailor associated learning materials to a specific group of learners. In some ways, this approach is similar to creating a literary study guide, but differs in that the focus is on language learning, particularly the para-linguistic aspects. Each scene of the Macario video was given annotations, footnotes, questions and/or comments. Learner control consisted of being able to start and stop the video as necessary to answer questions and ensure comprehension, or simply to learn more about what was going on. In a semi-immersion approach, questions were available in English, but all responses were given in Spanish.

(b) Montevidisco and Interactive Dígame

Macario is essentially a linear program; in this case, the student follows the course of a film and cannot vary from it. Gale (1989) (also see Stevens, 1992) mentions two similar videodisc programs that featured non-linear opportunities for learning, Montevidisco and Interactive Dígame. These two programs pioneered the idea of learners making greater choices about what is to be learned at the computer.

Interactive Dígame differed from previous programs in that it was a teacher-controlled situation in which on-screen video provided visual and listening opportunities that were intended to be followed up with in-class conversation in the target language. In this way, it foreshadowed the approach of many teacher-led video-based learning lab activities. The pro-gram had constructivist elements in it that left the learners free to discuss their own interpretations of the reality on the screen, but the provision of teacher direction in the delivery now seems unnecessary; learners are able to control the course of events themselves.

In Montevidisco, the videodisc introduces a plaza where the learner is confronted by a local citizen. The citizen speaks and then the video frame freezes and presents several choices of response. Based on the selected response, approximately 1,100 branching choices allow the learner to pursue different links or lines of enquiry. Each choice presents different links/opportunities for learning and only through repeating the program several times can all the choices and language opportunities be fully exploited.

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(c) ALLP (Athena Language-Learning Project)

The Athena (after the Greek goddess of wisdom) Language-Learning Project (ALLP) (see Murray et al., 1991; McConnell, 1994; Murray, 1991, 1995) began in 1983 as part of a heavily funded long-term Massachusetts Institute of Technology (MIT) project exploring the role of the computer in education.

Instead of relying on large mainframe computers or independent videodisc technology, ALLP worked with UNiversal Interactive eXecutive (UNIX) (or UNiversal Inter-eXchange or UNIversity eXchange; the etymology is anecdotal) workstations which, at that time, were far less powerful than common laptop computers today. These UNIX machines were connected to each other and to textual and visual databases through a local area network (LAN).

Two projects to come out of ALLP merit special mention, No Recuerdos (I Don't Remember) and À la rencontre de Phillippe (Recognizing Phillippe). In both these programs, learners enter into computer simulations that require realistic responses to the main characters. The programs also both included what has now become a standard aspect of adventure games and many language-learning simulations: branching sets of events with visual responses that can be selected with a mouse click, as opposed to Montevidisco's multiple textual choices.

(i) No Recuerdos

No Recuerdos features a strong narrative in which Gonzalo, an amnesiac scientist, cannot recall the location of a biological hazard that threatens to destroy the whole of Latin America. This literal deadline in helping Gonzalo to recall what has happened fuels the learner's urgency and sets the pace of the program. In order to complete the task(s) in No Recuerdos, the learner gathers information by questioning the main character, Gonzalo (i.e. the pro-gram).

Part of the simulated or artificial intelligence aspect of No Recuerdos and many subsequent programs is based on earlier work done by Weizenbaum (1976), who created a program called Eliza (after George Bernard Shaw's character in Pygmalion who is taught how to speak 'properly'). The Eliza software program seeks clarification and simulates a sympathetic listener through a series of general comments, requests for explanations and paraphrases/rephrasing of the learners' comments with additional question tags.

(ii). À la rencontre de Phillippe

Like No Recuerdos another program, À la rencontre de Phillippe also allowed the learner to enter into a semi-authentic language environment. The narrative is fictional but, like No Recuerdos, it

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offers opportunities to explore documentary-style depictions of reality, in this case, the city of Paris. And like No Recuerdos, it adds a sense of urgency; Phillippe has just lost his apartment and must find another place to stay.

The learner's task revolves around helping the central character, Phillippe, find a new apartment; a task that can be accomplished in many ways or, if the learner simply chooses to explore the program, not at all. Finding an apartment in the program requires using on-screen telephones and fax machines and paying attention to written clues such as notes posted on walls and telephone poles. Another part of the program allows learners the opportunity to create their own documentaries using information on the same neighborhood explored in the scenario (Murray, et al., 1991).

The above approaches serve to promote language acquisition and aware-ness as learners are driven to explore and interpret the information necessary to complete the selected tasks.

(d) HyperCard

In 1984, Apple Computer introduced a new style of computer, the Macintosh. It differed from earlier domestic-use or personal computers in that it offered a graphical user interface (GUI), now common to all computers and other multimedia applications such as displays on mobile telephones. A computer with a GUI uses icons to summarize and take the place of lines of typed code and arcane commands. One of the major innovations in this environment was HyperCard, a materials authoring program that was developed by Apple Computer. HyperCard provides an influential metaphor for CALL. As the name suggests, it works by creating a set of virtual index cards that can be extensively cross-referenced. On these cards, text, images, audio, animations and video can be added, along with questions and buttons to take users to other cards that might feature further questions, information and /or answers. Despite a lack of program development, HyperCard has what might be termed a cult following.

The importance of HyperCard is that it was among the first applications to take advantage of the theoretical hypertext and hypermedia capabilities of computers and allowed teachers and learners easily to create their own CALL applications.

The above examples show well-funded applications from university-based research on improving language teaching. Changes to the field of CALL in the 1970s and 1980s were marked by a shift from work with mainframe computers and computer workstations such as UNIX machines to desktop models with applications that were more easily available for classroom use. Even though these machines were limited in power, it meant that classroom teachers could begin experimenting with creating their own, often simple, CALL applications to address local and specialized language teaching and learning concerns in a broad range of languages. At the same time, the move to a more affordable platform with a larger installed base of computers within schools began to encourage and influence the production of commercial software programs.

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4.2 CALL in the 1990s

Starting from the 1990's, experts of field have tried to introduce integrating the teaching of language skills into tasks or projects to provide direction and coherence. It also coincides with the development of multimedia technology (providing text, graphics, sound and animation) as well as computer-mediated communication.

CALL in this period saw a definitive shift of use of computer for drill and tutorial purposes (computer as a finite authoritative base for a specific task) to a medium for extending education beyond the classroom and reorganizing instruction.

The World Wide Web was launched in 1992 reaching the general public by 1993, opening up new possibilities in CALL. Internet activities vary considerably, from online versions of software (where the learner interacts with a networked computer), to computer- mediated communication (where the learner interacts with other people via the computer), to applications that combine these two elements.

In the 90s we had Communicative methods, computer networks, hypermedia, Multimedia and the web. The social component of learning Vygotskyan model of language learning was seen as important and we see an emphasis on CMC computer mediated communication.

The noughties brought an interactive web (Web 2.0) and the "death of distance" and the beginnings of a transformation of schools and society, which is still playing out. The introduction of MOOCs shows the potential.

a) Hypermedia

Hypermedia, an extension of the term hypertext, is a nonlinear medium of information that includes graphics, audio, video, plain text and hyperlinks. This designation contrasts with the broader term multimedia, which may include non-interactive linear presentations as well as hypermedia. It is also related to the field of electronic literature. The term was first used in a 1965 article written by Ted Nelson.

The WWW (World Wide Web) is a classic example of hypermedia, whereas a non-interactive cinema presentation is an example of standard multimedia due to the absence of hyperlinks.

The first hypermedia work was, arguably, the Aspen Movie Map. Bill Atkinson's HyperCard popularized hypermedia writing, while a variety of literary hypertext and hypertext works, fiction and non-fiction, demonstrated the promise of links. Most modern hypermedia is delivered via electronic pages from a variety of systems including media players, web browsers, and stand-

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alone applications (i.e., software that does not require network access). Audio hypermedia is emerging with voice command devices and voice browsing.

b) Multi-media

In the 1993 first edition of Multimedia: Making It Work, Tay Vaughan declared "Multimedia is any combination of text, graphic art, sound, animation, and video that is delivered by computer. When you allow the user – the viewer of the project – to control what and when these elements are delivered, it is interactive multimedia. When you provide a structure of linked elements through which the user can navigate, interactive multimedia becomes hypermedia."

In education, multimedia is used to produce computer-based training courses (popularly called CBTs) and reference books like encyclopedia and almanacs. A CBT lets the user go through a series of presentations, text about a particular topic, and associated illustrations in various information formats. Edutainment is the combination of education with entertainment, especially multimedia entertainment.

Learning theory in the past decade has expanded dramatically because of the introduction of multimedia. Several lines of research have evolved, e.g. cognitive load and multimedia learning.

From multimedia learning (MML) theory, David Roberts has developed a large group lecture practice using PowerPoint and based on the use of full-slide images in conjunction with a reduction of visible text (all text can be placed in the notes view' section of PowerPoint). The idea of media convergence is also becoming a major factor in education, particularly higher education. Defined as separate technologies such as voice (and telephony features), data (and productivity applications) and video that now share resources and interact with each other, media convergence is rapidly changing the curriculum in universities all over the world.

Thousands of new CALL applications and programs have been published since the few mentioned above, but the ones cited so far provide an overview of the types of features likely to be offered in a multimedia CALL environment. Murray et al. (1991: 97) provide guidelines as to what might be usefully included in multimedia learning environments.

4 .5 CALL in the twenty-first century

1. Integration of computing facilities
2. Mobile telephones
3. Online downloading facilities (audio & Video)
4. USB (Universal Serial Bus)

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5. Television

6. Program Earworms

As teachers moved away from a cognitive view of communicative teaching to a more social or socio-cognitive view, they placed more emphasis on language use in authentic social context.

• Integrate language skills: listening, speaking, reading and writing

• Integrate technology more fully into the language learning process

Integrative approaches to CALL are based on two important technological developments of the last decade:

• Multimedia CALL

• Web-based CALL

Multimedia CALL refers to the learning of a (primarily second or foreign) language supported by multimedia technology. ... Multimedia CALL also encompasses non-sensory aspects that are central, though not exclusive, to multimedia applications, such as interactivity, learner control, and motivation.

The World Wide Web offers a global database of authentic materials that can enhance language learning and teaching

Since the first introduction of computers in language learning process, much has changed in CALL. Among the greatest changes is the integration of computing facilities into many aspects of daily life. Mobile telephones, for example, satisfy many of the computing demands of the average user. In a 2005 article, Philip Greenspun identified what advances would make a mobile phone a replacement for a laptop. While scanning the list, one can see that by 2009, all the features have become common on high-end mobile phones with the small exception of interfacing with CD-ROMS or DVDs, both of which are disappearing media in the age of online music and video download stores and high-storage-capacity USB drives.

Other appliances, such as televisions, are becoming more computer-connected and each technological advance presents new opportunities for the delivery of CALL. New gaming platforms, such as the Nintendo Wii, offer tactile ways of interacting with computer programs and suggest learning opportunities for young children who find difficulty hunting and pecking at the keyboard or using a mouse pointing device.

The online music stores, as well as portable music players such as the iPod, have, for example, helped spurred the creation of CALL media aimed at casual learners. An example of this is the program Earworms, which refers to a repetitive snippet of music that gets stuck in one's head. In each of Earworms' several language programs (12 at present), one listens to key words, phrases and simple dialogues along with pneumonic devices repetitively thrown back and forth by a male English speaker and a female speaker of the target language over a musical background. The

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intention is for the learner to attend to the program passively, playing the music and dialogues as background audio, while doing other things, such as household chores. It is certainly not an attempt to offer a complete language program, but rather borrow from the audio-lingual approach to introduce the sound system of the language and some useful vocabulary in an entertaining way made possible by the technology and popularity of personal audio players (see http://www.earwormslearning.com).

We now live in an age where everyone with a personal computer and an Internet connection can be an international publisher. The video-sharing service YouTube has similarly presented opportunities for individuals and organizations to become directors and producers and post both their favourite videos and their own videos.

Web 2.0 is notable for encouraging a move away from static personal websites to interactive blogging and from expert-generated taxonomies to individual-created folksonomies, the latter term referring to collaboratively built websites such as Wikipedia, where the public creates, contributes to and edits the content of the site. Wikis, community-edited websites on any topic, are a new way to create and organize knowledge. A more involved editorial and creative role for some web users comes in the form of mashups. A mashup is made by combining two or more media. A typical example is a new web application that combines a Google map and other data such as weather forecasts, crime statistics or even available parking spaces.

As CALL practitioners, new computer technologies present opportunities to find innovative ways in the teaching and learning of languages.

The history of CALL suggests that the computer can serve a variety of uses for language teaching. It can be a tutor which offers language drills or skill practice; a stimulus for discussion and interaction; or a tool for writing and research. With the advent of the Internet, it can also be a medium of global communication and a source of limitless authentic materials.

But as pointed out by Garrett (1991), "the use of the computer does not constitute a method". Rather, it is a "medium in which a variety of methods, approaches, and pedagogical philosophies may be implemented" (p. 75). The effectiveness of CALL cannot reside in the medium itself but only in how it is put to use.

As with the audio language lab "revolution" of 40 years ago, those who expect to get magnificent results simply from the purchase of expensive and elaborate systems will likely be disappointed. But those who put computer technology to use in the service of good pedagogy will undoubtedly find ways to enrich their educational program and the learning opportunities of their students.

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Lecture- 03

Models for CALL

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Module -05

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MODELS FOR CALL

Topic No: 11- 12

Defining a Model of CALL; Dunkin and Biddle's Model in a CALL context

5.1 Defining a Model of CALL

This lesson explains the role of the computer and multimedia in language learning – more specifically, CALL – by examining a traditional model of the many factors which influence learning in the language classroom. This traditional model by Dunkin and Biddle (1974) is examined in terms of how it can and cannot accommodate CALL. Based on the differences between CALL and traditional language learning, a new model for learning with CALL is offered. Collaboration is explored in terms of the challenges raised by learners themselves (social challenges) and challenges specific to the computer and CALL programs (technical challenges).

The principal concerns of this lesson can be summarized by the following three questions:

- What variables are traditionally involved in a model of the educational process?
- How do these variables differ in CALL materials?
- How can CALL be portrayed in a model?

5.2 Model of CALL

The introduction of the computer into the classroom (in some cases, some places) has fostered changes to the practice of the teaching and learning of languages and related subjects, such as literature. Of particular interest to CALL research is the ability of multimedia to increase comprehensible input and offer opportunities for comprehensible output thus fostering SLA, through collaboration, which was a key construct in understanding opportunities for learning with CALL.

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In order to elucidate the relationship between CALL and SLA, it is necessary to construct a model. A model is a pictorial representation of a metaphor; a way of looking at and understanding the world. A model can be used as a tool to examine processes and describe the ways in which teaching and learning may take place or may be improved upon.

New models of CALL arise over time, as the factors within a process change or the understanding of the processes the model describes are themselves revised. Also, as CALL develops and increases in complexity, new models are put forward to describe more discrete portions of the discipline. For example, Bertin and Narcy-Combes (2007) focus on the role of the learner in a computer-mediated environment, suggesting that monitoring learner outcomes can be counter-productive.

Dunkin and Biddle (1974) noted that there appears to be a never-ending supply of models but go on to suggest that there are good reasons for such being the case, 'teaching is a complex activity that reflects many factors. Most of these relationships have not been adequately studied, nor indeed do we always have an agreed-upon set of terms with which to express them' (p. 31). The idea of the model is further defined through examples over the course of this lesson.

This lesson first considers a model of a traditional view of what takes place in the classroom and examines how this model fits and does not fit CALL in general. But before considering a suitable model for the classroom, problems in creating CALL models are reviewed.

(a) Problems in Creating CALL Models

There are problems inherent in any attempt to create a model for CALL in the classroom. One is the expansive scope of what is considered to be within the realm of CALL processes, especially considering the broad definition for CALL that takes into consideration its changing nature: any process in which a learner uses a computer and, as a result, improves his or her language. A model for CALL either has to accommodate this general definition or more narrowly define a set of significant aspects of CALL that might be considered. The model offered later in this lesson attempts to define CALL in terms of classroom practice rather than also deal with learners using CALL software in other contexts, such as at home or as an activity peripheral to another subject.

(b) The Need for a CALL Model

The question of whether or not CALL is intrinsically different from traditional language teaching and learning has been addressed through an examination of several historically innovative software programs. The fact that CALL is different from prior approaches and materials is also pointed out by Williams (1998) who argues that the potential for teaching and learning through CALL has not been tapped.

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N. Williams emphasized upon the need for reviews of the particular nature of CALL technology and proposed that;

"Hypermedia allows everything to be linked to everything, just like human imagination. But teaching (as opposed to learning) requires rather narrower perspectives. Whilst the information within educational multimedia is extensive, attractive and complex, the interactions with and within that information, allowed by the authors of such systems, fail to realize the educational potential of the medium. We need more radical reviews of what learning might be through multimedia, combined with innovation in design (Stringer, 1997), to realize more fully the true potential for educational interaction in multimedia".

Creating a new model requires decisions on the range and types of variables that need to be considered. The first task in describing a new model for CALL is to identify a current model for teaching and learning and examine what variables might or might not need to be reassessed. Hubbard (2005), in a review of 78 articles published in CALL journals between 2000 and 2003, cautions that most of what we know about CALL seems to come from studies conducted with untrained novice users.

(c) A Model of Current Non-CALL Language Learning

Many authors have attempted to isolate the variables involved in learning and teaching language. Spolsky (1987), for example, lists 74 variables affecting learning. Such a high number of variables makes it difficult to isolate any one variable for careful consideration in, for example, an experimental examination of the variables' influence on learning.

A general model that includes and expands on Breen's (1998) criteria can also include observations from Dunkin and Biddle's (1974) model. Their model also identified aspects of language learning that might be studied in a classroom.

The following model has been simplified by eliminating Dunkin and Biddle's examples: e.g. under Teacher formative experiences, they list social class, age and sex followed by an ellipsis. Dunkin and Biddle's model is a general one, in the sense that it covers all formal instruction, not just language teaching. The following sections examine Dunkin and Biddle's model in terms of its ability to accommodate CALL and outlines the differences that help define a new model suitable for CALL.

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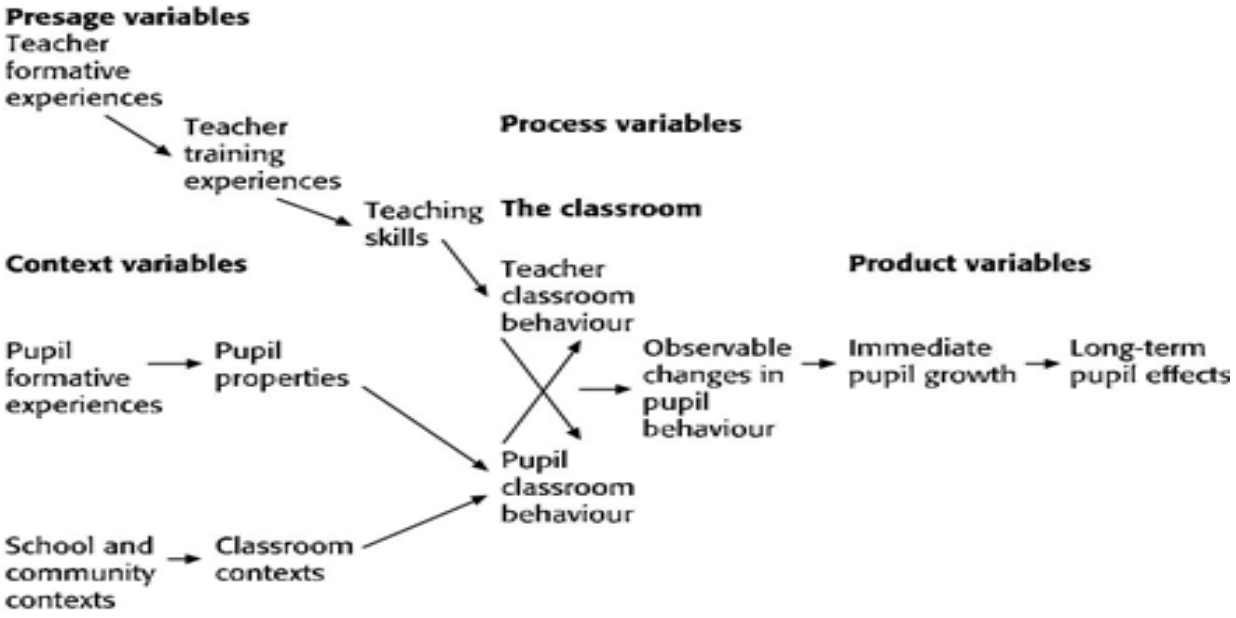


Figure1: A model for the study of classroom teaching
(after Duncan and Biddle, 1974: 38) From Dunkin. *The Study of Teaching*, 1E. © 1974 Wadsworth, a part of Cengage Learning, Inc. Reproduced by permission, www.cengage.com/permissions

5.3 Dunkin and Biddle's Model in a CALL Context

This topic considers Dunkin and Biddle's model by reflecting how factors within the model change in a CALL context.

Various Dimensions

There are two ways of considering CALL: either as a supplementary learning material in which case CALL simply falls under the Classroom contexts heading in Dunkin and Biddle's model; or as an autonomous process, a kind of virtual teacher. A question that whether a machine can, independent of any human teacher intervention, teach language; there is so far no empirical evidence of a learner completely acquiring a second language through CALL alone, although this is an interesting area for a study; the task would be to create or assemble a comprehensive CALL software program(s) for a language unknown to the teacher, the learner and the community, such as Swahili in rural Saskatchewan. Instead, it is assumed that the role of CALL is to help foster language learning by creating conditions that make some aspects of language learning easier.

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Computer Functions beyond Traditional Materials

However, it is also necessary to accept that the computer sometimes assumes functions beyond traditional materials and accept that its inter-activity mirrors at least some of the functions of the teacher, especially when it is used autonomously, even though it cannot pretend to duplicate the teacher's range. It is with this view of CALL that Dunkin and Biddle's model is examined.

In Dunkin and Biddle's model, there are aspects that are broadly fixed in both non-CALL environments and CALL environments:

- School, community and classroom contexts
- Product variables of immediate pupil growth and long-term pupil effects

School, community and classroom contexts are likely to change only in the sense that some learners presumably encounter computers and computer software well ahead of their introduction into the classroom; or through the adoption of a virtual classroom model. This view, as already mentioned, needs to assume that CALL materials are more than just a classroom con-text. Through exposure to computers and computer software, learners are prepared for the ensuing classroom variables; in some cases, learners are given insight into how teaching materials are constructed – what Dunkin and Biddle consider the Presage variables, which we will discuss in coming topic.

The other factor unlikely to undergo significant change is Dunkin and Biddle's Product variables of Immediate pupil growth and Long-term pupil effects, although the ways of measuring such changes, both by the teacher and the learner, are likely to evolve, for example, through computer-adaptive testing programs in which the computer evaluates a learner's early performance in subtests and builds fuller tests, as well as scoring and tracking progress through learning programs.

The factors that are more likely to change are discussed and illustrated in a revised model based on that of Dunkin and Biddle.

(a) Presage Variables

Presage variables include Teacher formative experiences, Teacher training experiences and Teaching skills. Earlier discussion considered whether or not software programs take the place of the teacher. Software programs might in some cases, with different emphasis, function as a virtual teacher, a teacher's helper, a teaching tool and a learning tool. Sloane (1990) as well as Boyd and Mitchell (1992) take a discourse approach and consider CALL a conversational

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activity shared among the learner, the machine tutor (i.e. computer program) and the educator/developer. But in many CALL programs, Dunkin and Biddle's teacher attributes are generally subsumed under the consideration of the program taking the place of the teacher. This being the case, the following shifts can be assumed:

Presage variables	Presage variables in a CALL context
Teacher formative experiences	Materials developers' collective experiences
Teacher training experiences	Ideas of models of instruction
Teacher properties	Technical affordances of the program

Figure 2: Shifts in presage variables

(Based on Dunkin and Biddle, 1974: 38)

In examining these shifts, we can see that Dunkin and Biddle (1974) assume that an individual teacher comes to the classroom with a wide range of experiences and skills. Teacher formative experiences refer to factors such as those experienced because of social class and sex. They also list age, race and physical appearance to illustrate the fact that everything about a teacher is inclined to be involved in how the teacher is 'likely to be treated differently both within and without the school' (p. 39). In terms of a CALL context, the formative experiences are likely to be homogenized into the collective experiences of the materials developers as many soft-ware developers' marketing executives are likely to be involved in any decisions in the creation of a CALL program.

Teacher training experiences refer to the formal education that a teacher receives from both academic institutions (i.e. teacher colleges, universities) and training in school placements. Dunkin and Biddle (1974) note that these include 'courses taken, the attitudes of instructors, experiences dur-ing practice teaching and in-service postgraduate education, if any' (p. 39). Hampel (2009) defines some of the skills necessary for teaching in a virtual environment, but in the CALL context, again, because of the collective nature of the creation of CALL materials, these experiences are likely to be homogenized into particular ideas of models of instruction. There is room for learners and teachers to organize the ways in which they learn, but these are often limited by what software developers and other personnel involved in the process will agree on in terms of organizing the approach to learning based on their perception of what is an appropriate model.

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Teacher skills refers to psychological traits, motives, abilities and attitudes and rely on what Dunkin and Biddle (1974) note as 'the common view that teaching is largely a matter of personal relationships and personality, that such effects as teachers have are functions of their personalities (Nuthall, 1972, personal communication)' (p. 40). How a CALL context might have a 'personality' is difficult to assess, although Microsoft Windows and Apple Macintosh interfaces are often characterized as each having a different 'feel' and there are many aspects of an interface which can be measured in degrees of user-friendliness.

In a CALL environment, the feel or user-friendliness of the program is often determined by the affordances of the program (i.e. what the pro-gram is or appears to be capable of doing in terms of both intended and unintended functions) and how easy or difficult it is to understand these affordances. In general, the trend in CALL has been always to make interfaces and the information within them as easy to understand as possible. However, it may be that this does not reflect good teaching practice or real-life situations in which teachers and other interlocutors are likely to present information in obscure or veiled ways to encourage thinking on the part of the learner. As CALL programs continue to have a high degree of interactivity with both teachers and learners, it is likely that learners will feel less isolated by program features that do not seem to address their particular needs. The continuing high quality of both animation and online video present opportunities to challenge learners to think, particularly when the teacher can make an appearance in the form of an animated or video avatar.

But many CALL programs continue implicitly to state 'I have the answers to your questions; just click here.' A teacher is more likely to say, 'What do you think the answer might be?' or 'Why do you ask this question?' As already mentioned, it is difficult for computers to deal with ambiguous learner input, but this is an area of research that needs to be further investigated.

(b) Context Variables

Dunkin and Biddle's context variables of Pupil formative experiences and Pupil properties are different in a CALL environment because many learners are likely at least to come into contact with computers, if not CALL, before coming to school. In this way, they are pre-socialized into the idea and methods of learning with computers and develop their own competencies and learning strategies. Learners who bring computer and CALL formative experiences and properties to the classroom assist in defining the variables of a new model of learning because they see using the computer as some-thing that is distinctly different from traditional classroom instruction.

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Such transfer – or lack of transfer – may limit the variables of a new model because the learner may be unable or unwilling to accept new learning ideas and practices. This has certainly been the case with a generation of people who have pronounced themselves computer-phobic; but such a phobia is generally unknown among young children who have grown up with computers and take them for granted. Young learners are more willing to accept new models of learning because they are not conditioned into regarding the existing model (as described by Dunkin and Biddle, 1974) as a so-called 'right' or 'normal' way of doing things. The computer's exciting yet controlled presentation of learning materials is attractive to many young learners.

It is within the area of Process variables that the sharpest differences between Dunkin and Biddle's model and a CALL model are apparent. To explore these differences, we need to consider various views of CALL as well as classroom and computer variables and how they fit into Dunkin and Biddle's Teacher classroom behaviour and Pupil classroom behaviour.

