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SCHOOL OF SCIENCE AND HUMANITIES

DEPARTMENT OF ENGLISH

UNIT-I

COMPUTER ASSISTED LANGUAGE LEARNING- SHS5017

CONTENTS

UNIT- I

DEVELOPMENT OF INFORMATION TECHNOLOGY (IT)

Information Technology is one of the fastest growing industry in today's unstable economy. The term information technology was coined by the Harvard Business Review in 1958.. Information technology (IT) is the use of any computers, storage, networking and other physical devices, infrastructure and processes to create, process, store, secure and exchange all forms of electronic data. We can simply define Information Technology as "any technology through which we get information is called information technology".

Examples of Information Technology

Examples of information technology include **Personal Computers and Their Accessories, Computer Networks, Landline and Mobile Phones, Flash Drives and Most Types of Software**. Information technology is any piece of software or equipment responsible for delivering, storing or sending information, most commonly text, images, video or audio. One of the more innovative examples of information technology is **Cloud Storage**. With this technology, individuals, businesses and other organizations can store their information on remote web servers and access it from anywhere in the world. While storing information on servers is not a new idea, cloud companies have simplified the process to the point that average users can take advantage of the technology. This is accomplished by allowing users to share servers with other customers, reducing storage minimums to levels that can accommodate the average user and introducing web-based, user-friendly interfaces for uploading and accessing data. **Crowd sourcing** is another innovative example of information technology. This process involves making a pool of tasks available to a large group of pre-qualified individuals who can complete the tasks through the Internet, usually through a website. Crowd sourcing allows businesses to have access to affordable and qualified labor at any time of the day or night. Tasks that can be completed with crowd sourcing technology include translation, writing, editing, transcription, information gathering and market research.

Devices with Wireless Connections

Televisions, computers, mobile phones, coffee machines, thermostats, fire alarms, burglar alarms and light switches are just some of the many modern devices that feature wireless connections.

Recent years have seen an explosion in the number of devices that contain wireless chips that allow them to connect to other devices and to the Internet. Computers are no longer the only devices to feature wireless connections. Most modern smart phones feature wireless connectivity, and some can even broadcast wireless signals and act as hotspots to allow other devices to connect to them. Some modern laptop computers only feature wireless connectivity and no longer include built-in options to connect to networks through Ethernet cables. Household appliances such as refrigerators, washing machines and coffee makers feature wireless connectivity. This allows a user to connect to the device from anywhere in the world and view details such as whether it's working properly and programmed temperature. Household automation using wireless connectivity is an emerging market, and items such as thermostats, fire alarms and even light bulbs offer wireless connectivity. These devices connect to each other and to the Internet, allowing a user to control and monitor virtually every aspect of her home from anywhere she is able to connect to the Internet.

Role of Application Software

Application software is computer programs that allow users to perform specific tasks. These programs are commonly referred to as "apps," and are usually completely self-contained and commercially produced. Some of the most widely used application software are web browsers, such as Internet Explorer, Google Chrome and Mozilla Firefox. These allow users to access the Internet. Word processing, database, spreadsheet and presentation software are productivity software which simplifies the process of preparing documents for the workplace or school. There are numerous application softwares for entertainment seekers, including gaming software such as World of Warcraft for the avid gamer, iTunes for music lovers and YouTube for the video aficionado.

Functions of IT software and hardware

IT includes several layers of physical equipment (hardware), virtualization and management or automation tools, operating systems and applications (software) used to perform essential functions. User devices, peripherals and software, such as laptops, smartphones or even recording equipment, can be included in the IT domain. IT can also refer to the architectures, methodologies and regulations governing the use and storage of data.

Business applications include databases like SQL Server, transactional systems such as real-time order entry, email servers like Exchange, Web servers like Apache, customer relationship management and enterprise resource planning systems. These applications execute programmed instructions to manipulate, consolidate, disperse or otherwise affect data for a business purpose.

Computer servers run business applications. Servers interact with client users and other servers across one or more business networks. Storage is any kind of technology that holds information as data. Information can take any form including file data, multimedia, telephony data and Web data, data from sensors or future formats. Storage includes volatile random access memory (RAM) as well as non-volatile tape, hard disk and solid-state flash drives.

IT architectures have evolved to include virtualization and cloud computing, where physical resources are abstracted and pooled in different configurations to meet application requirements. Clouds may be distributed across locations and shared with other IT users, or contained within a corporate data center, or some combination of both deployments.

Information Technology In Business

Either small or big business , they will need to scale out a plan to utilize opportunities brought by ''Information Technology'' Businesses use IT in four ways to support (1) information-processing tasks, (2) decision making tasks, (3) shared information through decentralized computing, and (4) innovation. Below are detailed points on how business can use Information technology to succeed.

Supports Information Process Tasks

Businesses are using IT to support basic information-processing tasks. These tasks range from computing and printing payroll checks, to creating presentations, to setting up Websites from which customers can make orders for products or services. During this stage, a business can use IT to create company database applications which can allow employees access information at any given moment. They can also use IT tools to set up networks that allow departments share information without any hassle or wastage of time.

Supports Decision Making Tasks

Business also use information technology to support decision-making tasks, and this is achieved through (OLAP) online analytical processing. ‘’OLAP’’ is the manipulation of information to support decision making. OLAP can range from performing simple queries on a database to determine which customers have overdue accounts to employing sophisticated artificial intelligence tools such as neural networks and genetic algorithms to solve a complex problem or take advantage of an opportunity. In case, lets say the ‘’OLAP’’ supports effective decision making. You can also perform OLAP by using databases and data warehouses.

Supports Shared Information through Decentralized Computing

Today, most businesses have created a decentralized computing structure which brings together the entire spectrum of the business’s information in an orderly fashion so that it can be accessed and used by anyone who needs it. This structure of information is most often a database, which is designed to directly support the concept of shared information.

Supports Innovation

Information technology tools not only support information-processing tasks, decision-making tasks, and shared information through decentralized computing, but they also enable innovation. Tools like internet, present us with the opportunity to make research on any subject, the information acquired during the process can be used in creative design of services or products.

Information technology to society

Society has embraced information technology ‘’IT’’ in various ways. IT has impacted

(1) education, (2) communication, (3) job creation, (4) agriculture, and (5)entertainment.

Online Education

Unlike in the past when education was tied to specific boundaries, now the education sector has changed. With the introduction of online education services, students can learn from anywhere using internet. This has helped in spreading of essential education materials to all students across the globe. Online education is also being enhanced by the creating of mobile application which enables student’s access education material via their mobile phones.

Social Networks and mobile phones

Society has used information technology to create technologies which can simplify communication and relationships. Mobile phones have made communication easier and social networks like ‘’Facebook.com ‘’ have played a big role in helping people discover their old friends and create new ones as well. Also people use online dating platforms to find long time lovers, sites like Match.com are known for connecting people and these relationships always result into marriage, which is a good deed for the society.

Job Creation

Today, there are so many companies which have been created using information technology and have solved the problem of job scarcity to a certain degree. Many of such big IT corporations had been started from homes and bedrooms, but now they employ plenty of people, hence adding value to our society. A good example of these companies include Google, Facebook , Amazon , Dell , Microsoft , LinkedIn , Twitter just to mention but a few.

Modernized Agriculture

Information technology has also played a big role in advancing the agricultural sector. Nowadays a farmer can sell his products right from the farm using internet. All they have to do is set up a website for their products, orders are placed directly via the website and the farmer will deliver to the client fresh products. This cuts out the middle men who tend to increase price of agricultural products with aim of making profits. In this case, both the farmer and the consumer benefit. The consumer gets the product at a cheap price when it is still fresh, and the farmer makes more money.

Modernized Entertainment

The invention of technologies like ipads, video games, home entertainment system and people can have fan at any time of the day. Music and movies can be accessed online at a small subscription fee. Companies like Netflix and Hulu, have played a big role in making home entertainment better.

Common IT careers

Chief information officer: This person is responsible for IT and computer systems that support the enterprise's goals.
Chief technology officer: This person sets all technology goals and policies within an organization.
IT director: This person is responsible for the function of all of the business's technology tools and processes. This role is commonly called IT manager or IT leader.
Systems administrator: This person configures, manages, supports and troubleshoots a multi-user computing environment. Within an enterprise, this role can be segmented by technology, requiring an administrator or team dedicated to server, desktop, network, virtualization or other components.
Application manager: This person's role centers on the provisioning and management of a high-value business application, such as Exchange.
Developer: This person or team writes, updates and tests code for programs to meet business objectives internally or facing customers.
Architect: This person examines and changes IT functions to best support the business.

Emerging Trends In Information Technology

1 . Cyber Security

Recently, high-profile security breaches and hacks happen so often that they've become almost commonplace in today's digital landscape, leading to cyber security becoming a greater priority for businesses like never before. Even your average consumer has become more aware of the implications of data breaches, meaning that companies will be forced to beef up the security in their products. However, with new technologies come new security risks, and staying on top of these innovations can be a challenge. Constant vigilance will be needed to keep up with these new technologies being developed, making cyber security one of the top trends driving the future of information technology.

2. Big Data

The phase ”big data” has been tossed around so much recently that it’s become somewhat of a buzzword—and for good reasons. Formerly, big data analysis was generally only used by large corporations to gain insight into consumer behavior, but with all of the new developments available on the market, big data is becoming more and more accessible to your average user. Big data collection strategies and analytical programs are improving, meaning that the struggle to find the most meaningful data is much easier than it used to be. Improved analytics give wider accessibility to big data, making it a huge trend for the future of business.

3. Wearable Technology

Recent market research reports have shown that the wearable technology market will be worth $31.27 billion by 2020. Smart watches, wristbands, fitness devices and medical equipment—all of these things have gained such huge popularity in recent years that it’s hard to ignore the growing demand for wearable tech. Wearables are becoming cheaper, more available, and more functional as the Internet of Things improves usability, and soon enough they’ll be on the Christmas lists of tech lovers around the world.

4. 3-D Printing For the Layman

The price of 3-D printers is expected to decline over the course of the next few years, resulting in 3-D printing becoming a commonplace activity. Creating objects with ease from a digital file provides innumerable benefits to any workplace environment—or even any homestead. Even your non-techie average Joes will start to learn how to navigate computer-aided design software, transforming the face of product creation and allowing for greater customization in the formation of goods.

5. Enterprise Mobility

With the explosive growth of smartphone and tablet technologies, the motion towards workplace mobile technology is inevitable. Mobile technology is poised to become the primary platform of collaboration in the workforce, with new software making it increasingly easier to participate on projects from outside of the traditional nine to five timeslot. When you can now swap data with

your team from a hotel halfway across the world in a matter of seconds, it only makes sense for this trend to be a huge influence on the future of information technology

Advantages of Information Technology

Due to the easy and the convenient approach to the development of the new technologies for the sake for the good future, information technology has many advantages that are really important for human life.

Communication:

Information technology is used in developing different types of communicational devices and also helpful in better communication services between the two different places for the sake of good business and for many other purposes. It makes the communication services cheaper and convenient and also fast then other technologies.

Globalization:

Another important advantage of the information technology is the globalization. With the help of this advantage of the information technology the modern World becomes closer in the ways of communication and provides the easy way for faster communication, which also enhances the economy and the profit of different types of businesses.

Creation of new Jobs:

A major advantage of the information technology is that it provides the many ways for the jobs and increases the vacancies in the field. Because of the development of the new technologies in the field of information technology it provide the opportunity for the new generation to come in the technical field and generate the technology for the future.

Future of information technology:

Today information technology is being used in almost every sector of life. Both individuals and businesses are using technology to their advantage. Is any computer-based tool that people use to work with information and support the information and information-processing need of an

organization? These tools can include computers, software, routers, severs, printers, modems, just to name a few. Businesses will increase their efficiency when they embrace Information Technology. The main goal of a business is to serve its customers. In this age of information technology, a business can gain competitive advantage when it uses information technology to its maximum. Today perfect service is only possible if a business has the right information in the hands of the right people at the right time and this can only occur through appropriate use of information technology.

By the year 2019, humans will have largely overcome the limits of our humanity. We will have found cures for the major diseases that kill 95 percent of us in the developed world. By 2029, we will become godlike—tiny computer chips embedded into our bodies will stop disease and reverse aging, ever expanding our life spans. Simple and straightforward as it may sound, the main features of the future of information technology have some rather more complex implications, awareness of which could be the difference between success and failure. Take connected devices, for instance: their numbers are constantly and steadily growing and they will be entering the digital flows in new ways that have yet to be created. Various new types of devices will emerge, too, and both old and new will become an integral part of our everyday lives. Gartner predicts that by 2020 the Internet of Things installed base will total 26 billion units. Or take the smart home, something that we may have in the not-too-distant future, with smart appliances, from thermostats to fridges to game consoles, all connected to the Internet. And what about big data analytics and cloud computing?

All these developments will require increased flexibility for IT businesses so they can cope with the massive amounts of new information that will be coming their way and be able to process it. Innovation will be the other core factor for the IT sector in the dawning era of ubiquitous connectedness. As more data flows in, bigger storage has to be devised and new software infrastructures will need to be created to handle the data flood; infrastructures that can be scaled, such as those made possible with hybrid cloud technology. The key is to start working on it as soon as possible because things are changing fast.

DEFINITION OF CALL & THEORY

Engaging in Computer-assisted Language Learning is a continuing challenge that requires time and commitment. As we approach the 21st century, we realize that technology as such is not the answer to all our problems. What really matters is how we use technology. Computers can/will never substitute teachers but they offer new opportunities for better language practice. They may actually make the process of language learning significantly richer and play a key role in the reform of a country's educational system. The next generation of students will feel a lot more confident with information technology than we do. As a result, they will also be able to use the Internet to communicate more effectively, practice language skills more thoroughly and solve language learning problems more easily. Recently, the numbers of English teachers using CALL has increased markedly. In addition, many articles have been written about the role of it in English learning. Although the potential of the Internet for educational use has not been fully explored yet and the average school still makes limited use of computers for some reasons, it is obvious that we have entered a new information age in which the links between ICT and EFL have already been established with number of theories and frameworks.

What is CALL?

CALL is a program derived from CAL (Computer-Assisted Learning) which is implemented to language, but the use of computer here is mainly aimed at providing a language learning tutorial program (Hartoyo 2006, 21). In addition, Egbert (2005, 4) says that CALL means students learn language in any context with, through, and around computer technologies. From both definitions, the main focus of CALL is on the application of computers in language learning.

Definitions of CALL

Computer-assisted language learning (CALL) was the expression agreed upon at the 1983 TESOL convention, used to refer to the area of technology and second language teaching and learning despite the fact that revisions for the term are suggested regularly (Chapelle, 2001, p. 3).

Computer Assisted Language Learning (CALL) may be defined as the search for and study of applications of the computer in language teaching and learning (Levy, 1997, p.1).

A definition of CALL 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, p. 7).

CALL has come to encompass issues of materials design, technologies, pedagogical theories and modes of instruction. Materials for CALL can include those which are purpose-made for language learning and those which adapt existing computer-based materials, video and other materials (Beatty, 2003, pp. 7-8).

Critique of CALL

A number of scholars have provided us with now well-established definitions. For Levy, CALL is "the search for and study of applications of the computer in language teaching and learning" (1997, p. 1). Beatty refers to CALL as "any process in which a learner uses a computer and, as a result, improves his or her language…. [This] encompasses a broad spectrum of current practices in teaching and learning at the computer" (2003, p. 7), whilst Egbert states that CALL is "learners learning language in any context with, through, and around computer technologies" (2005, p. 4). As noted, alternative acronyms to CALL emerged in recognition of the rise of the Internet. Bush and Terry (1997) proposed Technology Enhanced Language Learning (TELL), which emphasises the technology the computer provides rather than the computer itself. Web-enhanced Language Learning (WELL) was coined to refer to the Internet as a medium for instruction, whilst Warschauer and Kern (2000) proposed Network-based Language Learning (NBLL), which stresses computers connected to one another with human-to-human communication as the focus. Importantly, these definitions and acronyms have at their core the notion of students working on a desktop or laptop computer, usually in order to consciously practise or learn a language. With the computer at the core and applications usually centered on consciously practicing languages, it is not difficult to see how these alternative acronyms effectively became no more than off-shoots of CALL, as they did not challenge its defining characteristics.

CALL Theory

What is CALL theory? *Egbert & Hanson Smith* (2007) claim that "CALL theory" is unneeded: "... 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" (2007, p. 3). The key term for me there is "the learning environment". **CALL theory** is the set of perspectives, models, frameworks, and specific theories that offer generalizations to account for phenomena related to the use of computers and the pursuit of language learning objectives. In order to understand the role of theory in CALL, it is not enough to focus just on their number and the diversity of their sources. It is also important to see how these theories are co-opted, combined and potentially evolve as a result of being applied in an environment they were not originally conceived for. To address this issue, Hubbard (2009) introduced a framework for categorizing the type of theoretical presence in CALL works.

Theory borrowing

The simplest and most direct employment of theory in a CALL study is *theory borrowing*. This process consists of taking a theory from another domain such as linguistics, psychology, education, human-computer interaction and especially second language acquisition and plugging it in to the CALL environment without any changes. In fact, a significant subset of research in computer-mediated communication (CMC) fits into this category.

Theory instantiation

Related to theory borrowing is *theory instantiation*, a category absent from the original Hubbard (2009) framework. We introduce it here to accommodate studies that take general purpose or broad learning theories such as activity theory, ecological theory or the theory of affordances and situate them in a language learning environment where the technology and language can both be *explicitly* recognized as elements for analysis. An example is Basharina (2007), who uses activity theory to analyze and interpret student-reported contradictions in a three-country telecollaboration.

Theory adaptation

A process that starts with borrowing but then transforms the borrowed theory is *theory adaptation*. In this case, the researcher is led to propose some change in the theory construct to account for data emerging from CALL research results or potentially from observations prior to the actual research. Smith (2003) (see Levy, Chapter 7 this volume) provides an example of the former in a CMC study: he finds that the special character of the synchronous, text-based chat

environment requires him to extend the established negotiated interaction framework of Varonis and Gass (1985). Hubbard (2012) discusses a number of such examples where the results of the CALL study have shown that the traditional 'face-to-face' theory requires some emendation.