5.4 Morariu suggested factors for the design of the learning environment

Depending on one's vantage point, these factors can shift. Morariu (1988) suggests four other factors from the point of view of the design of the learning environment that are not explicit in Dunkin and Biddle's model.

Morariu (1988) suggests that CALL materials' developers should decide where in Bloom's taxonomy of questions, learners should be operating. When learners take in information, they use various strategies to make sense of it. These strategies may correspond to levels of questions or thinking outlined by Bloom (1956) in his Taxonomy of Questions. These questions range from low-level knowledge and factual levels to higher levels of analysis and evaluation. Strategies such as skimming and scanning allow learners to answer lower-level questions while higher-level strategies, such as reading for attitude, allow learners to answer higher-level questions and, generally, to think in greater depth about a text.

J. Morariu commented on the design of learning environments as:

- Goals/Objectives. Stated in behavioral terms, a full breakdown of the con-text and measurable outcomes for the entire instructional environment.

- Navigation. The user interface design that defines how the learner can move through the system (e.g. Are predetermined 'tours' provided? How does the learner know where he/she is? Can the path be retraced easily? Are graphic icons used for browsing /selecting information or do users need to type key words?)

- Structure. The overall organization of the information (e.g. hierarchical with topics and sub-topics, associative with word/icon links).

- Format. Media for presenting the content /data (e.g. text, graphics, animation, audio, still images, motion video).

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Morariu (1988: 18 –19)

Bloom's taxonomy was revised by Anderson and Krathwohl (2001), changing the category titles to verbs and shifting the focus of the upper-level items to: remember, understand, apply, analyze, evaluate, create.

In a CALL program, it is important to have information structured on a series of levels encouraging readers operating at various levels, at any point, to delve deeper into explanations of the content. It is also important that programs challenge students to perform at higher levels within Bloom's (1956) taxonomy. For example, a program presenting vocabulary for shopping might allow learners to follow hyperlinks to delve deeper into more complex expressions and vocabulary. Such a program might also ask learners to recall information and to apply what they have learned to new situations and generate their own rules about the grammatical rules that are involved.

Source Reference:

1. Teaching and Researching Computer-Assisted Language Learning, 2nd edition by Ken Beatty Philip , First published in Great Britain in 2003, Second edition published 2010 © Pearson Education Limited 2003, 2010

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Module-06

CALL MODELS PRACTICES IN SLA

Topic No: 13- 15

Teacher and Pupil classroom behaviour: activities used in CALL; The Virtual Classroom; Aspects of a CALL Model

6.1 Teacher and pupil classroom behaviour: activities used in CALL

Computers inherently allow for a greater learner autonomy because, unlike a teacher, they are available beyond the time and space confines of the classroom; a learner who wishes to revisit and extend his or her learning at any time or place (that is, any place with a computer) has a potentially rich resource with which to do so. CALL resources are extremely limited in some ways when compared to a well-qualified teacher but, in most cases they far exceed what is available from a textbook. Dunkin and Biddle's Teacher classroom behaviour is likely to be considered Program interface (see Fig.4) which also serves to govern learner behaviour to the extent that a CALL interface provides different kinds of tasks and encourages learner behaviours such as strategies and role identification.

The range of tasks and exercises available in CALL can be organized into various taxonomies based on the stated focus of the software (e.g. grammar, vocabulary, fluency), targeted language skills (e.g. reading, writing, speaking and/or listening) or Bloom's (1956) levels of questions and learner characteristics based on age, gender and level (e.g. beginner, intermediate, advanced). But a more general way of visualizing what goes on at the computer can be based on the degree of involvement with which learners access information. This measure can be seen within a continuum of locus of control.

(a) Locus of Control

Locus of control refers to the continuum between the program's and the learner's responsibility for decisions about the sequence and outcomes of learning, learner interactions and, even, the content of what is taught. Jonnassen et al. (1993) see the distal ends of the continuum as representing objectivist and constructivist orientations towards learning. Another view is found in Chandler's (1984) model (Figure 3 below) in which Tutorial (and in some cases, Games) represents a behaviourist model of instruction in which collaboration and negotiation of meaning are not encouraged. Instead, emphasis rests on individualistic and competitive goals. Simulation games and Experimental simulations are more likely to fall into a constructivist model of

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instruction that acknowledges that learning best takes place when learners struggle with information while trying to fit it into a meaningful schema.

Chandler's categories of content-free tools and programming languages may be seen as neutral in terms of a model, although they are likely to be combined with tasks and used in a classroom in a constructivist approach to learning.

Chandler (1984) arranges types of CAI/CALL activities into the following table:

Locus of control

Program ← → User

Tutorial	**Games**	**Simulation games**	**Experimental simulations**	**Content-free tools**	**Programming languages**
Programmed instruction Drill and practice	Computer as player or referee	Computer as game-world: e.g. Empire-style games and the adventure genre	Mathematically based models of processes such as scientific experiments	Word-processors Sound and graphics Manipulators Databases Scientific instruments Control technology	Logo BASIC Smalltalk
Hospital model: User as patient	**Funfair model:** User as emulator	**Drama model:** User as role-player	**Laboratory model:** User as tester	**Resource centre model:** User as artist or researcher	**Workshop model:** User as inventor

Figure : The locus of control in CAI

(Chandler, 1984: 8)

Perhaps too late for Chandler's model is the increasingly popular use of the Internet for various forms of learning and discourse, summarized by Turkle (1995) and Seaton (1993). Also not specified in Chandler's model is the extent to which various programs can be used to foster language learning. That is, software programs in which learners develop their language as an activity peripheral to the completion of other tasks such as the study of literature, science, mathematics and other more specialized topics.

(b) Observable Changes in Pupil Behavior

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Changes in learner behaviour are likely, in many cases, to remain constant but what differs between Dunkin and Biddle's model and a CALL model is what is measured and how it is measured. CALL essentially presents different kinds of language-learning opportunities from those available in a traditional classroom. A good example is found in Ward et al. (2007) on providing opportunities for learners to model back-channel feedback (expressions such as 'uh-huh' that demonstrate comprehension when listening) in an Arabic program. There are also more opportunities for learners using the same CALL program to study different things or study the same things in different ways.

(c) Measurement of Language Learning

Traditional measurement of language learning depends on teacher observations and tests. But CALL programs present many opportunities for different kinds of measurement. For example, a learner's links can be tracked to see the extent of a program a learner explores and the time he or she spends in each section. More importantly, many CALL programs allow for a learner to obtain immediate feedback on progress, that is, an opportunity to observe their own changes in behaviour. This continuous formative assessment differs from a traditional classroom teacher's random spot-check of learners' comprehension or a final test.

6.2 The Virtual Classroom

A new context that differs from Dunkin and Biddle's model and incorporates the idea that new technology builds on the already mentioned idea of a virtual teacher to suggest a virtual classroom. If the assumption is made that a CALL program can act in some ways as a virtual teacher, instead of simply a supplementary classroom teaching material, CALL in general can be seen to shift many related assumptions about how classroom teaching may be considered, including the creation of virtual classrooms where a teacher is not present.

Definition of Virtual Classroom

A virtual classroom is an online classroom that allows participants to communicate with one another, view presentations or videos, interact with other participants, and engage with resources in work groups.

(a) Characteristics of a Virtual Classroom

1. Non-Restricting

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A virtual classroom allows both learners and instructors around the world to participate in live classes to collaborate and interact. MOOC programs like Coursera are a great example of this concept in action.

2. **Affordable**

The low costs of virtual classrooms are considered to be a major advantage. Learners can save money by not having to worry about travel expenses. Participants also save time since all that is needed is an internet connection.

3. **Flexible Learning**

Online classes also allow for the ability to record class as it happens, including any presentation audio and visuals. This means that the content is accessible even after being delivered, an added benefit for those who want a quick refresher, or perhaps did not fully understand the first time.

4. **Practical and Proven**

Synchronous learning is a learning environment where everyone takes part in the learning at the same time. A traditional lecture is an example of this type of learning, and has been used for hundreds of years. Online learning enables this same type of experience, but with far more conveniences and tools.

5. **Accessible**

Virtual classrooms can be used to deliver lectures, or even tutorials online. They are also great options for impromptu meetings and group projects where members need to check-in on progress and bounce ideas of one-another. With the virtual environment, ideas and collaborators are never far away.

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(b) How Virtual Classroom Works?

Wesley and Franks (1994) suggest the virtual classroom class is 'an electronic classroom which can be expandable in time, space and content. Its informational territory can grow indefinitely as new knowledge and resources are acquired and as the capabilities of new members are added' (p. 3). They also suggest that the virtual classroom has continuity through time in that it is not limited to conventional academic time segments (semesters, school years, etc.). As successive groups of learners are added, previous learners need not leave, but can remain to continue their learning and to support the learning of the new students: 'Any member of a Virtual Classroom can be in contact with any member of any other connected classroom, whether virtual or physical, so that information and problem-solving capabilities can be mutually shared and reinforced through collaborative interconnection' (p. 9). In the intervening years since Wesley and Franks defined the virtual classroom, it has taken on a range of meanings from the fully

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animated avatars of virtual Second Life campuses, to online Blackboard teaching modules that also provide live chat functions.

Most of these thoughts focus on a distance-learning model using email and the WWW for computer-mediated communication (CMC). However, most CALL materials work in similar ways.

6.3 Aspects of a CALL model

As already mentioned, a model for CALL is difficult to describe in absolute terms, partly because of the many variables involved, partly because of the ever-changing nature of the technology and also because of the wide variety of applications that are considered as CALL programs. If some CALL programs can be considered to take the place of the teacher, offering many of the functions of the teacher outside of the traditional classroom, then the following adaptation of Dunkin and Biddle's model might better describe what goes on in a CALL environment.

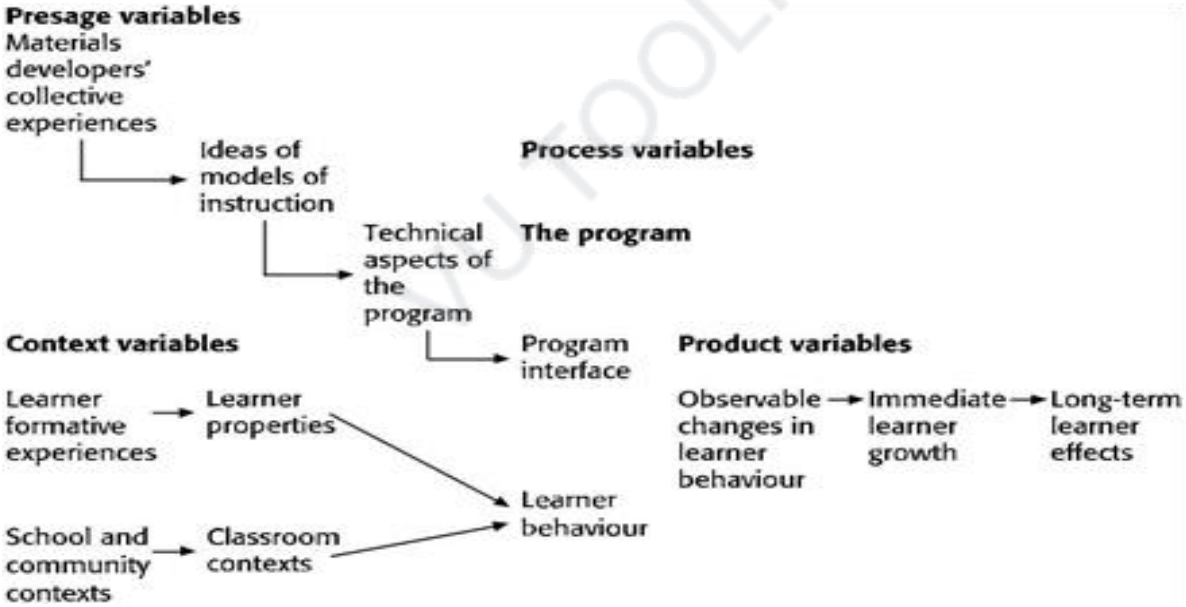


Figure 4: A model for the study of CALL teaching and learning by Collins (1991) and Derycke et al. (1995).

(after Dunkin and Biddle, 1974: 38) From Dunkin. The Study of Teaching, 1E. © 1974 Wadsworth, a part of Cengage Learning, Inc. Reproduced by permission, www.cengage.com/permissions

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However, even an adaptation of Dunkin and Biddle's model, simply taking into consideration the differences in a CALL context does not show all the variables mentioned above by Collins (1991) and Derycke et al. (1995).

Although Dunkin and Biddle (1974) refer to challenges among teacher proprieties such as authoritarianism and anxiety, the above adaptation to a CALL context does not address all the challenges in the learning process but serves as a starting point to examine what goes on in CALL contexts.

This lesson has tried to build on what was discussed about the parts of a model for CALL. It began by defining the idea of a model, suggesting that it can provide a description of a process that can then be compared to what actually goes on in the classroom.

6.4 Association of CALL models with CALL Process

Dunkin and Biddle's (1974) model provides a picture of the scope of the variables currently involved in learning and teaching. However, in a CALL context, presage variables, context variables and process variables all differ. To understand these, various views of CALL were presented along with a summary of activities used in CALL and an overview offered in terms of a model of locus of control at the computer. This model suggests that activities in CALL can range from little or no control on the part of the learner to complete control. It was suggested that the former signals a behaviourist approach while the latter falls into a constructivist approach.

From this discussion the idea of the virtual classroom was introduced followed by a model based on that of Dunkin and Biddle (1974) which accommodates CALL as a kind of virtual teacher. However, while an adaptation of Dunkin and Biddle's model provides a sense of what may change in a CALL context, it does not highlight all the variables in consideration in CALL.

6.5 CALL Material Problems

CALL materials initially suffered from peripheral problems, including a lack of funds, a lack of expertise and a lack of suitable tools in the form of authoring programs that in turn create problems with defining a suitable model. However, user-friendly online applications are increasingly used to create materials which, although incapable of offering a comprehensive language-learning program, nonetheless fill some gaps that complement the work of a good teacher. A CALL model that can help guide materials developers and those who assess CALL materials is a noble pursuit, but in the fractured approaches to teaching and learning a language at the computer, it is unlikely a practical model will encompass everything being done in a meaningful way.

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Source References:

1. **Teaching and Researching Computer-Assisted Language Learning,** 2nd edition by Ken Beatty Philip , First published in Great Britain in 2003, Second edition published 2010 © Pearson Education Limited 2003, 2010
2. https://www.learndash.com/characteristics-of-a-virtual-classroom/

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Lecture- 04

CALL Applications

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Module-07

CALL APPLICATIONS- I

Topic No: 16

Word processing; Games; Commercial Quiz Software

7.1 CALL Applications

Previously we have discussed various CALL applications featuring simulations. Simulations are ideal for offering immersive environments that offer exposure to the target language in various media but sometimes lack the focus of other language teaching approaches. This lesson features eight generic CALL applications that together illustrate the breadth of what is available to CALL practitioners. While not intended to be exhaustive, this lesson includes topics on:

- Word processing
- Games
- Literature
- Corpus linguistics
- Computer-mediated communication (CMC)
- WWW resources
- Adapting other materials for CALL
- Personal Digital Assistants (PDAs) and mobile telephones

7.2 Word Processing

Almost all computers are sold with some version of word processing already installed, usually Microsoft Word. Such programs are widely used in the composition process. Within such word-processing packages, spelling and grammar checkers and simple thesaurus programs are standard tools.

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There used to be only one way for learners to correct spelling on their own: using a dictionary. Now, as learners increasingly use computers in the composition process, they frequently do their spelling corrections with computer-based spelling checkers and seldom refer to a dictionary or use an online dictionary. Spelling checkers are also included in other applications such as database programs because as many as one in ten data-base queries fail because of spelling mistakes either in the query or within the database index itself (Smith, 1991).

After much research in the 1980s and early 1990s, attention has shifted away from the influence of spelling checkers and grammar checkers. However, it is an area which continues to merit attention as learners turn away at younger ages from writing on paper to computer-based composition.

Although computer software manufacturers may consult educators, most word-processing programs and other applications are designed not for school use, with attendant pedagogical concerns, but for business environments where learning is less important, or even completely unimportant. In business, the focus is on the completion of tasks. This is particularly seen in programs that offer spelling correction but do not provide any definitions. Learners – particularly second-language learners – frequently misspell a word then choose the first correction offered, without considering whether it is appropriate or not. Moreover, word-processing programs do not record misspellings or give any feedback to learners interested in reviewing their errors. Even worse, spelling checker programs allow learners to add new words to standard dictionaries and sometimes these words are themselves misspellings.

It may be that spelling checkers assist in fluency by relieving learners of undue concern over their spelling during the composition process. However, when learners look through a traditional or even online dictionary to correct a word in response to uncertainty or a teacher's remark or correction, it may help their acquisition of vocabulary to wade through dozens of related words, practicing alphabet skills in using the guide words at the head of the page, and scanning through several entries, sometimes coming upon an illustration which shows the hyponyms and associated words to the target word. It is a slower but far richer process.

Word-processing programs also provide grammar support, although such support is sometimes of questionable worth. The grammar checker included with various versions of Microsoft Word, for example, is pre-programmed to object to the use of the passive voice, even when the passive voice is appropriate. This and other rules can be suppressed within the program but it may be difficult for learners to do so and would require that they have a certain level of grammatical sophistication to appreciate why it might be done.

Beyond word processing, software such as Microsoft Word is increasingly multi-purpose. For example, it is commonly used by teachers (and some-times learners) for creating semi-authentic learning materials featuring text, tables and illustrations as well as simple websites.

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7.3 Games

Most educational games, or games used for pedagogical purposes, make use of a form of subversive teaching; learners are unaware of the objectives or, rather, do not share the same objectives as the teacher. Instead, learning takes place as an activity peripheral to play. Learners asked to play the board game Monopoly, for example, may not be aware that they are learning rudimentary concepts about the value of money and real estate, nor will they associate these concepts as part of learning objectives. Similarly, learners are increasingly developers of digital content as online applications allow them to create and manipulate their own and others' media into videos, animations and games (Alexander, 2008). Through such manipulation and development, learners acquire critical thinking and editing skills.

However, to what degree can we measure the benefits of games? A related research question in this area is concerned with transfer: to what degree are skills learned in a game of use in the real world? The peripheral learning benefits in a game are likely to be small but are hopefully greater in a program devoted to some specific educational objective. The best educational games are those which embed the pedagogical objectives so that the learners' perceptions are of play, while the teachers' hidden objectives are still achieved.

In other cases, learning materials which are not perceived as being game-like by the teacher may be perceived as such by the learner. For example, Nord describes an exchange with his students at Nanzan University in Nagoya, Japan in which they asked for another session in the Computer-Assisted Language Learning (CALL) Laboratory using a particular game. Nord was confused until he realized that the game they were referring to was actually a traditional grammar drill (J.R. Nord, private communication, 1998). The idea of game rests in the perception of the user, not the description of the developer, the pedagogical model or the label used by the teacher.

Among computers' most popular uses today are as platforms for arcade-style computer games although an interesting development has been the introduction of the Nintendo Wii gaming system which employs kinaesthetic skills in doing games; it is a platform rich for development of educational applications, particularly for younger children. Games are extremely attractive to young learners (and many older ones) and those games that foster collaboration can provide opportunities for scaffolded language learning (Papastergiou, 2009).

While entertainment applications have certainly increased general computer literacy and served to make computers more familiar and less threatening to the average young person, a question that needs to be addressed is: To what degree do young learners transfer their computer skills and enthusiasm to more academic learning at the computer? It may be that young learners' familiarity with the possibility of what computers are capable of makes them less tolerant of educational applications that do not match the average computer game's exciting presentation of information.

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A degree of excitement is necessary in computer-based learning materials, particularly in the case of young learners who lack motivation for learning. Young learners may seldom see beyond the moment to consider the consequences of their learning (or not learning) something. Young learners can perhaps be cajoled into learning through the threat of tests, but cannot easily assess the importance of year-end grades, distant graduation or future employment. Within the classroom environment, computers can help in motivation through the organization of learning into game-like formats.

On the simplest level, the computer is a suitable game player as it can provide clues, levels of difficulty and rewards for solutions through points or visual stimulation. Most importantly, the computer is endlessly patient and never grows bored. Simple computer games include variations of many of those found in the real world.

7.4 Commercial Quiz Software

Particularly online, computer-based games are often in the form of quizzes which test knowledge more than they teach it. Like games, quizzes are very motivating for learners as they appear to illustrate a learner's progress and give some security against fear of more formal exams. As computer-based quizzes are often done outside of class and not marked by teachers, learners may feel less threatened.

A popular quiz format is a cloze exercise, such as one of several test types found in Respondus (http://www.respondus.com), a popular assessment tool used with computer-based course design packages such as Blackboard Vista. In these computer-based cloze programs, learners choose a text from a menu on the computer screen and delete words at any point in the text (for example, after an introductory paragraph) at selected intervals; every second to every ninth word. Deleted words are replaced with numbered blanks. Learners can request clues in the form of single letters. Such programs encourage careful reading but frustration may occur as the programs do not accept synonyms; usually learners must guess the exact word that has been deleted.

Other quiz software includes programs to check spelling, listening, speed reading, knowledge of synonyms and antonyms, general knowledge and other English skills.

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Module -08

CALL – LANGUAGE GAMES

Topic No: 17

Language games, Literature; The relationship of literature to computer-based learning materials; Hypertext and Literature; Corpus Linguistics; Corpus Linguistics in the classroom

8.1 Literature

One of the ways in which learners are presented with opportunities to acquire language is through activities peripheral to the study of literature and other disciplines. A work of literature is not a simulation, but it has a high degree of fidelity, or authenticity, in that the learning materials are both extensive and taken from real-world sources. Literature forms the basis of many CALL programs.

Collie and Slater (1987) offer four main justifications for the use of literature in the language classroom: valuable authentic material, cultural enrichment, language enrichment and personal involvement. They also note the place of non-fictional authentic materials, such as bus schedules.

Literature is a valuable complement to (other classroom) materials, especially once the initial 'survival' level has been passed. In reading literary texts, students have also to cope with language intended for native speakers and thus they gain additional familiarity with many different linguistic uses, forms and conventions, and so on. And, although it may not be confined within a specific social network in the same way that a bus ticket or an advertisement might be, literature can nonetheless incorporate a great deal of cultural information.

A rich source of content for CALL programs is literature which has come into the public domain and is freely available in digital formats, often with accompanying visual materials. This allows learners to manipulate text and comment on it in interesting ways. Farabaugh (2007), for example, talks about how students can use wikis to make sense of a Shakespeare play: commenting, editing comments and generally building their own knowledge base with personal opinion and other sources.

Collie and Slater (1987) use the term cultural enrichment to refer to the wealth of insights about other cultures (particularly the target language culture) that literature offers.

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Skills in making inferences and deductions can be taught in different ways, but literature tends to teach them more naturally. In fact, many of the best CALL programs offer learning in the same way as good literature, presenting a narrative in which the reader/learner draws a more general understanding of themes.

In addition to the arguments raised above, there is also the fact that a simple love of literature supports autonomous language learning (Falvey and Kennedy, 1997; Montali and Lewandowski, 1996). Learners who are exposed to literature in the classroom and enjoy it are likely to expand their exposure to literature in various other forms and provide themselves with associated opportunities for language learning outside of the classroom.

8.2 The relationship of literature to computer-based learning materials

Collie and Slater's (1987) observations on the link between language learning and literature were written with reference to traditional paper-based learning materials they also hold true for computer-based learning materials. However, there is a principal difference: computer-based learning materials easily bridge the gap between fictional and non-fictional resources by routinely offering multimedia links between the two. In paper-based materials, this is sometimes found to a lesser degree in heavily annotated editions of literary works such as Shakespeare plays. A Shakespeare play presented on the computer is likely to offer video of the play being performed, diagrams of costumes, virtual tours of the original Globe Theatre, interactive dictionaries and other tools for literary and language enrichment.

8.3 Hypertext and Literature

Deegan and Sutherland (1990) note advantages of hypertext for both the study and writing of literature, arguing that texts and non-textual material are essentially fluid and easily manipulated, making it an ideal tool for showing the interconnection of ideas. Whether or not learners use hypertext to make their own connections in literature and whether it helps in their general acquisition of language is an area of research worth investigating.

8.4 G.P. Landow on the advantages of hypertext as a tool for learning connectiveness in literature:

The sheep like behavior displayed by many freshmen is often due to their having little information and little idea of what to do with it. One cannot make connections between fact A and six other facts if one knows only fact A. This lack of factual knowledge leads to reductive thinking. Additional information, however, will not help students think critically unless they have techniques for relating facts to each other. College liberates because it provides students with facts and offers examples of the way they can make connections for themselves. Intellectual

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freedom derives from an ability to make choices. Anything that can help teachers communicate information to students as well as provide them with techniques to relate it to what they already know provides a model for education. The habits of mind, thus encouraged, apply to all kinds of activities, inside the classroom and out, and they remind us that education and thinking are active procedures.

Landow (1989: 176)

8.5 Corpus Linguistics

Corpus linguistics is an important area in its own right within applied linguistics, but it is also a useful tool for the teaching and learning of language at the computer. This section outlines some of the key aspects of corpus linguistics and concordancing before going on to explain their applications to CALL.

The corpus in corpus linguistics refers to a body of text. The text can be made up of different examples of spoken or written language or a combination of both. Corpora (corpora - plural of corpus) can be based on simple and brief texts on a narrow topic or run into the millions of words, such as the British National Corpus (http://www.natcorp.ox.ac.uk), a 100-million word corpus of British English. Corpora can be un-formatted text made up of individual words or formations. Alternatively, these can be tagged for grammatical functions or for other functions. Simple searches can be used to count the frequency of different words and structures.

To access, or make use of, a corpus, one uses a concordancer to look at language patterns. A concordancer is a tool that looks at individual words (nodes) or groups of words and lists them with their immediate contexts; usually the seven or eight words that come before and after but, in some cases, the entire sentence for each word. The term for describing this approach is key word in context (KWIK).

Using corpora in the classroom involves making use of a concordancing program's ability to spot patterns and exceptions in language use.

8.6 Corpus Linguistics in the Classroom

Both teachers and learners can use corpus linguistics in various ways within the classroom.

A teacher might collect a set of student assignments and use a concordancing program to analyse examples of learners' language looking for typical error patterns. Systematic errors in learners' writing can be used as a basis for the development of learning materials. Alternatively, a teacher might look through established corpora of texts by native speakers of the target language and find examples for patterns and present these to learners as examples or adapt them into exercises.

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Learners themselves can be trained in the use of a concordancing program (St John, 2001) and corpora, then become their own researchers finding examples and developing their own rules for grammatical structures, idioms and general usage, for example, investigating the differences between the verbs look and see. This approach is often called Data Driven Learning (DDL).

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Module -09

CALL APPLICATIONS- II

Topic No: 18- 20

Computer-mediated communication; WWW resources; Adapting other materials for CALL; Personal Digital Assistants; PBworks, Wetpaint, Google Documents; MS Word, power point, excel sheet

9.1 Computer-mediated Communication

Communicating using the computer is often referred to as computer-mediated communication (CMC) and is one of the more popular activities associated with CALL. CMC encompasses communication by email, bulletin boards, chat lines, within MOO (Multi-user domains, Object Oriented) environments and using social networking services such as Facebook and Twitter.

CMC refers to a situation in which computer-based discussion may take place but without necessarily involving learning. Of course, opportunities for learning are inherently present, especially in situations in which second-language learners need to engage in negotiation of meaning with native speakers of the target language or even with peers of non-native proficiency.

It is common for teachers in different countries to create assignments for their students to communicate in a common target language. For example, students in Korea and Brazil both learning English can improve their English by communicating to collect information about each other's interests and studies. Every miscommunication and clarification is a language learning opportunity.

9.2 Email

Email is among the most popular uses of the Internet and presents many opportunities to enhance learning. From the teacher's perspective, one of the great advantages of email over some other forms of communication is the record of both one's own messages and the messages one receives.

Using email, learners can communicate with peers, teachers and native speakers. Messages can be structured around an assignment in which the learner solicits special information, shares information about assignments (especially in a jigsaw format, sharing information with peers) or submits thoughts, questions and assignments to a teacher. However, communication with native

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speakers can be difficult if the learner provides input with substantial spelling and grammatical errors. Most email programs now come with rudimentary spelling checkers but teachers concerned about the quality of their students' writing may encourage them to compose their messages in a word-processing software program then copy and paste it into their email messages.

9.3 Net Pals

One informal use of email is for the establishment of email pen pals. Such pen pals or pen friends are sometimes called net pals. Ideally, net pal communication is between someone learning the target language and a native speaker of the target language living in the culture of the target language. For example, a Nepalese student learning German might correspond with a native German-speaker living in Berlin. The advantage to the learner is that the native speaker is likely to offer extensive examples of authentic language, probably pitched at the appropriate age level of the language learner.

In practice, however, both parties can find net pal relationships frustrating. Native speakers may feel they cannot communicate effectively with the learner and may feel the learner has nothing to offer in return in the exchange. The language learner may find that slang, idioms, misspellings and typos interfere with comprehension. Net pals work best when both parties have extrinsic motivation (e.g., a common interest in football or visiting one another's countries) and where the language learner has good clarification strategies and/or the support of a language teacher.

9.4 Chat Lines

A chat line is more technically known as Internet Relay Chat (IRC) and appears on-screen as a window that presents what the learner is writing in one pane while general discussion among other participants continues in another. Once the learner has completed a message and presses the send command, the message is queued and appears in the main pane as quickly as the modem and host computer allow. In some older programs, it is necessary to press the reload or refresh button to update to the latest message.

9.5 Bulletin Boards

Bulletin boards on which learners (both teachers and users) can post messages to be read later by others are built into some CALL environments and more general learning platforms such as Blackboard Vista. In such platforms, users can post messages and comment on the original posting and subsequent comments ad infinitum

The advantage of bulletin boards over email is that the messages are shared with a broader community (a few select people, a class or the whole world) and comment can be more

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considered as readers have more time. However, in some cases, when two or more people are actively responding to the same posting, communication can resemble a chat line.

9.6 MOO, MUA, MUD, MUG, MUSH

MOO, MUA, MUD, MUSH and MUG generally refer to the same thing (and are referred to hereafter as MOO), an online environment where moveable objects represent things and people. MOO objects may be photo-realistic 3-D manipulated models or 2-D flat representations. This environment is a synchronous online multi-user space, that is, action takes place in real time among several participants who put their characters into the same scene on a computer screen. These scenes are usually referred to as rooms and can have great visual interest. For example, 'rooms' can be seaside settings featuring lighthouses and surprisingly active sea life or depictions of castles in the air.

MUDs were originally developed in 1978 by Roy Trubshaw, a student at Essex University, for socializing and playing games online (particularly versions of Dungeons and Dragons). Richard Bartle developed the game and helped to promote it internationally. A version of the game is still available at the commercial website Compuserve.

Many such environments are enhanced chat rooms where participants find it easier to identify everyone online by seeing whether or not there is a representation of them in the room. Academic and learning applications soon became common.

The advantages of such environments to learning a language is that a learner can enter into an environment where a target language is being spoken and he or she is forced to react to others' words and actions. MOOs seem a promising direction for further research and materials development although the cognitive overhead of learning how to operate within such an environment may be daunting for some teachers and learners.

9.7 World Wide Web Resources

Several examples have already been given of opportunities for learning language using the World Wide Web. The WWW has also presented opportunities for the creation of commercial websites dedicated to the teaching and learning of English. Such sites may have different foci in terms of age, level or even profession. For example, websites for improving business writing are popular.

Many such websites are driven by commercial concerns. Typically, the learner pays a fee for enrolling and taking online lessons or endures advertising, much of which will be targeted at the learners by, for example, textbook publishers, language schools and language testing services. Several publishers also maintain educational websites featuring portions of their work or extra study materials for their work.

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Other resources commonly found on the WWW include those created by learners and teachers. These include everything from software to class handouts and presentations in the form of PowerPoint files. These resources vary in quality and extent but at least have the virtues of being free and easy to find with a search engine.

Many websites, especially those associated with government and non-profit organizations, such as Greenpeace (www.greenpeace.org) create associated websites to cater to students and language learners. These may also have professional and informative free materials included for teachers.

9.8 Adapting other Materials for CALL

Besides materials especially targeted for language learning, there are many materials which can be adapted. Many games and simulations not intended for language learning can be adapted for such a purpose, particularly for advanced learners, as they are likely to be rich in authentic language.

Many other materials on the WWW are easy to adapt for classroom learning and offer a rich source of authentic text, images, sound and video. For example, a learner studying Japanese can go to countless websites on different topics of interest related to Japan to learn more about culture or information related to Japanese for Specific Purposes. Learners can also visit online newspapers for the target language they are studying.

Virtual treasure hunts are activities in which the teacher assigns learners to collect images or explanations on a variety of topics. For example, a Spanish teacher might give hints to ask learners to find an image and description of a famous Spanish mosque; most learners might arrive at pages related to the mosque at Córdoba, but learners will also find further examples. The purpose of the treasure hunt is not so much to find the answers but to expose learners to the target language in the course of the hunt.

9.9 Personal Digital Assistants (PDAs) and Mobile Telephones

A Personal Digital Assistant (PDA) is a small hand-held computer for downloading and storing information such as documents, databases and calendar entries. It is less powerful than a desktop or laptop computer, but less expensive and more portable. Portability is achieved by eliminating the keyboard and minimizing the screen size. PDAs have largely been replaced in the marketplace with mobile telephones that share many of the same functions and often feature Internet connectivity.

9.10 Teaching and Learning with Mobile Telephones

PDAs and mobile telephones are not yet widely used in education, but their portability and expense could make them a popular choice in classrooms, especially when combined with

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accessories such as collapsible keyboards, digital cameras and modems that allow for WWW and email access. PDAs and mobile telephones generally feature an infrared port that allows users to share information with each other and receive information, such as class notes, pictures and small software applications. PDAs can only work with specially adapted files.

9.11 Graffiti Handwriting Software

In Ray Bradbury's (1958) collection of science-fiction short stories, The Martian Chronicles, one tale tells of a man who finds an alien's deserted home that miraculously adapts to his needs for water and shelter. However, the home soon grows tired of adapting and instead transforms the man into one of its original occupants: an overgrown lizard. It is a suitable metaphor for the computer's tendency to impose its style and affordances (i.e. what the program is or appears to be capable of doing in terms of both intended and unintended functions) on users and this was the route taken by the designers of Graffiti, a handwriting recognition system.

In the absence of a keyboard, a major challenge to PDAs has been recognition of handwriting. Early models struggled to recognize individual handwriting but the creators of the Graffiti system realized it would be easier to make users adapt their handwriting to the PDA.

Graffiti used modified and simplified punctuation, numbers and upper-case letters. Each character had to be unconnected; one could not write on the screen without lifting the stylus between letters. However, each character is a continuous line. The system was quickly and easily learned with games that helped develop fluency. However its popularity waned in the face of easier to use mini-keyboards which have now become the norm.

The future success of PDAs and mobile phone devices will depend on their ability to accommodate reliable and convenient voice recognition and to remain significantly less expensive than laptop computers.

This lesson looked at different CALL applications. The main point is that there are many diverse ways of approaching CALL and new ways, such as the use of PDAs, are being developed. One measure of the success of any of the applications mentioned in this chapter is the amount of work they require on the part of the teacher and learner before language learning begins. If the cognitive overhead is too high, then the technology, however wonderful, may not be worth the investment of time by teachers and learners.

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Lecture- 5
CALL and SLA

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Module -10

CALL AND SECOND LANGUAGE ACQUISITION- I

Topic No: 21- 22

Second-Language Acquisition (SLA); Comprehensible input and output

10.1 Second-Language Acquisition and Models of Instruction

This lesson looks at Second-Language Acquisition (SLA) based on hypotheses of how second languages are learned. Models of instruction based on behaviourism and constructivism have already been briefly mentioned and in this chapter more background is given before defining their role in the design of computer-based learning materials.

The principal concern of this lesson is to define the meanings of and relevance to CALL in the related terms.

10.2 Concepts in SLA, Behaviourism and Constructivism

This lesson begins by offering a brief overview of Second-Language Acquisition (SLA) then introduces the complementary constructs of comprehensible input and comprehensible output. With reference to CALL, this chapter discusses behaviourism as a model of instruction, two outcomes of behaviourist pedagogy: programmed instruction and mastery learning. This chapter also discusses constructivism and its role in a constructivist model of instruction, and then contrasts it with behaviourism and a behaviourist model of instruction in terms of the development and design of learning materials.

10.3 Second-Language Acquisition (SLA)

Second-Language Acquisition (SLA) refers to the study of the processes through which learners acquire a new language. However, various hypotheses about how such acquisition occurs have been subject to intense debate with some researchers critical of a lack of empirical evidence.

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10.4 Negotiation of Meaning

Nunan (1993) offers a concise definition of negotiation of meaning, 'The interactional work done by speakers and listeners to ensure they have a common understanding of the ongoing meanings of the discourse' (p. 122). Offering a further explanation of negotiation of meaning, Ellis (1998) provides a brief summary of a theoretical account of how discourse affects language acquisition: 'acquisition is promoted when the input to which learners are exposed is made comprehensible as a result of interactional modifications that arise from a communication breakdown – a process known as the negotiation of meaning' (p. 160).

Essentially, if two learners are assigned a so-called second-language collaborative task and do not need to communicate, they are often in agreement about how to complete the task and probably do not need to collaborate. That is, the learners are either merely cooperating (each completing a part of the task without need for interaction) or the task is so simple that all decisions are obvious.

However, when the task requires that the learners communicate, grappling with words, expressions and new ideas that surround the task as well as the technology of the computer's interface and input and display devices, the act of negotiation of meaning may assist in the acquisition of the target language. Of course, negotiation of meaning is not the sole route or complete means for SLA. Pica (1998), for example, notes that learner negotiation of meaning can be quite simple and not cover some important aspects of language learning.

However, Pica's ideas do not address issues related to CALL programs that may improve learners' morphology and syntax. There is also room for negotiation of meaning through collaboration where discourse is both between the two learners as well as with the computer software program.

A computer program can provide a high level of comprehensible input in various media.

Opportunities for SLA can be offered at the computer when learners are exposed to new language and when learners are prompted to engage in collaboration that promotes negotiation of meaning. Negotiation of meaning and collaboration can occur regardless of the program; ironically, some of the worst software programs may present more opportunities for SLA as learners struggle – and discuss their struggles – to make sense of the content and interface.

However, exactly how SLA occurs remains a mystery, or rather, some theories of how SLA occurs explain some levels of acquisition, but not others.

10.5 T. Pica on theory in SLA

Since its inception, the field of second-language acquisition (SLA) has been both theory-less and theory-laden. It has been theory-less in that, as most major textbooks remind us, there has yet to emerge a single, coherent theory that can describe, explain and predict second-language learning.

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Yet it is theory-laden in that there are at least forty claims, arguments, theories, and perspectives that attempt to describe and explain the learning process and predict its outcomes (see Larsen-Freeman and Long, 1991 p. 227).

10.6 A. Bailin on why SLA theory can still be considered to be in its infancy.

One major reason may be that available second-language theories such as that of Krashen (Krashen, 1981; Dualy et al., 1982; Krashen and Terrell, 1983) are simply too informal to be of much use. On the other hand, psychological and linguistic theories (e.g., MacWhinney, 1987) generally do not take into account the social context in which this learning takes place. However, we use language appropriately not only in relation to the grammar of a language but also in relation to textual and social factors. Learning a language is a matter of not just learning the grammar for a language but also learning the rules for contexts. Whether or not a theory of acquisition of grammar must take into account the social context of learning, it is difficult to see how a theory that incorporates the acquisition of rules for appropriate use can avoid the context in which the acquisition occurs. Bailin (1995: 335)

Bailin (1995) suggests that an SLA theory may be possible, but hints that it may need to incorporate so many variables as to make it too general to be of use. And, although we may observe what goes on in the language classroom and try to interpret those observations in theory and models of instruction, the rules that learners are internalizing may neither be visible nor fixed. This is because teachers may make use of portions of a variety of theories over the course of a semester or even within the course of a single class. Good teachers make use of this flexibility to bolster their own teaching styles and to adapt to their learners' learning styles. Both teachers and learners tend to draw on a wide range of experiences, including their own backgrounds of learning language(s). Language learning and teaching are both fluid processes in which different learner and teacher learning styles need to be accommodated on an almost individual basis.

In terms of CALL, the individualization of instruction makes for even greater opportunities for SLA to be promoted through software designs that assess learners' learning styles and track learners' acquisition through tests which remember and revisit individual items with which each learner has difficulty. However, although this is both possible and desirable, I am not aware of commercial software that does so.

10.5 Comprehensible Input and Output

One of the key contentions within SLA is the role of comprehensible input and comprehensible output. These terms are explained and discussed in the following section.

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Comprehensible input is an idea that originated with Terrell and Krashen (Krashen, 1981; Krashen and Terrell, 1983) but several others, including Ellis (1985), have defined it in their own ways.

R. Ellis on comprehensible input:

The input refers to the language which learners are exposed to. This can be 'comprehensible' (i.e. input that they can understand) or 'incomprehensible' (i.e. input that they cannot understand). When native speakers speak to L2 learners, they frequently adjust their speech to make it more comprehensible. Access to comprehensible input may be a necessary condition for acquisition to take place.

Ellis (1985: 294 –5)

However, Ellis (1994) notes that Krashen did not see comprehensible input coming from other learners, 'Interaction also provides learners with the opportunity to talk in the L2. According to Krashen (1985), this has no direct effect on acquisition. However, other researchers (Li, 1989; Loschky, 1989; Tanaka, 1991; Yamazaki, 1991) have argued differently, viewing learner output as contributing to inter-language development (the stage between one's first language and acquisition of one's second language)' (p. 280). Swain (1983) calls learner output, comprehensible output, and suggests that it is not enough for learners to see and hear language in use; to truly understand they need to have opportunities to use the target language.

A.B.M. Tsui on comprehensible output:

When students respond to the teacher's or their fellow students' questions, raise queries and give comments, they are actively involved in the negotiation of comprehensible input, which is essential to language acquisition. And when students produce the target language and try to make themselves under-stood, they are in fact testing out the hypotheses they are forming about the language. Swain (1985) points out that the production of comprehensible output is also essential to the acquisition of the target language. Tsui (1985: 81)

D. Nunan on comprehensible input:

Messages addressed to the learner that, may contain structures and grammar that are beyond the learner's current competence, are made understandable by the context in which they are uttered. According to Krashen's Comprehensible Input Hypothesis, acquisition occurs when learners' under-stand messages that are just beyond their current stage of development.

Nunan (1999: 303 – 4)

In terms of CALL, Krashen (cited in Kenning and Kenning, 1990) describes optimal input for acquisition as having four characteristics:

1. It is comprehensible
2. It is interesting and/or relevant to the acquirer

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3. It is not grammatically sequenced
4. It is provided in sufficient quantity

CALL can generally deal with all of these criteria, including adding a wide range of extra-linguistic clues through sound, images, animation and video. But a concern with CALL is how the computer ensures that the input for the program is neither too easy nor too difficult for the learner. Such decisions are relatively simple for a well-trained teacher to make, but can be difficult for a computer. Three ways in which computer programs deal with this problem are: by offering learner-prompted extra-linguistic elements as clues; by having learners select their own level of comprehension; and/or through Computer-Adaptive Testing (CAT) in which the learner is directed along easier or more difficult tasks or links depending on answers to questions at key points of the program.

10.6 Computer-Adaptive Testing (CAT)

Computer-Adaptive Testing (CAT) uses a database of questions to match the difficulty of each test item to the abilities of the learners being tested. Learners take a CAT test at the computer and because the computer can instantly mark each answer, the following question can be tailored or adapted. If a learner answers a question correctly, the computer will ensure that the next question will be more difficult. If a learner answers a question incorrectly, the next question will be easier.

One of the great advantages of CAT is that randomization of test items can ensure that learners of a large class taking a test in the same room may all take slightly different tests as their correct and incorrect answers prompt the computer to take them to different levels. However, it is both time-consuming and difficult to set up CAT and learners may not like the fact that they cannot review or change the answers to any questions they have already answered.

10.7 Criticism of Comprehensible Input and Output Theory

Theories behind the comprehensible input and comprehensible output hypotheses have been criticized.

R. Oxford on comprehensible input:

The concept that any single methodology focusing on fluency at the expense of accuracy can apply to all students, such as the Natural Approach of Krashen and Terrell (1983), must be seriously questioned (Oxford, 1990; Scarcella and Oxford, 1992).

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But, while the hypotheses have been challenged, they do carry several intuitive aspects that may not be quantitatively measured; although we may not be able empirically to measure the extent of acquisition and clearly relate it to a particular input, it would seem a given that acquisition is encouraged when learners are confronted with a target language task and the need to struggle to make sense of it through negotiation of the mean-ing of both the task and the ways of addressing it. It may be that, while the hypotheses are not perfect, they may be the best way of explaining what we understand about SLA.

C.B. Cazden on progress in language development:

Confrontation with alternative ideas, whether from adults or peers, cannot be expected to produce immediate change. Language development is a case in point . . . At those moments, the child seems impervious to contradiction, and no amount of correction has any obvious effect. Yet progress does occur, and we have to assume that exposure to alternatives plays a part, even though we can't track their influence in the silent processes of the child's mind.

Cazden (1988: 128)

A difficult issue in CALL, and one that sets computers clearly apart from human teachers, is the idea that errors in early efforts might be tolerated; it is a nearly impossible challenge for a computer to make complex decisions on what should be tolerated and what should be corrected. Also, it may be difficult for learners to understand that a computer program may be subjective and selective in its corrections.

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Module -11

CALL AND SECOND LANGUAGE ACQUISITION- II

Topic No: 23

Mastery learning; Constructivism; Schema Theory

5.5 Mastery Learning

Despite these criticisms, programmed instruction continues to be pervasive in CALL, sometimes combined with other, less behaviourist, features. The reason for its enduring appeal is simply that programmed instruction is an easy – if not pedagogically ideal – thing for the computer to do.

Aspects of programmed instruction are also seen in another approach, mastery learning.

P. Lai and J. Biggs on mastery learning:

Mastery learning is based on the assumption that learning is a function of time (Bloom, Hastings and Madaus, 1971; Carroll, 1963). In theory, by varying time for learning, nearly all students are able to learn a subject to the point of 'mastery' (Guskey, 1985). In implementing mastery learning, it is thus necessary to establish a criterion, and to provide corrective instruction in the event of failure. Learners failing to reach the objectives initially are given more time in which to pass in subsequent attempts. The content to be learned is divided into units, with a formative test on each unit.

Lai and Biggs (1994: 13)

C.T. Fosnot on mastery learning:

This model assumes that wholes can be broken into parts, that skills can be broken into sub-skills. Learners are diagnosed in terms of deficiencies, called 'needs', then taught until 'mastery' – defined as behavioral competence – is achieved at each level. Further, it is assumed that if mastery is achieved at each level, then the more general concept, defined by the accumulation of the skills, has also been taught. Fosnot (1996: 9)

The challenge of mastery learning in CALL is the necessity of providing new material or new approaches when a learner fails to accomplish the initial goals. It is important that, in a restricted time frame, learners do not abrogate the task of thinking and take advantage of a software

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program's willingness to supply default answers. Like a good teacher, a computer should prod and stimulate learners to consider an answer rather than just giving in to the first 'I don't know' and supplying the answer.

Learner motivation is a key consideration in the creation of CALL materials many of which, like electronic versions of Pressey's mechanical candy-dispensing testing machine, are set up as adventure games or include positive reinforcement in the form of points, and virtual items to be collected by the learner/player. In many cases, learners learn more about how to acquire points than the knowledge intended to be imparted by the game's creator. For example, learners quickly discover that, in some programs, repeatedly selecting random answers prompts a default sub-routine giving the correct answers. Learners can proceed through a program making numerous errors then try the program again, apparently showing remarkable progress and attainment of 'mastery'. In fact, they have learned, but only how to manipulate the system, not to understand the content.

Despite these problems, it is easy to understand the attraction of the computer as a vehicle for a mastery learning model. Two of the computer's principal defining characteristics are consistency and patience; the computer can provide uniform repetitive lessons to the same learner or a group of learners and test indefinitely. But this requires a behaviourist/ mechanistic view of the learner quite at odds with current humanistic thinking. Mastery learning also tends to assume that, once a learner has demonstrated the ability to answer a question or complete a task, he or she knows it forever. But, in reality, something may be stored only in a learner's short-term memory; learners not only learn, they also forget.

Behaviourism takes the view that the learner comes to the learning process with little or no background knowledge. Strict objectives of what is to be learned are broken into instructional steps and rules. Learning activities are sequenced from simple to complex with frequent reviews and tests of key points. Failures or mistakes lead the learner to repetitions of key parts of the program or remedial activities. The control of the sequence or program is usually with the program, not the learner.

Behaviourist machines, mechanical, electric and electronic, in the form of computers, are suited to the strict guidelines set down by the behaviourist model of instruction. In a behaviourist model, the software program or teacher – not the learner – is assumed to be the expert and the source of the learning materials.

It should be noted that not all the above behaviourist features are present in all CALL applications, but a greater proportion will be found on the behaviourist end of the continuum stretching towards a constructivist model.

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5.6 Constructivism

Constructivism is a humanistic model that differs radically from behaviourism, suggesting that learning is a process by which learners construct new ideas or concepts by making use of their own knowledge and experiences. The learner has greater control and responsibility over what he or she learns and relies on schema (mental models; the plural of schema is schemata) to select and transform information, create hypotheses and make decisions. The following section briefly outlines schema theory before going on to compare behaviourism and constructivism in terms of various learning materials.

In a constructivist model, the learner is assumed to come to the class-room with a range of experiences and a wealth of (sometimes imperfect) knowledge. It is assumed that knowledge is an objective interpretation of ideas and that such interpretations are best developed through the learner discovering and struggling with ideas.

M. Pennington on the components of an ideal teaching system:

- Helps learners develop and elaborate their increasingly specified cognitive representation for the second language
- Allows learners to experiment and take risks in a psychologically favorable and motivating environment
- Offers input to both conscious and unconscious learning processes
- Offers learners opportunities to practice and to receive feedback on performance
- Allows learners to learn according to their own purposes and goals
- Puts learners in touch with other learners
- Promotes cultural and social learning
- Promotes interactivity in learning and communication
- Exposes the learner to appropriate contexts for learning
- Expands the learner's 'zone of proximal development'
- Builds to learner independence

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5.7 Schema Theory

Schema theory is important to CALL because it provides an idea of how knowledge is organized. Psychologist F.C. Bartlett (1886 –1969) first proposed the idea of schema theory in 1932. Nunan (1993) defines schema theory as 'A theory of language processing which suggests that discourse is interpreted with reference to the background knowledge of the reader or listener' (p. 124). Nunan also notes 'schema theory suggests that the knowledge we carry around in our heads is organized into interrelated patterns. These are constructed from all our previous experiences and they enable us to make predictions about future experience' (p. 71).

T.G. Anderson helps to define a schema approach to teaching and learning:

Knowledge is not merely a collection of facts. Although we may be able to memorize isolated facts for a short while . . . meaningful learning demands that we internalize information; we break it down, digest it and locate it in our pre-existing highly complex web of interconnected knowledge and ideas, building fresh links and restructuring old ones.

Anderson (1988) notes that among the differences between experts and novices is the fact that an expert will break down new information into more relevant chunks than a novice will and an expert has more knowledge to which it may be connected. That is, experts will deal more efficiently with new information because their schemata are more developed and, in a sense, more accommodating. Two common ways of creating such schematic maps are word association (e.g. making semantic connections) and pattern noting (examining ideas and the real world and drawing inferences about the relationships).

Schema theory is important to CALL because many aspects of schema mirror the organization of hypertext, hypermedia and multimedia.

A. Dillon, C. McKnight and J. Richardson suggest that:

Some hypertext researchers and designers believe that hypertext information structures should reflect the structures of human memory and that by empirically deriving and then mapping the semantic structure of information onto hypertext and explicitly illustrating that structure in the hypertext inter-facer will result in greater changes in the knowledge structures of the users (Jonassen, 1990, 1991b; Lambiotte et al., 1989; McAleese, 1990; McDonald, Paap and McDonald, 1990). Dillon et al. (1993: 165)

While Dillon et al. (1993) draw parallels between interface and schema building, they also suggest that hypertext alone is not sufficient to help learners in their acquisition of a second language, although it may help them process tasks. Moreover, when learners collaborate at the

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computer, their individual semantic structures of the information may differ from each other and that of the hypertext author.

Example: Mind Map Software

Mind maps are visual representations of schemata. They are usually presented as a series of branching lines radiating from a central circle containing the main idea. The lines terminate in circles of related ideas which may branch off to further ideas. A commercial application that makes creating mind maps easy is Inspiration Software's Inspiration and a simpler version for young children Kidspiration http://www.inspiration.com These programs provide templates to build on as well as a variety of tools in the form of symbols and shapes to help build mind maps.

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Module -12

CALL AND SECOND LANGUAGE ACQUISITION- III

Topic No: 24-25

Behaviourism; Programmed instruction; How Constructivism differs from Behaviourism; The Role of Collaboration and Negotiation of Meaning in the Two Models

1. Behaviourist Models of Instruction

Behaviorist theory has provided the rationale for a variety of marketable although short-lived teaching devices. Educational budgets have long proven to be easy prey for scientific-sounding entrepreneurs. Rozycki (1996: 54)

A central defining characteristic of many CALL materials is their heavy reliance on behaviourist methods of instruction, making use of behaviour modification principles in their design. These principles include features that are so ingrained in standard classroom practice that many teachers may assume there is no alternative. In general, these principles include ideas that lessons should proceed along strictly sequenced lines, that learners need to be given incentives such as marks and grades in order to motivate them to learn and that these individual grades must be measured against standardized tests.

Within the area of CALL, behaviourist aspects generally include stating the purpose of the program or task, offering reinforcement through text, images, audio, animations and/or video and providing a marks system for each task summarized at the end with grades or some other statement of progress. Much of this approach is perceived as endemic to the nature of the computer through the limited ways in which it is able to simulate interactions with the learner.

The next sections of this lesson will offer a background for theories of behaviourism and constructivism, compare the ways in which they inform models of instruction and consider implications of their different models to computer-based instructional design.

Behaviourism

As mentioned earlier in relation to methods and approaches, theories of learning do not appear in a vacuum. They are influenced by earlier practices (e.g. observations of classroom behaviour) and theories from other disciplines (e.g. mathematics, philosophy, psychology). In the case of

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behaviourism, there is a great deal of earlier practice in teaching methods dating back to the ancient Greeks. More recent and empirical influences include Ivan Pavlov (1849 –1936: dates are given for some authors to give a sense of the chronology of their contributions) whose experiments observing dogs salivating as a conditioned reflex (response) to the ringing of their dinner bell, the bell being considered a conditioned stimulus.

Pavlov's ideas are now called classical conditioning, as opposed to operant conditioning (explained below). Ideas of stimuli and responses working to modify behaviour were expanded upon and refined by John Broadus Watson (1878 –1958), Edward L. Thorndike (1874 –1949), Clark L. Hull (1884 –1942) and others (see Chambliss, 1996). But the person most associated with behaviourism in the classroom is B. F. Skinner (1904 –90) whose approach (Skinner, 1954, 1957, 1968) emphasizes rote learning, along with the techniques of mimicry and memorization through repetitive drills in which learners are rewarded by small positive responses, often including the right to move to a new level of drill, as is now common in computer-adaptive testing.

The behaviourist theories of Skinner are based upon the idea that learning is a function of change in overt behaviour. Changes in behaviour are the result of an individual's response to events (stimuli) that occur in his or her environment. Skinner advanced previous behaviourist theories by showing how a response produces a consequence such as defining a word, hitting a ball or solving a Maths problem. When a particular stimulus and response pattern is reinforced through rewards, the individual has been conditioned to respond. Skinner called this approach operant conditioning and it differs from earlier forms of behaviourism (now called classical conditioning) in that it recognizes that a person (or animal) can emit responses and not only elicit responses in reaction to a stimulus.