Theory ensemble

Levy and Stockwell (2006) observe the growing use of multiple theories within a single study to capture a range of perspectives that a single theory cannot, especially in studies involving development or design. Capturing the notion that these theoretical sources combine while maintaining their individuality, we label this a *theory ensemble* . In some respects, a theory ensemble is akin to an adaptation, but rather than transforming the initial theory, it is enriched with additional sources, either before or after the study. Because no single theory is perceived as rich enough to meet the needs of the research, teaching or development project, rather than change the theory, different sources are drawn on for different purposes.

Theory synthesis

Taking this process one step further is a *theory synthesis*, where insights from two or more sources are combined into a single theoretical entity. Plass and Jones (2005) offer an example of such a synthesis, integrating elements of Chapelle's interactionist account for CALL with Mayer's Cognitive Theory of Multimedia to produce a unified theoretical framework for using multimedia in second language teaching. One could argue that a theory ensemble and a synthesis are basically the same sort of 'collection' process, but we believe that would miss a critical distinction. The outcome of a synthesis is an object of sorts – a new theory, framework or model – as in Plass and Jones (2005).

Theory construction

All of the previous processes involve taking one or more specific theoretical entities and building on them directly. A further category, though relatively rare to date, is *theory construction*, where a 'native CALL' theory is produced. Although informed by prior theories, a constructed theory has a certain independence lacking in its predecessors. Oller's (1996) proposal for technology-assisted language learning is one example; another is White's (2005) proposal for a learner-based theory of distance language learning.

Theory refinement

Finally, operating in parallel with most of the preceding categories is the process of *theory refinement*, the idea that, in line with other scientific tradition, theories improve (or in some cases fall) as more data come to support or refute them. As the field moves forward and certain theoretical options become more established, we can expect to see growth in this area.

Theory Buffet

The more gratuitous sense of invocation resonates with the concept of *theory buffet* introduced by Levy and Stock well (2006). 'With so many theories available, it is easy to find one or two that more or less fit CALL artifacts or plans that have already been completed, making theories into marketing tools rather than keeping them as guides in the design process' (p. 140).

Theory in CALL research

Over the period 1983 to 2007, Hubbard (2008) extracted references to 113 distinct theories across 166 articles. With the exception of a small number of general labels (SLA theory, learning theory, linguistic theory, etc.), these were specific references (activity theory, item-response theory, speech-act theory, schema theory, cognitive theory of multimedia, etc.). Surprisingly, there were no clearly 'dominant' theories showing up with any consistency: in fact, none of the specific theories mentioned appeared in more than six articles, and 77 of the 113 appeared in just one.In discussing theory within this field, it is important to consider that theory as used in research is not necessarily the same as theory supporting practice. Along these lines, Levy and Stockwell (2006) draw distinctions in the role of theory for design, teaching and research in CALL. Although a number of theories, frameworks and models, including those mentioned by Chapelle (2009), have been used to motivate CALL projects and to provide a basis for research and evaluation, three in particular stand out: the interaction account, socio cultural theory, and constructivism. Each is discussed in more detail in the following sections.

Three Theories

Despite the wide range of theoretical sources from various disciplines described in the previous section, theories from second language acquisition can be said to have had a more central role than others. Indeed, Chapelle (2009) argues that a variety of SLA theoretical approaches deserve

consideration by CALL researchers and developers. She discusses four general orientations, each of which collapses a number of related theories and models under its label: cognitive linguistic (e.g. universal grammar), psycholinguistic (e.g. input processing), human learning (e.g. skill acquisition theory) and language in social context (e.g. complexity theory). She speculates on the implications of thirteen specific theoretical approaches for CALL. For example, in discussing processability theory, she notes that it 'provides a basis for sequencing the teaching of grammatical structures in individualized learning' (Chapelle 2009: 744).

Cognitive Theory

In cognitive theories for foreign language acquisition, there are three components of learning process; input, output and interaction. According to Ellis (2000), acquisition is a product of processing input and output. In her point of view, input is the language that the learner is exposed to and the output is the language the learner produces .

About the form of input, there are two different views. Krashen (1985) considers meaningful activities as a base of function in foreign language acquisition. However, interaction hypothesis emphasizes the interaction to convey and to negotiate the meaning. Gass, Mackey and Pica (1998) claim that input affects learners mostly if it becomes the part of the interaction with others rather than with a text. Comprehensible input is indispensable part of foreign language acquisition. Lamy and Hampel (2007) consider the last component of learning process in cognitive theory (output) as the production of language by learners. With the help of interaction, learners internalize the knowledge given via input and they come up with their own sentences in target language. The virtual environment should check this output and if it is required, the cognitive learning process is recycled. If the output or learners' production is appropriate then this output turns into a new input for new cognitive learning cycle. However, in this process especially for output, learners' interests and differences should be taken into consideration because as it is known, each learner is unique and that their output will be new input for new cognitive learning cycle unavoidably affects the learning process. Thus, learners' autonomy should be emphasized in this point.

Learner Autonomy

According to Pallof and Pratt (2007), online learning offers learners chance to practice and acquire the skills needed for communicative competence as well as to get to know their own learning styles, their strong and weak parts in the target language and to study in collaboration with their partners who are geographically distant to them. During this process, they become more competent in their language skills and social interaction, and feel self-confident. Chapelle (2001) believes that materials and educational methods should be designed considering the needs and interests of the learners to make them more autonomous learners. Hereby, autonomous learners are meant to be the individuals who; have the sufficient understanding of language learning to understand the purpose of the pedagogical choices, are able to formulate their own learning objectives, are able to make use of appropriate learning strategies, are able to monitor their use of strategies, are able to monitor their own learning.

Socio Cultural Theory

Here learning was at first social (intermental) and later individual (intramental). The pre-eminent tool for mediation is language. The source of mediation was either a material tool, a system of symbols, notably language; or the behavior of another human being in social interaction' . From a socio-cultural perspective, it is via these different forms of mediation that cognitive change or learning occurs . In the context of the present discussion, two points should be emphasized. First, with regard to material tools, technologies mediate communication and thereby cognitive change differently. From the landline phone through email, text messaging and Skype, the technology itself shapes the interaction in particular ways. Each technology has its own affordances that govern differentially the ways in which interactions occur. *The technology does not determine the interaction*, but its attributes do help shape them. When socio-cultural theory is applied in CALL, it often reflects the process of theory instantiation described earlier precisely because the mediational role of the technology is an integral part of the study. Second, with regard to social interaction, new technological means allow new and different forms of social interaction to occur, both online and in the classroom. The terms 'situated learning' and 'communities of practice' derive from this perspective and are often used to highlight the importance of active learner participation in the community of the classroom or in online community settings. The theory supports cooperative or collaborative learning in which teachers work with students on

purposeful activity and learn in social groups and communities of practice.

Even if these two learning theories differ in some aspects, interaction is their common point. In cognitive theory, interaction means psychological process and internalization of knowledge through input provided in target language. In this point, in virtual environment, learners'interest and their ways of getting knowledge should be taken into consideration. Therefore, in tasks and activities they should have enough opportunities to behave autonomously. This helps them feel self relevant, successful and self motivated in learning. Online education which is also derived from mainly constructive approach should provide learners to take their own learning responsibilities; however, learning environment should be designed to provide any guidance when they need. Thus target language which is an input should be given in a way of activating learners' interests and eliciting information from them in context.

From the perspective of socio cultural theory, cultural elements of the target language had better be adapted in the context which is also input for learners. By this way, interaction will be facilitated among the peers. Comprehensible checking questions should be used especially in virtual classes in order to identify whether input is assimilated and accommodated successfully or not through interaction. If it is necessary, the teacher should encourage learners more and more to study in collaboration and cooperation. As the language that learners produce will be a new input for them, the teacher should take the way in which learners internalize the knowledge into consideration. Thus in irtual environment, learners should be encouraged to share their opinions and culture. To achieve this, special designed tools like opinion poll, forum sites, chat boards should be used. Also in order to check whether learners' internalization of knowledge is sufficient or not, learners should get into contact with teachers immediately whenever they need. Due to this reason, e-mail or other tools could be preferred to raise the level of interaction between teacher and learners. In this way, one of the problematic issues in online education which is low motivation in long term process could be overcome. In order to motivate learners in long term process, some virtual meetings or classes in which the priority is to provide opportunity for learners to contact with teacher and peers immediately and affectively could also be used. In these classes, the aim is to motivate learners and to make learners active within the system rather than any linguistic aim. It proves that learners perform the tasks more successfully

and participate in classes more willingly and actively on the days which they have virtual classes.

The interaction account of SLA Theory

The interaction account (IA) emphasizes the role of interaction in second language development (Long 1996). It incorporates certain central processes such as the negotiation of meaning, in which the learner and interlocutor(s) engage in an ongoing process of interactional adjustments (Pica 1991). The IA focuses upon learning interactions that by necessity involve two or more people, or a person and the computer. A number of CALL researchers have argued for the IA as an appropriate foundation for CALL research. In particular, the IA has been extensively referenced as a theoretical base in CMC-based CALL especially in projects that involve email and chat as a basis for learner interaction and exchange. Any setting where synchronous or asynchronous communication occurs can draw on the IA for guidance, including text-chat and voice-chat, either used independently or embedded in other programs (e.g. virtual worlds and games), as well as voice over Internet protocol tools such as Skype.

Theory of Constructivism

Constructivism is a large-scale movement and system of beliefs: It highlights its diversity and its many interpretations. Interpretations of constructivism have carried over into the CALL area .In essence, the cognitive constructivist describes the mind in terms of the individual; the social constructivist describes the mind as a distributed entity that extends beyond the bounds of the body into the social environment. Healey also emphasized the centrality of the learner in the learning process and the importance of the teacher in creating motivating authentic activities that involve investigation, discussion, collaboration and negotiation. Each author in that special issue draws rather differently on the constructivist idea, often listing overlapping sets of principles that underpin the individual constructivist CALL learning environments they are creating.

Conclusion

A working definition of CALL theory shows that how theory is integrated into various CALL studies. More importantly, in bringing theoretical orientations and constructs into one's own work in CALL, it is essential to stop and reflect deeply on why those orientations and constructs are there. Theories should not be chosen lightly, or simply because they happen to be in vogue at the time. Ideally, theory should play a foundational role in the study and be fully integrated into

its goals, constructs and design. Beyond the increasing use of theory ensembles in design/development and teaching, there is clearly a need for more central consideration of the role of the technology itself as something other than a neutral entity. To emphasize, the incorporation of technology in language teaching and learning, whether called CALL or something else, should continue to be influenced and guided by theory. But it is clear that theory can play a role in illuminating teachers' and learners' experiences and in pointing the way towards more promising tasks, applications and environments.

CALL FRAMEWORKS & CONCEPTUALIZATIONS

Evaluating the nature and extent of the influence of Computer Assisted Language Learning (CALL) on the quality of language learning is highly problematic. This is owing to the number and complexity of interacting variables involved in setting the items for teaching and learning languages.The features and processes are identified and characterized through computer assisted language learning. It offers a framework for analyzing the effects of computer assisted language learning in combination with other factors which may enhance or ameliorate the positive impact of it in the classroom and beyond.

A framework for conducting evaluation of CALL must provide systematic steps that are based on proven evaluation practices. A systematic approach to designing and conducting quality evaluations would produce a body of transferable and usable data to help inform developers, researchers, practitioners, and students. While the proposed frameworks for CALL evaluation are far from unsystematic, none explicitly describe workflows for conducting evaluations. They all implicitly mention evaluation tasks such as identifying the object of evaluation, determining the purpose of the evaluation, collecting and analyzing data, and reporting findings and implications. However, looking through the lens provided by formal evaluators, some aspects of each task are overlooked. Furthermore, the task of meta evaluation (i.e., evaluating the evaluation) does not appear to be addressed in CALL evaluation frameworks.

Analysis of Popular CALL Frameworks

The most popular evaluation frameworks in CALL have been posited by Hubbard and Chapelle (2001), each of which has strengths and weaknesses. To analyze the frameworks, each principle is identified in the evaluation literature as key for successful evaluations and then considered how and in what ways each principle applied to the Chapelle and Hubbard frameworks. Similarities and overlapping ideas are listed. We then asked two professional evaluators and two CALL scholars to review the framework for deficiencies, overlapping ideas and clarity.

Hubbard's Framework

In Hubbard's (2011) latest publication on his framework, he mentions four distinct purposes of

CALL evaluation: selection for use in a course, selection for use in self-access environments or for other instructors, published reviews, and feedback during the development process. Hubbard narrowed the list of evaluation approaches or methodologies to three specific types: checklists, methodological frameworks, and SLA research. Checklists are essentially a combination of criteria that evaluators review and to which they assign some type of score using either a Likert scale or other rating systems. While this is a common methodology used to evaluate CALL, in many cases it assumes that the evaluation criteria are one size fits all. Evaluators can change and alter a checklist to match the criteria specified by stakeholders, but the use of checklists as an approach or methodology for CALL evaluation may be confounded by its overlap with evaluation criteria. These checklists tend to be a list of evaluation criteria and may not provide adequate methodological concerns to CALL evaluation, omitting key procedures in the evaluation process.

The other two approaches mentioned are not exempt from similar phenomena. **Methodological frameworks**, as described by Hubbard, allow evaluators to form their own questions. In this regard, the evaluator may be the sole stakeholder. This may be a limitation for evaluators with little experience who rely on CALL evaluation frameworks such as this one to guide their evaluation. Thus, it could become increasingly easy for evaluators to neglect potential stakeholders.

Hubbard mentioned that his description of the framework reflected the purpose he felt most common, which is selection by a teacher for use in the classroom. However, he also argued that the framework could be applied to the other three purposes: selection for use in self-access environments or for other instructors, published reviews, and feedback during the development process. While possible, the framework might not be as accommodating to these other evaluands. The processes Hubbard outlined in various iterations of his proposed framework include steps such as giving a technical preview, creating an operational description, considering learner and teacher fit, making appropriateness judgments, and implementing schemes. Following his outlined workflow may limit the quality of the evaluation because it fails to explicitly mention important steps in the evaluation process, which include considering the values of stakeholders and outlining clear evaluative criteria. Additionally, his framework is often associated with and

geared toward the evaluation of CALL courseware and websites.

Hubbard's (2011) Evaluation Framework

Hubbard did not specifically address the various stakeholders that may need to be considered when evaluating CALL. However, other stakeholders were mentioned in Hubbard's CALL methodology, of which evaluation is only one module. The three modules — development, implementation, and evaluation — do interact with one another, which may provide for more interactions with stakeholders. Nonetheless, with regard to the evaluation module, Hubbard focused primarily on teachers and learners. One purpose mentioned, the provision of feedback during development, entails the considerations of CALL developers in an evaluation but fails to include other possible stakeholders such as parents. Additionally, school administration and staff are not mentioned as possible stakeholders, both of whom are important because of their responsibility with financing and implementing CALL. In short, Hubbard's framework may be a good place to start when evaluating courseware or websites pertaining to language learning, but its specificity may limit its effectiveness for evaluators with different evaluation purposes, evaluands, stakeholders, and criteria. A CALL evaluation framework should be broad enough to guide potential CALL evaluators in various situations and purposes.

Chappelle's Framework

Chapelle's (2001) framework for evaluation varies from Hubbard's. From the outset, it is clear that she did not limit the types of evaluands as strictly as Hubbard. Her framework was broad enough to consider CALL software, teacher-planned CALL activities, and learners' performance during CALL activities. She also lists learner fit, meaning focus, authenticity, positive impact, and practicality as criteria to be considered in CALL evaluations. Chapelle suggested that CALL evaluations should be looked at from two perspectives: (a) a judgmental analysis of CALL software and activities, and (b) an empirical analysis of the learner's performance.

In many ways, this could be a recommendation for various research methodologies. She implied that the evaluand dictates, at least to some degree, the type of analysis that should be done in an evaluation. While some CALL evaluands would appear to be best evaluated qualitatively and others quantitatively, this too may be limiting. Hubbard (2011) and Chapelle's (2001)

frameworks differ in their focus, with Hubbard emphasizing process, including its parts and the details and specific suggestions for each step. For example, he spelled out various purposes of a CALL evaluation. Chapelle on the other hand focused less on creating a procedural map for conducting evaluations and more on purpose, criteria, and methodologies.

Framework for Designing and Conducting CALL Evaluations

After reviewing the popular CALL evaluation frameworks, a framework is essentially borrowed from frameworks and practices in formal evaluation. It aims to provide guidance in conducting more effective CALL evaluations. Its purpose is to provide direction to evaluators in conducting systematic evaluations using procedures from seasoned evaluators resulting, we believe, in comprehensive and reliable evaluations that would be more informative, efficient, useful, replicable, and to some degree transferable.

Framework for systematic CALL evaluation

It illustrates tasks for CALL evaluators. Though this is not a new framework to those in evaluation, this paradigm may be new to some CALL evaluators. Rather than limit or specify the details of an evaluation, we suggest a framework that is specific enough to guide evaluators through a tried and tested process and broad enough to accommodate the evaluation of any activity or material related to CALL. This framework provides CALL educators an additional tool to use to gather evaluation data from multiple sources in order to make the best decisions to improve language learning.

Comparison of CALL Evaluation Frameworks to Formal Evaluation Tasks

Popular CALL evaluation frameworks have many similarities and differences when compared to formal evaluation tasks. Table 2 maps formal evaluation tasks to activities mentioned in the frameworks of Hubbard (2011) and Chapelle (2007, 2011). Essentially there are activities that match, but there are a few differences. For example, many areas focused on by Hubbard were narrow and highly specific. This framework is less constrained and can be applied to the evaluation of any evaluand — any CALL activity or any CALL material.