Another important feature of Skinner's theory is the role of reinforcement: things or actions that strengthen a desired response by making the learners feel better about themselves. He also suggests a role for negative reinforcers or reduced rewards for inappropriate responses; Skinner did not believe in punishment, which he suggested only reduced responses (Skinner, 1968: 57–8).

C.T. Fosnot on ways in which educators incorporate behaviourism in the classroom:

Pre-planning a curriculum by breaking a content area (usually seen as a finite body of predetermined knowledge) into assumed component parts – 'skills' – and then sequencing these parts into a hierarchy ranging from simple to more complex. It is assumed (1) that observations, listening to explanations from teachers who communicate clearly, or engaging in experiences, activities, or practice sessions with feedback will result in learning and that proficient skills will quantify to produce the whole, or more encompassing concept (Bloom, 1956; Gagne, 1965). Further, learners are viewed as passive, in need of external motivation, and affected by reinforcement (Skinner, 1953).

Fosnot (1996: 8 –9)

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Many will recognize Fosnot's (1996) behaviourist assumptions as an accurate description of much classroom experience over the past few decades and in keeping with the model used in many classrooms today.

In terms of a practical application to classroom teaching and learning, as well as CALL, behaviourism was developed into two methods: programmed instruction and mastery learning. These are discussed below before moving on to a discussion of constructivism and a comparison of behaviourism and constructivism.

5.4 Programmed Instruction

One of the practical applications of the behaviourist approach is the design of programmed instruction or programmed learning on which Skinner's behaviourist contributions to CALL centre. A behaviourist model of instruction suggests that learners can be taught a wide variety of subjects if presented with information in small steps, each step requiring appropriate responses (e.g. correct answers to questions) from the learner before going on to more difficult or more advanced steps. Such an idea seems machine-like and, in fact, Thorndike put the idea of an automated book forward in 1912: 'If, by a miracle of mechanical ingenuity, a book could be so arranged so that only to him who had done what was directed on page one would page two become visible, and so on, much that now requires personal instruction could be accomplished by print' (cited in Merrill et al., 1996: 54).

Merrill notes that Thorndike's automated book was constructed as early as 1926 by Sidney L. Pressey (1888 –1969) and explains that Pressey's machine 'presented multiple-choice questions on a rotating cylindrical drum. Students responded by pressing one of four keys, each of which represented one of the answer choices. In the drill mode, all keys except the one representing the correct answer were locked; in the test mode, no clues of correctness were given. The machine recorded all responses and was capable of giving the user a piece of candy when a programmable number of correct responses had been made' (Merrill et al., 1996: 54).

Skinner (1968) promotes Pressey's work, suggesting that Pressey was ahead of his time, and supports the idea of machine instruction as a way of increasing learner autonomy to avoid an essential problem in classroom instruction, the pace of instruction in a group of learners whose comprehension and learning rates are at different levels.

Skinner and others designed more mechanical and electrical machines that tried to put behaviourist ideas into practice but it was not until the arrival of the computer that an ideal technology was presented for such lockstep learning. In his book, The Technology of Teaching (1968), Skinner includes several photographs of his and others' mechanical and electric (but not electronic) teaching machines and explains the ways in which they 'taught' users.

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T. McArthur on two variations on programmed instruction:

Programs can be linear, in which all students go through the same sequence of frames, or branching, in which a variety of paths through the program is provided. Linear programs tend to use constructed responses, while branching programs conventionally use a multiple-choice format. These structures were closely followed in the first CAL (Computer-Assisted learning) programs, and, as has been said, both types are still in use today.

McArthur (1983: 76 –7)

Many features of programmed instruction are found in CALL such as the use of multiple-choice questions, constructed response answers and hotlinks. But critics soon saw that programmed instruction had its faults. Rivers (1981) pointed out that programmed instruction tended to teach details about language but not communication.

5.8 How Constructivism differs from Behaviourism

Schema theory offers a dividing line between behaviourism and constructivism in that it is largely ignored by the former but is integral to the latter. Behaviourism often assumes that the learner's state of mind is that of a blank slate, waiting to be written on; constructivism assumes that the learner comes to the classroom with a rich set of ideas and experiences.

Constructivism differs from behaviourism in that it allows and encourages learners to build on what they already know and go beyond the simple collection and memorization of information to develop individualized internalized principles. Constructivism supports key constructs of CALL, collaboration and negotiation of meaning. Collaboration provides opportunities for negotiation of meaning as learners struggle to build new schemata and extend existing ones. The role of the teacher in a constructivist model includes presenting opportunities for learning (repeating and rephrasing some elements in spiral fashion) and encouraging reflective thinking in learners, partly through collaborative peer activities.

Constructivism may be traced back to humanist thinkers such as René Descartes (1595 –1650), but it is largely associated with the cognitive scientist George Kelly (1905– 67).

R. Oxford on constructivism:

Constructivism is partly based on Kelly's (1955) theory of personal constructs. Kelly suggested that people understand experience by grouping according to similarity and opposites. A construct is a distinction between opposites, such as short–tall, fat–thin, black–white, pleasant–unpleasant, that is used to understand events, things and people.

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Oxford (1995: 362–3)

Other cognitive scientists who were involved in related ideas include Jean Piaget (1896 –1980), Lev Vygotsky (1896 –1934) and J.S. Bruner. Bruner was a President of the American Psychological Association and a student of Piaget who followed Piaget's methods but differed in the conclusions he arrived at.

J.S. Bruner on the constructivist model:

To instruct someone in a discipline is not a matter of getting him to commit results to mind. Rather, it is to teach him to participate in the process that makes possible the establishment of knowledge. We teach a subject not to produce little living libraries on the subject, but rather to get a student to think mathematically for himself, to consider matters as an historian does, to take part in the process of knowledge-getting. Knowing is a process, not a product. Bruner (1966: 72)

This process orientation of constructivism assumes that good methods for structuring knowledge should result in simplifying the learning process, generating new propositions and increasing the manipulation of information.

5.9 The Role of Collaboration and Negotiation of Meaning in the Two Models

Collaboration and negotiation of meaning are dealt with in greater detail in this lesson but it would seem, on surface examination, that the constructs of collaboration and negotiation of meaning fall solely within the constructivist model.

In fact, the constructivist model does openly support these constructs, but there is room within the behaviourist model for them as well. For example, Susman (1998) looks at factors that increase the effectiveness of cooperative learning in CALL programs. In the 36 studies she reviews, conducted between 1980 and 1998, 16 are classed as tutorial, 10 are drill and practice and 10 are defined as problem-solving. That is, the 26 studies in the first two categories could be considered behaviourist and the 10 in the last category could be considered constructivist, yet all 36 studies were regarded as cooperative. The terms cooperative and collaborative are used interchangeably by some authors without reference to their differences. This seems to be the case with Susman who does not differentiate between tasks which can be subdivided and completed by two or more learners (cooperative) and tasks which require that two or more learners work together on all parts of a task.

The implication is that cooperation/collaboration and negotiation of meaning may exist as features of both behaviourist and constructivist models of instruction. However, the degree to which they are effective within each model needs to be examined.

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Lecture- 6
CALL Evaluation

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Module -13

PRINCIPLES OF CALL EVALUATION

Topic No: 26- 27

CALL Evaluation; Principles for CALL evaluation; Criteria from theory and research on SLA

6.1 Principles for CALL Evaluation

CALL has always been viewed by some as an experiment requiring scrutiny and justification beyond what is expected of evaluation of other classroom activities. Today in many settings the experiment is over even though the results are inconclusive. Learners use computers for many different purposes and therefore teachers, classroom researchers and software developers need to be concerned about what kinds of CALL tasks may be beneficial. Given the need to make judgements about CALL, many teachers and CALL enthusiasts have developed guidelines, checklists, and evaluation rubrics for CALL materials as a means of setting some criteria for what can be considered good CALL. Whatever the merits of such evaluation systems for their particular contexts, three needs must be addressed to improve CALL evaluation. First, evaluation criteria should incorporate findings and theory-based speculation about ideal conditions for SLA such as those outlined above. Second, criteria should be accompanied by guidance as to how they should be used; in other words, a theory of evaluation needs to be articulated. Third, both criteria and theory need to apply not only to software, but also to the task that the teacher plans and that the learner carries out.

As a way of addressing these needs, a perspective is explained through five principles of evaluation developed by analogy to principles for evaluation of language assessments as described in Chapter. Even though the purpose of language testing is different than that of instructional tasks, at a general level, perspectives on evaluation of assessment tasks are also applicable to CALL tasks. Table 3.2 summarizes these principles.

Table 1. Summary of principles for evaluating CALL

Principle	**Implication**
Evaluation of CALL is a situation-Specific argument.	CALL developers need to be familiar with criteria for evaluation which should be applied relative to a Particular context.

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CALL should be evaluated through two perspectives: judgmental analysis of software and planned tasks, and empirical analysis of learners' performance.	Methodologies for both types of analyses are needed
Criteria for CALL task quality should come from theory and research on instructed SLA.	CALL evaluators need to keep up with and make links to research on instructed SLA.
Criteria should be applied in view of the purpose of the task.	CALL tasks should have a clearly articulated purpose.
Language learning potential should be the central criterion in evaluation of CALL.	Language learning should be one aspect of the purpose of CALL tasks.

Evaluation as an Argument

Investigations of pedagogical L2 tasks (e.g., Doughty & Williams, 1998; Crookes & Gass, 1993a; 1993b; Skehan, 1998) demonstrate the complex of factors to be considered in designing appropriate tasks for learners. As a consequence, the outcome of task evaluation for any L2 tasks including those for CALL cannot be a categorical decision about effectiveness. Instead, an evaluation has to result in an argument indicating in what ways a particular CALL task is appropriate for particular learners at a given time. In other words, CALL task appropriateness needs to be evaluated on the basis of evidence and rationales pertaining to task use in a particular setting. The idea of evaluation as a context-specific argument rather than a categorical judgement, of course, makes evaluation a complex issue, which needs to be addressed by all CALL users. Evaluation is not only the responsibility of CALL researchers because a justification needs to be an argument concerning the appropriateness of a CALL task for the learners involved at a particular point in time.

Table 2. Levels of analysis for CALL evaluation

Level of analysis	Object of evaluation	Example question	Method of evaluation
1	CALL software	Does the software provide learners the opportunity for interactional medications to negotiate meaning?	Judgmental
2	Teacher-planned CALL activities	Does the CALL activity designed by the teacher provide learners the opportunity to modify interaction for negotiation of meaning?	Judgmental
3	Learners' performance during CALL activities	Do learners actually interact and negotiate meaning while they are working in a chat room?	Empirical

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Judgemental and Empirical Analyses

CALL evaluation can denote several different types of inquiry, as outlined in Table 2, each with associated objects and methods. The first level of analysis refers to the software that is used for a CALL activity. CALL software is the target of many evaluation checklists that have been developed to help point teachers to its important features. Questions target features such as the following: How much control is the learner allowed? How interactive is the software? Are the quality and degree of feedback adequate? What kinds of records does the software keep? (Bradin, 1999: 174). A question at this level related to the conditions summarized in Table 3.1 would be: Does the software provide learners the opportunity for interactional modifications to negotiate meaning? These types of questions are addressed through judgemental analysis.

The second level of analysis is directed toward the teacher's planned activity. Any CALL activity that is assigned and used within a language class is influenced by the way in which the teacher introduces and structures it. As Jones (1986) aptly pointed out, `It's not so much the program, more what you do with it'. These words are even more fitting today than they were in 1986 because so many CALL tasks are developed through the use of general-purpose soft-ware such as e-mail, electronic discussions, and materials on the Web not intended for language learning. The instructors' control or lack of control of such tasks is critical to the conditions the computer-assisted learning activity provides learners. An example of a question at this level would be the following: Does the computer-assisted learning activity designed by the teacher provide learners the opportunity to modify interaction for negotiation of meaning?

The third level of evaluation focuses on learners' performance, and is therefore conducted through examination of empirical data reflecting learners' use of CALL and learning outcomes. For example, to address the level 3 question, do learners actually interact and negotiate meaning while they are working in a chat room, data reflecting learners' interactions during their work need to be gathered and analyzed for instances of interactional modifications.

An evaluation argument should be constructed on the basis of both the judgemental and empirical analyses. These two methods provide different and complementary information both of which are relevant to CALL task evaluation (Chapelle, 1999a). The judgemental analysis should examine characteristics of the software and task in terms of criteria drawn from research on SLA. The empirical analyses address the same criteria but through data gathered to reveal the details of CALL use and learning outcomes.

6.2 Criteria from Theory and Research on SLA

Drawing from the theory and research on conditions for instructed SLA in addition to the other considerations mentioned above (e.g., individual differences), it is possible to chart some criteria for evaluating CALL. These are outlined in Table 3.4.

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Table 3. Criteria for CALL task appropriateness

Language learning potential	**The degree of opportunity present for beneficial focus on form.**
Learner fit	**The amount of opportunity for engagement with language under appropriate conditions given learner characteristics.**
Meaning focus	**The extent to which learners' attention is directed toward the meaning of the language.**
Authenticity	**The degree of correspondence between the CALL activity and target language activities of interest to learners out of the classroom.**
Positive impact	**The positive effects of the CALL activity on those who participate in it.**
Practicality	**The adequacy of resources to support the use of the CALL activity.**

Language Learning Potential

Language learning potential refers to the extent to which the activity can be considered to be a language learning activity rather than simply an opportunity for language use. The difference between language learning and language use might best be characterized by the extent to which the task promotes beneficial focus on form. Given the importance of focus on language for language acquisition, characteristics among those Skehan identified as relevant for promoting focus on form ± interactional modification, modification of output, time pressure, modality, support, surprise, control, and stakes ± need to be considered in an argument for language learning potential. This list of conditions will no doubt change as additional research sheds light on these and other factors. Moreover, the complete meaning of language learning potential will develop as theory and research in SLA develop, but past research and theory-based predictions suggest that Skehan's list warrants serious consideration for the time being.

Learner Fit

Whereas language learning potential captures the findings concerning general processes, learner fit takes into account the individual differences in linguistic ability level and non-linguistic characteristics.

Skehan suggests that the teacher choose tasks that will provide learners an opportunity to work with a range of target structures appropriate to their level. If the language of a CALL task is already known to the learner, the task presents no opportunity for development; language that is

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beyond the learners' grasp relative to their ability, is not useful either. Learner characteristics such as willingness to communicate, age, and learning style also come into play in task choice.

Meaning Focus

The importance of meaning focus in language learning tasks may go without saying, but in order to underscore the dual goals of focus on form during completion of a meaning-focused task, meaning focus is included as one of the criteria. Meaning focus denotes that the learner's primary attention is directed toward the meaning of the language that is required to accomplish the task, the clearest example being communication tasks as defined by Pica, Kanagy, and Falodun (1993). Their primary defining feature is that they require learners to use the target language to accomplish something such as making a decision on an issue, or exchanging information to accomplish a goal. Such tasks differ from form-based tasks which might have learners filling in correct verb tenses in a written list of sentences, or changing declarative statements to yes/no questions in an oral drill. Meaning focus is not limited to oral communication tasks, but also can occur during tasks involving reading and writing when learners use the written language purposefully for constructing and interpreting meaning.

Authenticity

The criterion of authenticity indicates the need to develop learners' willingness to communicate but it also extends beyond the conditions believed important for acquisition. Authenticity refers to the degree of correspondence between an L2 learning task and tasks that the learner is likely to encounter outside the classroom. The choice of pedagogical tasks that learners see as relevant to their language use beyond the classroom should help to engage learners' interest and therefore their willingness to participate. Moreover, current theory of communicative language ability (Bachman, 1990; Bachman & Palmer, 1996) defines it as situation specific, implying that development of ability in language for particular purposes requires practice in using language for those purposes.

Positive Impact

The positive impact of a CALL task refers to its effects beyond its language learning potential. The significance of this quality has been pointed out for assessment tasks (e.g., Bachman & Palmer, 1996), but it is equally important for learning tasks. Ideally classroom language learning tasks teach more than language; they should help learners develop their metacognitive strategies (Oxford, 1990) in a way that will allow them to develop their accountability for their learning in the classroom as well as to learn beyond the classroom. They should engage learners' interest in the target culture in a way that will help develop their willingness to seek out opportunities to communicate in the L2. They should help learners to gain pragmatic abilities that will serve in communications beyond the classroom. An argument concerning positive impact may be based

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on the impact on the learners and teachers who use a learning activity as well as on the educational system as a whole.

Practicality

Practicality refers to how easy it is for the learners and teachers to implement a CALL task within the particular constraints of a class or language program. Relevant constraints include the availability of hardware and software that are adequate for the planned activities. In addition, knowledgeable personnel need to be on hand to assist with unforeseen problems. Early experience with CALL showed that learners had to have adequate access to well-maintained software and hardware for CALL to be successful (Marty, 1981). This observation is equally valid today because even though learners use computers regardless of infrastructure provided by language pro-grams, they cannot be expected to use computers for language learning without guidance, and guidance requires resources. Issues of practicality are closely tied to characteristics of institutional, social, and cultural practices in which some members have the power to make decisions about the amount and type of resources to be made available for CALL.

Criteria Applied Based on Task Purpose

These criteria for CALL appropriateness need to be applied in view of the purpose of a CALL task. Skehan's discussion of performance goals for tasks, including learners' fluency, accuracy, and complexity, might be augmented by comprehension goals and goals concerning pragmatic competence (Kasper, 1997). Moreover, tasks may have different purposes at various stages of instruction (Doughty & Williams, 1998). Whatever the goal of the CALL task, however, evaluation of the task requires that it have a stated purpose.

The Centrality of Language Learning

Even though the importance of each of the six criteria may vary depending on the purpose of the task, language learning potential should be considered the most critical for CALL activities. Tasks not intended to promote language learning in more than an incidental way, may be good for other purposes, but it would be difficult to argue that they should play a central role in L2 teaching. CALL tasks can also be intended to work toward a number of objectives such as developing learners' social identity in the target culture, increasing their computer literacy, strengthening their cultural awareness, or developing strategies for language learning. These outcomes may be positive impacts of the CALL task, but in designing language learning tasks, the criteria of language learning potential should be considered the most important.

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Module -14

JUDGEMENTAL EVALUTION OF CALL

Topic No: 28

Judgemental evaluation of CALL; Computer-Assisted Classroom Discussion; Micro-world; Text Analysis; Story board

Judgmental Evaluation of CALL

The criteria are intended to guide both judgmental and empirical analysis of CALL tasks. Table 4 contains questions that can be used to guide a judgmental evaluation of a CALL task planned by a teacher. They are intended to focus on both the aspects of the task designed by the software and those designed by the teacher.

These questions focus directly on individual tasks, but of course issues of sequencing and curriculum also need to be considered in task selection. For example, is the CALL task sequenced appropriately with other form-focus and meaning-focus tasks? Is the learner provided sufficient opportunity for learning and follow-up practice with the target forms? The judgmental analysis is intended to assess the appropriateness of a task for particular learners at a particular point in time and is therefore exemplified by examining activities relative to settings in which they were used. Five types of CALL activities that have been suggested and discussed over the past 20 years are looked at from the perspective of the judgmental analysis: computer-assisted classroom discussion, a micro-world, text analysis, storyboard, and concordancing.

Table 4. Questions for Judgmental Analysis of CALL Appropriateness

Qualities	Questions
Language learning potential	Do task conditions present sufficient opportunity for beneficial focus on form?
Learner fit	Is the difficulty level of the targeted linguistic forms appropriate for the learners to increase their language ability?

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	Is the task appropriate for learners with the characteristics of the intended learners?
	Is learners' attention directed primarily toward the meaning of the language?
Meaning focus	
Authenticity	Is there a strong correspondence between the CALL task and second language tasks of interest to learners outside the classroom?
Impact	Will learners be able to see the connection between the CALL task and tasks outside the classroom?
	Will learners learn more about the target language and about strategies for language learning through the use of the task?
	Will instructors observe sound second language pedagogical practices by using the task?
Practicality	Will both learners and teachers have a positive learning experience with technology through the use of the task?
	Are hardware, software, and personnel resources sufficient to allow the CALL task to succeed?

Computer-Assisted Classroom Discussion

Kelm (1992) provides an example of a LAN-based computer-mediated communication (CMC) activity in a university-level, fourth-semester Brazilian Portuguese class held in the US. Students attended class three hours a week, and for one of those hours (each Friday), class was held in the microcomputer center of the university library. Before coming to class each Friday, they were assigned a particular Brazilian short story which was to serve as the topic for the computer-assisted classroom discussion (CACD). When the students arrived at the computer lab, they logged in and received a message from the instructor including three or four questions which he had selected to probe their comprehension of the story or to open discussion of topics raised in

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the story. After receiving the instructors' message, students were able to enter the electronic discussion by typing their comments at their computers. When an individual student had completed a message and was satisfied with it, he or she would send it to the rest of the class. Others did the same thing, each at his or her own pace. Based on his participation in the activity and the data he collected, Kelm expressed the following impression of the activity: `From a pedagogical standpoint, one of the greatest advantages of CACD is the increased participation from all the members of the class' (Kelm, 1992: 443).

A logical analysis based on the criteria described above might result in the following observations. The synchronous CMC activity was intended to provide conditions in which learners would have some time for reflection while producing the target language within an otherwise fast-paced interaction. The fact that the meaning was expressed in written mode would be expected to provide opportunity for some focus on form, and the real-time interaction might make modified interaction, and modified output, possible. The language was intended to be the appropriate difficulty level for the learners because it was centered on the language of the story that they were reading for their class ± a story which was presumably chosen to provide comprehensible but challenging language for the learners. On the other hand, individual differences may not have been considered as the task is designed to have all learners playing the same role.

The task was intended to have a meaning focus which was prompted by the instructor's questions about the content of the story the learners had read. However, in the early 1990s, when this task was used, it would have been difficult to argue that it was authentic relative to what learners would be doing outside the classroom; the learners would no doubt have seen the task as a classroom experiment rather than as preparatory for future language use. The task was intended to be fun and to provide learners with the opportunity to use the target language without the teacher administration of many classroom activities ± a change that was seen as having a positive impact by the instructor. The activity required a local area network, synchronous communication software, and a teacher who knew how to use it, which apparently were all available in this setting. More-over, the fact that this activity was used each week meant that it was not necessary to spend a lot of time teaching students to use the software relative to the time they spent engaging in the learning activity.

Micro-world

Chun and Brandl (1992) described a micro-world activity designed for beginning learners of German: `The functional goal of this situation is [for the learner] to locate objects in a room and to differentiate between stationary physical location vs. the action or motion involved in placing an object somewhere' (Chun & Brandl, 1992: 260). The task begins by asking the learner to imagine he or she is living in the year 2101 with a robot, who likes to keep the room neat, for a roommate. For the purposes of the task, the student is designated as an untidy person whose things are scattered all over the room. The robot cannot find anything, so he begins to ask

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questions such as `Where did you put my fountain pen?' in the target language, German. The learner, who sees a picture of the messy dormitory room on the computer screen, is expected to answer the robot's questions by typing them on the computer screen in German. After the student provides a correct response (with reference to the picture), the computer replies in German, `I found it. You put it on top of the TV,' for example. The goal and topic of this and other micro world activities are controlled by the program. If the learner asks the robot where his optical system was designed, or something else outside the defined topic, the computer will not be able to respond.

Conditions for language use in this activity allow for written production, with opportunity for interactional modifications and modified output. Focus on form would be expected to occur when the output could not be interpreted by the computer, which would then point to the error for the learner to correct. The activity is intended for beginning level learners of German, and in fact requires knowledge of a very limited range of language including declarative statements and interrogatives about locations, which would be expected to be appropriate for beginners. Aside from allowing learners to work at their own pace, it is not clear whether individual differences have been taken into account. The task is intended to focus learners' attention on meaning by constructing a scenario in which the computer and learner play roles as language users engaging in a dialogue. Despite the meaning focus of each question the computer addresses to the learner, the task does not have an overall communication goal, e.g., to ®nd a particular number of items or to collaborate to make the room neat; therefore, the task relies on the learner to develop an agenda. The interaction with the computer using written language would not have been authentic relative to learners' language use outside the classroom in the early 1990s. It was not clear from the authors' description what the impact would be on learners and teachers, but one might speculate that if the software worked as planned and helped learners to identify errors in their output, the experience would be expected to seem worthwhile to them. In the setting the authors described, the required equipment and instructor knowledge were present.

Text Analysis

Liou (1993) described the use of a grammar checking program in a first-year writing and grammar course for EFL majors at a university in Taiwan. The writing class took a process-oriented approach in which learners were required to write, participate in peer editing, receive comments from the instructor, and revise. The students were given a topic for their writing assignment, for example `Some Career Tips for College Graduates,' and asked to complete a first draft on their own. The first draft was the object of discussion during the peer editing session which followed. Students were able to use the input from their peers as they pleased when they went to the computer lab to type their first draft that would be handed in. Teachers made general comments on content and organization at this point and identified grammatical problems without specifying the necessary corrections. The students had another opportunity to revise their papers on the computer and then they used the computer for grammar checking. Based on the

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suggestions provided by the computer program, the students were able to revise their papers again.

The use of the grammar checker in this activity should be expected to focus learners' attention on grammatical form and prompt them to modify their linguistic output. The written mode and absence of time pressure would also favor attention to grammar. It is not clear how an appropriate language level was targeted because learners were able to choose language within the broad range allowed by the topic selected by the instructor. Individual differences were not explicitly considered. Writing to the assigned topics was expected to have primarily a meaning focus, with attention to grammatical form during grammar checking and revision. The writing process described was similar to what learners might find outside the classroom, except for the type of grammatical feedback that they might have found in grammar checkers in commercial software in the early 1990s. Despite the quality of error correction afforded by the grammar checker developed specially for this project versus what language users would find in general-purpose software, the learners would be expected to see the process of writing and revising with the use of a grammar checker as authentic relative to their future work with English. The impact of this activity on learners would include the experience they should gain in examining and evaluating their linguistic output for its grammatical correctness. However, the learners' enthusiasm for continuing to work with grammar checkers in the future would depend on the quality of the analysis provided to the learner by the software. The writing activity appeared to be constrained by some limited access to the computer equipment as the learners were scheduled carefully to proceed through the assigned steps of the composing process, using the computer equipment only as needed, but it is unknown whether this was by pedagogical design or practical necessity.

Storyboard

The storyboard activity Jones and Fortescue (1987) described was used by a group of students who sat together in front of a computer screen in a computer lab. `The text is entirely obliterated, and the learners can see only the title (Superstition), a mass of blobs, a reference to various help features and an invitation to guess a word' (1987: 37). The activity is therefore a guessing game, which is set up as a storyboard containing a text on superstition. The learners work collaboratively through oral conversation to determine what, when, and how they will input words into the game. The conversation among the learners may or may not be conducted in the target language, and the learners are free to take their time producing the language used in the reconstruction.

The language of the task is likely to shift variously from the meaning of the text, the meanings associated with making guesses and arguing about gaming strategy to the forms of the language of the text. The task therefore offers some opportunity for attention to linguistic form, but the degree to which that opportunity is realized should vary depending on the learners and their game strategy. The difficulty level of the language in the storyboard activity described by Jones

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and Fortescue is not addressed, but one might assume that the text was chosen in view of learners' level, as these programs allow teachers to input their own texts for this reason. Individual differences are not considered except to assume that these learners would be of an age and disposition to like the guessing-game format. The discussion of game strategy would have a meaning focus, but conversation may not take place in the target language. The target language would be expected to be treated as an object throughout the task with attention occasionally to meaning as needed to help make guesses. Such word games exist outside the classroom, but most learners are unlikely to see this as an authentic target language activity that they are hoping to learn how to accomplish. The learners are expected to have fun working with the text in a group/game format. The task is intended to provide learner-centered groupwork which is expected to impact positively the classroom atmosphere and learning. The requirements of this activity did not stretch the resources of the classroom described, where computers were sufficient in number for each of the groups to work at one of them, and where the teacher and learners understood the operation of the software.

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Module -15

EMPIRICAL EVALUATION OF CALL

Topic No: 29

Empirical evaluation of CALL; Evidence for CALL Qualities; Language Learning Potential; Focus on Form; Modified interaction; Modified output

Empirical Evaluation of CALL

Empirical evaluation offers a methodology for making systematic hypotheses about the benefits to be attained through CALL tasks. As hypotheses, they stand in need of support through empirical data, because as L2 research has shown, `students are often doing something very different from what [language teachers] assume they are doing' (Hosenfeld, 1976: 123). In other words, it is necessary to identify the observable data that provide evidence of CALL qualities.

Evidence for CALL Qualities

The limitations of the study of learning outcomes have been well-rehearsed in the literature on educational technology (R. E. Clark, 1985; Papert, 1987) as well as in that on CALL (e.g., Doughty, 1987; 1992; Chapelle & Jamieson, 1989; 1991; Dunkel, 1991; Garrett, 1987). The arguments mirror those that have been put forward in other areas of L2 classroom research. Empirical research methods for evaluating L2 classroom tasks have to a large extent given up on evaluating language instruction solely through measurement of learning outcomes in favor of investigating classroom processes.

Despite the definitive move toward the study of learning processes over products, it would be difficult to argue that a research result showing language learning outcomes that can be attributed to particular features of instruction are irrelevant or uninteresting. In a sense, the study of learning outcomes is at the same time seductive and cause for suspicion. This tension can begin to be understood through examination of the qualities outlined above. What becomes apparent, is that some of the qualities (e.g., language learning potential) might best be studied by examining learning outcomes (as they are related to particular task features), whereas the study of learning outcomes would offer little or nothing to questions about task authenticity. In short, each of the qualities implies particular types of research questions and associated methods.

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The methods that are suggested in this chapter are similar to those that have been used in other L2 classroom research. However, when applied to CALL, these methods are implemented somewhat differently, largely because the computer is able to record the language and some non-linguistic moves that the learner makes to provide a more detailed and readily available record of learners' behavior than can be gained through other forms of observation. These types of data prove useful for investigating some of the questions about appropriateness. However, the types of data the computer can collect is not the real issue. The issue is what kind of evidence is required to address a particular research question. Good fellow and Laurillard (1994) demonstrate the irony of a perspective that begins with computer-gathered data:

Table 6 . Questions for the empirical evaluation of CALL tasks

Qualities	Questions
Language learning potential	What evidence suggests that the learner has acquired the target forms that were focused on during the CALL task?
	What evidence indicates that learners focused on form during the CALL task?
Learner fit	What evidence suggests that the targeted linguistic forms are at an appropriate level of difficulty for the learners?
	What evidence suggests that the task is appropriate to learners' individual characteristics (e.g., age, learning style, computer experience)?
Meaning focus	What evidence suggests that learners' construction of linguistic meaning aids language learning?
	What evidence indicates that learners use the language during the task for constructing and interpreting meaning?
Authenticity	What evidence suggests that learners' performance in the CALL task corresponds to what one would expect to see outside the CALL task?
	What evidence suggests that learners see the connection

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	between the CALL task and tasks outside the classroom?
Impact	What evidence suggests that learners learn more about the target language and about strategies for language learning through the use of the task?
	What evidence suggests that instructors engage in sound second language pedagogical practices by using the task?
	What evidence suggests that learners and teachers had a positive experience with technology through the use of the task?
Practicality	What evidence suggests that hardware, software, and personnel resources prove to be sufficient to allow the CALL task to succeed?

Research questions about CALL need to be developed in view of the qualities about which evidence is sought. Table 6 outlines general research questions that would address each of the CALL qualities.

Language Learning Potential

Empirical research demonstrating the language learning potential of a CALL activity needs to show that learners have improved in their control of the aspects of the target language focused on in the activity. Rather than attempting to compare learning in CALL tasks to that of other classroom tasks, informative research on language learning potential has centered on particular aspects of CALL that are hypothesized to be beneficial ± comparing the success of CALL tasks with and without the condition under investigation. To the extent that the conditions are carefully defined in such tasks, results can contribute to principles for designing CALL tasks with language learning potential. Even though this research is seldom described in terms of the conditions investigated by other SLA researchers, some studies can be interpreted in view of their contribution to these questions. The questions to be addressed are the following: What evidence suggests that the learner has acquired the target forms that were focused on during the CALL task? What evidence indicates that learners focused on form during the CALL task?

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Focus on Form

Given the theorized importance of salient input for acquisition (Sharwood-Smith, 1993), surprisingly little research has been conducted on the effects of CALL activities which focus learners' attention on particular linguistic forms in the L2 input, but one carefully conducted study yielded results that clearly favored high-lighting linguistic form. Doughty (1991) compared the effects of two different types of explicitly salient L2 input with that which was not explicitly abled to catch learners' attention. The input consisted of sentences containing relative clauses within reading passages which learners were instructed to read for comprehension. In other words, the primary attention during the task was to be meaning. In the two experimental groups, learners' attention was drawn to the relative clauses through highlighting on the computer screen as well as through either giving grammatical rules or providing meaningful restatement of the sentence. Both of the groups with the salient input performed better on grammatical post-tests than did the group receiving input with no highlighting; the group receiving the meaningful restatements of the target structure performed better in reading comprehension. These results provide evidence for the argument that CALL materials with carefully selected and highlighted target forms can offer superior language learning potential than those in which learners' attention is not directed to form.

In a study examining acquisition of vocabulary in CALL materials, researchers (Duquette, RenieÂ, & Laurier, 1998) attempted to identify factors related to acquisition of particular lexical items. Following up on the overall finding of no significant differences in vocabulary gains between control and experimental groups, researchers identified particular words upon which learners in all groups had made significant gains. They concluded that `a number of conditions must exist in a multimedia environment for there to be lexical gains. Words must occur frequently and be presented in specific contexts where images and text are closely linked before they are presented in animated form [as the multimedia materials did]' (1998: 23). They found the words that learners were most likely to improve on were those that were important to the story-line presented in the video, as well. This was a challenging study because it attempted to identify what was learned from existing materials, but it succeeded in identifying some of the critical characteristics of input that may help to focus learners' attention on unknown vocabulary and to remember it.

Other evidence concerning focus on form has been obtained through interviews with learners who have participated in CMC classroom discussion. Beauvois (1998) reports that L2 French learners reported the following when asked about their experience:

`In the lab, we do have our books there and . . . you can take the time to look up a word.'

`You have time . . . to think about how to conjugate the verb.' (1998: 105)

This is not to say that learners engage in such reflective processes naturally during CMC activities, but that it is possible to construct an activity in a way that some learners do.

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Modified Interaction

Modified interaction can be seen when an interruption of meaning making occurs due to a breakdown in comprehension or production. Such a breakdown can occur during face-to-face conversation, during the process of reading or listening, or in an on-line written conversation, for example. The modification refers to the interruption that disturbs the unproblematic flow in meaning making. In CALL materials, opportunities for interruption are often built in through interactive sequences and help options. Among the first studies to investigate whether interruptions in the input to learners would significantly affect their listening and retention of what was heard, Schrupp, Busch, and Mueller (1983) compared the value of different levels of interactivity in a CALL program. They found that the interactive video condition was the one in which the students remembered the content of the German material best. This is not to say that the language of the German video was acquired; however, comprehended target language material (intake) is at least a candidate for acquisition, and therefore this study provides some evidence for the value of interaction during listening.

Other studies investigating the value of modified interactions have examined the extent to which L2 vocabulary is more likely to be acquired when it is presented in conditions allowing for interaction. Interaction in these cases refers to the learners interrupting their reading to receive help with vocabulary by clicking on unknown words in the written input. Several studies have investigated the extent to which learners having access to various forms of on-line vocabulary help assists in their reading comprehension and vocabulary retention (e.g., Lyman-Hager et al., 1993; Chun & Plass, 1996; Lomicka, 1998; Hegelheimer, 1998; Laufer & Hill, 2000). Overall, findings support the theoretically based suggestion that learners benefit from having provisions for the type of interactional modification supported by hypermedia glosses. At the same time, summary of this growing body of research is difficult because of the variety of issues investigated, including preferences for various types of glosses (e.g., L1, L2, text, audio, image), influences on reading comprehension, and vocabulary acquisition, and the variety of research methods employed, including experimental and within-group designs as well as interaction analysis and think-aloud procedures. Although the issue of interactional modifications with on-line linguistic input holds great potential for improving CALL, additional research is needed to clarify the relationship between the use of glosses and acquisition of vocabulary targeted by the learner through actual interactional modifications.

In an interactive listening task for learners of L2 French, BorraÂs and Lafayette (1994) investigated the effectiveness of optional L1 (English) subtitles as a means of modifying interaction. They com-pared performance on a speaking task of learners who had used the computer-assisted video materials with and without subtitle options. Learners who participated in the subtitle condition had the option of choosing to see English subtitles for the aurally presented French when they had difficulty in comprehending. The control group heard the video under exactly the same conditions but without the subtitle option. Results of the speaking task, which

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required all learners to address some questions about the content of the video, clearly favored the subtitle condition. The authors concluded `the statistically significant difference found in this study in favor of the subtitle condition for higher oral communicative performance strongly suggests that when learning from ``authentic video'' in a multimedia environment, having the opportunity to see and control subtitles, as opposed to not having that opportunity, results in both better comprehension and subsequent better use of the foreign language' (BorraÂs & Lafayette, 1994: 70).

Each of these studies offers some support for materials that provide opportunities for modified interactions. However, results were less clear in a study that attempted to increase language-focused interactions by having learners work in pairs on Spanish interactive multimedia materials (Chang & Smith, 1991). The pairwork was intended to provide an opportunity for learners to question each other and discuss difficulties they encountered in comprehending the language of the video. Results indicated that the learners working in pairs did indeed discuss the meaning of the language of the video, primarily by attempting to translate to the L1 when they had difficulty. Overall, the learners who worked in the dyads scored equivalently on a test requiring recall of the story-line to those who had worked alone on the multimedia materials, even though the former scored significantly better on one type of question. One would expect the type of modified input received by the learners working in dyads to have had an effect similar to the subtitles in the study by BorraÂs and Lafayette, but apparently learners were not as effective at providing the needed modified input to each other as the systematically subtitled software was. This finding supports the value of continued research on how to best supply tutorial help to learners through software support materials, other learners (Klingner & Vaughn, 2000), or human tutors working on-line (Lamy & Good-fellow, 1999a).

Given the theoretical justification for tasks which require use of the target language for communicative language use along with a means for resolving communication breakdowns, these types of L2 tasks hold a unique promise for language teaching. While user-requested, on-line help is similar to the use of L1 captions in videos (e.g., Guillory, 1998), it is different in an important way: captions are presented uniformly and simultaneously with the L2 video allowing learners to follow the captions rather than the target language; user-requested help allows for the important process of attempting to understand, noticing problems in comprehension, and receiving help in resolving them. The latter is what is hypothesized to be beneficial.

Modified output

Conditions providing opportunities for learners to modify their output in CALL have not been studied extensively if output is to be understood as `comprehensible output,' or language intended to convey meaning. The research that may be relevant in supporting the value of modified output has been focused on the type of feedback the learner receives after responding to a question or prompt from the computer.

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A study by Robinson, Underwood, Rivers, Hernandez, Rudisill, and EnsenÄat (1985) compared the effectiveness of different kinds of feedback in CALL tasks consisting of learner computer interactions. One comparison was made between `student discovery strategies' feedback that identified the existence of an error but required the learner to identify the precise nature of the problem, and `program disclosure' (1985: 160), which was operationalized with `wrong, try again' types of feedback. Student discovery strategies were associated with greater learning gains. Another comparison was made among options for providing help after an error was produced: program-controlled help automatically offered the correct answer, student-controlled help offered a variety of options for the learner to choose after making an error, and a combination of learner- and program-controlled offered the learner the appropriate help relative to the error, but the learner had to choose to see it. The latter condition was most effective. These comparisons do not speak directly to the question of whether or not allowing the learner to modify their output when it contains errors is useful, but it does provide evidence for the value of identifying learners' errors in their output.

Another study also supports the strategy of pinpointing learners' errors as carefully as possible. Nagata (1993) found that learners of Japanese who received `intelligent' feedback about their use of particles performed significantly better on both post-tests and end-of-semester tests than did those students who had received only an indication of where they had made an error. Intelligent feedback for a particle error in the learner's sentence would look like this: `In your sentence, GAKUSEE is the ``subject'' of the passive (the one that is affected by the action), but it should be the ``agent'' of the passive (the one who performs the action and affects the subject). Use the particle NI to mark it.' The unintelligent feedback message for the same error would consist of `NI is missing,' requiring the learner to remember or ®nd out how, why, and where `NI' was to be used in the sentence (Nagata, 1993: 335).

One study of learner and learner interactions in computer-mediated L2 tasks offers some hope for those designing tasks in which learners correct their comprehensible output. Based on investigation of the language of L2 Spanish learners in synchronous written communication of a chat, Pellettieri (2000) concluded that this medium supported tasks in which negotiation of meaning could occur.

At first, these results appear in sharp contrast to those of researchers who have studied the language of other internet chat rooms (e.g., Yates, 1996) and describe it as having characteristics of restricted registers including many non-standard forms (Murray, 2000). The difference can be explained by the types of pedagogical tasks that Pellettieri set for the Spanish learners. By drawing from knowledge about communication tasks in SLA, she was able to construct task demands that prompted learners to attend to language as needed.

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6.5 Research Methods

The most convincing way to demonstrate the language learning potential of a CALL activity is through the study of learning out-comes. In other words, if learners were to have acquired particular grammatical forms or vocabulary through a CALL task, then results of an assessment after learners have completed the task can provide some evidence for the language learning potential of the task. The evidence is much stronger, of course, if pretest data indicate that the learners did not know the target forms before beginning to work with CALL. Still stronger evidence is obtained if a contrasting group that did not use the CALL task or used the CALL task in another form failed to make similar gains. Any of these designs is strengthened if learners are shown to have retained what was learned at a later time. For example, Nagata (1993) prepared post-tests which followed the same format and content' as the CALL activities to be sure to assess what was taught (1993: 336), and then to assess longer-term retention of the target structures, `three weeks after the final experiment, the subjects took the final exam in which four questions were included as a retention test on the passive structures' (1993: 336). These research designs have provided tentative evidence for the language learning potential of some features of CALL tasks, but process-oriented designs might better be exploited for this purpose as well.

Interactional modifications are evident in a number of sequences of interactions in CALL tasks. The research described above presented learners with conditions in which they could choose to modify interactions. Evidence for learners actually choosing to modify appears in records of their interactions with the computer if they request modifications of linguistic input. In many CALL materials, such as an example called Learn Language Now by Transparent Language, opportunities abound for the following type of exchange between computer and learner: This is the type of exchange which occurs during a task requiring comprehension of an aurally presented conversation between an interviewer and a vineyard owner in France. The learner can attempt comprehension of the aural language, request the written text of the conversation, and then make queries about the vocabulary and grammar by clicking on the appropriate parts of the text.

Observation of such exchanges does not indicate that the learner has acquired the word, but it is evidence that the learner is engaging in a process of making unknown forms in the input comprehensible, which makes the input more likely to be acquired. The records of learners' use of such materials can reveal the extent to which they engaged in such interactional modifications, and therefore how useful the CALL task was for their potential acquisition. If learners listen to the conversation without asking for the written text or requesting any modified input, they may comprehend the language they hear, or not be interested enough to engage in interactional modifications. In either case, it would be difficult to argue that the CALL task held learning potential for those learners.

If normal interaction for reading a text on a screen is considered to consist of the learner's receiving input and requesting more input (i.e., scrolling down the page), this normal sequence is interrupted, or modified, when the learner clicks on a word to receive a definition. Modified

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interaction may also be apparent when the learner scrolls back to a previous sentence, or part of the interview, or when the learner interrupts reading altogether to seek additional grammatical information through the reference and search options. In the interview text, the lines appear in a relatively small window, as illustrated in Figure 3.1. When the learner modifies a strict linear pattern in moving through the text to go back beyond what is shown on the screen, there is evidence for modified interaction. This program provides an additional opportunity for gathering evidence about medications because learners are able to click on words in each sentence as they read. The segment with the word is highlighted, giving the learner the option of hearing that segment aurally. A learner who uses this option of clicking produces evidence for the extent to which the linear progression through the text is interrupted. Of course, the concept of modified interaction would be different in a hypermedia document in which the message was not delivered in a linear text. The interactional medication of written or spoken input needs to be defined in view of the nature of the unproblematic flow of the CALL task.

The construct of modified interaction might also be productive in tasks requiring learners to construct linguistic output. In such cases, the unproblematic flow would be characterized by continuation of the writing process, for example. However, this flow is modified when learners interrupt themselves to request help. Bland, Noblitt, Armington, and Gay (1990) describe the process used by learners as they construct a text using System-D, which supports queries about the vocabulary and grammar of French while the learners are writing their French texts. Records of learners' use indicate that learners tend to interrupt their normal meaning-focused interaction (constructing a text) to focus on language.

Ironically, the majority of the research on classroom CMC has begun with the assumption that minimal teacher control is beneficial for acquisition. In fact, data from classroom CMC sessions that have been investigated demonstrate a greater quantity of learner participation than what is found in face-to-face communication (Kelm, 1992; Beauvois, 1992; Warschauer, 1997a; Kern, 1995; Ortega, 1997). This participation has been equated, perhaps inappropriately, with acquisition, but the finding of a high degree of learner participation associated with CMC discussions in which teachers exert little control may be positive in its own right.

Although examination of process data as they pertain to ideal conditions for acquisition is informative, the real challenge for research pertaining to conditions is to demonstrate whether or not learners' engagement in the conditions is related to acquisition. The product-oriented research has tended to assume that learners placed in a particular condition will participate as the condition allows. For example, learners provided with a text to read that contains hyper-text word definitions are assumed to have clicked on the words they did not know while reading. In fact, such an assumption underlies acceptance of the research results described above. The real question is not whether the provision for interactional modifications increases acquisition, but whether the use of interactional modification in-creases acquisition of those forms for which interactional modifications are used.

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In L2 classroom research, Swain (1998) has addressed the parallel issue by constructing assessments specifically for individual students to assess their knowledge of the linguistic elements they chose to focus on during task completion. Similarly, Hsu (1994) conducted a focused analysis of interactions between learners and the computer to identify their requests for modified input of segments of the story they listened to. The normal interaction in this part of the program consisted of learners' requests for continuation of a story with accompanying pictures on one computer screen after another. The researcher documented `interactional modifications' evident from learners' requests for repetitions, written transcriptions, or written definitions for words in the input. She also recorded the specific linguistic input associated with each of the learners' requests. She then assessed outcomes through pre- and post-tests which had been constructed specifically for the research to include the lexical phrases in the input. She found significant relationships between interactional modifications and improvement in listening comprehension. Even though improved comprehension is only one facet of acquisition, and no delayed post-test results could argue that the effects lasted, this methodology, which is described further by Hegelheimer and Chapelle (2000), provides an example of how process and product data can be integrated to address questions about the effectiveness of engagement in particular conditions.

Learner fit

On a day-to-day basis, teachers implicitly assess how well learning materials fit their learners, but learner fit can also be assessed through more systematic research methods including observation of working processes, assessment of learning outcomes, and questioning learners about their opinions. Such systematic analysis can help to reveal the extent to which a CALL task engages learners in language at a useful level of difficulty in a way that is appropriate to their individual characteristics.

Level of Linguistic Difficulty

The empirical question about linguistic difficulty is what evidence suggests that the targeted linguistic forms are at an appropriate level of difficulty for the learners? One form of evidence about linguistic difficulty can be found in the type of process data described above those that show the extent of use of interactional modifications. When learners use software that offers help options such as word definitions, their interaction with the materials can be examined to indicate whether they had sufficient interest and need to request definitions (e.g., Chapelle & Mizuno, 1989; Desmarais et al., 1998). If learners read or listen to input without making use of the available help, it is possible that the material is either so easy that no help is needed or that the whole task is so difficult that they are unable to participate at all. If no evidence that learners used help appears in the record log of interactions, it may be that the level of difficulty is

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inappropriate. These observations of behaviors can be added to by introspective methods requiring learners to think aloud as they work. For example, Park's (1994) study investigating use of ESL multimedia through think-aloud data (Ericsson & Simon, 1984) identified revealing thoughts such as `I think I have a lot of vocabulary that I don't know' (1994: 147). This statement was made while the learner was clicking on one of the words in the input.

Researchers examining process data containing the language that learners produced in CMC tasks have evaluated its linguistic difficulty relative to learners' level of ability. For example, Kern (1995) examined the linguistic characteristics of his students' language in a computer-assisted classroom discussion on family heritage and customs. His analysis of the data concluded that `students' language output [in the computer-assisted discussion] was of an overall greater level of sophistication than in oral discussion, in terms of the range of morphosyntactic features and in terms of the variety of discourse functions expressed' (1995: 470). He argued for the value of such a task for providing an opportunity to engage in language of an appropriate level of difficulty for his students' development. This argument pertains to the condition of written versus oral; many CMC enthusiasts have argued that the written language of CMC is beneficial for reflection on linguistic form during a meaning-based activity (e.g., Warschauer, 1997b).

Evidence for appropriate difficulty can also be gained through pretesting and post-testing of the language to be acquired during the CALL task. Language that is too difficult or too easy will not produce any changes in learners' language knowledge; however, many other reasons for no pre-post differences may be possible as well.

Individual Characteristics

What evidence suggests that a task is appropriate to learners' individual characteristics? This is a thorny question that has been addressed through assessment of outcomes and examination of learning processes, but which remains an important research issue for the future. Investigating cognitive style and task variables in materials teaching participial phrases, Abraham (1985) found that field-independent (i.e., analytic and independent) ESL learners performed better on post-tests when they had used a rule presentation (deductive) approach and field-dependent (i.e., holistic and dependent on others) learners performed better after using software presenting examples of the structure (inductive). These results are consistent with predictions that the analytic learners will prefer rules whereas the more holistic learners will prefer to learn through examples. In another study, Chapelle and Jamieson (1986) found field-independent ESL students tended to have a more negative attitude toward the CALL activities they investigated, while the field-dependent students had more positive attitudes. The CALL activities, which supplemented classroom activities throughout the semester in an intensive ESL program, provided structure and guidance for language that one might predict the field-dependent learners would welcome.

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Meaning focus

Empirical evidence for meaning focus is based on observation of learners' interactions and language in CALL tasks and their reports of how their attention is directed during the task. Meaning focus is analyzed on the basis of task performance alone rather than by comparison with tasks outside of class, which are often but not always meaning-focused. Examples of out-of-class tasks that are not meaning-focused would be editing someone's job application letter, looking up words in a dictionary, or trying to guess a speaker's regional accent. Texts in which meaning focus is evident would include the one in Figure 3.3 in which learners are using the target language to discuss ethnic backgrounds and the celebration of holidays. Meaning focus is evident through the learners' development of coherence through a topic other than the form of the target language.

Effects of Meaning-based Instruction

The first question about meaning focus seeks evidence in CALL materials for the assumption that is largely accepted in the profession: What evidence suggests that learners constructing linguistic meaning aids in language learning? Several CALL studies have set out to investigate whether CALL tasks requiring learners to comprehend message meaning would be superior to those that learners could complete through manipulation of structure alone. Comparing `meaningful' and `non-meaningful' input in German grammar lessons, Schaeffer (1981) found that students who had to understand the meaning of the language to answer drill items correctly did better on both meaningful and structural post-tests than did students who practiced mechanically, without processing meaning. Meaning-oriented in the study was defined as requiring comprehension of sentence-level semantics, but even with this limited view of meaning, results favored this group.

Another study combined features of input and interaction to investigate six pedagogical and four answer-judging principles established on the basis of research in cognitive psychology and second language acquisition (Robinson et al., 1985). Robinson and her colleagues developed experimental CALL tasks and compared them with lessons that did not reflect such principles. The hypothesis pertaining to meaning ± that use of a context for `introduction of discrete structural items [would] improve memory and subsequent learning of the items' (1985: 17) ± was tested by providing an experimental group with a contextualized grammar task and a control group with a task containing semantically unrelated items. Drawing conclusions about this hypothesis along with several others, the researchers concluded that they had a `high level of confidence that instructional treatments did significantly favor the experimental group' (1985: 35) on the post-test.

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These two studies investigated the extent to which attention to meaning was important for acquisition of the target linguistic items through comparison of outcomes from meaningful and non-meaningful conditions. This design might be strengthened by demonstrating that learners in fact focused on meaning in the meaningful condition and not the other. The second question about meaning focus, what evidence indicates that learners use the language during the task for constructing and interpreting meaning, involves the analysis of what learners actually do while they are working on the CALL task as distinct from what the condition specified by the task design suggests that they should do.

Assessing Engagement with Meaning

The two examples of CMC discussion in Figures 3.3 and 3.4 provide evidence that learners are engaged in meaningful language use, discussing family customs in the first, and playfully discussing shoes in the second. The record of their language and analysis of the content themes that are developed through the target language provide good evidence for meaning focus in these two activities.

Data from another CALL task showing form-oriented target language use come from the oral language of German learners of EFL collaborating on story-writing on the topic of their choice, vampires. In this task, the computer is used to record in writing the language that they produced through oral collaboration rather than as a conduit for negotiation among participants. The researchers chose to examine only the oral language that the learners produced as they negotiated, as shown in Figure 3.5, rather than both the oral language of the collaboration and the writing on the screen. Their oral language includes very little of the target language, just one word at a time in isolation, and it is used as the object of, rather than the means for, discussion. The textual cohesion, for example `And' and `Well,' either provide cohesion within the written text, or within the German of the oral text. With the English used as an object of discussion, it is not used to express meanings among the participants even if the written language constructed through the task on the computer screen would undoubtedly express meaning. Whatever the other qualities of this task, then, it would be difficult to argue that it was strong in meaning focus.

Learners' reports of their attention while working on a CALL task can add another dimension to the analysis. In a study of ESL learners' strategies while working on interactive multimedia software, Park (1994) identified clear instances in learners' reports of attending to meaning. For example, one participant, while listening to the video depicting shopping at a convenience store, reported that he was curious about the expression `can't change anything larger than.' It was not the grammar that was a concern, but the cultural aspect of this expression, so he clicked on the help with culture, where he learned convenience stores in the US do not keep large bills on hand in case they are robbed. The learner reported: `First I compared with the Korean situation and

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compared my knowledge of American culture and decide whether it makes sense or not . . . I didn't know this before, but when I read it makes sense with my background knowledge of American culture' (1994: 132). Other learner reports are clearly focused on language: `Oh, so some verbs must follow a rule, which means, present progressive form . . . Yeah, in this part, we can see often in the TOEFL test' (1994: 138).

Authenticity

The two questions about authenticity seek evidence that (1) learners' performance in CALL tasks corresponds to what one would expect to see outside the CALL task, and (2) learners see the connection between the CALL task and tasks outside the classroom. Addressing the first question requires a comparison between the language that learners engage in during the CALL task and the language used in other situations of interest outside the classroom. Esling (1991) suggested examining the language of CALL activities in view of Brown and Yule's (1983) classification of discourse used for activities such as giving directions, telling a story, or expressing an opinion. Although Esling's point of comparison was the class of tasks performed in L2 classrooms, the idea of comparison from CALL to other tasks is similar to the authenticity analysis.

Comparing CALL with non-CALL Activities

CALL research attempting such discourse analysis has examined learners' oral language as they worked on CALL programs (e.g., Abraham & Liou, 1991), and findings have been mixed. One study described the language of such activities as `incoherent conversation where there is much clashing of participants and talking simultaneously' (Piper, 1986: 194). The researcher concluded that `one obvious limitation of this range of language forms is the ``here and now-ness'' of the tasks, meaning that there is little use of any tense except the present simple' (1986: 197). In contrast, on the basis of a similar study, Mohan concluded that the conversation in which the computer was present was relatively `context-embedded.' Through examination of the functional sequences in the texts documenting interaction among the learners, he also identified `episodes of choice, decision-making or problem-solving' consisting of sequences of proposal, agreement, and supporting reasons ± sequences which he interpreted as use of cognitively demanding language. In other words, Mohan interpreted the linguistic experience as positive for L2 development, presumably because these were the types of functions that learners would use beyond the classroom.