Table 2. Formal Evaluation Tasks, Hubbard's (2011) Framework, and Chapelle's (2001, 2007) Framework

Evaluation task	Hubbard's framework	Chapelle's framework
Identify the evaluand	Courseware and websites	Complete course, technology component of a course, and technology pedagogy
Identify stakeholders	Teachers and learners	Insiders (software developers, other CALL researchers), informed critics (other teachers, learners, other applied linguists), and Outsiders (other applied linguists, program decision makers, policy decision makers)
Set evaluative criteria	Technical considerations, operational description, teacher fit, learner fit	Language learning potential, meaning focus, learner fit, authenticity, positive impact, and practicality
Define a purpose	Selection for a course, selection for self-access or other instructors' use, reviews, and providing feedback for development	Connected to identifying the evaluand
Select an evaluation type	Grouped with data collection	Teachers' judgment, performance data, and synthesis of judgment and performance data
Develop evaluation questions	Based on evaluative criteria	Implies the use of research questions

Collect and analyze data	Checklists, methodological frameworks, SLA-based approaches	Qualitative: ethnographic and case study, interaction analysis and discourse analysis, and experimental and quasi-experimental
Report findings and implications	Connected to evaluation purpose	Mentioned when talking about audiences
Evaluate the evaluation	—	—

One important fact that has emerged from this study is that language as a subject area is "different" from most other subject areas in the curriculum, namely: it is skill-based as well as knowledge-based, and in this respect it has more in common with music than, say, history or geography. The extent of influence of CALL in the quality of language learning is complex.

When attempting to compare the effectiveness and influence of its use, it is not hoped that all the relevant variables can be controlled. However, a framework for evaluating the impact of it (Teacher-Student, Designer-Student and Designer-Teacher), can be of a great help in its evaluation. Finally, the positive impact of CALL generally outweighs whatever limitations it may have.

Suggestions for Future Research

From here, there are several questions regarding CALL evaluation that may need to be addressed. First, the efficacy and utility of evaluations that follow this framework should be researched and evaluated. Does this framework provide a more guided approach that is adaptable to various evaluands, stakeholders, and criteria? Additionally, how might this proposed framework benefit CALL publications including peer-reviewed research and software reviews? Many publications in top-tier CALL journals publish peer-reviewed research regarding the efficacy of author-generated CALL materials or CALL activities. While some may argue that evaluation and research are similar, future research and initiatives regarding the appropriateness of such publications would be helpful. Or in other words, should research that is essentially evaluation be portrayed as research? How does the evaluation of author-generated products benefit the body of CALL research it aims to contribute to?

Similarly, the current conventions for software reviews in these same top-tier journals need to be evaluated. How effective are these published reviews? As outlined in the article, our proposed framework for CALL evaluation includes essential tasks that are missing from popular CALL evaluation frameworks. Software reviews that follow our proposed framework will provide more information to readers and make them more readily usable by those same readers.

Separate from the previous questions regarding the role of evaluation in published literature, CALL evaluators should consider the use of evaluation standards. Is there a need for standards or guidelines similar to those proposed in formal evaluation, or would currently adopted formal evaluation standards such as the Joint Committee on Standards for Educational Evaluation be sufficient for CALL evaluations? Regardless of the answer to this question, it needs to be asked and studied, and the field of CALL should look to the field of evaluation for guidance and understanding.

CALL AND COMPUTATIONAL LINGUISTICS

Computational linguistics (CL) is a discipline between linguistics and computer science which is concerned with the computational aspects of the human language faculty. It belongs to the cognitive sciences and overlaps with the field of artificial intelligence (AI), a branch of computer science aiming at computational models of human cognition. Computational linguistics has applied and theoretical components.

Computational Linguistics and Natural Language Processing

"The two terms, Computational Linguistics (CL) and Natural Language Processing (NLP), have often been used interchangeably. However, these two terms represent two different streams of research which emphasize different aspects of our field. For example, while research on grammar and its formalisms in CL and research on parsing in NLP are closely related, their objectives are quite different. On one hand, researchers in CL have focused on revealing words systematically correspond to their meanings (in a compositional way) and have been interested in developing formalisms and those in NLP are interested in more practical engineering issues involved in processing natural languages by computer.

Theoretical CL

Human language is a most exciting and demanding puzzle. Theoretical CL takes up issues in theoretical linguistics and cognitive science. It deals with formal theories about the linguistic knowledge that a human needs for generating and understanding language. Today these theories have reached a degree of complexity that can only be managed by employing computers. Computational linguists develop formal models simulating aspects of the human language faculty and implement them as computer programmes. These programmes constitute the basis for the evaluation and further development of the theories. In addition to linguistic theories, findings from cognitive psychology play a major role in simulating linguistic competence. Within psychology, it is mainly the area of psycholinguistics that examines the cognitive processes constituting human language use. The relevance of computational modeling for

psycholinguistic research is reflected in the emergence of a new sub discipline: computational psycholinguistics.We teach computers to communicate with people.

Applied CL

Applied CL focuses on the practical outcome of modeling human language use. The methods, techniques, tools and applications in this area are often subsumed under the term language engineering or (human) language technology. Although existing CL systems are far from achieving human ability, they have numerous possible applications. The goal is to create software products that have some knowledge of human language. Such products are going to change our lives. They are urgently needed for improving human-machine interaction since the main obstacle in the interaction between human and computer is a communication problem. Today's computers do not understand our language but computer languages are difficult to learn and do not correspond to the structure of human thought. Even if the language the machine understands and its domain of discourse are very restricted, the use of human language can increase the acceptance of software and the productivity of its users.

Friendly software should listen and speak.

Natural Language Interfaces enable the user to communicate with the computer in French, English, German, or another human language. Some applications of such interfaces are database queries, information retrieval from texts, so-called expert systems, and robot control. Current advances in the recognition of spoken language improve the usability of many types of natural language systems. Communication with computers using spoken language will have a lasting impact upon the work environment, completely new areas of application for information technology will open up. However, spoken language needs to be combined with other modes of communication such as pointing with mouse or finger. If such multimodal communication is finally embedded in an effective general model of cooperation, we have succeeded in turning the machine into a partner.

Machines communicate

Much older than communication problems between human beings and machines are those

between people with different mother tongues. One of the original aims of applied computational linguistics has always been fully automatic translation between human languages. From bitter experience scientists have realized that they are still far away from achieving the ambitious goal of translating unrestricted texts. Nevertheless computational linguists have created software systems that simplify the work of human translators and clearly improve their productivity. Less than perfect automatic translations can also be of great help to information seekers who have to search through large amounts of texts in foreign languages.

Language - the fabric of the web

The rapid growth of the Internet/WWW and the emergence of the information society poses exciting new challenges to language technology. Although the new media combine text, graphics, sound and movies, the whole world of multimedia information can only be structured, indexed and navigated through language. For browsing, navigating, filtering and processing the information on the web, we need software that can get at the contents of documents. Language technology for content management is a necessary precondition for turning the wealth of digital information into collective knowledge. The increasing multilinguality of the web constitutes an additional challenge for our discipline. The global web can only be mastered with the help of multilingual tools for indexing and navigating. Systems for crosslingual information and knowledge management will surmount language barriers for e-commerce, education and international cooperation.

Ambitious visions and realistic applications.

We still do not know very well how people produce and comprehend language. Yet our understanding of the intricate mechanisms that underly human language processing keeps growing. Modeling such mechanisms on a computer also helps us to discover and formally describe hidden properties of human language that are relevant for any kind of language processing including many useful software applications. Our long term goal is the deep understanding of human language and powerful intelligent linguistic applications. However, even today's language technologies full of clever short cuts and shallow processing techniques can be turned into badly needed software products.

The young field's appeal is its diversity.

For many students and practitioners of computational linguistics the special attraction of the discipline is the combination of expertise from the humanities, natural and behavioral sciences, and engineering. Scientific approaches and practical techniques come from linguistics, computer science, psychology, and mathematics. At some universities the subject is taught in computer science at others it belongs to linguistics or cognitive science. In addition there is a small but growing number of programs and departments dedicated solely to computational linguistics.

How is Computational Linguistics different from Natural Language Processing?

Computational linguistics is analogous to computational biology or any other computational fill-in-the-blank. It develops computational methods to answer the scientific questions of linguistics. The core questions in linguistics involve the nature of linguistic representations and linguistic knowledge, and how linguistic knowledge is acquired and deployed in the production and comprehension of language. Answering these questions describes the human language ability and may help to explain the distribution of linguistic data and behavior that we actually observe. In computational linguistics, we propose formal answers to these core questions. Linguists are really asking what humans are computing and how. Linguistics also considers a variety of questions beyond this core -- think of sociolinguistics, historical linguistics, psycholinguistics and neuro-linguistics. These scientific questions are fair game as well for computational linguists, who might use models and algorithms to make sense of the data. In this case, we are not trying to model the competence of everyday speakers in their native language, but rather to automate the special kind of reasoning that linguists do, potentially enabling us to work on bigger datasets (or even new kinds of data) and draw more accurate conclusions. Similarly, computational linguists may design software tools to help document endangered languages.

Natural Language Processing

Natural Language Processing is the art of solving engineering problems that need to analyze (or generate) natural language text. Here, the metric of success is not whether you designed a better scientific theory or proved that languages X and Y were historically related. Rather, the metric is whether you got good solutions on the engineering problem.For example, you don't judge

Google Translate on whether it captures what translation "truly is" or explains how human translators do their job. You judge it on whether it produces reasonably accurate and fluent translations for people who need to translate certain things in practice. The machine translation community has ways of measuring this, and they focus strongly on improving those scores.

NLP is mainly used to help people navigate and digest large quantities of information that already exist in text form. It is also used to produce better user interfaces so that humans can better communicate with computers and with other humans.By saying that NLP is engineering, I don't mean that it is always focused on developing commercial applications. NLP may be used for scientific ends within other academic disciplines such as political science (blog posts), economics (financial news and reports), medicine (doctor's notes), digital humanities (literary works, historical sources), etc. But then it is being used as a tool within computational X-ology in order to answer the scientific questions of X-ologists, rather than the scientific questions of linguists.

Both fields make use of formal training in CS, linguistics, and machine learning. If you want to truly advance either field in a lasting way, you should develop enough strength to do original research in all three of these areas. It might help to go to a school with a strong interdisciplinary culture, where many of the CS faculty and students are actively interested in linguistics for its own sake (or vice-versa).That said, NLP people often get away with relatively superficial linguistics. They look at the errors made by their current system, and learn only as much linguistics as they need to understand and fix the most prominent types of errors. After all, their goal is not a full theory but rather the simplest, most efficient approach that will get the job done. Conversely, if you study computational linguistics in a linguistics department, you will typically get a lot more linguistics and a lot less CS/ML. The students in those departments are technically adept, since linguistics is quite a technical field. But they tend to know much less math and CS. So the computational courses tend to be providing only some exposure to formal language theory, programming, and applied NLP. These courses are popular among linguistics students who hope to improve their employability.If we can build a strong model of the human linguistic capacity, then that should solve a wide range of NLP problems for us. So today's computational linguistics is developing methods for tomorrow's NLP. That's been historically true too.

Examples and Observations:

"The field of computational linguistics (CL), together with its engineering domain of natural language processing (NLP), has exploded in recent years. It has developed rapidly from a relatively obscure adjunct of both AI [artificial intelligence] and formal linguistics into a thriving scientific discipline. It has also become an important area of industrial development. The focus of research in CL and NLP has shifted over the past three decades from the study of small prototypes and theoretical models to robust learning and processing systems applied to large corpora."

"Computational Linguistics has a long history, dating back to the Fifties, during which it developed a whole set of computational models and implementations, theories, methodologies and applications. . . . Since its origins, Computational Linguistics has been in an intermediate position between Computer Science and Artificial Intelligence, Linguistics and Cognitive Science, and Engineering. Computer Science itself shares its roots with Computational Linguistics: parsing, which is central for the design of compilers for programming languages (Aho & Ullmann 1977:6), is also the building block of any natural language processing engine, and both are the realizations of the Chomskian theory of formal languages (Chomsky 1957). . . .

"By now, we can say that while Computational Linguists were, and are, more interested in the correctness and plausibility of their models, Engineers were, and are, more interested in the usability of tools and techniques, even if this entails the risk of 'dirty' solutions. The history of Computational Linguistics in the last few decades is much the history of the evolving relations between all these conjuring approaches."

HISTORY OF CALL

CALL's origins can be traced back to the 1960s. Up until the late 1970s CALL projects were confined mainly to universities, where computer programs were developed on large mainframe computers. The PLATO project, initiated at the University of Illinois in 1960, is an important landmark in the early development of CALL (Marty 1981). In the late 1970s, the arrival of the personal computer (PC) brought computing within the range of a wider audience, resulting in a boom in the development of CALL programs and a flurry of publications. Early CALL favoured an approach that drew heavily on practices associated with programmed instruction. This was reflected in the term Computer Assisted Language Instruction (CALI), which originated in the USA and was in common use until the early 1980s, when CALL became the dominant term. There was initially a lack of imagination and skill on the part of programmers, a situation that was rectified to a considerable extent by the publication of an influential seminal work by Higgins & Johns (1984), which contained numerous examples of alternative approaches to CALL. Throughout the 1980s CALL widened its scope, embracing the communicative approach and a range of new technologies. CALL has now established itself as an important area of research in higher education:

Types of CALL Programs

CALL-specific software: applications designed to develop and facilitate language learning, such as CD-ROMs, web-based interactive language learning exercises/quizzes (see CD-ROM examples for language learning)

Generic software: applications designed for general purposes, such as word-processors (Word), presentation software (PowerPoint, see an e-book made by students "Many Moons"), and spreadsheet (Excel), that can be used to support language learning (see examples of using Excel for language learning & teaching) *Also see Microsoft Office Online Templates)

Web-based learning programs: online dictionaries, online encyclopedias, online concordancers, news/magazine sites, e-texts, web-quests, web publishing, blog, wiki, etc.

Computer-mediated communication (CMC) programs: synchronous - online chat; asynchronous - email, discussion forum, message board

The development of CALL – from the pedagogical perspective

1) Structural / Behavioristic CALL (1960s -1970s)

Characteristics:

- Repeated exposure to the same material is believed to be beneficial or even essential to learning.
- A computer is ideal for carrying out repeated drills, since the machine i) does not get bored with presenting the same material and ii) it can provide immediate non-judgmental feedback.
- A computer is used as a tutor, presenting material and feedback on an individualized basis, allowing students to proceed at their own pace and freeing up class time for other activities.

2) Communicative / Cognitive CALL (1980s -1990s)

Characteristics:

- Grammar is taught implicitly rather than explicitly.
- Computers are used to stimulate discussion, writing or critical thinking. Students are encouraged to generate original utterances rather than just manipulate prefabricated language.
- The programs avoid telling students that they are wrong and are flexible to a variety of student responses.
- Computers are used as a tool (e.g., word processors, spelling and grammar checkers, and concordancers) and the target language is used exclusively.

3) Integrative / Sociocognitive / Socioconstructive CALL (1990s -present)

Two types: Multimedia CALL (CD-ROMs) and Web-based CALL (on the Internet)

A) Multimedia CALL

Characteristics:

- They create a more authentic learning environment using different media.
- Language skills are easily integrated through multimedia.

- Students have a high degree of control over their learning through hypermedia.
- It facilitates a principle focus on the content without sacrificing a secondary focus on language form.

B) Web-based CALL

Characteristics:

1. CMC (computer-mediated communication)
   - It provides authentic synchronous and asynchronous communication channels
   - Language learners can communicate directly, inexpensively, and conveniently with other learners or native speakers of the target language at any time and in any place.
   - CMC can be carried out in several forms; it can be one-to-one, one-to-many, or many-to-one.
2. The Web
   - Students can search through millions of files around the world within minutes to locate and access authentic materials exactly tailored to their own personal interests.
   - Students can use the Web to publish their texts or multimedia materials to share with partner classes or with the general public.

How Computers can be used in the Language Class

1) Teaching with one computer in the class

   delivery of content (PowerPoint, word-processor, Webpages, etc.)
   classroom activities/discussions mediated by the computer
   Interactive whiteboard

2) Teaching in the computer network room (network-based language teaching)

   task-based group work /activities
   computer-mediated communication (CMC): asynchronous/synchronous
   tandem learning

3) Self-access learning (independent learning)

   drills and exercises
   word processing
   resource searching

4) Distance learning (i.e. individual learners working by themselves, at a place and time of their choice and, to some extent, at a pace and in an order also chosen by them.)

delivering online course content

CMC activities: email, discussion forum, chat rooms

tandem learning

community building

Principles of Using and Designing CALL Programs in Language Learning and Teaching

student/learner-centeredness (to promote learner autonomy)

meaningful purpose

comprehensive input

sufficient level of stimulation (cognitively and affectively)

multiple modalities (to support various learning styles and strategies)

high level of interaction (human-machine and human-human)

Traditional CALL

Traditional CALL programs presented a stimulus to which the learner had to provide a response. In early CALL programs the stimulus was in the form of text presented on screen, and the only way in which the learner could respond was by entering an answer at the keyboard. Some programs were very imaginative in the way text was presented, making use of colour to highlight grammatical features (e.g. gender in French and case endings in German) and movement to illustrate points of syntax (e.g. position of adjectives in French and subordinate clause word order in German). Discrete error analysis and feedback were a common feature of traditional CALL, and the more sophisticated programs would attempt to analyse the learner's response, pinpoint errors, and branch to help and remedial activities. A typical example of this approach is the CLEF package for learners of French, which was developed in the late 1970s and early 1980s by a consortium of Canadian universities. A Windows version of CLEF has recently been released: http://www.camsoftpartners.co.uk/clef.htm Error analysis in CALL is, however, a matter of controversy. Practitioners who come into CALL via the disciplines of computational linguistics, e.g. Natural Language Processing (NLP) and Human Language Technologies (HLT),

tend to be more optimistic about the potential of error analysis by computer than those who come into CALL via language teaching: see ICT4LT Module 3.5, Human Language Technologies: http://www.ict4lt.org/. The approach adopted by the authors of CLEF was to anticipate common errors and build in appropriate feedback. An alternative approach is the use of Artificial Intelligence (AI) techniques to parse the learner's response - so-called "intelligent CALL" (ICALL) - but there is a gulf between those who favour the use of AI to develop CALL programs (Matthews 1994) and, at the other extreme, those who perceive this approach as a threat to humanity (Last 1989:153).

Explorative CALL

More recent approaches to CALL have favoured a learner-centred, explorative approach rather than a teacher-centred, drill-based approach to CALL. The explorative approach is characterised by the use of concordance programs in the languages classroom - an approach described as Data-Driven Learning (DLL) by Tim Johns (Johns & King 1991). There are a number of concordance programs on the market, e.g. MonoConc, Concordance, Wordsmith and SCP - all of which are described in ICT4LT Module 2.4, Using concordance programs in the modern foreign languages classroom: http://www.ict4lt.org/. See also Tribble & Jones (1990). The explorative approach is widely used today, including the use of Web concordancers and other Web-based CALL activities.

Multimedia CALL

Early personal computers were incapable of presenting authentic recordings of the human voice and easily recognizable images, but this limitation was overcome by combining a personal computer and a 12-inch videodisc player, which made it possible to combine sound, photographic-quality still images and video recordings in imaginative presentations - in essence the earliest manifestation of multimedia CALL. The result was the development of interactive videodiscs for language learners such as Montevidisco (Schneider & Bennion 1984), Expodisc (Davies 1991), and A la rencontre de Philippe (Fuerstenberg 1993), all of which were designed as simulations in which the learner played a key role.

The techniques learned in the 1980s by the developers of interactive videodiscs were adapted for

the multimedia personal computers (MPCs), which incorporated CD-ROM drives and were in widespread use by the early 1990s. The MPC is now the standard form of personal computer. CD-ROMs were used in the 1980s initially to store large quantities of text and later to store sound, still images and video. By the mid-1990s a wide range of multimedia CD-ROMs for language learners was available, including imaginative simulations such as the Who is Oscar

Lake? series: http://www.languagepub.com/. The quality of video recordings offered by CD-ROM technology, however, was slow to catch up with that offered by the earlier interactive videodiscs. The Digital Video Disc (DVD) offers much higher quality video recordings, e.g. the Eurotalk Advanced Level DVD-ROM series: http://www.eurotalk.co.uk/. A feature of many multimedia CALL programs is the role-play activity, in which the learner can record his/her own voice and play it back as part of a continuous dialogue with a native speaker. Other multimedia programs make use of Automatic Speech Recognition (ASR) software to diagnose learners' errors, e.g. Tell Me More Pro by Auralog: http://www.auralog.com/english.html. Most CALL programs under development today fall into the category of multimedia CALL. See ICT4LT Module 2.2, Introduction to multimedia CALL: http://www.ict4lt.org/.

Web-based CALL

In 1992 the World Wide Web was launched, reaching the general public in 1993. The Web offers enormous potential in language learning and teaching, but it has some way to go before it catches up with the interactivity and speed of access offered by CD-ROMs or DVDs, especially when accessing sound and video files. For this reason, Felix (2001:190) advises adopting hybrid approaches to CALL, integrating CD-ROMs and the Web and running audio conferencing and video conferencing in conjunction with Web activities. The Web Enhanced Language Learning (WELL) project, which has been funded under the FDTL programme of the HEFCE, aims to promote wider awareness and more effective use of the Web for teaching modern languages across higher education in the UK. The WELL website provides access to high-quality Web resources in a number of different languages, selected and described by subject experts, plus information and examples on how to use them for teaching and learning: http://www.well.ac.uk/.

PHASES OF CALL

Using technology to help language teaching and learning is not a new practice. Attempts to bring technology into language classroom can be traced back to the 1960s. Warschauer & Healey (1998, in Bax, 2003) classify the development of technology use in language classroom into three main stages, i.e. behavioristic CALL (1960s-1970s), Communicative CALL (1980s - 1990s), and Integrative CALL (1990s - present). When we look at CALL history, we see three phases of CALL; behavioristic CALL, communicative CALL and integrative CALL. The table below this entry is adapted from Kern and Warschauer (2000) by Blake (2013) and analyzes CALL history in terms of pedagogical advances rather than technological innovations.

Behavioristic CALL is the first phase of CALL which was implemented in the 1960s and '70s. Programs at those times included repetitive language drills which were later refered to as "drill and practice". It was based on the model of computer as tutor (Taylor 1980). In other words, computer was seen as a medium to deliver instructional materials to learners. PLATO system, which included vocabulary drills, short grammar explanations and drills, and translation exercises, is a good example for this phase. After about 20 years, behavioristic CALL gave the floor to a new phase called communicative CALL, following the change in teaching approaches.

Communicative CALL is the second phase which gained importance in the 1970s. It focuses on authentic communication and use of forms rather than the forms themselves. 3 different CALL models were used for communicative activities: computer as tutor (Taylor &Perez 1989:3), computer as tool (Brierley & Kemble 1991; Taylor 1980) and computer as stimilus (Taylor & Perez 1989:63). The first model enables skill practice in a non-drill format. The second model includes word processors, concordancers, spelling and grammar checkers and desktop publishing programs which empower The learner use The language. The third model stimulates learner discussion, critical thinking or writing, and the programs in this category may not be specially designed for language learners. Thanks to the advances in technology, especially after the Internet, more integrative methods in language teaching started to gain momentum, and these advances opened a new era in CALL history, which we call integrative CALL.

The third phase is called integrative CALL, which includes two important developments: multimedia and the Internet. Thanks to these developments, learners are in a more authentic and combined environment. They also have control over their learning, and can access to many background links while they are focusing the main lesson. Dustin, for example, is a good program which hypermedia is used for language learning. In addition, computer mediated communication and the Internet are used to help create an integrative communicative environment for language learning, and are great medium for global communication and various authentic materials.

The three pedagogically designed phases show us the evolution of CALL through the years. I believe that there will be more developments in the following years which aim to give more opportunities to the learners together with the future pedagogical advances.

An Analysis of Three phases

The first phase of CALL development was Structural CALL, an approach used during the 1960s and 1970s that followed the teaching techniques of structural linguistics. Here CALL primarily took the form of drill and practice programs. However, by the end of the 1970s, such behavioristic approaches to language learning had given way to communicative approaches focusing on the meaning of language in use rather than on its form, and this was reflected the changed nature of CALL activities.

Following a cognitive view of language learning which held that learners develop language as an internal mental system primarily through interaction, Communicative CALL took the form of communicative exercises performed as a way of practicing English. The content of the interaction was not seen as important, nor was the learners' own speech or output. Rather the provision of input was seen as essential for learners to develop their mental linguistic systems. In contrast, the current paradigm of integrative CALL is based on a socio-cognitive view of language learning.

From this viewpoint, learning a second or foreign language involves apprenticing into new discourse communities. The purpose of interaction is seen as helping students enter these new

communities and familiarize themselves with new genres and discourses, so the content of the interaction and the nature of the community are extremely important. It is no longer sufficient to engage in communication merely to practice language skills.

APPROACHES TO CALL

In terms of the wider picture of language teaching and learning, it is sometimes easy to forget that computers have been available as a resource in language teaching for little more than twenty years. During this relatively short time, there has been a dramatic change in the number of options open to language teachers and learners. Initially, computers were mainly used as sophisticated typewriters, allowing learners to write and to correct and amend easily and effectively. Some basic interactive software was available in the early years, but this was generally restricted to the type of exercise found in grammar practice books with the added feature of a sound to indicate a correct or incorrect answer.

The real advance in the use of computers in language teaching came with the transition from floppy-disc to compact discs (CDs) as the basic form of software, the proliferation of e-mail as a means of communication and, most importantly, with the arrival of the Internet as a widely available resource. Today there is a vast array of language teaching material available on CD ROM or DVD, ranging from self-study materials to supplement published course-books, to ESP-based courses and culture-based materials. Many learners of English have access to e-mail and the Internet at home as well as at school and this presents teachers with a range of useful options in terms of setting writing tasks, communicating with learners by e-mail, giving learners research tasks and setting up project work based on researching the Internet. Where previously such tasks would have involved a great deal of letter writing on the part of both teacher and learners, on the one hand, and a potentially time-consuming visit to the local library on the other, they can now be accomplished quickly and easily without the learner ever having to leave his or her PC.

Although many learners seem to be much more familiar with the use of computers than a lot of teachers appear to be, there is still plenty of scope for some input in class related to computers. Basic terminology is a good starting point and a useful exercise may be the pronunciation of e-mail and internet addresses, such as jbloggs@newmail.com or www.onestopenglish.com. Similarly, there may be some value in teaching the meta-language of word processing (e.g. copy, cut, paste, insert), writing e-mails (e.g. reply, forward, delete) and surfing the Internet (e.g. search, link, key-word and so on). Many UK language schools are now responding to the specific

needs of learners and offering computer-based options leading to word-processing qualifications such as the UK-based CLAIT, validated by the RSA, and the American MOUS qualification, validated by Microsoft. In both cases certificates are offered for different levels of competence from basic user to proficient user and both practice activities and examinations are offered "on-line".

In terms of practical classroom activities to exploit the Internet, if teachers have access to several Internet-linked computers for use with their classes, there are numerous possibilities. Learners can fill-in on-line questionnaires, research specific topics, prepare presentations using on-line information, graphs and diagrams, find the answers to questions set by the teacher, do interactive

grammar, vocabulary and even pronunciation exercises, read and summarize the latest news, and contribute to on-line discussions and debates. With technology advancing at breakneck speed, it sometimes seems difficult for teachers to keep up but remaining informed is crucial. Our learners may already be several steps ahead in this area and to retain credibility we need to be familiar with the latest developments in computer technology and to be able to integrate computers confidently into our everyday classroom practice.

Approaches to teaching foreign languages are constantly changing, dating back to grammar-translation, through the direct method, audio-lingualism and a variety of other approaches, to the more recent communicative approach and constructivism (Decoo 2001).

Designing and creating CALL software is an extremely demanding task, calling upon a range of skills. Major CALL development projects are usually managed by a team of people:

- A subject specialist (also known as a content provider) – usually a language teacher – who is responsible for providing the content and pedagogical input. More than one subject specialist is required for larger CALL projects.
- A programmer who is familiar with the chosen programming language or authoring tool.
- A graphic designer, to produce pictures and icons, and to advise on fonts, colour, screen layout, etc.
- A professional photographer or, at the very least, a very good amateur photographer. Graphic designers often have a background in photography too.
- A sound engineer and a video technician will be required if the package is to contain substantial amounts of sound and video.
- An instructional designer. Developing a CALL package is more than just putting a text book into a computer. An instructional designer will probably have a background in cognitive psychology and media technology, and will be able to advise the subject specialists in the team on the appropriate use of the chosen technology (Gimeno & Davies 2010).

CALL inherently supports learner autonomy, the final of the eight conditions that Egbert et al. (2007) cite as "Conditions for Optimal Language Learning Environments". Learner autonomy places the learner firmly in control so that he or she "decides on learning goals" (Egbert et al.,

2007, p. 8).

It is all too easy when designing CALL software to take the comfortable route and produce a set of multiple-choice and gap-filling exercises, using a simple authoring tool (Bangs 2011),[36] but CALL is much more than this; Stepp-Greany (2002), for example, describes the creation and management of an environment incorporating a constructivist and whole language philosophy. According to constructivist theory, learners are active participants in tasks in which they "construct" new knowledge derived from their prior experience. Learners also assume responsibility for their learning, and the teacher is a facilitator rather than a purveyor of knowledge. Whole language theory embraces constructivism and postulates that language

learning moves from the whole to the part, rather than building sub-skills to lead towards the higher abilities of comprehension, speaking, and writing. It also emphasises that comprehending, speaking, reading, and writing skills are interrelated, reinforcing each other in complex ways. Language acquisition is, therefore, an active process in which the learner focuses on cues and meaning and makes intelligent guesses. Additional demands are placed upon teachers working in a technological environment incorporating constructivist and whole language theories. The development of teachers' professional skills must include new pedagogical as well as technical and management skills. Regarding the issue of teacher facilitation in such an environment, the teacher has a key role to play, but there could be a conflict between the aim to create an atmosphere for learner independence and the teacher's natural feelings of responsibility. In order to avoid learners' negative perceptions, Stepp-Greany points out that it is especially important for the teacher to continue to address their needs, especially those of low-ability learners.

Multimedia

Language teachers have been avid users of technology for a very long time. Gramophone records were among the first technological aids to be used by language teachers in order to present students with recordings of native speakers' voices, and broadcasts from foreign radio stations were used to make recordings on reel-to-reel tape recorders. Other examples of technological aids that have been used in the foreign language classroom include slide projectors, film-strip projectors, film projectors, videocassette recorders and DVD players. In the early 1960s, integrated courses (which were often described as multimedia courses) began to appear. Examples of such courses are Ecouter et Parler (consisting of a coursebook and tape recordings) and Deutsch durch die audiovisuelle Methode (consisting of an illustrated coursebook, tape recordings and a film-strip – based on the Structuro-Global Audio-Visual method).

During the 1970s and 1980s standard microcomputers were incapable of producing sound and they had poor graphics capability. This represented a step backwards for language teachers, who by this time had become accustomed to using a range of different media in the foreign language classroom. The arrival of the multimedia computer in the early 1990s was therefore a major breakthrough as it enabled text, images, sound and video to be combined in one device and the integration of the four basic skills of listening, speaking, reading and writing.

Examples of CALL programs for multimedia computers that were published on CD-ROM and

DVD from the mid-1990s onwards are described by Davies (2010: Section 3). CALL programs are still being published on CD-ROM and DVD, but Web-based multimedia CALL has now virtually supplanted these media. Following the arrival of multimedia CALL, multimedia language centres began to appear in educational institutions. While multimedia facilities offer many opportunities for language learning with the integration of text, images, sound and video, these opportunities have often not been fully utilised. One of the main promises of CALL is the ability to individualise learning but, as with the language labs that were introduced into educational institutions in the 1960s and 1970s, the use of the facilities of multimedia centres has often devolved into rows of students all doing the same drills (Davies 2010: Section 3.1). There is therefore a danger that multimedia centres may go the same way as the language labs. Following a boom period in the 1970s, language labs went rapidly into decline. Davies (1997: p. 28) lays the blame mainly on the failure to train teachers to use language labs, both in terms of operation and in terms of developing new methodologies, but there were other factors such as poor reliability, lack of materials and a lack of good ideas.

Managing a multimedia language centre requires not only staff who have knowledge of foreign languages and language teaching methodology but also staff with technical know-how and budget management ability, as well as the ability to combine all these into creative ways of taking advantage of what the technology can offer. A centre manager usually needs assistants for technical support, for managing resources and even the tutoring of students. Multimedia centres lend themselves to self-study and potentially self-directed learning, but this is often misunderstood. The simple existence of a multimedia centre does not automatically lead to students learning independently. Significant investment of time is essential for materials development and creating an atmosphere conducive to self-study. Unfortunately, administrators often have the mistaken belief that buying hardware by itself will meet the needs of the centre, allocating 90% of its budget to hardware and virtually ignoring software and staff training needs.

Self-access language learning centres or independent learning centres have emerged partially independently and partially in response to these issues. In self-access learning, the focus is on developing learner autonomy through varying degrees of self-directed learning, as opposed to (or as a complement to) classroom learning. In many centres learners access materials and manage their learning independently, but they also have access to staff for help. Many self-access centres are heavy users of technology and an increasing number of them are now offering online self-

access learning opportunities. Some centres have developed novel ways of supporting language learning outside the context of the language classroom (also called 'language support') by developing software to monitor students' self-directed learning and by offering online support from teachers. Centre managers and support staff may need to have new roles defined for them to support students' efforts at self-directed learning: v. Mozzon-McPherson & Vismans (2001), who refer to a new job description, namely that of the "language adviser".

Internet

The emergence of the World Wide Web in the early 1990s marked a significant change in the use of communications technology for all computer users. Email and other forms of electronic communication had been in existence for many years, but the launch of Mosaic, the first graphical Web browser, in 1993 brought about a radical change in the ways in which we communicate electronically. The launch of the Web in the public arena immediately began to attract the attention of language teachers. Many language teachers were already familiar with the concept of hypertext on stand-alone computers, which made it possible to set up non-sequential structured reading activities for language learners in which they could point to items of text or images on a page displayed on the computer screen and branch to any other pages, e.g. in a so-called "stack" as implemented in the HyperCard program on Apple Mac computers. The Web took this one stage further by creating a world-wide hypertext system that enabled the user to branch to different pages on computers anywhere in the world simply by pointing and clicking at a piece of text or an image. This opened up access to thousands of authentic foreign-language websites to teachers and students that could be used in a variety of ways. A problem that arose, however, was that this could lead to a good deal of time-wasting if Web browsing was used in an unstructured way (Davies 1997: pp. 42–43), and language teachers responded by developing more structured activities and online exercises (Leloup & Ponterio 2003). Davies (2010) lists over 500 websites, where links to online exercises can be found, along with links to online dictionaries and encyclopaedias, concordancers, translation aids and other miscellaneous resources of interest to the language teacher and learner.

The launch of the (free) Hot Potatoes (Holmes & Arneil) authoring tool, which was first demonstrated publicly at the EUROCALL 1998 conference, made it possible for language teachers to create their own online interactive exercises. Other useful tools are produced by the same authors.

In its early days the Web could not compete seriously with multimedia CALL on CD-ROM and DVD. Sound and video quality was often poor, and interaction was slow. But now the Web has caught up. Sound and video are of high quality and interaction has improved tremendously, although this does depend on sufficient bandwidth being available, which is not always the case, especially in remote rural areas and developing countries. One area in which CD-ROMs and DVDs are still superior is in the presentation of listen/respond/playback activities, although such activities on the Web are continually improving.