The CALL studies examining the language of classroom CMC have also typically chosen classroom language learning tasks as a point of comparison (Warschauer, 1997a; Kern, 1995). However, Chun (1994) suggested implications from her investigation of CMC in a first-year

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German class for learners' abilities beyond the class-room. Finding that learners used a variety of linguistic forms and functions, she concluded the following:

The types of sentences being written by students on the computer require not only comprehension of the preceding discourse but also coherent thought and use of cohesive linguistic references and expressions. These skills, which are important components of writing proficiency, are enhanced by CACD. In addition, since these types of sentences strongly resemble what would be said in spoken conversation, the hope is that the written competence gained from CACD can gradually be transferred to the students' speaking competence as well. (1994: 28:29)

Today interpretation of such an analysis would undoubtedly need to be recast somewhat, as the registers of language use outside the classroom have expanded beyond those involving face-to-face speaking and monologic writing. As language learners are increasingly preparing for a life of interaction with computers and with other people through computers (D. E. Murray, 1995), their `electronic literacy' (Warschauer, 1999; Rassool, 1999) becomes an additional target. An argument about authenticity needs to address the question of the extent to which the CALL task affords the opportunity to use the target language in ways that learners will be called upon to do as language users, which today includes a variety of electronic communication.

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Module -16

RESEARCH METHODS IN CALL

Topic No: 30

Research methods; Positive Impact; Practicality

Research Methods

The study of CMC outside the L2 classroom has been developed over the past decade by researchers hoping to characterize the registers of language use in e-mail, chat rooms, electronic bulletin boards, and discussion lists, for example (Ferrara, Brunner, & Whittemore, 1991; Murray, 1991; Self & Meyer, 1991). Results from many CMC environments show features of simplified or reduced registers such as omission of subject pronouns, articles, and the copula, as well as use of contractions and abbreviations. Research has identified a large number of the words `you' and `I' in the texts, and a large number of WH and yes/no questions. This research begins to reveal the character of CMC, or `interactive written discourse,' as a point of comparison for some CALL tasks.

It is therefore useful to have a means of register analysis which frames a description of registers in a way that captures the aspects of language use of interest to L2 researchers. In particular, the features of interest are those associated with the input that is provided to the learner, the learner's output, and the interaction between the learner and interlocutor. Each of these aspects of the language can be analyzed in greater detail through five descriptive categories: pragmatic function, linguistic characteristics, quantity, non-linguistic moves and forms, and medium (Chapelle, 1999a). The questions one would use to conduct an analysis of L2 input, output, and interaction are in Table 3.8. The descriptions of language from the CALL task and from the language of interest outside the classroom provide the data needed to make a comparison of the two ± a comparison which speaks to the degree of authenticity of the CALL task relative to another identified context.

This methodology for systematic examination of CALL task authenticity demonstrates the complexity of the authenticity construct as well as the need for empirical research examining the extent to which the language engendered in CALL tasks is authentic relative to a particular register of interest. In other words, authenticity needs to be considered in a more-or-less fashion rather than as an all-or-nothing attribute of a task, and it needs to be considered relative to a context of interest rather than in absolute terms. Moreover, these methods of discourse analysis address only the first of the two questions about authenticity. The second question requires methods that produce evidence about learners' opinions concerning the value of the CALL task

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relative to what they need to be learning. Opinions can be gathered through introspective methods and questionnaire data.

Positive Impact

Descriptions of CALL throughout the past 30 years abound with statements about the positive influence of CALL activities on language classrooms. One can pick up virtually any issue of any CALL journal from the past 15 years to find examples of enthusiastic CALL users' estimations of the experience of CALL as positive for their students. The current generation of CMC enthusiasts is no less euphoric about the impact of their CALL tasks, arguing that such activities offer the positive impact of changing classroom dynamics (Beauvois, 1992; Collombet-Sankey, 1997; Swaffar et al., 1998). The impressions of CALL users are supported through examples from their students such as this e-mail message to the teacher in an EFL class in which learners were introduced to a variety of Internet activities:

I'm finding a new world with this class. Last week I told with people from Australia, New Zealand, USA and England. It was very interesting. I'm impressed how the world has become small with computers. (Paiva, 1999: 260)

Evidence from learners as well as teachers' impressions are a valuable starting point for articulating a range of impact-related questions about CALL such as the following:

1. What evidence suggests that learners learn more about the target language and about strategies for language learning through the use of the task?
2. What evidence suggests that learners increase their literacy in language use through technology?
3. What evidence suggests that instructors engage in sound second language pedagogical practices by using the task?
4. What evidence suggests that learners and teachers had a positive experience with technology through the use of the task?

These questions and others that one might suggest concerning impact imply the need for qualitative approaches to investigating the use of CALL in context. A few studies using such methods have looked at some of the contextual factors associated with CALL. Examining adult ESL learners' use of hypermedia language learning software in an intensive English program in the US, Park (1994) identified factors in the language program and classroom contexts that shaped the learners' experiences with CALL, and in turn how her introduction of CALL influenced aspects of the program. Sanaoui and Lapkin's (1992) qualitative study revealed observations about the nature of the language that ESL and FSL learners in Canada produced and the quality of instructional experience learners and teachers perceived as they worked collaboratively with peers from the target language across a computer network. This type of work investigating the context of CALL use needs to extend throughout the global context of the

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Internet to examine the ways in which various CALL activities affect learning in different cultures (e.g., Hart & Daisley, 1994).

In this regard, critical perspectives on electronic literacy hold promise for building upon those of Bowers (1988; 1993) on educational technology, who pointed out the non-neutrality of educational technologies in the 1980s. The premise of Olson's 1987 paper `Who computes?' has been repackaged into the expression `digital divide,' but whereas Olson was referring primarily to access to technology associated with school learning, the digital divide refers to inequities in access to modern ways of life, which include the literacies developed primarily through communication on the Internet (Warschauer, 2000). Whereas careful researchers of the past decade qualified their results in view of the computer literacy of their participants (e.g., Hartman et al., 1991), teachers and researchers today need to consider how and why some students are able to use technology and language to participate in modern life while others are not.

The question of who computes and how successfully they do so is clearly tied to communicative language ability as it is realized through electronic literacy, and therefore research needs to better define this domain. Fortunately, some researchers have begun to do so. Warschauer (1999) artfully links computer use in the ESL class-room to issues associated with the multi-literacies (including electronic literacies) which all language users need in the 21st century, and he relates overall global economic trends to changes in English use and English learners' needs (Warschauer, 2000). With a similar interest in the future of literacies world-wide, Hawisher and Self (2000) have collected empirical studies of language use on the Web in a number of different countries, finding that typically English plays some role along with local languages in Web-based literacy experiences. Lam (2000) documents the development of ESL literacy on the Web through a case-study of a learner who uses English to develop a popular Web page and communicate with a transnational group of peers. These forward-looking studies begin to offer a glimpse of a complex future of language use and learning.

Practicality

Questions about practicality of CALL rely on evidence suggesting that hardware, software, and personnel resources prove to be sufficient to allow CALL to succeed. Assessing the adequacy of resources for all learners has become complex as resources extend beyond the language laboratory and as what is necessary seems to be a moving target. However, given the role of resources for the success of CALL, some formal mechanism needs to be in place to monitor adequacy, and an argument about CALL appropriateness should include a statement about sufficiency of resources.

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REFRENCE SOURCE:

1. **Computer Applications in Second Language Acquisition**, (Foundations for teaching, testing and research), by Carol A. Chapelle, Series editors: Michael H. Long and Jack C. Richards.

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Lecture- 7

Theoretical and Pedagogical Concerns in CALL

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Module -17

TEORETICAL AND PEDAGOGICAL CONCERNS IN CALL- I

Topic No: 31- 32

Concerns for software development; Pedagogical concerns for classroom practice; Evaluating software; Learning and working styles

Computers, software and WWW-based services are not seen solely as positive agents of change in the classroom; they also face criticism. In the already mentioned example of young and second-language learners lacking dictionary and library search skills, a multimedia resource may prove to be too seductive an information source. The result is a delay or even complete omission of their learning of traditional and useful information search skills, just as a reliance on electronic calculators has discouraged some learners' basic numeracy skills.

The concerns of this chapter can be expressed in the following two questions:

- What are the problems with computers in general and CALL in particular?
- What solutions are there for these problems?

8.1 Concerns for software development

As already mentioned, traditional materials tend to follow a set scope and sequence that lay down the paths and principles of learning and this is the general route followed by most computer-based learning materials that are, in some cases, adaptations of existing textbooks. However, a strength – and a weakness – of some computer-based materials is their lack of a clearly determined scope and sequence. Instead, they allow individual learners to pursue links which they perceive as being both useful and interesting. This ability to choose a path of learning means that different learners are not all constrained to learn the same materials in the same way but may instead find new answers and solutions to questions and problems.

A now common example of this method of learning is a teacher-assigned task that asks learners to use resources on the WWW. The ever-growing WWW consists of billions of individual pages that learners can enter using search engines and links. But learners using the WWW who lack clear direction and proper research and critical thinking skills can often become muddled, distracted and lost in the enormous sea of information.

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Along with the power to organize information much more complexly comes the problem of having to know 1. Where you are in the network and 2. How to get to some other place that you know (or think) exists in the network. I call this the disorientation problem. Of course, one also has a disorientation problem in traditional linear text documents, but in a linear text, the reader has only two options: He can search for the desired text earlier in the text or later in the text. Hypertext offers more degrees of freedom, more dimensions in which one can move, and hence greater potential for the user to become lost or disoriented. In a network of 1000 nodes, information can easily become lost or even forgotten.

Conklin (1987: 38 – 41)

The same potential for being lost and opportunities for disorientation are found in some computer-based constructivist learning materials that present a wide range of resources and learning materials. For such resources and materials to work, learners may need more guidance in the form of on-screen help that appears not just when requested, but also whenever the learner appears to be stalled or engaging in what are perceived to be unproductive strategies.

Another problem with CALL is affordances and misaffordances. Affordances should be made available to the learner: what a program can do and can offer a learner should be made clear to that learner through such devices as maps of the resources, clear menus of options, help buttons and easy navigation options. All affordances should be considered in order to minimize those misaffordances that simply dis-tract the learner.

Example: Making software more responsive

Learners often seem unaware of or unconcerned with some of the resources that would help them complete a task. Better software programs could perhaps be more active in advertising their resources through timed prompts (i.e. prompts that appear after a certain time of keyboard and mouse inactivity), modelled after the practice of a good teacher, such as, *Click here to go to a resource that might help you answer this/find out more about this topic.*

In collaborative situations at the computer, a good interface would be one that prompted learners to share control. This is often done in game software and some web applications that require two or more users to register their names. These names can be used as prompts for computer-directed actions and turn taking. In an educational program, having learners register would present opportunities for personalized prompts as simple as: (X student) has given this answer (insert answer). (Y student) do you agree?

More sophisticated prompts could use Eliza-based questioning to challenge answers: Well (X student and Y student), your answer to (insert the question) is (insert the answer). You've worked on it for (insert elapsed time since beginning the task) and still have (insert the time available to complete the task) so you might want to take a little time to think about it now and consider (insert key points about the question, secondary questions, resources within the program). You might also

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want to check (inset grammar if problems with the grammar are perceived and/or spelling if problems with spelling are perceived).

The above pedagogical implications for software development mostly concern perceptions of the technology, but the other aspects could also be addressed in similar Eliza-like fashion by including prompts that ask students about themselves, how they intend to approach the problems before them and what priorities they decide upon.

It has been suggested that one reason for the mismatches which occur at the level of program implementation is that program planners and teachers have one set of expectations while learners have others. This seems to be confirmed by studies into learner expectations and preferences as well as by classroom research.

Nunan (1986: 183)

If a computer-based learning environment were to make use of the points outlined above, in particular the use of questions and prompts, a high degree of learner centredness would be possible while, at the same time, guiding learners into good collaborative learning practices. If nothing else, these suggestions warrant further research.

8.2 Pedagogical Concerns for Classroom Practice

This section considers the role of the computer as a kind of virtual teacher, or at least taking the place of the teacher for some functions at some times as learners increasingly engage in autonomous learning. The metaphor of a computer program as a teacher has been criticized, but since that time assessments of the computer in the classroom have matured and most teachers see the computer as a complementary tool, not as an alternative. However, it is necessary to assess the role of computers and computer software within the current model of classroom practice. Different software programs have been variously promoted as a virtual teacher, a teacher's helper, a guide, an instrument, a teaching tool and a learning tool. However, software programs have a long way to go before they can be seen to offer comprehensive effective and efficient language teaching without human intervention.

There may be learning drawbacks through the use of limited metaphors of computer interaction, and that learners may develop false notions by virtue of the interactions they engage in with computers, because of the reinforcing message of these metaphors. In particular, they may get false ideas of

- What computers are?
- Information systems and how they might work?
- Other forms of interaction, such as interaction with other people

Williams (1998: 162–3)

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Although it is easy to see where a computer program might assume some of a teacher's functions, there are clearly limits to the ways in which software is able to take the place of a teacher. Several teaching functions outlined by Richards (1997) (see Quote 8.4) are now assumed by software learning packages. The degree to which they are effective depends upon the environment at the computer, the model of instruction for the software, the learning and working styles of the participants and other factors.

Selecting learning activities, preparing students for new learning, presenting learning activities, asking questions, conducting drills, checking students' understanding, providing opportunities for practice of new items, monitoring students' learning, giving feedback on student learning and reviewing and re-teaching when necessary.

Richards (1997: 196)

Bailin (1995), writing on Intelligent Computer-Assisted Language Learning (ICALL), criticizes several aspects of the effort and investment noting the limited effectiveness so far documented and suggesting that teachers do a far better job anyway. He also notes that ICALL has not (to his knowledge) led to fewer teaching hours. However, it may simply be that, in this case, Bailin is too narrow in his definition of the computer as a mechanical servant of the teacher, ignoring its role as a learner's tool for the general enhancement of learning and increased comprehensible input.

8.2.1 Software Objectives

The questions about whether a behaviourist or a constructivist interface better facilitates collaboration at the computer, negotiation of meaning and opportunities for SLA still remain unresolved. Atkins (1993) suggests, 'The empirical record supports the inductive approach of constructivist design but suggests that provision of suitable metacognitive frameworks is problematic. The issue of user control versus program control also remains unresolved' (p. 251). An effective CALL environment perhaps needs to offer different interfaces or combinations of interfaces to accommodate different learning styles as appropriate to different skills.

Explaining what skills each software package attempts to improve is an important task for teachers and learners. One way to do this on a more individual level is for teachers to brainstorm with learners what they think they need to acquire in terms of language. This serves as a starting point for deciding the categories and sub-categories in which they may wish to have CALL interaction and can be used to make decisions on what kinds of CALL software programs to include in a classroom as well as to create contracts for learning. An initial level of categories includes basic skills of reading, writing, speaking and listening as well as the more general category of computer literacy. Sub-categories might include micro-skills and vocabulary related to local and individual needs.

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Language teachers generally aim to increase learner-Centred ness, or locus of control towards the user, in activities in which, as Nunan (1984) suggests, learners can be more closely involved in the decision-making process of what is taught and how it is taught. Creating a schema, or mental map, of learners' needs along with notes on the software packages which match each need is a good way to allow learners to organize their own learning. Such a chart could also include an overview of the curricular objectives to indicate how learners should progress through levels of language learning. This can involve learners in the process and make them much more responsible for their learning and, in doing so, also increase intrinsic motivation.

8.2.2 Making better use of existing materials

In order for learners to learn, they need to reflect upon their learning in discussion with teachers and peers, in diaries and in reports. Brandes and Boskic (2008) discuss one area where a new computer metaphor, the ePortfolio, has provided opportunities for scaffolding and reflecting upon their learning.

Moon (2001) links reflection to learning as she discusses 'surface' and 'deep'approaches to learning. A 'surface' approach involves memorization of details whereas a 'deep' approach involves the integration of the new materials into existing knowledge, and the reconsideration of prior knowledge in light of new information. Moon suggests stages of representation of learn-ing that highlight varying levels of depth of reflection. The stages move from noticing, to making sense, to making meaning and working with meaning and transformative learning. Clearly, the last three stages involve 'deep' reflection. As a part of the learning activity, learners begin to develop a holistic view of what is learned – that is, more than the details included in the initial steps of memorization and accumulation of information. Learners link ideas to other ideas, construct relationships with prior knowledge, and provide evidence of restructuring ideas and evaluating the learning process. The construction of the ePortfolio provides students with a structure, which scaffolds a move into the stages of "deep" learning as students review their learning.

Brandes and Boskic (2008: 3)

Through reflection, learners begin to examine learning materials and their strategies for approaching them, thus benefiting even when a CALL program or online learning resource does not meet their learning needs. When a CALL program is not suitable, learners and teachers might need to examine ways in which it can be adapted. In some cases, this might involve a learner drawing up a set of questions that will guide another user on how to use the program. The creation of such customized user manuals is beneficial to future learners as a manual is more likely to focus on the essentials necessary to use the program, and is beneficial to the manual's author because, as Hutchings and Hall et al. (1992) suggest, those who prepare the course material may learn much more than those who receive it. A popular example of this is the webquest initiative (http://www.webquest.org/index-create.php) in which students create a document using web resources.

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The same is true of another possible activity, adding layers of tasks to materials to make them more challenging or more appropriate to the user. For example, learners might create a treasure hunt for key words and concepts within an encyclopedia software program (for similar ideas, see Keobke, 2000).

8.2.3 Establishing an environment where CALL may take place

For collaboration at the computer to be successful, a supportive environment needs to be established. Learners often collaborate at the computer, even though it is not the expectation of the setting that they do so. That is, the environment of traditional schools is not usually or ideally suited to the delivery of CALL or other types of computer-aided learning in a collaborative context.

What is necessary for collaboration at the computer to take place is an environment which matches the social and interactive nature of CALL activities. Individual laptop ownership and wireless networks have made many schools completely flexible learning environments where students are free to study anywhere. However, many schools persist in having computer classroom learning environments built on the traditional library model, with individual carrels isolating each computer and each user with signs urging learners to be quiet. Such an arrangement is unlikely to pro-mote collaborative learning based on learners discussing tasks. Similarly, if computer access is restricted, either in terms of time (e.g. 15 minutes at the end of a class) or space (e.g. please find the teacher with the key) then CALL is discouraged.

The problem faced in most classrooms is how to isolate, or provide privacy, for an individual student while allowing a group of students the collaborative opportunity to excitedly discuss and negotiate. For example, a large-screen computer projection system allows for group discussion of a common screen while a networked program such as OneNote (see http://office.microsoft.com/en-us/onenote/HA101656661033.aspx) has the advantage of allowing several people to work on the same document at the same time. However, in some less-advantaged classrooms, the cost and difficulty of learning such programs need to be balanced against the ease and expense of traditional activities, for example, using a large sheet of paper on a table.

One of the challenges to collaboration is the need to determine the working process. If this is subverted by an environment that is unwelcoming to collaboration, it becomes more difficult for learners to learn and teachers may dismiss collaborative activities for the wrong reasons.

8.3 Evaluating Software

Learners are seldom aware of the model of instruction in which they are involved nor would the names behaviourist and constructivist necessarily make sense to them. However, from the point of

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view of the classroom teacher, knowing the model of instruction can help moderate their own and the learners' expectations of the software program's organization and tasks.

The model of learning featured in a particular CALL software package is seldom stated, and software packages sold as so-called learning games are often simply highly behaviourist tutorials. If CALL software packages are to be properly evaluated and matched with learning needs, they need to be classified by teachers. One way for teachers to do so is by collecting reviews of software from professional publications such as Computer-Assisted Language Learning.

Another, more personalized, way to classify materials is through the creation of in-house reviews, similar to book reviews, which outline key aspects of the program. For example, one might evaluate where a program fits into Chandler's locus of control and suggest how and why a learner might use a particular software program. In a school setting, these reviews might include the reviewer's name so that users take the personal preferences of the reviewer into consideration. In a class-room or self-access learning centre, these reviews could be posted on the board or a website or otherwise made easily available. In these reviews, the teacher should take the role of the editor, having learners engage in critical thinking about the learning materials they are using. This is a particularly important process to undertake when evaluating materials which claim to offer collaborative opportunities but which simply offer shallow cooperative activities in which learners do not need to negotiate meaning, the task or the process of finding answers.

8.4 Learning and working styles

Although many online statistical instruments exist for this purpose defining learners' learning styles can be difficult, time-consuming and non-transferable across disciplines. For example, a learner who excels in the rote memorization of baseball statistics may not transfer such skills to mathematics or learning vocabulary. Nor may the skills be appropriate to all subjects and situations such as the learning of creative writing or emergency procedures.

There is also the question of whether a learner's preferred learning style is the most appropriate for learning. Some learners may say they prefer learning passively through a lecture, but may actually learn better through the positive stress of a simulation in which they have to assimilate, think and react in real time. In terms of software, one way in which teachers (and the advertising community) unconsciously define learning styles is through publication of review phrases such as if you enjoyed this, you may like X. Learners should examine how they prefer to learn, but they should also consider on an ongoing basis whether their current learning style(s) is efficient and, if not, where it is in need of some improvement. Learners need to develop multiple learning styles.

There are numerous challenges in completing tasks and acquiring knowledge in what is supposedly a collaborative environment. In their attempts to succeed at tasks, learners adopt strategies and sometimes articulate and negotiate those strategies. In the absence of teacher and wider class interaction, there is a great need for these strategies to be appropriate to the task and for learners to interact in a way that shows an appreciation of personal and group dynamics. With increased use of computers in the classroom, teachers need to be aware of their roles in fostering better habits, collaborative strategies and interpersonal relationships.

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Module -18

TEORETICAL AND PEDAGOGICAL CONCERNS IN CALL- II

Topic No: 33- 34

Evolving technology; Commercial software; Making better use of existing materials

8.5 Evolving Technology

The cost of technology can be a barrier both to getting involved in CALL and maintaining the latest technology. Materials created only a few years ago on one version of an operating system may not function properly or at all on the latest versions. Other problems centre around developing new CALL programs, including a lack of funds, expertise and authoring programs.

8.5.1 Lack of Funds

The previously mentioned Athena Language-Learning Project (ALLP) project was singular in attracting funding in excess of US$70 million. Few commercial organizations spend even a fraction of this amount on software development and non-commercial programs are written on far smaller budgets or, more commonly, on no budget at all. Instead, many teachers create software with their own time and resources. In such cases, authors may act conservatively as they are wary of not achieving a return on their investment of time and money.

However, since the ALLP was set up many of the costs of producing quality multimedia have been dramatically reduced. For example, computers have become exponentially more powerful while costs have continued to drop. Now authoring tools and related programs for the creation of graphics, animation and video, which were previously developed from scratch, are commercially available at reasonable prices. However, in an endless cycle, a parallel consumer (e.g. learner) demand for greater sophistication in learning materials usually follows each new capability of these authoring programs so underfunded developers may find it difficult to interest learners.

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8.5.2 Lack of Expertise

Those creating CALL software programs are often experts in computer programming, design or pedagogy, but are seldom experts in all three fields; while one aspect in a finished program may shine, others may be problematical. Authoring professional software is a labor-intensive enterprise employing the skills of many different people including materials writers, content editors, graphic designers, sound designers, musicians, voice actors, marketers, animators, videographers and so on. A single teacher or group of learners may be disappointed with their efforts when compared with professional products.

One solution in a school context is to assemble a team of experts (or at least people skilled in one or more areas), but even within academic institutions this is not always practical and requires both resolution and organizational skills. This problem is particularly severe in the case of individuals trying to create a small program to solve a local task. A second solution is liaison with commercial publishers, who might help edit and develop locally relevant software packages – as long as doing so does not shift the focus and defeat the purpose of developing learning materials for the local market.

Example 8.2 Online collaborative projects

Creating 'Call for Participation' projects

Unless you plan to do the project on your own, you'll need some partners. Before you ask people to join your project, you need to do some planning. First, create a 'Call for Participation' that provides potential participants with an overview of your project. Second, develop the materials that you and your participants will need for the project such as lesson plans and project guidelines.

Call for Participation

A 'Call for Participation' should have the following elements:

- Topic/Title:
- Content/Curriculum areas:
- Outcomes/Standards:
- Overview/Summary:
- Target audience, Ages of participants:
- Timeline or Schedule (begin/end):
- Registration information & dates:
- Participant requirements (location):
- Type/Level of interaction:

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- Technology needed: (hardware, computer/student ratio, software, time needed online)
- Format used: (email, chat, video conferencing, forum, blog, wiki, social networking)
- Procedure (project description and assessment):
- How to participate:
- Contact person:

A project should also have the following:

- Project materials
- Projects guidelines
- Lesson plans
- Activities (observation, discussion/analysis, creation/synthesis, exchange, evaluation)
- Classroom management ideas
- Student materials (such as worksheets, guidelines)
- List of participants
- Assessments

8.5.3 Lack of suitable authoring programs

Many authoring programs are limited in the question types and information-collection systems that they offer. Authoring programs for CALL and other subjects most commonly include low-level question types such as true/false and multiple choice questions as opposed to higher-level synthetic, analytical and evaluative tasks. Developers tend to use what is available and lack either the skills or the inclination to develop new authoring tools. Conversely, new software features are often included regardless of whether or not they are pedagogically appropriate. This latter problem is less easy to address, but new software is slowly being developed that is based on competition and consumer demand for improved interactivity, intuitiveness and other features.

8.6 Commercial Software

Comprehensive computer-based learning materials have in some cases been taken out of the hands of educators. Instead, the cost involved in the creation of interactive educational software means

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that it is often designed on the basis of what engineers decide is possible and what marketing executives decide can be sold. Of course, this is often also the case with textbooks. On the other hand, it is increasingly common for teachers to use existing tools and platforms such as Blackboard Vista to create new courses with interactive tasks using assessment software such as Respondus and Question mark Perception. Teachers are also making use of wikis, social networking sites and web tools to create learning opportunities for students.

But for larger projects, currently, software programmers, engineers and marketing executives, rather than educational academics and teachers, make many of the critical decisions on the creation of popular educational software. Moody (1995) provides an extended example in his documentation of a year-long creation of the children's multimedia encyclopedia Explorapedia at Microsoft Corporation. In 301 pages describing the process, there is only one mention of a person with a background in education being consulted. It may be assumed that, for the major developers of commercial software, what is technically possible and what is commercially viable are more important than what is pedagogically appropriate.

Adapting materials

Software developers often focus on transferring existing materials to a computer-based medium. They sometimes assume that the educational thinking appropriate for print is also suitable for the computer and fail to see the pedagogical implications of the different processes involved. A common example of this is found in teachers who place their lecture notes on the WWW without bothering to link those notes to further resources or develop them in a way that takes advantage of the computer's ability to offer images, animation, sound, video or interaction.

A. Bailin on the need for classroom teachers to develop software:

Computers are slowly but surely being applied to every aspect of human activity, from cooking to driving cars to space travel. They are already used in teaching language, and unless we see a dramatic reversal in social trends, their use will be ever increasing. We can either develop language-learning software ourselves or watch others do it. If we take the latter road, we must be prepared to have software that suits the needs of other cultures but may not suit our own. In a world where language skills are increasingly important, this is a rather risky proposition.

Bailin (1995: 328)

Bailin (1995) essentially suggests that teachers need to be involved in the creation of new software to ensure it is of a pedagogical quality. This may not be practical for most teachers, but an awareness of what constitutes best practice in CALL materials can help shape the software industry through more informed consumer demand.