Since the early 2000s there has been a boom in the development of so-called Web 2.0 applications. Contrary to popular opinion, Web 2.0 is not a new version of the Web, rather it implies a shift in emphasis from Web browsing, which is essentially a one-way process (from the Web to the end-user), to making use of Web applications in the same way as one uses applications on a desktop computer. It also implies more interaction and sharing. Walker, Davies & Hewer (2011: Section 2.1) list the following examples of Web 2.0 applications that language teachers are using:

- Image storage and sharing
- Social bookmarking
- Discussion lists, blogs, wikis, social networking
- Chat rooms, MUDs, MOOs and MUVEs (virtual worlds)
- Podcasting
- Audio tools
- Video sharing applications and screen capture tools (referring to both video screen capture tools and screenshot tools)
- Animation tools – comic strips, movies, etc.
- Mashups

CALL METHODOLOGY

Methodological Framework

The methodological framework consists of three components

1) Development
2) Evaluation
3) Implementation

Development and evaluation precedes implementation

Evaluation can inform development and implementation can inform both development + evaluation

Goals of the framework

- should be consistent with established frameworks for language teaching methodology
- should describe the logical relationships among learners, teachers, and computers
- should explicitly link development, evaluation, and implementation
- should identify the relevant elements of the three areas and describe their interrelationships

1) Development

During the development phase an informed decision regarding language teaching approach has to be made and this decision has to be applied throughout the development process .In keeping with the first goal, the CALL framework is based on Richards and Rodgers [1982] conception of a language teaching method which is described in terms of three interacting components or levels:

- Approach (reflects the theories of language structure and language learning)
- Design (embodies the goals and objectives of the syllabus and the roles of the teacher, learner, and materials consistent with the approach)
- Procedure (types of exercises, techniques or classroom activities consistent with the approach and design)

Approach the two principal determining elements are

- Linguistic assumptions and learning assumptions
- Language teaching approaches have been developed for the classroom environment, but the Computer delivery system brings in new considerations (individualization, dynamic interaction with other users

The developer's language teaching approach and computer delivery system considerations combine in framing a set of approach-based design criteria.

Design criteria

The courseware

- provides meaningful communicative interaction between the student and
- the computer
- provides comprehensible input at a level just beyond that already
- acquired by the learner
- promotes a positive self-image in the learner
- provides a challenge but does not produce frustration or anxiety
- acts effectively as a catalyst to promote learner-learner interaction in the
- target language

The purpose of the Design component is to specify the goals and objectives of a method, their Actualization through the syllabus and the roles of the teacher, learner, and materials.

There are two fundamental components

- Learner Profiles (proficiency level, age, native language, needs, interests, cognitive styles (inductive/deductive, visual/orthographic/auditory, etc.))
- Syllabus (learning objectives and the means by which they are reached)

Learner profiles and syllabus inform design decisions with respect to

- *Language Difficulty* (familiarity, concreteness, length, grammatical complexity, clarity of the signal)
- *Program Difficulty* (non-linguistic aspects such as redundancy, input, timing, complexity

of the program operation, cognitive difficulty of the task, control options offered to the student)

The goal is to insure that the level of difficulty provided by a program is either neutral to or enhances learning and does not erect barriers to it content (specific syllabus goals: teaching of culture, perceived student needs and interests)

Elements of the design component are:

- learning style (the type of learning supported by the activity)
- recognition, recall, comprehensive, experiential learning, and constructive understanding
- program focus (phonology/graphology, through vocabulary and grammar, to discourse/text)
- learner focus (reading, writing, listening, speaking)
- classroom management (will the design support individual, paired, small group or whole class work)
- hardware and programming language considerations (Mac/PC, keyboard/mouse/touch
- screen, authoring/general purpose languages)

The Procedure section of the development module contains the elements to be considered in the actual layout of the program that presents the materials.

- The activity type (game, quiz, text construction, text reconstruction, simulation, problem solving, drill- and practice, tutorial, exploratory)
- The presentation scheme (cloze exercises, scrambled paragraphs, branching programs)
- The presentational schemes are mostly computer versions of classroom exercises (except
- I.e. Storyboard)
- Screen layout (visual and auditory presentation, user interface)
- Control options (magister vs. Pedagogue, that is, system vs user control)
- Input judging/feedback (multiple choice vs student input in form of phrases, sentences)
- Help options (review, hints, etc.)

The final product of the development module is the courseware package - the courseware and anything that might have been produced to go with it (tutorial on how to use it, textbook, documentation, record keeping, authoring system or template, etc.)

Evaluation

The evaluation module incorporates the terms

- Teacher fit
- Learner fit
- Operational description

The overall evaluation process would include compatibility of the program with particular hardware configurations, operation of the program, cost, etc.

The determination of the elements of the operational description is the first step. Once these elements are clear to the evaluator, the more subjective judgments of learner fit and teacher fit can be determined.

Learner Fit

- Does the presentational scheme fit the students' learning style?
- Are the program focus (language area) and learner focus (skill area) appropriate for the
- Learners' needs as determined by the syllabus?
- Is the language difficulty at the right level given the learners' proficiency?
- Is the feedback understandable and useful to the students?

Teacher Fit

The considerations of the language teaching approach and computer delivery system can be used to judge the degree to which a piece of software fits within the teacher's conception of how languages are successfully learned.

- gives meaningful rather than mechanical practice, contextualized in a co-herent discourse larger than a single sentence;
- provides hints of various types to lead students to correct answers;

- accepts alternative correct answers within a given context;
- offers the option of explanations for why correct answers are correct; and
- anticipates incorrect answers and offers explanations for why they are in-correct.

Appropriate Judgments

Teacher fit and learner fit considerations combine to yield judgments of the ap-propriateness of a piece of CALL software for a given setting. Although the process of getting to this point appears linear in Figure 1 above, decisions to reject a program can be made at any point: for instance, if either teacher or learner fit is noted early on to be poor, there is no need to continue. The result of this process is a decision of whether or not to recommend purchase of the software, or, if it is already purchased or available for free, whether or not to use it. However, a teacher evaluating a promising piece of software must determine not just whether but also how and when to use it: this is the domain of implementation.

Implementation

- Depends on a positive response in terms of appropriateness
- Determines when and how to use the courseware with the students

The implementation module in Hubbard (1996) provides several points of consider-ation that converge on the development of schemes for learner use. These include accessibility, preparatory and follow-up activities (especially if linked to other course materials such as a textbook), and a number of teacher-controlled vari-ables such as classroom management, site monitoring, teacher program control (for programs that allow such settings), access to student records, and teacher authoring possibilities.

Learner Training

The teacher's job is not complete when the software has been selected, procured, and integrated into the syllabus. In most cases, students need time and training to learn how to use the software effectively from a pedagogical as well as a technical perspective. In particular, they need to learn how to connect their actions with the software to desired language learning objectives. For instance, they need to be guided to understand that the primary purpose of a computer reading or listening lesson is not to answer the comprehension questions correctly but rather to engage with the language and content to improve their reading or listening proficiency— comprehension questions are just the most visible part of that process.

Five Guiding Principles For Call Learner Training:

- Experience CALL yourself from the learner's perspective;
- Provide learners with some teacher training so that they can make better decisions when working independently;
- Employ a cyclical approach, making training ongoing rather than relying on one-time training sessions when the software is first introduced;
- Use collaborative debriefings to encourage students to reflect on their learn-ing process after using the software and to promote finding out about effec-tive procedures from one another; and
- Teach general exploitation strategies so that they can take greater control of the software and adapt it in ways that go beyond the designer's vision.

Evaluating Student Outcomes

A final area of the evaluation process that needs to be touched upon is determining the degree to which the software is used and the manner in which it is used have been successful. This assessment process helps the teacher decide whether to use the software in the future, and, if so, whether to use it in the same way or differently. It also adds to the teacher's general understanding of what students do with the software, which can influence future evaluations and

implementation decisions. Although important in principle, this sort of evaluation can be quite challenging and time consuming to accomplish well in practice. Even some empirical information is better than none, however, so the use of one or more of the following methods is highly recommended.

Observation

The most direct way to get information on whether the software is having a positive effect on learning is by watching the students as they use it. In a lab situation, particularly when dealing with software that is new to the student, the teacher can walk around, take note of how students are moving through the software, and interact with them as they are interacting with the software. Information gleaned in this manner can be used both to evaluate the software and to inform ongoing learner training.

Tracking Systems

Perhaps the best way to get objective information on student use is either to select software that includes tracking of student actions or to employ a screen capture device (e.g., Lotus Screen Cam) that will record the changes in the student display. Depending on the type of tracking system used and the nature of the data collected, this can allow for either a superficial overview, a data set that is rich in detail but may be time consuming to analyze. Other things being equal, however, the presence of a tracking system in software is seen as a positive feature.

Student Surveys

Another approach to gathering information on student perceptions of success or failure with the software is to ask them by using a survey or questionnaire. While such information can be valuable, there are two concerns. First, if students know their responses are tied to a grade or other assessment, the results will be compromised. Second, even when students are trying to be completely honest, their reports may not correspond to their actions. If surveys are to be used, then it is advisable to administer them either during or immediately after completion of a CALL activity to tap into fresh memories as much as possible.

Pre- and Post testing

Evaluating student outcomes is a form of research, especially when it is done with software that

is untried for a particular setting. Certain types of CALL instruction, particularly those which can be assessed with some degree of validity with discrete point tests such as vocabulary development, may be empirically evaluated using a pre and post test regime. However, they often have strong face validity with students and school administrations, especially when results are positive.

Student Journals

This is mainly done for the students' benefit, this kind of journal also provides teachers with useful information on how their students are progressing and using the software. Note, however, that like questionnaires, the data in student journals may not be fully reliable and should be interpreted accordingly.

Conclusion

Software evaluation remains an important area of CALL and there are indications its role may be increasing, particularly in the domain of empirical evaluation. Researchers have proposed a learner-centered theory to support empirical "E/Valuation" built on relationships among learner variables, learner objectives, and both constructivist and instructive language-teaching methods. Reflecting on the material and procedures provided is an important first step in mastering that art, but the challenge remains for the individual to gain the experience needed to determine a compatible CALL software evaluation procedure that is practical and consistently yields reliable results.

USES OF CALL IN ENGLISH LANGUAGE TEACHING

The use of CALL in ELT can be divided as follows:

- Computer as Drill and Practice
- Computer as Tutor
- Computer as Simulation / Problem Solving
- Computer as Game
- Computer as Tool for ELT teachers and learners
- Applications of Internet for ELT.

Computer as drill and practice

In this use of CALL, computers are viewed as a tool for saving time with the immediate feedback. The learning principles behind Drill and Practice is the Behaviorism Learning Theory and the Audiolingual approach language to teaching. The main aim of Drill and Practice is to review the content / background knowledge, and to assist the learners to master separate language skills (such as reading, listening, etc.)

Drill and practice consists of three steps:

- Providing stimulus
- Receiving active response from the learner
- Giving immediate feedback.

There are several types of drill and practice activities (exercises) such as

- Paired Associate (Matching);
- Sentence Completion;
- Multiple Choice;
- Part Identification;
- True-False; and
- Short-Answer questions.

Well-designed Drill and Practice programs can record the learner's progress and scores and the

time a student spends on each exercise. Some programs add timing features to help the learner to control their speed while practicing. Drill and practice CALL programs in the early years focused on practicing language skills and components separately (such as vocabulary, grammar (such as irregular verbs, past tense, articles), reading, and translation. A lot of drill and practice exercises were produced by classroom teachers.

Limitations of Drill and Practice Exercises

The lack of interaction and content materials which are not authentic, meaningful, and contextualized.Drill and practice programs of the 1960s –1970s **did not produce** enough authentic communication for the learners (gap filling, reconstructing texts, Cloze exercises, Text reconstruction, and Eclipse , Storyboard)

Computer as tutor

The role of the computer as tutor is to present to the learners the content of the lesson as text graphics, video, animation, or slides, including learning activities, drills and practice. The computer serves as a means for delivering instructional materials.

The program consists of the following stages:

- Introduction stage (stating aims, background knowledge)
- Presentation of the content
- Exercises and/or testing
- Giving the feedback.

Examples of CALL tutorial programs

Grammar : Longman Grammar Software; Grammar Expert Plus; Tense Buster (Clarity Software); Grammar Mastery (ALA); Grammar Rom (Addison Wesley Longman); Grammar 3D: Contextualized Practice for Learners of English (Heinle & Heinle).

Reading : Read It! Study Skills (Clarity Language Consultants) (EAP reading); RocketReader (1998) (a speed reading program); ReadFlex (Speed Reading); Reading for English (Athelstan)

(Reading Comprehension); SEEN: Tutorials for Critical Reading (KenCD Software) (tutorials designed to develop analytical thinking and critical reading skills); Accelerated Reader (Advantage Learning Systems).

Writing : Paragraph Punch (a writing tutor for effective paragraph); WriteExpress Easy Letters (effective business letters); Power Editing (an interactive tutorial on how to edit and revise sentences); Report Writer for Science and Engineering Reports (Clarity Language Consultants) (EFL/ESL report science and engineer writing).

Speaking, Pronunciation & Listening: Learn to Speak (The Learning Company); English Pronunciation (1997-98) (Okanagan University College); Dragon, Naturally Speaking (A voice recognition program); See It, Hear It, Say It! (Courseware Publishing International); Accent Improvement (SpeakWare); Real English (Wiser Software).

Integrated Skills / Courseware: Ellis (CALI), Dynamic English (DynEd); English Discoveries (Berlitz); English Language Development (Jostens); Rosetta Stone (Fairfield Language Technologies); Planet English (Unisearch Ltd and the University of New South Wales); Issues in English (Protea Software); Active English (Courseware Publishing International).

Computer used for simulation / problem solving

Simulations and problem solving is used to foster analysis, critical thinking, discussion and writing activities. The computer is not used much for tutorial purposes. The program is designed to create language interaction through problematic situations, conditions or problems challenging for the learner to solve. Many simulation programs are problem solving games, which are entertaining and educational ("edutainment").

Example: Oregon Trail (1995-1998) (CD-ROM)<http://www.cd-romlink.com> is one of the earliest educational simulation problem solving games. The learners are challenged to make a series of decisions to guide their party from Missouri to Oregon by covered wagon. These decisions begin with choosing a departure date, through the daily decisions relating to pace, restocking and direction. The learners face a series of obstacles: fires, floods, injuries, no water,

bad water, no grass, food spoilage, etc. The learners have to make life-or-death decisions. Though Oregon Trail is not directly designed for ELT classes, the teacher can create learning activities in both receptive and productive skills. Other educational simulation problem solving games are Carmen Sandiego, A Day in the Life (1995), and Carmen Sandiego Word Detective (1999), which helps learners to master essential language skills, Amazon Trail II (The Learning Company) which is a simulation of a trip up the Amazon River.

Computer as game

The main principle behind computer gaming is that "Learning is Fun." The main aim is to create a pleasurable learning environment , and to motivate the language learner. However, good educational games should have clear educational objectives. CALL games and simulation games are similar in that both are designed to motivate students to learn through entertainment. However, they are different in certain ways. Simulation games always use simulations (real life situations) in the presentation of a game, while CALL games focus on providing fun, but challenging environment to the learner. Though CALL games have clear learning objectives, they are different from Tutorials and Drill and Practice. The main function of CALL games is not so much to present the language content as tutorials do but to provide entertainment to the learner. Examples of CALL vocabulary games are Spelling Games, Spelling Bee and Magic Hat, Scrambled Word, Word Worm, Hangman, Word Order, Find a Word, Word Puzzles, Spelling Buddy, Cross Words, I Love Spelling (DK multimedia), Scrabble Deluxe (Virgin Games) (Computerized version of the board game), etc.

Computer as tool for teachers and learners

Word Processors

The most common tool used by teachers and learners in CALL is probably word processors. Word Processors are tools for creating documents for making handouts, sheets, desktop publishing, letters, and flyers for language teaching and learning. There is a variety of word

processors available, ranging from high quality programs such as Microsoft Word Teachers can choose ones suitable for their students.

Spelling Checkers

Spelling checkers are tools for ELT teachers and learners for conducting spelling check. Most high quality word processing programs such as Microsoft Word, Word Perfect have built in spelling checkers. However, there are separate spelling checking programs available such as Spell it Deluxe (1997).

Grammar Checkers

ELT teachers can use grammar checker programs to check and point out grammatical problems in writing. Like spelling checkers, grammar checkers can be a separate program such as Grammatik or built-in programs such as the Grammar Check in Microsoft Word. However, these grammar checkers still have limited abilities and are intended for native speakers. So they are not recommended for ESL/EFL learners since they may be confusing.

Concordancers

Teachers and learners can use concordancing software to search in huge databases to find all the uses of particular words. It might be confusing for ESL/EFL beginners. The best Concordancer for ELT teachers and students is Oxford MicroConcord . The software includes a total of about 1,000,000 words from British newspapers.

Collaborative Writing

Collaborative writing is software that helps the learner to write collaboratively on computers, which are linked in a local area network. Daedalus Integrated Writing Environment is the most popular one. This software includes real-time discussion, word processing, electronic mail, brainstorming, and a dictionary.

Reference

At present many CD versions of encyclopedias, dictionaries, thesauruses, maps and other

references are available to the teachers and learners. Popular reference CD-ROM programs are WordWeb, (a thesaurus /dictionary), Collins On-Line Dictionaries, American Heritage Dictionary (Softkey); Longman Multimedia Dictionary, Grammar Reference (US English grammar usage), American Heritage Talking Dictionary (The Learning Company).

Authoring

Generally, ELT teachers use commercially available CALL software. The authoring software allows teachers to select appropriate content and learning activities according to their students' needs. There is a variety of authoring software ranging from pre-scripted authoring programs such as Authorware (Macromedia), Toolbook (Asymetrix Corporation), etc. which requires the user to write scripts, to customized template authoring programs and allow the teacher to create customized teaching activities and exercises such as Storyboard, Clozemaker, ChoiceMaster, GapMaster in Wida's Authoring Suite, Wiser Educator, Author Plus (Clarity Language Consultants), Authorware Attain (Macromedia).

Internet applications

Computers can be connected to the internet and can incorporate interactive multimedia: text, graphics, audio, video, and animation. It can be said that the explosive growth of the internet has given new life to interactive media and CALL. To access text, graphics, audio, video, and animation published on the internet, the teacher and learner need to use "Web browser" software, a computer based graphical program that allows users to search and explore information on the internet. Common Web browsers are Netscape Navigator and Microsoft Internet Explorer. It is expected that the internet will become one of the most popular mediums for CALL because it allows for world-wide distance education. The use of the internet is easy. The user usually interacts just by clicking the mouse. Easy navigation is an advantage of using the internet in linking to different sites around the world.

Internet applications for ELT teachers:

Electronic mail (E-mail)

Computer-mediated communication makes it easy for ELT learners to have direct authentic

communication with the teacher, other learners or interested people around the world by using e-mail. E-mail is an excellent method for teaching interactive writing.

File Transfer Protocol (FTP)

The File Transfer Protocol (FTP) is a facility for transferring files over the internet. The original FTP was available on the UNIX system. But now FTP is also available on the web, and it is becoming more user-friendly than the one operating on the UNIX system. When the user connects to a remote computer with FTP, he/she is communicating between the two machines: one local and one remote. Once you connect to the remote computer with FTP, you can do several jobs concerning files such as sending local files (text and binary--images, and sound) to the remote site, retrieving files from the remote site, changing directories, naming and deleting files both on the local and remote sites. ELT teachers can use FTP to download or updownload files such as software programs, texts, images, sounds, videos.

World Wide Web (WWW)

Computer networks have allowed to conect to information around the world, and share millions of documents—texts, graphics, sounds, and video via hypertext keywords or links. WWW or the web now has absorbed many of the above services. For example, the web can now do e-mail, ftp, chat and voice chat, desktop conferencing, and MOOs (Multiple-user-domains Object Oriented), which allows for real time communication.The WWW provides a rich resource of "authentic materials" for langauge teaching and learning.

Conclusion:

Thus, 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. 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.

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UNIT-II

COMPUTER ASSISTED LANGUAGE LEARNING- SHS5017

CONTENTS

UNIT-II

COMPUTER COMMUNICATION

What is Computer Communication?

The process by which people create, exchange, and perceive information using networked communication classifications. It also includes non-networked computers that facilitate encoding, transmitting, and decoding information. Computer communication (CC) otherwise known as information and communication technology (ICT) has altered the academic landscape in higher education. As a result, instructors believe that a greater integration of ICTs in the instructional process tends to improve learning and better prepare students to effectively participate in the changing global work environment.

History of Computer Communication

The historical reconstruction views the evolution of Computer Communications from 1968 to 1988 as the emergence of three unique market sectors: Data Communications, Networking and Internetworking. Data Communications emerged between 1968 and 1972 and is defined by two major technologies and product categories: modems and multiplexers. Networking emerged between 1979 and 1982 when firms introduced local area networks (LANs) and dataPBXs in response to the needs of corporations to interconnect their growing base of computers and peripherals. The emergence of Internetworking between 1984 and 1988 helped the corporations to interconnect their LANs into wide area networks (WANs). The schema of market evolution is presented broadly as: (1) the time of Visionaries (2) reducing an idea to a working proof (3) technological diffusion (4) market emergence (5) market competition (6) the emergence of market order and (7) market adaption and co-evolution. The reader can quickly access the book by each market sector's stage using the right-side panel of accordions.

Computers in Educational Environment

Computers and their associated products and processes have become core components of the higher education environment. Students use computers as a means of communication and to complete the majority of their academic work. Many students of higher education find it very

difficult to effectively integrate and diffuse computer products and processes into their academic activities that instigate information searches and attribution formulations. That is why this exploration measured and examined the ways in which CC used in institutions is deemed acceptable and good for students' academic activities. This chapter integrates literature on computer anxiety and communication apprehension to determine their joint impact upon individual attitudes toward using computer communication (CC). This study introduces a new research domain and its application in identifying computer communication attitude and anxiety from a developing economy's perspective.

Importance of Computer Communications

Computers are critical for communication and are the centerpiece of information technology. The early 1990s saw the emergence of household Internet use, which eventually spurred common use of email, websites, blogs, social networking, video chat and Voice-Over-Internet Protocol. Today, many traditional communication modes including postal mail and landline phones seem obsolete.

Types of Computer Communications

There are many methods of communication available to those on modern computers, given a connection to the Internet. Most common is email, short for "electronic mail," but there are also SMS chat, IRC chat, video chat, VoIP phones, social networks, discussion forums and newsgroups. All are ways people communicate with one another using a computer.

ADVANTAGES OF ELECTRONIC COMMUNICATION

- Speedy transmission: It requires only a few seconds to communicate through electronic media because it supports quick transmission.
- Wide coverage: The world has become a global village and communication around the globe requires only a second.
- Low cost: Electronic communication saves time and money. For example, text SMS is cheaper than the traditional letter.
- Exchange of feedback: Electronic communication allows the instant exchange of feedback. So communication becomes perfect using electronic media.

- Managing global operation: Due to the advancement of electronic media, business managers can easily control operation across the globe. Video or teleconferencing e-mail and mobile communication are helping managers in this regard.

GUIDELINES WHEN COMMUNICATING ON THE INTERNET

- Texting (messaging):
- Keep texts short
- Longer texts can be misinterpreted
- Sign a text with your name
- Spell out all words and do not use “texting lingo” or shorthand
- Texts can be saved and can be altered
- Email:
- Use a descriptive subject line
- Be courteous
- Reply promptly – but allow yourself time to get over an initial reaction to an angry email
- Remember attachments to an email may contain metadata that can disclose unwanted information to the recipient
- Social Media:
- There is no expectation of privacy on the internet
- Change your passwords frequently
- Log off after visiting the page
- Delete your browsing history, saved passwords and cookies regularly
- Do not disparage anyone via social media
- Educate yourself about a site before joining.

EMAIL

Email is one of the first and most popular forms of electronic communication. It allows the user to send and receive files and messages over the internet, and can be used on a wide variety of devices. Here are some of the advantages and disadvantages of email.

ADVANTAGES OF EMAIL

- Email is a free tool.
- Email is quick. Once you have finished composing a message, sending it is as simple as clicking a button. Once it is sent and delivered, it can be read almost immediately.
- Email is simple. It is easy to use, email allows for the easy and quick access of information and contacts.
- Email allows for easy referencing. Messages that have been sent and received can stored, and searched through safely and easily.
- Email is accessible from anywhere – as long as you have an internet connection.
- Email is paperless, and therefore, beneficial for the planet.
- Email allows for mass sending of messages, you can send one particular message to several recipients all at once.
- Email allows for instant access of information and files.

INSTANT MESSAGING

Instant messaging refers to short messages that are sent in real time over the internet. The messages can include multimedia items, such as pictures, videos and voice recordings.

ADVANTAGES OF INSTANT MESSAGING

- Messages are free to send
- Messages are received directly after being sent
- You can see if the message has been delivered
- You can see when your message has been read
- You can send a variety of messages; including text messages, pictures, videos, music and web links
- You can create group conversations in order to discuss a specific topic or plan events

VOIP

VoIP is a type of digital communication that allows the user to speak with one or more users over the internet. This type of communication is very similar to a phone call, with the exception being that it uses your internet connection and, therefore, uses data. Here are some of the advantages and disadvantages of VoIP.

ADVANTAGES OF VOIP

- VoIP is much cheaper than using traditional telecommunication services
- It can help with productivity as you can have face-to-face meetings with colleagues in different cities
- It saves time and money as you can have face-to-face business meetings without having to travel to the client

BLOGGING

A blog (shortening of "weblog") is an online journal or informational website displaying information in the reverse chronological order, with the latest posts appearing first. It is a platform where a writer or even a group of writers share their views on an individual subject.

ADVANTAGES OF BLOGGING

- Enables you to write down your thoughts on anything of interest
- Very quick and easy to set up
- Easy and quick to update and add a new post
- People can leave comments on your blog

DISADVANTAGES OF BLOGGING

- Whatever you publish is available for everyone to see.
- Personal blogs may be biased
- Blogs can be time consuming
- People may leave rude an inappropriate comments

VLOGGING

A video blog or video log, usually shortened to **vlog**, is a form of blog for which the medium is video, and is a form of web television. Vlog entries often combine embedded video (or a video link) with supporting text, images, and other metadata. A vlog is like a personal website or social media account where a person regularly posts short videos Entries can be recorded in one take or cut into multiple parts.

ADVANTAGES OF VLOGGING

- Easy to connect with an audience
- You do not have to create your own website
- Does not need to be professional

PODCASTING AND VODCASTING

Podcasting is a free service that allows internet users to pull audio files (typically MP3s) from a podcasting website to listen to on their computers or personal digital audio players. The term comes from a combination of the words iPod (a personal digital audio player made by Apple) and broadcasting. A podcast is an audio programme produced on a regular basis, delivered over the internet in a compressed digital format and designed for playback on computers or portable digital audio players, such as the ipod.

A vodcast is a podcast consisting of video recordings, instead of solely audio.

ADVANTAGES OF PODCASTING AND VODCASTING

- Good to listen to while travelling
- A good way to get a daily update
- Can be professional or relaxed
- Can be very informative

WIKIS

Wiki websites are a form of digital communication that are used to obtain and share information with other users. The website can be accessed and edited by any user across the world, so long as that person has a computer and an internet connection. Due to this reason, it is very important to verify any information obtained from a wiki.

ADVANTAGES OF WIKIS

- Anyone can edit the information and, therefore, is updated regularly
- Easy and free to use
- Can be accessed from any device that has an internet connection

RSS FEEDS

WHAT IS RSS?

RSS stands for “Really Simple Syndication”. It is a way to easily distribute a list of headlines, update notices, and sometimes content to a wide number of people. It is used by computer programs that organize those headlines and notices for easy reading.

HOW DOES RSS WORK?

RSS works by having the website author maintain a list of notifications on their website in a standard way. This list of notifications is called an “RSS Feed”. People who are interested in finding out the latest headlines or changes can check this list. Special computer programs called “RSS aggregators”

have been developed that automatically access the RSS feeds of websites you care about on your behalf and organize the results for you. (RSS feeds and aggregators are also sometimes called “RSS Channels” and “RSS Readers”.)

Producing an RSS feed is very simple and hundreds of thousands of websites now provide this feature, including major news organizations like the New York Times, the BBC, and Reuters, as well as many weblogs.

GPS

GPS is a form of digital communication that uses satellite-based radio navigation in order to determine where you are in the world. This information can then be used to navigate to a new destination, or to let others know where you currently are.

ADVANTAGES OF GPS

- GPS is available from anywhere in the world
- GPS can be used to locate a person quickly and efficiently if he or she is in trouble
- GPS software is updated regularly to account for any change to the landscape
- GPS can be used to plan your route, get directions and find retail outlets

GEOTAGGING

Geotagging is the process of attaching geographical data (obtained using a GPS) to media and websites. This includes attaching latitude and longitude coordinates, timestamps, altitude, distance and place names to videos, photos, messages and QR codes.

SOCIAL NETWORKS

A social networking service is an online platform that allows the user to communicate and share information with other users from around the world. In simple terms, it is a website that connects you to people by making friends and seeing what they are up to. You can usually also post pictures and share photos, videos and ideas with an individual (through direct message) or group of friends (through posting a message).

ADVANTAGES AND DISADVANTAGES OF SOCIAL NETWORKS

- Helps the user to stay connected with friends and family
- Helps the user to meet people with common interest
- Can be used to promote a product and find products in which you are interested
- Lets the user stay up to date with the latest news from around the world

Different types of communications devices

COMPUTERS AND LAPTOPS

Desktops and laptop computers have become a big part of our everyday lives. They enable us to make use of a variety of different digital communication methods, including the following:

- Written communication, such as instant messaging and email
- Audio communication, such as VoIP
- Video communication, such as video conferencing

Computers can also be found in a variety of electronic devices where it enables the system to communicate with itself in order to function properly.

SMARTPHONES

The smartphone is a type of computer that people can carry in their pockets and is thousands of times more powerful than the computers that were used to put the first man on the moon. The smartphone can connect to the internet and can perform a variety of different functions, including the following:

- Making and receiving calls
- Sending and receiving written messages
- Sending and receiving audio messages
- Video conferencing
- Social networking
- GPS
- Listen to music
- Take photos and videos
- Play a variety of mobile games
- **WEARABLES**

Wearables are a new category of computers, which consist of small devices that have been

designed to be worn, or attached to your body. Examples of these include the following:

- Smartwatches: Smartwatches can be synced with your smartphone, allowing you to see your messages and calls on your watch.
- Smart clothing: Smart clothing is specially designed clothing to monitor a user's behaviour, such as the heart rate and blood glucose levels.
- Fitness trackers: Fitness trackers allow users to record their daily activities, work-outs, heart rate, number of steps and number of calories burned. These trackers are promoted by healthcare companies.

TABLETS

Tablets are small hand-held computers that are smaller than a laptop. but bigger than a smartphone. Modern tablets work in a way very similar to that of smartphones. The main differences between the two are that tablets are bigger and are normally used for different activities. For example:

- Tablets are traditionally used by the whole family to watch shows at home
- Smartphones are used when the owner of the phone leaves home to communicate with others

SOFTWARE DESIGN AND PEDAGOGY

Introduction:

The chapter starts with an overview of the existing online educational systems as they relate to software design considerations for networked computers and related pedagogical principles. Web-based learning is becoming increasingly popular. There are different pedagogical models associated with different implementations of the new systems. Several years ago there was much discussion of automated learning with the emphasis on presentation of information. Today, a consensus appears to be emerging in many institutions of higher education and among online teachers and learners in favor of encouraging and facilitating human interaction in online courses. Considering computer-based pedagogical settings requires thinking, problematizing, representing and modeling, implementing or analyzing objectives, issues, models and/or software. This cannot be addressed by separating educational concerns on one side and Computer Science concerns on another: effective multidisciplinary work is required. Such multidisciplinary work requires actors from different disciplines, but also with different matters of concern, to understand each others' perspectives and build shared constructions.

Role of Softwares

Many educational softwares are designed to foster students' learning outcomes but with little consideration of the teaching framework in which it will be used. This paper presents a significantly different model of educational software that was derived from a case study of two teachers participating in a software design process. It shows the relationship between particular elements of the teachers' pedagogy and the characteristics of the software design. In this model, the 'classroom atmosphere' is embedded in the human computer interface scenarios and elements, the 'teaching strategy' in the design of the browsing strategies of the software, and the 'learning strategy' in the particular forms of interaction with the software. The model demonstrates significant links between the study of Pedagogy and the study of Information Technology in Education and has implications for the relationship between these two areas of research and consequently for teacher training. It proposes a perspective on educational software

design that takes into consideration not only learning theories, but also teaching theories and practice. In order to have a good understanding of the strengths and limitations of the existing network-based educational systems and in particular online discussion software, we need to consider the nature of networked computers and related software design and pedagogical principles.

Design:

Design is much more than merely understanding the affordances and capabilities of new media. Design is not simply a one-to-one mapping of scientific knowledge or theoretical frameworks onto a problem. Design is a complex, non-linear, ill structured, and yet generative, creative process requiring the understanding and implementation of a range of skills and knowledge domains to construct artifacts for human purposes. To design "genuine interactive software" for educational purposes, the software designer and developers must recognize that "the educationally most important relationships are relationships among people", and not the ones between people and machines .Therefore, the designers and the developers should shift the focus of their attention "from visual intensity and electronic instantaneousness to constructive interaction among users in front of the machine and those 'behind' it". Furthermore, the application should "prompt students to turn away from the machine and focus their attention instead on one another."

Presentation:

However, most of the current web-based learning systems focus on the presentation of prepared materials in various formats while little attention is paid to tools that facilitate efficient and effective online discussion. Just as speech is the backbone of classroom education, and presentations supplement it, so online, writing will continue to be the backbone of the educational experience and presentations will serve as supplements, not replacements for the human interactions that are essential to learning. Many researchers note that text -based communication provides a powerful means for interacting with others and with academic subject matters, for facilitating higher-order learning, and for conveying social information in knowledge communities.

Teachers' subject knowledge

Some teachers choose softwares and internet resources that relate to a particular topic, while others use ICT to present the pupils' work in an innovative way, without any direct application to the topic. The evidence shows that when teachers use their knowledge of both the subject and the way pupils understood the subject; their use of computers has a more direct effect on pupils' attainment. The effect on attainment is greatest when pupils are challenged to think and to question their own understanding, either through pupils using topic-focused software on their own or in pairs, or through a whole class presentation.

Teachers' Pedagogical Knowledge

The teacher's own pedagogical beliefs and values play an important part in shaping technology-mediated learning opportunities. It is not yet clear from the research literature whether this results in technology being used as a 'servant' to reinforce existing teaching approaches, or as a 'partner' to change the way teachers and pupils interact with each other and with the tasks. Teachers need extensive knowledge of softwares to be able to select the most appropriate resources. They also need to understand how to incorporate the use of ICT into their lessons; they may need to develop new pedagogies to achieve this.

Pedagogical Practices of the Teacher

The pedagogical practices of teachers can range from only small enhancements of practices using what are essentially traditional methods, to more fundamental changes in their approach to teaching. For example, some teachers using an interactive whiteboard have displayed content and ideas for class discussions in a traditional way, while other teachers have allowed pupils to use the whiteboard to present dramas to the whole class that they had planned and filmed themselves. Studies show that the most effective uses of ICT are those in which the teacher and the software can challenge pupils' understanding and thinking, either through whole class discussions using an interactive whiteboard or through individual or paired work on a computer. If the teacher has the skills to organize and stimulate the computer based activity, then both whole class and individual work can be equally effective.

Access to ICT resources

An important influence on the use made of ICT in subjects and classes is the amount and range of ICT resources available to the teachers. Where there are limited numbers of computers in a class, mostly in primary schools, this limits their impact, because each individual pupil is only able to use the computer for a few minutes. Whole class use of an electronic whiteboard has both positive and negative effects. It promotes pupils' debates and helps them visualize difficult concepts and processes. However, some teachers focus only on the presentation aspects, disregarding the use of simulations and modeling which might be more challenging for the pupils. Only a few teachers report using subject specific software which links directly to the content and purpose of the curriculum.

Design as Pedagogy

An important site for my research on understanding the process of design has been in my work with teachers and university faculty as they engage in designing technological solutions to problems of pedagogical practice. Teachers learning to use technology for pedagogy is best achieved by situating them in contexts that honor the rich connections between technology, the subject matter (content) and the means of teaching it (the pedagogy). In these seminars, teachers learn technology not by learning specific computer programs, but rather by designing technological solutions to pedagogical problems. There is little direct instruction about technology and students spend most of the class time working in small groups engaged in design-based activity. We argue that by participating in these design activities, teachers develop knowledge of technology that is sensitive to the subject matter to be taught and the specific instructional goals.