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8.7 Making better use of existing materials

Ravitch (1987) reviews the history of technology in the school, including film, radio and television, with some pessimism, suggesting that factors peripheral to the technology itself (organization, cost, schedules) have resulted in repeated failures. She also wonders whether new learning materials will devalue printed materials and wonders whether technology's instant gratification will dampen learners' abilities to analyze materials' arguing that in 'literature, for example, certain genres were meant to be read, not performed. Novels, short stories, essays and poems were meant to be read (p. 32).

However, the idea that literary forms should only be appreciated in their original medium is not generally shared. For example, few have heard Homer's Iliad sung aloud as the author 'intended' and the plays of Shakespeare have been not only staged, but also widely read and reinter-preted in art, opera and film. Multimedia can be used simply as a new tool for examining old forms as well as for creating new ones, such as hypertext novels. It is important for learners to be involved in using computers as tools to activate their knowledge by transforming their learning into new media.

Writing the hypertext novel

The non-linear hypertext novel in which the story changes depending on which links one chooses to follow seemed like an attractive alternative to printed literature, but the form has failed, so far, to attract much interest beyond the art world. A pioneer in this field is Michael Joyce who, in 1987, developed the first example, publishing it in 1991. Examples of his work are found at: http://www.eastgate.com/people/ Joyce.html.

8.7.1 Determining expertise, motivation and roles

When making use of a CALL program, learners need to determine what they know and what they do not know. Learners who take the time to determine what they know about a task and the way of approaching it, if only to acknowledge that they know nothing, are better positioned to engage in an investigation than learners who do not bother to determine their expertise or, in a collaborative situation, misrepresent their expertise to the other learner.

Of course, misrepresenting one's expertise can be an innocent error and one's collaborative partners might also mistakenly bestow one with expertise, but the failure to clear up, or take responsibility for, any such misunderstanding can result in the wrong things being learned and the key learning objectives not being addressed amounts to the same problem.

Similarly, it helps for learners to determine their motivation for completing a task. Good learners develop intrinsic motivation for learning; poor learners decline responsibility for learning and

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depend more on extrinsic rewards or ignore intrinsic and extrinsic rewards altogether. Associated with motivation in collaborative situations is the determining of roles for the participants.

A range of different roles is available to learners in a collaborative situation: for example, a leader, a teacher, a follower, a facilitator, a devil's advocate and so on. It is not always necessary for learners to articulate these roles openly and, in fact, the roles of each learner may change over the course of a few turns of conversation. However, when one learner takes a role that excludes the other from collaborative participation, problems may develop in motivation and participation. Even for learners working on their own on a CALL program, if the program assumes certain roles through the design of its interface, opportunities for participation can be denied the learner.

8.7.2 Determining the working process

Many learners have difficulty in determining the working process. In an intensive study of 20 learners using a new software program (Beatty, 2001), many simply entered into the tasks without any discussion whatsoever. They failed to consider how they might go about examining the tasks, how they might find information to enable them to answer the questions/tasks and, finally, how they might best answer the questions/tasks.

To a certain extent, a failure to engage in critical thinking and, when confronted with partial knowledge, not to engage in scaffolded learning is related to the inability of the learners to determine a working process. The net effect is to reduce collaboration. On the other hand, those who spend time determining the working process, present themselves with more opportunities to progress intelligently through the materials as well as to reduce the social friction that might emerge from misunderstandings that might otherwise arise.

Of course, there are times in a collaborative situation when the task, resources and answers are all so obvious that they do not require any conscious elaboration or determination of the working process. But if this is indicative of the entire task, it would suggest that the task is not truly collaborative, rather only requiring cooperation.

A challenge to CALL is to create materials which encourage learners to shape their roles and working process. In CALL materials using behaviourist models of learning, this is predetermined, but in more constructivist CALL materials, where learners must make decisions about what to do and how and when to do it, there could be some prodding on the part of the program.

8.7.3 Determining goals and priorities

Determining goals and priorities is a central concern of CALL because computer-based multimedia presents a new pedagogical problem: too many materials. In traditional learning materials, there is a strong emphasis on limiting scope and sequence. As suggested by the terms themselves, all learners usually proceed through the scope and sequence of traditional materials in much the same linear way.

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Both the non-linear organization of many CALL learning materials and the tendency to include extensive background materials presents the learner with the problem of defining their own scope and sequence. Essentially, learners must balance task completion with exploration. This balance is sometimes dictated by the constraints of the learning situation: learners faced with an important time-limited close-ended test question might be expected to minimize exploration while learners working on an open-ended project question for which they have a lot of time might tend to explore much more.

Decisions on how much to explore should be balanced against the need to address the tasks and questions, but learners may be unable to manage their time properly.Learners who collaborate well are likely to discuss time management thus allowing them to address the tasks and answer the questions better.

8.7.4 Perceptions of the technology

Because technology (i.e. the computer and related accessories) is the most significant variation from traditional classroom learning, it is no surprise that perceptions of the technology have an influence on collaboration at the computer.

For some learners, a new CALL program can present an interesting challenge to be addressed through exploration. To others, it can appear as an impenetrable and frustrating barrier that discourages exploration. Within CALL interfaces there are often many affordances and misaffordances. If learners address their problems with the interface, affordances and misaffordances, they can create opportunities for negotiation of meaning, both with the computer and with other learners.

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Module -19

TEORETICAL AND PEDAGOGICAL CONCERNS IN CALL- III

Topic No: 35

Copyright and plagiarism; Viruses; Safety online; Technological have-nots

8.8 Copyright and plagiarism

All computer-based information, whether text, graphics, music or software programs, is essentially digital in nature. Digital means that the core data can be broken down into strings of binary numbers: ones and zeros. The practical side of this is that much of what we see on the computer can be copied and manipulated. This is especially true of text and images found on the WWW. Student projects often feature text and images borrowed from existing websites. In many countries, a fair use provision within copy-right law allows for learners to use some materials for in-class projects. However, it does not give learners the right to repost images and text onto the WWW. Plagiarism using materials from the WWW is also common but tools such as those found at www.plagiarism.org can be of some help to teachers who suspect their students of failing to acknowledge what they have borrowed.

Example: Dealing with plagiarism

The WWW presents unparalleled opportunities for plagiarizing materials but it also presents some defence. The simplest tool a teacher has to check for plagiarism is to type a string of suspect text into a search engine and see whether it leads to one or more websites from which the suspect text may have been taken.

Turnitin http://writecheck.turnitin.com – This website essentially automates the above process but additionally, each document that is submitted for plagiarism checking is added to the database. Some teachers shift responsibility for checking for plagiarism by requiring all students to self-check their work with a program such as Turnitin before submitting it.

8.9 Viruses

Viruses are distributed through the WWW and email and can destroy files. There are countless viruses in circulation with new ones being added each day. Some viruses end up costing computer users a fortune simply by slowing performance of computers. Others destroy data. It is difficult and sometimes expensive to maintain anti-virus software to handle the latest versions of viruses which, almost by definition, are designed to thwart existing anti-virus programs.

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A virus is a program and, in most cases, must be activated by the user to make it work. Traditionally viruses carried an .exe file name, that is, executable files, but they now have various other suffixes or are contained in files with innocuous .doc or .jpg file formats. A common way to receive such files is through unsolicited email or through the purchase of illegal software. Once a virus enters your computer, it will often spread itself by taking advantage of the address list in an email program, sending a copy of itself with an email to each name on a user's address list.

A certain amount of what is called 'social engineering' is used to make such viruses successful. For example, in 2000, the popular I love you virus featured the subject message: ILOVEYOU. The body of the message was: kindly check the attached LOVELETTER coming from me. Attached to the message is the file LOVE-LETTER-FOR-YOU.TXT.vbs. Many people are variously flattered, surprised or confused about receiving such a message and open the attachment out of curiosity (see http://www.symantec.com/ avcenter/venc/data/vbs.loveletter.a.html for more information about the Loveletter virus). Sometimes, such messages purport to be anti-virus messages and their attachments are similarly opened.

The Storm worm virus (a worm enters through a computer security loophole and endlessly replicates, crashing the computer) started in January 2007 and, by October, had infected an estimated 50 million computers worldwide.

8.9.1 Thought viruses

Misinformation is one of the greatest challenges on the WWW and in many ways constitutes a form of thought virus in which erroneous information is passed on from one host reader to another, often through redistribution of email messages. Many such hoaxes have racist overtones, such as the oft-repeated story of someone seeing Santa Claus nailed to a crucifix in a Japanese shop display, as an example of a cultural misunderstanding but which never actually occurred. Instead, such urban legends are often a way of denigrating the intelligence and sensitivity of another culture. As a piece of humour, it is questionable but far more insidious to send hate websites which purport to confide suppressed truths while promoting lies. Part of the problem lies in learners' inability to distinguish between legitimate sites, for example about the history of the Second World War, and neo-Nazi anti-Jewish websites.

Fortunately, people learn not to believe everything they read, but various types of misinformation and hoaxes continue in wide circulation. Of these, some hoaxes are simply urban legends, or stories meant to appeal to our sense of the bizarre. Sociologists believe that modern urban legends serve to allow us to confront our fears and frustrations with modern life in safe and (sometimes) humorous ways. But some of these urban legends are a waste of time, such as the Craig Shergold hoax and its many variations. In this hoax, or one of its many variations, people are told a sad story about a dying child and asked to send letters (the child often wants to amass a record-breaking collection of stamps, greeting cards or business cards). As of July 2008, it was estimated that 200 million cards had been sent. The problem with this sort of hoax is that it misdirects people's goodwill and serves to make people cynical and less likely to support true good causes. There are many urban myths and hoaxes on the WWW as well as places that discredit them.

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8.10 Safety online

A popular New Yorker cartoon by Peter Steiner shows a dog sitting at a keyboard with the caption 'On the internet, no one knows you're a dog' (http://en.wikipedia.org/wiki/File:Internet_dog.jpg). The cartoon reflects the fact that some people may assume new personae, age and even a different gender online. A sad consequence of this is that, on unmoderated chat lines, learners may encounter pedophiles posing as children or even older learners asking inappropriate questions and using inappropriate language. The media frequently carries stories of young people who have been seduced into meeting someone they have met online. The best defence is to raise learners' awareness of such problems.

Computer safety rules

Kids' rules for online safety

1. I will not give out personal information such as my address, telephone number, parents' work address/telephone number, or the name and location of my school without my parents' permission.

2. I will tell my parents right away if I come across any information that makes me feel uncomfortable.

3. I will never agree to get together with someone I 'meet' online without first checking with my parents. If my parents agree to the meeting, I will be sure that it is in a public place and bring my mother or father along.

4. I will never send a person my picture or anything else without first checking with my parents.

5. I will not respond to any messages that are mean or in any way make me feel uncomfortable. It is not my fault if I get a message like that. If I do I will tell my parents right away so that they can contact the service provider.

6. I will talk with my parents so that we can set up rules for going online. We will decide upon the time of day that I can be online, the length of time I can be online, and appropriate areas for me to visit. I will not access other areas or break these rules without their permission.

7. I will not give out my Internet password to anyone (even my best friends) other than my parents.

8. I will check with my parents before downloading or installing software or doing anything that could possibly hurt our computer or jeopardize my family's privacy.

9. I will be a good online citizen and not do anything that hurts other people or is against the law.

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10. I will help my parents understand how to have fun and learn things online and teach them things about the Internet, computers and other technology.

8.10.1 Censorship

Governments have used censorship to control some of the negative aspects of the WWW, for example by shutting down Internet Service Providers (ISP) who carry negative content or content they do not like. However, it is often difficult for an ISP to know about and be responsible for every page and every message being sent on their services. A preferable, though imperfect, option are net nannies. Products such as CYBERsitter are aimed at children while other products such as Hate Filter are aimed at helping adult audiences. However, such programs also have their drawbacks. For example, they may object to the words sex and Nazis respectively, but these choices would block informative sites on biology and world history unless otherwise specified.

8.10.2 Cyberbullying

Despite frequent mention in the press, often in connection with the suicide of a bullying victim, little attention is paid in the literature to the prevalence and impact of cyberbullying, a term used to encompass any kind of online harassment, including threatening emails and postings to social networking pages like MySpace. Li (2006) conducted a study which looked at 264 students at 3 junior high schools and reported that half had been the subject of bullying and about a quarter had been victims of cyberbullying. Students may not be aware of their rights or even obligation to report such cyberbullying and Li's research reports that, in any case, many are reluctant to do so. Teachers need to be aware of cyberbullying issues and ensure that students are confident about reporting such abuse.

8.11 Technological have-nots

S. Berger on the digital divide between developed and developing countries:

It is this disparity between the 'technology-rich' and 'technology-poor', or 'have-nots', that is commonly referred to as the international digital divide. Industrialised countries are home to 88% of all internet users, yet make up only 15% of the world's population. Unsurprisingly, PC ownership levels differ dramatically between developed and developing nations. For example, in South Asia only 4 persons per 1,000 own a PC compared to the 585 per 1,000 in the US.

(The Digital Divide, http://www.bridgethedigitaldivide.com/digital_divide.htm

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Although computers are used widely in industrialized countries around the world, access is far more limited in the developing world and, even in industrialized countries, access is often restricted along socioeconomic lines. This is changing as computers fall in price and a sense of need for them as educational tools rather than technological playthings rises. However, it is too often the case that a school willing to spend lavishly on the setting up of a classroom set of computers will not set aside appropriately matching funds for software, training and upkeep. This means, in some cases, computers remain idle. In other cases, it is the teachers themselves who deny access to their students, locking the computers away when not in use for classroom assignments.

There are many non-profit organizations which donate computers to those who need them. While this is admirable, sometimes such programs end up shipping defective computers which are no longer of any use, or for which no suitable software has been supplied.

There are many challenges facing CALL, some of which suggest directions for research projects. For many of the problems facing children using the WWW, proper education as to the nature of problems and what to do about them is the best defence.

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Source Reference:

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Lecture- 8

Collaboration and Negotiation of Meaning

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Module -20

CONCEPTS OF COLLABORATION IN CALL

Topic No: 36- 37

Collaboration and Negotiation of Meaning; The place of collaboration in CALL; Structuring collaboration; Differences between collaboration and other terms; The range of collaboration and CALL

Collaboration is among the most useful ways in which learners acquire language at the computer. When two or more learners sit at a computer and discuss process and content in the target language, they often engage in scaffolded learning, helping each other improve their language.

This lesson focuses on collaboration, exploring the differences between it and similar terms such as teamwork and cooperation. It then goes on to define collaboration in the context of CALL and show how collaboration supports negotiation of meaning through scaffolded instruction. When learners negotiate meaning, their discourse often indicates their collaborative (and non-collaborative) intentions. The chapter ends with a brief explanation of discourse analysis. Particular concern is paid to how collaborative intentions might be evidenced through discourse.

The principal concerns of this chapter can be summarized by the following five questions:

- What is collaboration?
- What is the place of collaboration in CALL?
- What are the differences between collaboration and related terms?
- How does collaboration support negotiation of meaning through scaffolded instruction?
- What challenges exist to collaboration at the computer?
- How are such challenges evidenced through discourse?

8.1 The place of collaboration in CALL

Learners often collaborate, either on their own initiative or as an assigned activity. Collaboration is an important activity in the classroom because it encourages both social skills and thinking skills and mirrors the way in which learners often need to work in an academic setting and certainly once they leave it. From the point of view of learning a language, there is an additional benefit; in the process of negotiating the meaning of a task

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and the means by which it may be addressed, learners make decisions about the learning materials they study and the ways in which they should study.

8.1.1 Defining Collaboration

Collaboration is defined as a process in which two or more learners need to work together to achieve a common goal, usually the completion of a task or the answering of a question. Collaboration is manifested in the actions a learner takes when working with others and can be evidenced, for example, as a willingness to listen to others' ideas, suggestions, and opinions so that they can be discussed and integrated into further actions, such as decisions about how to complete a task.

Collaborative objectives can be defined in contrast to two other types of goals found in group learning: individualistic and competitive goals. Johnson and Johnson (1990) suggest that there are three basic types of goal structure that can be used to motivate classroom learning:

- individualistic, where a learner believes his or her chances of reaching the goal are unrelated to what others do
- competitive, where a learner believes he or she can reach the goal only when others cannot
- cooperative, where a learner believes that he or she can reach the goal only if others can too

Collaboration and related terms have been used to encompass a wide range of ideas about learners working together. This presents problems, as researchers cannot properly examine the outcomes of collaboration if the scope of the term is not agreed upon beforehand.

Collaboration in the classroom begins with an activity that facilitates real communication, for example, verbal, written, or electronic discussion in the course of solving a problem. But a true collaborative activity also requires that two or more learners engage in discourse over the decisions about the task, discussing what is most important, discussing the sequence of discrete problems within the task and deciding how to approach solving the problems within the task. Collaboration essentially puts learners into a semi-autonomous situation in which they are faced with a task, question or problem and must use discourse to negotiate each participant's separate learning strategies and make joint decisions about what is (and is not) worth investigating and learning.

But in many cases, collaboration is not a clearly defined phenomenon beyond a sense of *two or more individuals working together*. Several authors and researchers define collaboration in contrast to other terms, such as *cooperation*, while others list aspects of collaboration that help to define its parameters.

To negotiate meaning, learners engage in discourse that provides oppor-tunities for comprehensible input and encourages comprehensible output. Together, opportunities for

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comprehensible input and output help learners build vocabulary, skills and language awareness. That is, learners learn by talking about problems, the content of the learning materials and how to find the information necessary to solve the problems.

Although computers do not take an active part in discourse, in some cases they appear to respond intelligently to learner inquiries and actions and, in doing so, provide comprehensible input. They also offer opportunities for comprehensible output when they prompt learners to undertake tasks and answer questions.

8.1.2 Collaboration and Negotiation of Meaning

V. Stevens on group work at the computer:

Students engaged in computer-based activities often form groups around the computer. This is in part because computers promote brainstorming in resolving the outcome of interactional sequences, and in part because exploratory interaction creates opportunities for using language to discuss with teachers and peers the nature of discoveries made in the course of completing computer-based tasks. Stevens (1992: 28)

It is necessary to define collaboration in terms of a set of behaviours that encourage and discourage learning goals within a CALL context, especially those behaviours that influence negotiation of meaning.

Stevens (1992) differentiates conversation between the learner and peers, conversation between the learner and a teacher, and conversation between a learner and the computer, or rather the exchanges that take place when a learner interacts with a computer. But clearly, all three present opportunities for negotiation of meaning and SLA as a result of scaffolded instruction.

Ellis (1998) suggests that scaffolding describes a situation in which a learner interacts with someone who can guide, support, and shape his or her learning; in CALL the computer can sometimes take on these functions. Although computers do not take an active part in discourse, in some cases they appear to respond intelligently to learner inquiries and actions through mimicking the following six aspects of scaffolded instruction and, in doing so, provide comprehensible input. They also offer opportunities for comprehensible output when they prompt learners to undertake tasks and answer questions.

8.1.3 Promoting Awareness and Skill Development

Nunan (1992a) suggests that collaboration supports a communicative approach to learning. On collaboration he encouraged both learner awareness and skill development:

- to learn about learning, to learn better and
- to increase their awareness about language, and about self, and hence about learning
- to develop, as a result, meta-communicative as well as communicative skills

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- to confront, and come to terms with, the conflicts between individual needs and group needs, both in social, procedural terms as well as linguistic, content terms
- to realize that content and method are inextricably linked, and
- to recognize the decision-making tasks themselves as genuine communicative activities

Nunan (1992a: 3)

8.1.4 Achieving Pedagogical Objectives

Teachers have a variety of pedagogical objectives. Some of these objectives are best achieved through teacher-fronted modelling, but others might be best achieved by other means. Derycke *et al.* (1995) offer a justification for the use of collaborative learning.

A.C. Derycke, C. Smith and L. Hemery on pedagogical objectives:

Some of the highest pedagogical objectives can only be achieved by employing group learning activities such as group problem-solving, games, case studies and exchanges with real experts. In all of these activities and skills, language is explored, exercised and developed in ways supported by collaboration at the computer.

8.1.5 Improving Literacy

Gould (1996) writes of young children in a native-language situation and, while her ideas are more likely to be concerned with literacy, there is no reason to believe that the same benefits are not also available to older native speakers as well as second-language speaking learners. Gould ascribes some of the same advantages to collaboration as raised by Nunan (1992a) and Derycke et al. (1995) but focuses on the benefits to literacy.

8.1.6 Promoting Language Acquisition

O'Neil (1994) uses the term 'teamwork' for what may also be defined as collaboration, and suggests that such skills involve the complex production of language. These include adaptability: recognizing problems and responding appropriately; coordination: organizing team activities to complete a task on time; decision making: using available information to make decisions; interpersonal: interacting cooperatively with other team members; leadership: providing direction for the team; and communication: encouraging the overall exchange of clear and accurate information.

There may be several reasons why placing computers in classrooms seems to result in increased collaboration among peers. One reason is a permanent feature of the technology: work in progress on the screen is public in a way that paper on a desk is not. Other reasons may be more temporary. Most classrooms today have one computer at most, and that makes

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it a scarce resource whose use can be doubled by asking children to work at terminals in pairs. Expertise in the new technology is also a scarce resource, and student experts can supplement the limited availability of the teacher.

Cazden (1988: 148)

Although the idea that most classrooms only have one computer at most has changed since Cazden wrote this in 1988, Cazden would seem to outline a paradox: a limited number of computers might in some cases be preferable to a class set as more limited access is likely to promote collaborative language learning and associated benefits.

Collectively, the concerns of the above authors point to a wide range of benefits of collaboration. The following sections examine the need for structure in collaboration.

8.2 Structuring Collaboration

M. Hamm suggests that the teacher must structure collaboration at computers through:

1. assigning students to mixed-ability teams
2. establishing positive interdependence
3. teaching cooperative social skills
4. insuring individual accountability
5. helping groups process information

Hamm (1992: 95)

One debate within collaboration studies is the degree to which a teacher should structure collaborative activities and offer skills training.
Hamm (1992) suggests that an aim of successful collaboration is to promote feelings that 'no one is successful unless everyone is successful' (p. 96).

M. Hamm on interdependence in collaboration:

1. Goal interdependence – stating clearly what each member of the group should know how to do upon completion of the task

2. Task interdependence – clearly defining the group goal, and what the team should agree on or be able to produce

3. Resource interdependence – specifying parameters, materials, the team's task

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4. Role interdependence – reviewing the individual roles for the group members: keyboarder, checker, reporter, summarizer, encourager, and so on. Set up the expectation that everyone is responsible for explaining how they came up with the answer. Explain the grading procedures, group credit as well as credit for how well each student performs his or her group job

However, in the context of CALL, some of Hamm's (1992) suggestions for interdependence are taken over by the computer program. For example, the computer program often defines the task and the resources, although, of course, the learners are free to deviate from what is suggested. The dis-advantage of the computer program making decisions about the task and resources is that it lowers the opportunities learners have to negotiate meaning for themselves.
CALL programs should also provide ways to make motivation implicit instead of explicit. It is certainly true that some learners (especially younger ones) may need training in the skills necessary for working in a group, but many of the advantages of collaboration are lost if learners lose their autonomy and the task becomes purely teacher-centred and teacher-directed, adopting a behaviourist model of instruction.

In particular, Hamm's (1992) assignment of individual roles for each learner discourages the collaborative advantages of a learning activity. Learners are likely to be more concerned with being involved in fulfilling their individual roles and tasks rather than the overall process of socially engaging in a process of solving a problem through negotiation of mean-ing and the eventual benefits it might provide through fostering SLA.

Dillenbourg (1999) suggests forced roles inhibit collaboration or deny the benefits of collaboration. Similarly, trivial tasks can inhibit negotiation of meaning as there may be nothing 'to disagree upon, and in which there is nothing to misunderstand. The boundary between misunderstanding and disagreement is shallow. If we do not understand each other, we cannot say that we properly agreed' (p. 15).

From the point of the view of the learner engaged in a learning task, a conversation is partly about creating roles for each person. If a teacher assigns collaborative roles to learners, the learners are deprived of the opportunities to develop appropriate conversational and negotiation skills.

P. Dillenbourg on the impact of forcing roles upon learners:

Negotiation can occur only if there is space for negotiation (Dillenbourg and Baker, 1996), i.e. if something can actually be negotiated. Negotiation at the meta-communicative level can be inhibited by forcing partners to play well-defined roles (a growing trend in research in collaborative learning).

Dillenbourg (1999: 16)

8.3 Differences between Collaboration and Other Terms

The difference between collaborative learning and cooperative learning is not well defined and both have many shades of meaning. Biggs and Moore (1993), for example, suggest cooperative

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learning is an activity set by the teacher while collaborative activities are ones spontaneously set up by the learners. Kohonen (1992) uses cooperative and collaborative interchangeably. Nunan (1992a) defines collaboration as an activity in which learners have greater control over the design of their learning while cooperative learning is merely a mode of instruction. Other authors, such as O'Neil (1994), avoid the use of cooperation or collaboration and use the term teamwork.

Dillenbourgh et al. (1995) explain the difference between cooperation and collaboration as being not whether or not the task is distributed, but how it is divided in cooperation the task is split (hierarchically) into independent subtasks; in collaboration cognitive processes may be (heterarchically) divided into inter-twined layers. In cooperation, coordination is only required when assembling partial results, while collaboration is . . . a coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem (p. 189).

This difference between collaboration and cooperation is made plain in Hamm's earlier suggestion for teacher-imposed division of roles among learners in a group engaged in a common task. Such an imposed division places Hamm's suggestions within the definition for cooperation. For this book, the definition used to define collaboration will be based on what Dillenbourgh et al. (1995) consider to be collaborative practices and situations, regardless of the terms used by other authors in describing pair or group learning. However, various authors' quoted texts retain their original choice of terms.

8.4 The Range of Collaboration and CALL

CALL programs, or other computer programs that can be used to encourage language learning, often address several of the cooperative, teamwork or collaborative skills mentioned above by various researchers. Adaptability (recognizing problems and responding appropriately) is found in various software programs that present learning as a quest. This is particularly appropriate in materials developed for younger learners in which a series of correct answers moves one along a map or serves to save a creature in danger. This requires coordination and decision-making and interpersonal and communication skills. Such activities often work best with group members of different language and cultural backgrounds, such as in a mixed ESL classroom where English (however limited) is the only common language. In such situations, collaborative interpersonal skills such as consensus and queuing must be negotiated as well as the target content.

In recent years, much research has been done on computer-mediated learner collaboration in the area of computer-based instruction (CBI) and CALL via email (see Warschauer, 1995a, 1997). But most of this research has focused on individual learners using computers to collaborate over distance with other learners (for examples, see Kaye, 1992; Druin and Solomon, 1996). In one version of this approach, collaboration takes place through local area networks within a classroom or among different class-rooms in a school. Using programs such as the software

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program OneNote, learners can share a wide variety of media, questions and comments, work individually or in small groups on discrete parts of a task, or contribute ideas to the exploration of a larger task.

Another approach is to offer opportunities for learners to use email and the World Wide Web (WWW) to communicate with the wider world. This approach is particularly appropriate for distance-learning situations dictated by geographical isolation in which learners need to communicate with their teachers at greater regularity than is practical through correspondence-course mail and less expensively than by telephone. It is also common for learners to collaborate with other learners in distant places and search sources of authentic information. Other forms of collaboration include learning through a quasi-apprentice approach, for example, where learners assist scientists in the collection of meteorological or biological data (for examples, Serim and Koch, 1996; Crook, 1994; Cummins and Sayers, 1995).

However, often overlooked is the commonly observed collaborative phenomenon: oral/aural collaborative language use among pairs or small groups of learners working at a single computer to complete a task or a series of tasks.

8.5 Collaboration at the Computer

Many authors worry that working at a computer can be a socially isolating experience for learners as they work alone at separate computers. How-ever, Crook (1994) notes that the computer facilitates socially organized learning in the classroom rather than inhibits it. A commonly observed collaborative phenomenon is pairs or small groups of learners working on their own outside of a class at a single computer to complete a task or a series of tasks. This type of collaboration is sometimes teacher-initiated but is more often learner-initiated. In some cases, such collaboration may be a prelude to broader international communication or collaboration through email, chatlines and social networking environments (see Section 4.5.3).