Conclusion:

No doubt, design plays a critical role in the software's quality and long-term success. Yet, software design, as a systematic process, is not sufficiently understood, and its practice in the real world is highly varied. As a result, teaching software design remains a challenge in terms of lacking widely recognized and accepted pedagogy and even learning materials. These factors have played a role in persistently poor student learning achievement. The article makes an attempt to discuss what software design is and explore what teaching of software design may mean and entail. It also reviews published pedagogical studies and reports, composes heuristic

suggestions, and searches directions of future research. Software is not just a tool. It also shapes behavior. Thus we can use software to quickly guide teachers toward an appropriate online pedagogy. Programs such as Blackboard and Web CT have already done that as far as presentation and contextualization are concerned. The software helps teachers see right away that they have to offer a syllabus and useful documents on line and it gives them a good way to do that. Now we need to do the same for the discussion forum. We must provide teachers with software that guides them toward an effective online pedagogy.

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TYPES OF CALL

Computers have been used for language teaching since the 1960s. CALL can be roughly divided into three main types: Structural /behavioristic CALL, communicative CALL, and integrative CALL (Warschauer, 2000). Each stage corresponds to a certain level of technology as well as a certain pedagogical approach. Table 1 below shows the three stages of CALL.

TABLE 1

Stage	**1970s-1980s: Structural/ behavioristic CALL**	**1980s-1990s: Communicative CALL**	**21st Century: Integrative CALL**
Technology	Mainframe	PCs	Multimedia and Internet
English-Teaching Paradigm	Grammar-Translation & Audio-Lingual	Communicative Language Teaching	Content-Based, ESP/EAP
View of Language	Structural (a formal structural system)	Cognitive (a mentally-constructed system)	Socio-cognitive (developed in social interaction)
Principal Use of Computers	Drill and Practice	Communicative Exercises	Authentic Discourse
Principal Objective	Accuracy	And Fluency	And Agency

Strengths and Weaknesses of Computer

a. Strengths

Interactivity is a crucial strength of the new technology. The computer is interactive, first of all, by virtue of the fact that the user can gain control over learning and therefore becomes an active participant in the learning process. Interactivity also allows the instant feedback from the computer. The interactivity of the computer makes it especially suited for implementing learner-centered teaching methods. Multimedia should be considered truly revolutionary for language pedagogy. The new technology really shines in its presentation of form and meaning. The sound and graphic capabilities of the computer not only have improved presentation; they have also made possible what conventional textbooks cannot do. Digitized audio has made possible the modeling of pronunciation. The teaching of characters' stroke order and direction has taken a giant step forward from the cumbersome representation on paper to the animated demonstration formerly achievable only with a human instructor. Still or animated graphics for illustrating meanings and speech production may both educate and entertain. Random and rapid access allows the instant retrieval of vocabulary and grammar explanations. It also contributes to easy learner control and recycling of materials. The computer's ability to store and manipulate data also makes it possible to keep scores, log errors and track learner performance. The consistency and patience of the computer is not only crucial for learning by association and repeated exposure. Paradoxically, without the possible ill-effects of an over-bearing human teacher, the patient and interactive computer can provide a very user-friendly and learner-centered learning environment. In addition to the above-mentioned general characteristics, digital speech technology in particular has enabled the graphic display of the relevant acoustic properties of speech such as amplitude, pitch level and frequency composition.

b. Weaknesses

Some educators and syllabus designers must be very critical of software programs that they consider using in their teaching contexts. A program may look very good the first few times it is viewed, but dynamic, visual qualities are not sufficient to assure that it will be effective in teaching the target material. Users may quickly tire of the spinning characters, lights and whistles. The content and methodology of the program has to be the principal rationale in choosing a CALL program.

Advantages and disadvantages of CALL Advantages

♦ ***Interest and motivation***

Classical language teaching in classroom can be monotonous, boring, and even frustrating, and students can loose interest and motivation in learning. CALL programmers can provide student ways to learn English through computer games, animated graphics, and problem- solving techniques which can make drills more interesting (Ravichandran 2000).

♦ ***Individualization***

CALL allows learners to have non-sequential learning habit; they can decide on their own which skills to develop and which course to use, as well as the speed and level by their own needs.

♦ ***A compatible learning style***

Students have different style of learning, and an incompatible style for students will cause serious conflicts to them. Computer can provide an exciting "fast" drill for one student and "slow" for another.

♦ ***Optimal use of learning time***

The time flexibility of using computer enables students to choose appropriate timing for learning. Winter (1997) in Kiliçkaya (2007) stressed the importance of flexible learning, learning anywhere, anytime, anyhow, and anything you want, which is very true for the web-based instruction and CALL. Learners are given a chance to study and review the materials as many times they want without limited time.

♦ ***Immediate feedback***

Students receive maximum benefit from feedback only if it is given immediately. A delayed positive feedback will reduce the encouragement and reinforcement, and a delayed negative feedback affect the crucial knowledge a student must master. Computer can give instant feedback and help the students ward off his misconception at the very first stage. Brown (1997) in Kiliçkaya (2007) listed the advantages of CALL as giving immediate feedback, allowing students at their own pace, and causing less frustration among students.

♦ ***Error analysis***

Computer database can be used by teacher to classify and differentiate the type of general error and error on account of the influence of the first language. A computer can analyze the specific

mistakes that students made and can react in different way from the usual teacher, which make students able to make self-correction and understand the principle behind the correct solution. (Ravichandran, 2007)

♦ ***Guided and repetitive practice***

Students have freedom of expression within certain bounds that programmers create, such as grammar, vocabulary, etc. They can repeat the course they want to master as many as they wish. According to Ikeda (1999) in Kiliçkaya (2007), drill-type CALL materials are suitable for repetitive practice, which enable students to learn concepts and key elements in a subject area.

♦ ***Pre-determined to process syllabus***

Computer enhances the learning process from a pre-determined syllabus to an emerging or process syllabus. For example, a monotonous paper exercise of 'fill-in-the-blanks' type can be made more exciting on the screen in the self-access mode, and students can select their own material. Therefore, CALL facilitates the synthesis of the pre-planned syllabus and learner syllabuses "through a decision-making process undertaken by teacher and learners together" (Breen 1986 in Ravichandran 2000).

Disadvantages of CALL

Less-handy equipment.

According to Ansel *et* al (1992) in Hartoyo (2006, 31), the CAL program is different from traditional books that can be carried around and studied wherever and whenever they wish: on a train, at home, in the middle of the night, and so on. School computers or language laboratory can only be accessed in restricted hours, so CALL program only benefits people who have computers at home or personal notebook.

Increased educational costs.

Gips, DiMattia, and Gips (2004) in Lai (2006) indicated that CALL will increase educational cost, since computers become a basic requirement for students to purchase, and low-budget school and low income students cannot afford a computer

Lack of trained teachers.

It is necessary for teachers and students to have basic technology knowledge before applying computer technology in second language teaching and learning. Therefore, computers will only benefit those who are familiar with computer technology (Roblyer 2003 in Lai 2006).

Imperfect current CALL programs

At present, the software of CALL mainly deals with reading, listening, and writing skills. There are some speaking programs have been developed recently, but their functions are still limited. Warschauer (2004) in Lai (2006) stated that a program should ideally be able to

understand a user's spoken input and evaluate it not just for correctness but also for '*appropriatness'*. Speaking program should be able to diagnose a learner's problem with pronunciation, syntax, or usage and then intelligently decide among a range of options.

Inability to handle unexpected situations

The learning situation that a second-language learner faces are various and ever changing. Computers merely have artificial intelligence, and it cannot deal with learner's unexpected learning problem or response to learner's questions immediately as teachers do. Blin (1994) in Lai (2006) stated that computer technology with that degree do not exist, and are not expected to exist quite a long time. In other words, today's computer technology and its language learning programs are not yet intelligent enough to be truly interactive.

Conclusion

The advantages of CALL can be outlined as providing motivation and autonomy for learner, compatible and time flexible learning, immediate and detailed feedback, error analysis, and a process syllabus. Some considerations must be given to the disadvantages of CALL, such as less handy equipment, high cost of education, lack of trained teachers and of CALL programs of perfect quality, and limited capacity of computers to handle unexpected situations.

CALL has certain advantages and disadvantages and teachers should know the strengths and weaknesses in applying CALL in ESL classrooms. It is agreeable that technological advancement and development has enabled the application of CALL programs in language learning and instruction, and it has become a new trend recently. Even so, computer technology still has its limitation and weaknesses. Therefore, we must first realize the advantages and disadvantages of current CALL programs before applying them to improve our teaching or to help student learning. In the end, we can avoid the mistake in employing CALL program and get the maximum benefit for our ESL teaching and learning.

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EFFECTIVE ONLINE TEACHING

Effective Online Teaching is an essential resource that offers a clear understanding of how cognition and learning theory applies to online learning. This much-needed resource provides specific strategies for incorporating this knowledge into effective learner-centered teaching that gets results. The book includes strategies on motivation, tailored instruction, interaction, collaboration, monitoring and communication, time and information management, student concerns, and legal and ethical issues.

Students find it more affordable to start their education online. It's way more flexible. Students would rather choose the time they'll attend online course than following a strict schedule imposed by a college/university. Better variety. In traditional education, most of the time, the disciplines you're being thought are limited. Because of this massive shift, teachers now need to turn their attention towards this new trend. Unfortunately, online teaching is different in so many ways. Traditional teachers now have to learn new ways of approaching their teaching methodologies, and also learn new practices in order to be successful at what they do.

Online Education: New Mindset And Teaching Methods

The differences between traditional teaching and online teaching are quite revealing. It's one thing to look at a student's face and communicate with him using your body language and tonality, and another to communicate by just typing letters on your keyboard, or seeing him on a webcam. That is why a new eLearning teacher needs to adapt to this new environment.

No more bossy attitudes.

Sometimes teachers want full command over their classroom, they want to be idolized and respected just because they detain the 'teacher" position. In the online environment, students have a choice: They can attend your online courses, or choose an alternative. If you want to keep them by your side and earn a living, you'd better respect them.

Leave the ego out of the equation.

If you want to do this job right, you need to be emotionally stable. You need to be confident and secure on your actions, and minimize your expectations. You won't see children smiles or appreciation quite often, and that shouldn't stop you from continuing to do your job.

Be available.

Students appreciate an online educator that is available for most of the times they need him. Sometimes they may need some help with some task you gave them, and sometimes they just need someone to talk too. Students also have strong communication needs, and the more you're there for them, the more they'll appreciate you.

Give constant feedback.

This is critical if you want to exceed in online teaching. Your feedback should be continuous during the eLearning process. Most of the times, students crave for appreciation and recognition. Your comments should be always productive and thoughtful.

G***et to know each of your students***

When you are teaching online, you'll come across different nationalities and cultures. This toughens the teaching process because every student is different in his own way, and follows different principles in life. Before communicating and teaching online, your main concern should be who you're teaching, and how you can improve your way of teaching according to the differences that exist between your students.

This is a common issue that many online teachers ignore, and they wonder why their results aren't as promising as they expect. Each student is different…In a classroom, you can notice them, observe their problems, and guide them immediately. On the internet…not so easy. Do not ignore this tip, and make sure to connect with each of your students.

The digital classroom brings with it a range of unknown and unexplored territory, mostly in part to its relative newness when compared to traditional teaching methods. To be an effective online teacher, there are 10 simple but effective practices you can follow.

1. Be Present

There are many ways to make yourself known in the digital realm. Achieving this online means utilizing a range of different communication methods and ensuring that you check in on them daily or hourly if needed. Discussion boards, emails, announcements, and forums, are just some of the ways you can be present each day in your online classroom. When the course begins, set clear guidelines for your students about when you'll be present.

2. Set The Expectations

As the online classroom can often feel a little free-form, you'll need to provide students with a very clear set of expectations before they commence their studies. These expectations should include everything from what they can expect from you as their teacher, as well as what will be required of them. The expectations can outline due dates for assessments, your communication frequency, how much online participation you require of them, and the conduct they will be expected to display throughout the course.

3. Let The Students Do The Work

The aim of learning is to have students engaged in the content for as long as possible, so you need to create the opportunity for this to happen. The more time the students spend engaged in the content, the more they'll learn. To give your students plenty of opportunity to engage with the content and each other you can ask them to find and discuss resources, grade their own assignments, and hold student-led discussions in the online forums.

4. Nurture A Supportive Online Community

By using a variety of dialogue formats, you'll ensure your coursework caters to all learning types and allows students to flourish. Encourage students to use the general forum for discussion, but also set up small groups within the class so that students can engage in feedback and support with their fellow classmates. Some students may sit back and learn from the sidelines, whereas others will benefit greatly from actively engaging in this type of communication.

5. Think Before You Write

Not only is this an important principle for teaching staff to follow, but one that should be communicated from the very beginning to all students. As it's well known that written text can be left open to interpretation or misinterpretation at any time, it's crucial to craft well thought out responses and posts to others.When crafting responses to assignments and other evaluations, the best tone to use is a simple, clear, and polite one. As these responses are all your students have to go off in regards to feedback, you need to leave nothing open for interpretation.

6. Ask For Feedback

Sometime around the 2nd or 3rd week, you should ask your students for direct and honest feedback on how things are going. This feedback should cover everything from content to teaching methods, and request any areas requiring improvement. The best way to achieve this is in a somewhat formal tone, so post something on the discussion board and see what pops up.

7. Foster Personal Relationships With Each Student

Getting some one on one time with each student is just as important as effective group communication. Students studying online can sometimes feel deserted and alone in the digital classroom, so it's up to you to make an effort and reach out.Use a blend of different communication methods, including personalized responses to their discussion boards posts and emails addressed to only one student. At the start of the course, you should set out in your expectations the best communication methods, but never give out your personal email address or contact details to a student.

8. Make Use Of Group And Individual Projects

A healthy mix of group and individual projects is the best way to ensure success with online learning. Giving students this variety of learning styles will enhance their learning capabilities, and teach them the importance of both group work and individual achievements.

9. Use Resources That Are Readily Available

10. Since the students will already be engaged on their computers and use the internet to log onto the learning portal, the best resources for them are going to be online. By using an assortment of relevant and easily accessible resources such as digital publications, news sites, and online videos, your students are going to be far more engagenn/d than if they had to refer to an outdated textbook. Where possible, mobile content is ideal so don't forget to incorporate anything that can be accessed on their smart phone or mobile device.

11. Have a Closing Activity

Allow students to reflect on the content and the experiences shared so that everyone is made aware of what they're taking away from the course. Incorporating these principles into your online teaching methods will not only ensure a supportive community for your students, but will make your job ultimately easier too. As online learning is still in its building stages when compared to other methods of teaching, the most effective principles will continue to grow and adapt to the new world of digital classrooms.

Conclusion

As you've noticed, the face of education is quickly changing. And with it, we educators must also change our ways of thinking and teaching in order to adapt. The first, and the most important step, is to realize that there are significant differences between traditional learning and eLearning. Second, we must realize and become aware of that in order to efficiently teach online, we must work on ourselves.

USING MULTIMEDIA AND INTERNET

The definition of Multimedia

The term multimedia can be defined in various ways, it is determined by one's perspective. Multimedia is considered to consist of computer program which is the combination of a text with at least one of the following elements: audio or sophisticated sound, music, video, photographs, 3-D graphics, animation, or high-resolution graphics. It is stated that multimedia is information that takes the form of audio, video graphics or movies. A multimedia document contains a media element other than plain text. According to Mayer (2010: 1-2) multimedia presents both words (in spoken or written form), and pictures (illustrations, photos, animations, video).

The roles of teachers in multimedia environment

The implementation of the multimedia into educational institutions requires major changes in traditional learning and teaching. This, in turn is connected to different roles of teacher that has to perform in multimedia- applied classroom. Teacher fulfills the role of guide and facilitator, therefore, must know a wide range of different materials that are available and serve in developing learners' language skills as language textbooks are no longer the only source of information. Multimedia programs provide vision and sound that enable showing the students how native speakers interact. Electronic encyclopedias and dictionaries are accessible within few seconds. Online newspapers present up-to-date information about the counties of the target language. Website is the source of information in many fields such as: tourism, policy, and political views. Teacher needs to be aware of the ways in teaching to use available material effectively. A good facilitator and a guide has to be flexible, recognize and respond to students' needs. He has to be open-minded, and not only concentrate on earlier established curriculum

Teacher serves as the Integrator in multimedia enhanced language learning. Not only should teachers know and comprehend functions of various media available, but also know the best time to deploy them. At the time when the projects are constructed, students need guidance in the use of word-processing, graphics, and presentation programs. Integrating audio- visual elements makes learners realize that a foreign language environment of the target language is as multifaceted and vibrant as their own surrounding. It is essential for teachers to posses knowledge on how and where to access information for their own and students' use. They should

be competent on the way of using searching engines and obtaining reliable and appropriate information. Being familiar with the use of electronic tools for language analysis provides teachers with linguistic and professional competence, therefore, increases their confidence in the language use, therefore, teacher should fulfill the role of the researcher in the classroom

The role of a designer requires putting together tasks and materials to guide students to successful completion of their projects and allowing them to draw conclusions from it. Obtaining this learning situation is very complex and involves higher order skills in researching and appraising source materials. Moreover, it requires setting overall goals and creating manageable and meaningful sequences by breaking down tasks. In fulfilling this role, teacher should be an example of good practice, giving: help, advice and encouragement to students that, therefore, serving as a source of inspiration for similar tasks. It is thought to be beneficial for a teacher to collaborate with his students. The result is seen in bringing more fruitful and rewarding efforts. Using media gives opportunities for exchange between institutions and beyond national borders. Internet exchanges, in fact, bring benefits to teachers in the form of helping them to overcome the sense of isolation of experience in their teaching career

Advantages of using multimedia in Teaching

The constant advancement of technology is the main factor of occurring changes. Since Internet emergence, the traditional teaching of English has been challenged, as the result introducing many various and new ways of teaching . The role of teacher is to confront issues with rising student's interest in English learning and increasing the efficiency of teaching during class. Multimedia has been proven to be a golden mean in coping with these problems. “In the multimedia teaching, with eyes looking, ears listening, mouth speaking, hands writing, brains keeping in mind, students will greatly improve their passion for learning, leading to higher class efficiency” (Dong, Li 2011: 165). Nowadays, multimedia surrounds us and becomes the indispensible element in our life, it provides interesting, new approaches to language teaching. It seems appropriate that teachers adopt and integrate it to their lesson and assessment planning. The implementation of multimedia will allow teachers to take full advantage of technology to teach English as a second language to non-native speaking students. Multimedia teaching in

comparison to the traditional teaching model has plenty of advantages, among which we distinguish

(Pun, 2013: 31).