In collaborating, learners sometimes work together at one computer because of limited access to computers. But my own observations of learner use of computers in computer centres, computer lab areas, libraries with computer facilities, public areas where students work with laptops and design studios suggest learners commonly and naturally work together at the computer despite an abundance of computers that would allow them to work individually.

Argyle (1991) suggests three possible reasons, or motivations, for people to collaborate: for external rewards; to form and further relationships; and to share activities they are involved in (cited in McConnell, 1994: 13). Argyle's term external rewards suggest collaboration simply for extrinsically motivated reasons such as classroom marks. But Argyle's second and third seasons suggest more intrinsic motivations. These include the desire to offer assistance where one learner of the pair has already completed an assignment, to help with problems tangential to the assignments such as the operation of unfamiliar hardware/software or, less nobly, simply to plagiarize assignments (see Section 8.8).

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But, perhaps the greatest reason for collaboration at the computer is the simple human desire for social contact; learners like to explore together and work together. Working together is an aspect of education consistent with one of the goals of modern schools: fostering the socialization of learners. The following section explores other benefits.

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Module -21

VARIOUS COLLABORATIONS IN CALL

Topic No: 38

Collaboration at the computer; Benefits of collaborative learning at the computer; Collaboration, CALL and SLA; Collaboration at the computer as evidenced by discourse

8.6 Benefits of Collaborative Learning at the Computer

The greatest single benefit of collaborative learning at the computer is in the way in which it serves to reveal information and ideas, not just to the learners' collaborative partners, but also to the learners themselves.

McConnell (1994) suggests that cooperative learning (for which, as previously noted, we can substitute collaborative learning) serves to make public what individuals and group members know:

This 'making public' works as a central process in cooperative learning and confirms its social and democratic nature. It can be thought of along several dimensions: our learning is public when it is known to others and ourselves; it is blind when it is known to others but not ourselves; it is hidden when it is known to ourselves but not to others; and it is unconscious when it is not known to ourselves or to others (p. 16).

McConnell's hypotheses are explained graphically in the following figure:

Behaviour known to others ↓ Unknown to others	**Behaviour known to self → Behaviour unknown to self**	
	Public	Blind
	Hidden	Unconscious

Figure 8.1 The public–private/conscious–unconscious dimensions of cooperative learning

However, McConnell (1994) also points out that cooperative or collaborative learning depends largely upon a willingness to work in this way: 'if the group does not address its own learning and come to some initial, and over time ongoing, agreement about itself then it is likely to fragment and the members will essentially end up learning in isolation' (p. 17). Essentially, this

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means that learners may completely disengage from the task and not learn at all and/or may pursue Johnson and Johnson's (1990) individualistic or competitive goals.

Wegerif and Dawes (1998) offer a related perspective on the significance of exploratory talk, suggesting that cooperation alone is not the essential ingredient to achievement but rather that it depends on accommodating disagreement and exploring hypotheses.

Without using the term, Wegerif and Dawes (1998) describe a process essential to constructivist learning: negotiation of meaning (see Section 5.7). Negotiation of meaning differentiates collaboration from more cooperative situations in which a group of learners are expected simply to complete a set of narrowly defined tasks with resources to which they have been directed.

8.7 Collaboration, CALL and SLA

There are many benefits to collaboration including the above-mentioned socialization of learners. However, a concern of CALL is how collaboration promotes language learning through exposure to new language and opportunities to use it through negotiation of meaning with peers. Ellis (1997) notes that classroom settings are likely to be poor places for learners to acquire language compared to the world outside the classroom, in part because teachers dominate the conversation with display questions meant to elicit set responses. But Ellis's (1997) criticism is largely answered by collaboration, whether within or outside of a classroom context in which learners are able and encouraged to engage in discourse freely.

In terms of the types of discourse in which learners engage in the classroom, Barnes (1969) suggests that teacher modelling should not be the sole method. Rather, it is only when learners '"try it out" in reciprocal exchanges so that they modify the way they use language to organize reality that they are able to find new functions for language in thinking and feeling' (p. 62).

In particular, this points to the need for learners to personalize their language to suit their own needs and environment beyond the classroom. On the simplest level, this means learners being involved in adapting what they have learned to the type of discourse required to converse with peers, not just teachers.

Accommodating opportunities for personalizing discourse is among the best ways in which learners improve their language skills with computers. It is done through an aspect of CALL which is not usually designed into software packages: collaborative learning activities which implicitly or explicitly encourage various types of discourse. In discussing computers in the classroom, Nunan and Lamb (1996) found that

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Some of the more exciting programs are those that were not specifically designed to teach language. These programs include simulations, design programs, and word-processing packages. Such packages can stimulate a great deal of interactive discussion if students are given the opportunity of working on the programs in pairs or small groups rather than individually (p. 195).

However, understanding the utility of group discussion at the computer requires that the discourse be examined to determine what conditions and features mark it as collaborative and supportive of negotiation of meaning, scaffolded instruction and SLA. This chapter now turns to a consideration of how collaboration is evidenced by discourse.

8.8 Collaboration at the Computer as Evidenced by Discourse

The study of discourse dates back to ancient Greek times with the philosopher's division of grammar from rhetoric, 'the former being concerned with the rules of language as an isolated object, the latter with how to do things with words to achieve effects, and communicate successfully with people in particular contexts' (Cook, 1989: 12). In modern times, concerns with discourse analysis arose from the work of anthropologists and linguists. J.R. Firth, in 1935, urged the study of conversation as a way to find the key to better understanding of what language is and how it works.

Many took up Firth's call (although, curiously, not Firth himself; he con-tinued to focus on phonology as well as other topics such as semantics) and research proceeded in different directions. Some researchers were more concerned with the context of utterances, arguing that any simple phrase could have different meanings depending on the situation and identity of the interlocutors. Sinclair and Coulthard (1975) were early advocates of the use of discourse analysis to examine teacher talk in the classroom but it was soon realized that it was also useful in examining a wide range of discourses of learners as well as teachers.

The discourse of learners and their interactions with the computer need to be investigated with an emphasis on the intentions of the learners to undertake different strategies. Grice (1975) suggests that four maxims of quality, quantity, relevance and manner govern the general cooperative intention in conversation. Cook (1989) summarizes these as: be true (the maxim of quality); be brief (the maxim of quantity); be relevant (the maxim of relevance); be clear (the maxim of manner) (p. 29).

These maxims are flouted by speakers who, for example, use conversa-tional strategies to exaggerate, to express sarcasm, to obfuscate and so on. Together, the maxims, and even the flouting of the maxims, help to express certain social needs. These social needs include (but are not limited to): the need to be thought of as an expert at the expense of the truth; the need to hold the conversation and control the technology at the expense of brevity; the need to entertain or

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display irrelevant knowledge at the expense of relevance and the need to prevaricate when one does not know the facts at the expense of clarity.

Moreover, these social needs are evident in both verbal and non-verbal behaviours. Non-verbal paralinguistic aspects of collaboration are visible and can be easily documented empirically. For example, learners at the computer may silently gesture to offer each other views of the screen or surrender control of the mouse pointer device or silently offer a collaborator the keyboard. Similarly, one partner in a collaborative process may simply give another a quizzical look and keep silent, allowing the other partner to offer new ideas or respond to existing ones.

8.8.1 Non-verbal Discourse Strategies

Non-verbal behaviours such as silent reading may not easily divulge the learners' progress and intentions. This is because, although it is possible to observe and electronically track what learners are looking at when at the computer and for how long, it is not a totally reliable measure of what learner processes are at work. For example, learners may be deeply engaged in the task or may be daydreaming, browsing or thinking of other tasks or problems when staring at or scrolling through a page.

In some cases, learners engage in inaudible reading in which they read in a mumbled voice. This may be to indicate to the other person that they want to hold space in the conversation until they are finished reading or that they do not want to be interrupted; new information should not be put forward until they are ready. The learner may be reading in detail but, alternatively, he or she may simply be taking a long time to skim and scan.

Wegerif and Dawes (1998) observed three non-collaborative strategies that also may not require discourse or whose underlying motivations may be easily interpretable: unilateral action by the child with the mouse; accepting the choice of the most dominant child without supporting reasons; drifting together to one or other choice without debating any of the alternatives.

The importance to learning of paralinguistic strategies such as pointing at a common screen are often overlooked, especially in a CALL context where, for example, computers were once commonly situated in carrels similar to those used for testing and privacy in listening labs. However, if one accepts that students use computers for collaboration and that such collaboration involves paralinguistic interaction, opportunities for such interaction can be defeated by a poor room design and layout of computers.

8.8.2 Verbal Discourse Strategies

The majority of collaborative and non-collaborative interactions are evidenced by verbal discourse and are easily documented. There are many ways of classifying social interactions at

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the computer. Murillo (1991) found that responses could be divided into the following four categories (paraphrased):

1. Copying: repeating what was just read or said
2. Repeating: repeating language from the screen
3. Managing: dealing with the computer, the program and discussing progress made
4. Conferring: offering or discussing solutions or paths to solutions; dis-agreeing, agreeing, suggesting, explaining, or thinking aloud; spelling; correcting themselves or each other and asking questions

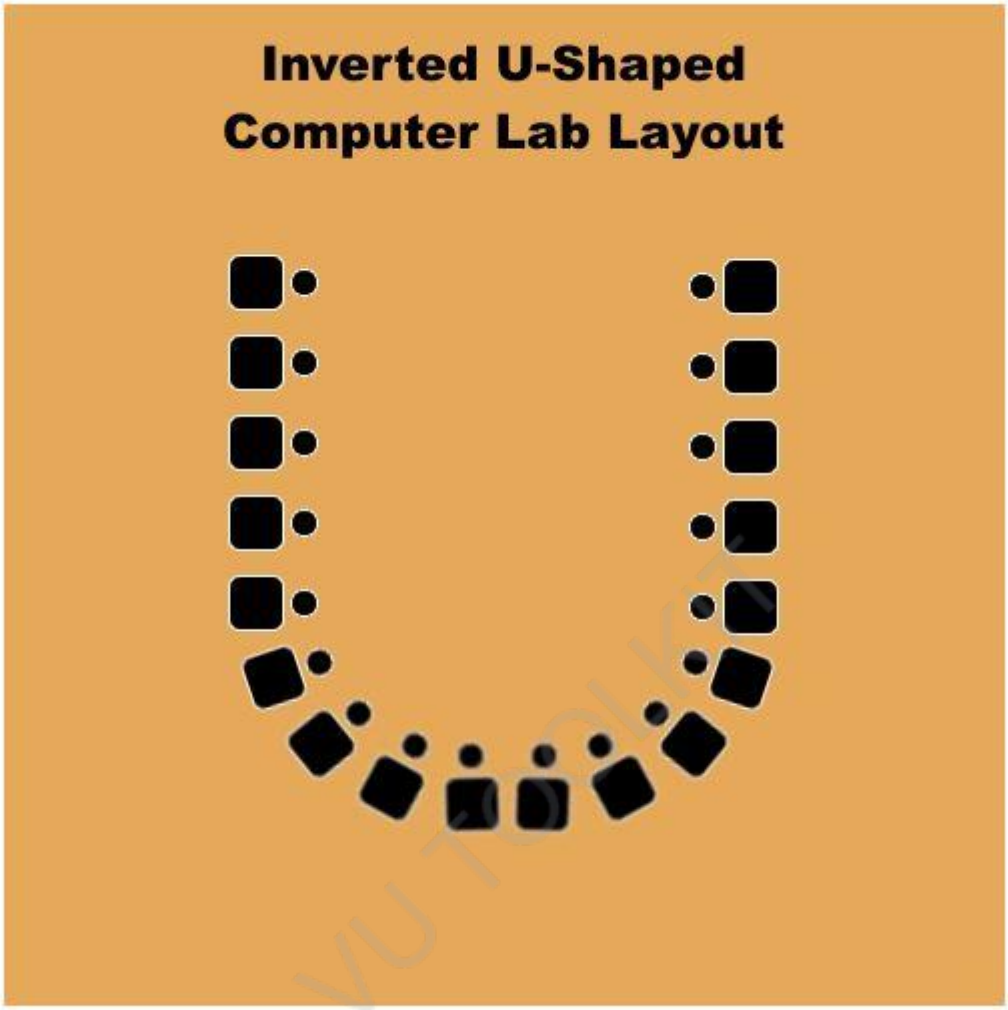
In many cases, Murillo's four categories simply define types of collaboration without examining their quality or the opportunities for SLA.

Example: Organizing the CALL classroom

With the rising power of laptop computers and corresponding wifi wired environments, a separate CALL classroom is less and less necessary. However, such computer labs are still common and there are many ways to organize them depending on funds available, the number of computers available (from one at the back of the classroom to a class set), the shape of the room and so on. Three common examples include:

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U-shaped classroom facing out

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U-shaped classroom facing in

A traditional lecture classroom in which the focus is on teacher-led discussion at the front of the room.

A U-shaped classroom facing in so the learners face the teacher, but also have a good view of each other. However, the arrangement requires cabling (power, Internet) problems that may mean a false floor.

A U-shaped classroom facing out allows learners to turn their chairs for presentations or sit around a table for discussions. It is easier in this type of classroom for the teacher to see, at a glance, what each student is doing.

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Lecture Classroom

8.9 Challenges to Collaboration at the Computer

This chapter's review of the literature points mostly to the benefits of collaboration. With few exceptions, the authors and researchers cited so far are almost uniformly in favour of collaboration or cooperation as a method of learning and offer no criticisms. What is lacking is an objective assessment of the challenges of collaboration. These challenges can be classified into two types: the general problems of collaboration in a language-learning setting and the challenges to collaboration when learners work collaboratively at a task at the computer. In some cases, these challenges are not disadvantages of collaboration itself, but rather constraints on the potential of the teacher to foster collaboration in certain cultural contexts or with certain types of learners. However, the consequent effect of discouraging learning is generally the same.

8.9.1 General Problems of Collaboration in a Language-Learning Setting

Some researchers offer perspectives on the negative aspects of collaboration. Kinsella and Sherak (1998), discussing learners who have moved to a new country and are learning a new language, say that they may be insecure about collaborative situations for the simple reason that they have per-formed well in competitive-orientated classrooms where collaboration has not been the norm.

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Other perceived problems with collaboration include:

- the lack of input from some collaborative group members
- the inability of some teachers or learners to facilitate properly collaborative instruction to ensure the group remains on task
- the fact that collaborative learning may not (in the view of some teachers) seem an economical use of time
- teacher insecurity over unpredictable outcomes

This last point is a concern among some new teachers as well as a culturally specific concern of other teachers. While teaching at the Canada China Language Centre in Beijing (1989 –92) I noted the reluctance of experienced Chinese colleagues to use small group and open-ended act-ivities. Their privately stated concern was that such activities produce questions the teacher might be unable to answer; the teacher would be embarrassed and 'lose face' with the students. Clearly skills training in collaborative approaches needs to encompass teachers as well as learners if everyone is to benefit from the opportunities that are presented in learning together.

Johnson and Johnson (1990) suggest that learners need to be taught cooperative skills. However, some learners will come by skills naturally or through prior experiences, and collaborative group members may induct others into collaborative skills. In some cases, the teacher may need to intervene if the learners are clearly not able to progress and accomplish the tasks and goals, but the process of acquiring such social skills may also provide valuable opportunities for negotiation of meaning. As Breen (1998) notes: 'The very salience of social trouble in the discourse will alert learners' attention to it while possibly involving the teacher and learners in exactly the kind of resolution work that may be directly beneficial to language learning' (p. 129). In other words, simply being involved in the challenges associated with collaboration may provide learners with opportunities to improve their language.

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Module -22

CHALLENGES TO COLLOBORATION IN A CALL

Topic No: 39-40

Benefits of collaborative learning at the computer; Collaboration, CALL and SLA; Collaboration at the computer as evidenced by discourse

8.10 Challenges to Collaboration in a CALL Context

Challenges to collaboration in a CALL context are problems that arise when the aim of the teacher (although not necessarily of the learner) is to promote language learning at the computer. The learner need not be aware of the teacher's objectives to benefit from the activity. For example, the learner may perceive the objective as being to play and win a game, when the teacher sees the objective as getting the learners to use language associated with the game's context, e.g. learning about money when playing the board game Monopoly.

It has already been mentioned that a wide range of cognitive strategies is used in collaborative learning discussions. For example, Sharan and Shachar (1988) offer the following cognitive strategies:

1. Explain with evidence
2. Generalize
3. Offer a concrete example
4. Offer an unstructured idea
5. Organize ideas
6. Present a hypothesis or idea
7. Repeat
8. Repeat with expansion
9. Take a stand

However, each of the above nine points presents only positive and productive aspects of discourse when, in fact, much discourse is not productive at all; participants in a collaborative discussion engage in many negative behaviours that are either counter-productive or peripheral to a collaborative task. This is partly because their individual goals do not always match the goals of the task, the goals of the teacher or the collaborative method by which they are expected to pursue it.

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Several factors which impact on the opportunities for collaboration include:

- learner characteristics may make the collaborating learners incompatible
- the goals/objectives of the program may discourage collaboration
- the pedagogical model may be overly behaviourist
- the methods of navigating the information (related to the structure and format) may be too obscure or difficult
- the content, or knowledge base, of the learning materials may discourage collaboration if it is too far above or too far beneath the level of the majority of the learners

Each of the above can be considered challenges to collaboration. In terms of the first point above, McConnell (1994) (see Section 6.6) has already noted a need for willingness to make cooperation work; a lack of willingness constitutes one challenge to collaboration in a CALL context and many other positive variables can be inverted to explain challenges in a collaborative situation.

Wegerif and Dawes (1998) summarize eight challenges to learning in groups based on a study conducted with primary schoolchildren. The first four of these points are generally applicable to learners of all ages, but the last four points are likely to be a focus of primary-school classrooms only. However, some negative behaviours associated with primary-school students unfortunately do not change in some individuals as they grow older.

Turn-taking rules vary according to different situations and may be influenced by computer-based interruptions as new information appears on the screen; or inappropriate and unnecessary interruptions, such as flashing screens and senseless noises that disrupt both the collaboration and learning.

8.11 Discourse that Evidences Challenges to Collaboration

Among the ways in which we examine classroom behaviour is through discourse analysis. Discourse analysis looks at classroom talk in linguistic terms through the study of transcripts which typically assign utterances to predetermined categories (after Nunan, 1992a: 3). In examining challenges to collaboration, it is necessary to see how they occur in terms of discourse. On the simplest level, one can try to determine when learners are using discourse to pursue Johnson and Johnson's (1990) individual and competitive goals instead of cooperative (or collaborative) goals.

As noted above Wegerif and Dawes (1998) suggest that a mixture of cooperation and conflict is the best way to promote interaction and note that such discourse is likely to include criticism, explanation, justification, clarification and elaboration. Implicitly, these are all ways in which one learner acknowledges the ideas or presence of another learner.

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However, criticisms may be hostile and without any attempt to offer another idea or support. Such criticism is negative in that it deters participation. Wegerif and Dawes's other categories (explanations, justifications, clarifications and elaborations) are basically ways of engaging in collaboration by following McConnell's (1994) hypothesis (see Section 6.6) that collaborative learning serves to make public those parts of our learning which are blind, hidden and unconscious. Therefore, other challenges are built on an unwillingness to offer explanations, justifications, clarifications and elaborations.

Based on the ideas elaborated in this lesson, four general social challenges to collaboration can be summarized as:

1. an unwillingness to engage in the activity

2. an unwillingness to accept the collaborative nature of the activity (i.e. pursuing individual or competitive goals)

3. an unwillingness to offer suggestions or explanations

4. an unwillingness to offer or accept justifications, clarifications, elaborations, criticism (i.e. groupthink) with supporting evidence or alternatives

In addition to these social challenges, additional challenges based on the computer include:

1. the complexity of the program's content
2. the navigability of the program's interface
3. the difficulty of the program's model of instruction (behaviourist or constructivist)

These last three challenges can be summarized as technical challenges to collaboration. These challenges may either encourage or discourage discourse and SLA as learners perceive them as challenges to be addressed or problems to be avoided. In the next section, these social and technical challenges are expanded upon in terms of verbal and paralinguistic utterances and exchanges that can be coded and analyzed.

8.11.1 Analyzing Discourse

Discourse analysis is a way of looking at records of spoken or written text to see if they suggest that the surface utterances are representative of underlying thinking and learning processes.

Analysing discourse involves transcription notations – writing out the utterances and describing the paralinguistic acts, and interpretive notations, deciding the motivations behind the utterances. Examples of transcription notations are noted below and are followed by a framework of strategies learners use to engage in collaboration, strategies learners use to avoid collaboration

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and ambiguous strategies which may work either way, depending on the context or the respective attitudes of the learners.

Symbol	Explanation
,	A normal pause as one would expect in speech.
. . .	A short pause of hesitation.
((pause))	A pause of longer duration than a hesitation but within the same utterance.
[ ]	Overlapping utterances, usually signalling an interruption.
(( ))	Descriptions of paralinguistic and non-verbal behaviours such as ((pointing)) and ((laughing)).
((reading))	Reading aloud from the screen.
((inaudible))	An unintelligible utterance in which the subjects may be speaking to themselves and/or holding space in the conversation.
A P R I L	All caps with spaces indicates spelling a word aloud, either for himself/herself or for other learners.
I think he meant	Sentences lacking a comma, final ellipsis, full stop or question mark indicate an utterance interrupted by the speaker himself/herself.

Figure 8.2 Sample transcription notations for scoring discourse

There are many ways to examine discourse, for example, both quantitatively (counting the occurrence of certain phrases) and qualitatively (examining types of expressions). Discourse analysis is flexible and, depending on what the researcher is looking for, a framework of investigation can be newly created or adapted from existing research.

8.11.2 Transcription Notations

Transcription conventions are important to establish exactly what the researcher is looking for when conducting research. Although there are many systems already in place, a researcher may have to adapt one or more systems to ensure that the conventions cover the aspects of language he or she is interested in. For example, for the same piece of discourse, one researcher might be interested in the significance of emphasis while another might simply be interested in

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circumlocutions. The goal of any transcription system, or set of conventions, is to ensure an accurate portrayal of the language being used to the extent that another researcher using the same conventions and looking at the same data would reach the same conclusions.

In examining a text in terms of collaboration, it is necessary to identify those utterances and exchanges that exhibit characteristics of different strategies. These include strategies learners use to engage in collaboration, strategies learners use to avoid collaboration and ambiguous strategies which may be used either to engage in, or to avoid, collaboration.

Ambiguous strategies are the most problematical in terms of strategy identification as both their intentions and effects may differ in any situation. For example, a learner might employ humour to dispel tension, but his or her interlocutor might perceive it either as an attempt to avoid the task or to engage in lateral thinking. The reverse might as easily be true.

The following is a coding system for these various strategies developed after consideration of one by Kumpulainen and Wray (1999):

8.11.3 A Framework for Coding Discourse Strategies

The following framework is used to define the strategies used by subjects to collaborate and to avoid collaboration as well as those strategies which are ambiguous.

Strategies used in collaboration

- Determine participants' expertise (DE): determining expertise is classified as a collaborative strategy because it helps to clarify what each partner knows or does not know about a task. Learners who start off by deter-mining expertise are better able to collaborate because they are better positioned to evaluate what they and the other person knows. If a partner indicates that he or she does not know or understand some part of the text or process, it leaves both partners more open to explore the text or process together.

- Explain the text/task/ideas (ET): explaining the text, the task and the ideas in a collaborative situation helps to provide opportunities for negotiation of meaning and to create a common understanding. If learners in a collaborative situation do not arrive at a common understanding of the text, the task and the ideas behind what they are studying, they are likely to work at cross-purposes.

- Offer suggestions (OS): offering suggestions is often marked by the phrase I think. A suggestion differs from a judgement in that the former offers a qualification and invites comment, while a judgement is presented as a final word on a subject.

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- Direct attention (DX): directing attention to text or images on the computer screen or to something else such as the keyboard or mouse is classified as a collaborative strategy because it is a strategy which tries to involve one's partner in some aspect of the software program.

- Solicit suggestions/support (SS): soliciting suggestions and support are collaborative actions because they directly ask for one's partner's involvement.

- Solicit clarification (SC): soliciting clarification occurs when one partner asks the other for more information on a statement. It is a collaborative strategy essential to negotiation of meaning.

- Signal interest in/show support of another's ideas (SI): signaling interest or showing support of another's ideas are collaborative strategies that allow the partners to indicate a common direction in what they are doing or discussing.

- Solicit support for or suggest actions (SA): soliciting support for or suggest-ing actions most often occur when one partner is navigating or about to navigate in the program. Soliciting support is typically marked by phrases such as, should we . . . , shall I . . . and so on and is collaborative because it gives the other partner a chance to discuss the working process.

Social strategies learners use to avoid collaboration

- **Ignore the test/task (IT):** ignoring the test or task is a strategy used to avoid collaboration because it often marks a learner's preference for pursuing individualistic or competitive goals. In some cases, the task may be too difficult for the learner, but not to even try to solicit suggestions signals a failure to take advantage of the collaborative partner's skills and makes ignoring the task a sign of avoiding collaboration.

- **Interrupt (IR):** interrupting is a strategy that avoids collaboration because it signals that one partner does not value what the other partner wants to say. In some cases, interrupting may be seen as a supportive strategy if, for example, one partner interrupts to supply information the other partner is struggling to recall or formulate, but such interruptions are usually signaled by a pause in the speech by the other speaker. Such interruptions can be classified as offering suggestions (OS).

- **Ignore ideas (II):** ignoring ideas signals that one partner does not value what the other partner wants to say and does not care to discuss it. An idea might be a suggested answer or a suggested action, such as directing attention to something on-screen.

- **Offer judgments (OJ):** judgements are statements without qualifying phrases such as I think . . . Sometimes a judgement is presented as a learner's simple statement of a fact, but it is often a strategy that avoids collaboration because judgements have an air of finality about them that do not invite the collaborative partner to present opinions or negotiate meaning.

Ambiguous strategies in collaboration

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- **Offer humour (OH):** in addition to the above methods of engaging in and avoiding collaboration are the sometimes negative and some-times positive aspects of humour. Humour can be used negatively as an avoidance strategy or positively as a way of soliciting lateral thinking, smoothing social relations and dispelling tension. Humour may offer both negative and positive aspects depending on the attitudes of the participants towards the humour. A subject's laughter may be one form of humour in that it often serves to modify a serious statement, making it less so.

- **Read aloud (RA):** reading aloud may be a neutral strategy for holding space in the conversation while one partner reads what is on the screen or it may be a collaborative strategy for dictating or keeping the partner informed at each stage of learning. As it is difficult to assess the first partner's intention and the second partner's perception, reading aloud is classified as an ambiguous strategy.

A summary of the coding of discourse strategies:

Strategies used in collaboration	
DE	• Determine participants' expertise
ET	• Explain the text/task/ideas
OS	• Offer suggestions
DX	• Direct attention
SS	• Solicit suggestions/support
SC	• Solicit clarification
SI	• Signal interest in/show support of another's ideas
SA	• Solicit support for or suggest actions
Social strategies learners use to avoid collaboration	
IT	• Ignore the text/task
IR	• Interrupt
II	• Ignore ideas
OJ	• Offer judgements
Ambiguous strategies in collaboration	
OH	• Offer humour
RA	• Read aloud

Figure 8.3 Coding of the investigation's discourse strategies

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Summary

Defining collaboration is difficult because the term is used in different ways by different researchers, and is sometimes used in different ways by the same researchers. This chapter provided examples of collaborative issues including what several authors recommend to foster aims of promoting awareness and skill development, achieving pedagogical objectives,

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improving literacy and promoting language acquisition. The concept of collaboration was compared with other terms such as cooperation and teamwork. A workable definition of collaboration is put forward by Dillenbourgh et al. (1995), 'a coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem' (p. 189). Although such a definition suggests a constructivist model of learning, it was pointed out that studies using a behaviourist model of learning often featured the use of the same collaborative approach.

Collaboration at the computer can be evidenced through discourse. Such discourse can show the strategies learners use to address and avoid a range of challenges to collaboration.

Source Reference:

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