Teaching using multimedia makes English class more lively, vivid, and interesting. According to Dong and Li (2011) multimedia is the factor influencing areas such as: student's interest stimulation, efficiency improvement in the class, and satisfactory effects achievement. As the result, English classes are more interesting, vivid, and lively. By the means of pictures, sound, and animation, multimedia teaching provides a large number of implicit information. In traditional learning students receive information by listening in a rather passive position. Moreover, students perform mechanical and repeated exercises that are especially designed for them. Traditional learning is not conducive to cultivate student's learning interest, in the contrary to multimedia teaching, which is lively means, providing information in a realistic and vivid way. The author claims that introducing multimedia would considerably improve teaching effect (Dong & Li, 2011: 165).

Discovering and widening student's knowledge about the Culture of English is another advantage of multimedia in the classroom. Implementation of the multimedia in teaching offers students more possibilities than in the case of traditional teaching where sources of receiving knowledge are limited, textbooks cannot compete with real-life language materials which attract student's attention. Multimedia provides abundant information, students gain the knowledge unconsciously about linguistic factors, such as the customs and cultural background of the target language. In this way students improve their listening skills, and receive information-sharing opportunity where learners interacts willingly, helping each other to acquire language more quickly and effectively (Pun, 2013: 31).

Obtaining harmonious environment by multimedia teaching is the next merit. In the teaching process, there are four areas which students master, namely: listening, speaking, reading, and writing. Teaching with multimedia creates harmonious environment among those four fields. Moreover, it presents good learning scenario, maximizes practice in four basic skills, and motivates students to take part in class activities. Participating in these activities has an effect on deeper remembering of knowledge presented in an attractive way. According to the author the acquired knowledge in the process is easier to maintain in comparison to traditional teaching

(Dong, Li, 2011: 165).

Developing Student's Communicative Competence is a valuable benefit of using multimedia accompanied English teaching. Traditional teaching does not fully use the student's capacity to understand structure, meaning, and function of the language, therefore, it is difficult to achieve communicative competence by them. However, multimedia gives greater incentives to the students than in the case of traditional learning where the student is a passive recipient of the knowledge, moreover it also helps to integrate teaching and learning. Using multimedia activates student's thinking patterns and motivates their emotions, the classes are no longer monotonous but enjoyable. Using PowerPoint stimulates thinking and comprehension of the target language. The implementation of technological interactivity creates perfect atmosphere, encouraging the students taking part in group discussions and debates, thus, there is more opportunities for communication among students and between teachers and students. Undoubtedly. multimedia technology rises positive attitude among students and influences their communication skills in learning the language (Pun, 2013: 31).

Improving Teaching Efficiency is another advantage. Language classrooms carried out with multimedia technology improve teaching contents and class time is used effectively. The teacher-centered traditional teaching method where the students follow instructions given by the teacher and language learners receive only limited information, does no longer occur. Moreover, as it is very difficult to practice communication in the large classes, the implementation to the curriculum multimedia materializes face-to-face teaching. Multimedia technology does not have the boundaries and creates more real-life environment for English teaching. It spurs student's initiative, uses class time effectively, and provides more information to the students

Disadvantages of using multimedia in Teaching

Application of multimedia technology appears to bring numerous advantages. However, it should not be forgotten that practical teaching and implementation of the interactions can also cause some drawbacks. Below there are the biggest problems listed which may be encountered while introducing and conducting multimedia material. There is ***the danger of multimedia dominance in the classroom***. Multimedia should be an assisting instrument to achieve desired

teaching effect. However, it appears that sometimes teachers are too much dependant on multimedia devices, making them rather their slaves than playing the leading role in teaching. According to Patel (2013: 120), many teachers are proven to be active in multimedia teaching but lack proficiency to handle it confidently. ***Teachers become passive***, and stand by the computer, while students' attention is drawn by the screen, therefore, there is no eye contact between students and teachers. To fully understand Creative Education and application of multimedia it is necessary to comprehend that technological applications serve as an assisting instrument to effective teaching and learning rather than a target, and under no circumstance should not dominate the class.

Time constraints belongs to another possible drawback that may appear in multimedia language teaching. Except for many advantages which multimedia offers, it can be quite laborious for both students and staff to locate information on the Internet. Teachers have to invest their time to try chosen video clips in different settings and ensure that there will not be need to resort to the more conventional alternative option which is CD player. ***Solving file conflicts*** is another very problematic field that requires a lot of effort. Even though that this issue could be resolved by simple update on a home computer, in the case of enormous educational institution managed by site administrator it is considerably more complicated. The last but not least example of the potential time constraint occurs in choosing an appropriate material for the class. Teachers in the research for listening resources have to be especially selective to make the best of their and the students' time, ensuring that the class is not overloaded with electronic information (Chan et al., 2011: 61).

Abstract thinking may be replaced by imaginable thinking. The major objective in teaching is that students adopt understanding that goes from the perceptual stage to the rational. It is desired that perceptual thinking greatly leaps to the rational thinking. Using multimedia in the classroom makes content easier, and the number unique advantages strengthens teaching. However,
providing students with images displayed on the screen affects their imagination and causes that their abstract thinking is restricted and logical thinking is no practiced. As in the case of decreasing students' reading abilities as the result of replacing textual words by sound and images, and handwriting which is affected by keyboard input. Again, there is a prove that multimedia should be treated as an assisting tool and it can never replace the crucial role of teacher (Patel, 2013: 120-121).

The application of multimedia in the classroom teaching

Nowadays, technology offers big range of different tools that teachers can employ in the foreign language classroom to enhance students' acquisition and improve concentration. Interactive White Boards are widespread and almost all of the schools equip the language classroom with them. It is a precious source for the teachers that enable multimedia application in the teaching. Power Point presentations is another tool that stimulates thinking and it is very often used in the language classroom.

Interactive White Board

The IWB offers multiple opportunities in foreign language teaching, and it provides exciting ways of acquiring the knowledge that go beyond the possibilities of traditional chalkboards. The Interactive White Board consists of the combination of plain whiteboard, chalkboard, video, television, overhead projector, CD player and classroom computer. It is a big, touch-sensitive board which is connected to a digital projector and a computer, therefore, enabling transmitting the contains from the computer and displaying it by the projector on the board. The user can control the board, either by touching it directly or with a specially intended pen (Dudney 2007: 39). The Interactive White Board can be applied in a laboratory class for language learning for the following purposes:

- using resources from the websites in whole-class teaching,
- showing video clips to help students get a better understanding of a certain concept,
- demonstrating a piece of software packages,
- making presentations by students and showing the results of their work, creating digital
- flipcharts,
- manipulating text, practicing handwriting,
- saving notes for the future use, revising material (Dudney 2007: 39).

Thus, the IWB serves as the tool enabling the access to and use of digital resources, it is suppose to benefit the whole class while the teacher remain the guide and monitors the learning (Hall and Higgins 2005: 104).

The IWB also enables the access to the internet where it is possible for the teachers to find plenty of educational websites, video and audio clips, photos and materials to enrich the language teaching.

There are also available educational software packages for the IWB that offer interactive and electronic texts and games. They are specifically designed for teaching curricular content and can be purchased for classroom use. Moreover, the IWB is the mean that enables showing information in multimedia format, and it is possible to save student's work on the computer which can be displayed later on the board. It still has the features of a traditional chalkboard, teachers can write and erase what they wrote as it has been done in such way for years. Using the IWB in the classroom brings a lot of advantages for both students and teachers. The big benefit can be seen in maximizing time for language learning, as the materials are stored and can be reused again and again, teachers no longer need to spend so much time on planning and developing resources. Posters, flashcards, CD players, and sometimes even textbooks can be substituted by suitable images and texts chosen by instructors, and can be easily stored for future reference. Relevant quality of the IWB is that multimedia enables teachers to have the access to materials and prepared lessons quickly and efficiently from a vast range of resources. Its multisensory feature enables moving between visual and oral input easily, thus supporting language practice. The another quality which engages and holds student's attention is that software designed specifically for the IWB contains interactive texts, and activities with colourful graphics and sound effects. All these benefits from using the IWB in the classroom are especially useful for young learners, as they are best to learn through the senses such as: hearing, seeing, touching, as well as through the verbal interaction (Dudney 2007: 39). Young learners find very attractive and appealing the characteristic elements of the IWB:

- visual elements as colour and movement,
- auditory elements as music, voce, and sound effects, tactile elements (Dudney 2007: 39).

Children are willing to watch stories that unfold on the screen and simultaneously listen to them in the foreign language. It supports their visualizing process and encourages them to actively participate in action songs. The possibility of physically touching and moving objects on the screen, playing interactive games, working with written text in English absorb them and raise their motivation which in result reinforce the development of their linguistic competence (Yvette et al., 2010:615).

PowerPoint Presentations

PowerPoint is the tool commonly known and used nowadays. Its popularity is growing as it is

perceived that it influences teaching and learning significantly. Power Point incorporates animation, graphic, colour, and imaginary. It is possible to employ a variety of computer applications and methodologies. The findings show that presenting materials on a computer raise the attention what affects learning results. PowerPoint also improves four skills in language learning, namely: listening, speaking, reading, and writing. This tool stimulates imaginary, contributes to understanding, and improves short and long-term memory. There is better information retention when pictures and texts are presented together. It is proved that colour is a memory stimulus, and is encoded as a verbal representation that improves language learning. The colours in many cases can be the indicator in responding to teachers' messages. However, their choice has to be carefully thought through and the teachers should keep colour selections simple and restrained as the inappropriate colours can undermine subject and cause distraction of the students (Rajabi, Saeed, 2012: 1136). PowerPoint is the program that enables interactivity, and it is possible to create wide range of activities, starting from treasure hunts to interactive quizzes and even to game-show-type games. In contrast to paper-and-pencil activities, quizzes, games, and activities created in PowerPoint can be additionally enhanced by the use of visuals, graphics, and sound clips. It is essential that interactivity is used in the thoughtful way and fulfills the purpose of supporting instruction (Bozarth 2008: 167).

Hyper-linking are a very useful while enhancing multimedia, they can be used in PowerPoint presentations for instance. Hyperlinks can appear in the form of underlined text, an image, an object or a chart. When you click on a given item, they can either show different slide in the presentation, open a document or file, or direct the user to a web page on the internet company internet (http://www.teach-ict.com/index.html). Hypertext is the link directed from the textual items, it is mostly indicated by key words which are underlined and have a blue colour. Hypermedia refers to the similar links to the hypertexts, however, instead of linking text or set of the words to the texts, involves linking diverse media such as images, sound, animation and video. It is only possible for hypermedia to use two types of media, either text plus sound or text plus photographs (Bahadorfar 2013: 249). Hyperwords is the term used for interactive text, however, hyper-links describes the words that are linked to target destinations. Through simple set of commands hyperwords enable interaction with other programs such as dictionaries, e- mails, on-line translators (https://en.wikipedia.org/wiki/Hyperwords).

There are a few ways of creating hyperlinks, it can be done via:

1. a text link
2. an action button
3. an object, like a shape or photo, given an action setting
4. a "hotspot," an invisible action button placed over part of a slide or larger image (Bozarth 2008: 167).

PowerPoint is a powerful tool that enables creative designing. It is possible to turn plain-vanilla paper-style quizzes to more meaningful learning activities, resulting in the feeling of closer connection between the content and application by learners (Bozarth 2008: 174).

Summary

Multimedia is omnipresent in the 21st century and it is easy to use it in the classroom teaching. It has been proved that multimedia presents material in a diversity of modes, and allows students to develop a versatile approach to learning. Implementing it in the curriculum gives plenty of the advantages, most importantly it appeals to all types of learning modes as visual, aural and kinesthetic students, therefore, learners have equal opportunities in their performances. Teachers need to bear in mind the potential drawbacks and try to prevent them.

TECHNOLOGY ENHANCED LANGUAGE LEARNING (TELL)

Introduction

English is mainly an attempt to communicate with individuals. Because effective teaching is based on communication and the goal of English teaching is exactly the same. It's rare to find a language class that does not use some form of technology namely to develop the ability of students to communicate with people in a new language in real world situations. Consequently, learners can only learn English through regular class teaching, radio broadcasts, television, newspapers, magazines, and so on. Furthermore, in most Indian high school English classes, the prevalent mode of instruction is based on large groups, teacher dominated grammar translation methods, and exam oriented textbook based lectures. Students thus acquire knowledge in a de- contextualized way. Therefore, it is difficult for learners to practice what they have learned flexibly in daily life. Moreover, class sizes are too large, there are limited opportunities for individual students to contribute or communicate one on one with teachers or classmates. In recent years, technology has been used to both assist and enhance language learning. Teachers have incorporated various forms of technology to support their teaching, engage students in the learning process, provide authentic examples of the target culture, and connect their classrooms. Further, some technology tools enable teachers to differentiate instruction and adapt classroom activities and homework assignments, thus enhancing the language learning experience. In addition, technology continues to grow in importance as a tool to assist teachers of foreign languages in facilitating and mediating language learning for their students.

Need for Technology

Technology plays an important role in supporting and enhancing language learning, the effectiveness of any technological tool depends on the knowledge and expertise of the qualified language teacher who manages and facilitates the language learning environment. Learning English is mainly an attempt to communicate with individuals. Because effective teaching is based on communication, the goal of English teaching is exactly the same, namely to develop the ability of students to communicate with people in a new language in real world situations. Consequently, learners can only learn English through regular class teaching, radio broadcasts, television, newspapers, and magazines and so on.

It is rare to find a language class that does not use some form of technology. In recent years, technology has been used to both assist and enhance language learning. Teachers have incorporated various forms of technology to support their teaching, engage students in the learning process, provide authentic examples of the target culture, and connect their classrooms. Further, some technology tools enable teachers to differentiate instruction and adapt classroom activities and homework assignments, thus enhancing the language learning experience. In addition, technology continues to grow in importance as a tool to assist teachers of foreign languages in facilitating and mediating language learning for their students. Technology can play an important role in supporting and enhancing language learning, the effectiveness of any technological tool depends on the knowledge and expertise of the qualified language teacher who manages and facilitates the language learning environment.

Literature Review

The distinction between CALL and Technology-Enhanced Language Learning (TELL) is that the computer simultaneously becomes less visible yet more ubiquitous. The change in emphasis from computer to technology places direct importance on the media of communication made possible by the computer, which itself often remains unseen, rather than on the computer itself (Bush & Roberts, 1997). Whereas in CALL, the computer assisted learning, it might be said that in TELL, the computer supports learning. This third phase of technology use in second- and foreign-language teaching is characterized by the use of multimedia and the Internet. It can also be characterized by a clearly delineated move away from behaviourist, drill and practice type software and a move towards more constructivist uses of the tool. Warschauer (1996a) refers to the third phase of use of computers in teaching second languages as Integrative CALL. He uses the term *integrative* to refer to efforts at developing models which would integrate various aspects of language learning for example using task- or project-based approaches. Multimedia computers can provide an accurate portrayal of the target language and provide learners with control and feedback. More importantly though they facilitate a methodological and theoretical advance that shifts the emphasis away from the traditional production of sentences common with CALL to an emphasis on "input and intake" (Pusak & Otto, 1997).

Computer-mediated communication (CMC) using the Internet has the power to allow learners to

collaborate and to construct knowledge together (Warschauer, 1997a). Online learning, explains Warschauer, breaks the pattern of teacher-centred discussion in the classroom. In his review of studies on CMC, the author notes that the social dynamics of CMC result in more equality of participation than what would be typical in face-to-face communication Hanson-Smith (1997) examines the pedagogical practices that have benefitted or will benefit from technological enhancement. The World Wide Web allows for an instantaneous exchange of information to and from sites and between individuals. Use of the Internet demands a level of student engagement in authentic language encounters that would barely be possible face-to-face (Hanson-Smith, 1997). Singhal (1997) explains how use of the Internet can promote higher-order thinking skills. Smith (1997) uses the term *virtual realia* to refer to authentic material or, more specifically, "(in language teaching) digitized objects and items from the target culture which are brought into the classroom as examples or aids and used to stimulate spoken or written language production"

Technology-enhanced language learning (TELL)

(TELL) or Technology-enhanced language learning deals with the impact of technology on teaching and learning a second language also called the L2. Technology-enhanced language learning refers to the use of the computer as a technological innovation to display multimedia as a means of complementing a teaching method language teacher. What's important to note is that TELL is not a teaching method but rather an approach that can be used alongside a teaching method to help teach. TELL is very supportive of Computer Mediated Communication (CMC). CMC has been researched and supported as being very useful to helping students speak and write in a foreign language which is important to teaching process using TELL. "The process can be described as effectively bridging the gap between written and oral expression for the linguistically limited student whose oral skills are not adequate to allow for full expression of ideas in the target language. By slowing down the process of communication and allowing the students to reflect and compose a message (similar to an "utterance"), electronic interaction in the classroom encourages student use of the target language?" (Bush1997)

Technology-enhanced language learning uses computer technology, including hardware, software, and the internet to enhance the teaching and learning of languages by,

- Using a hand-held electronic dictionary to look up a word in class
- Chatting with a friend on Instant Messenger using a little English

- Reading news website
- Creating a video and posting it on Youtube
- Participating in an online discussion board
- Listening pop song and reading the lyrics online
- Doing a computer-based language exercise from the CD that comes with a textbook
- Searching for a word in a corpus to see how it's used.
- Playing World of Warcraft in English
- Texting a classmate in English

TELL conceptualized according to activity (fill-in-the-blank, create a video, chat with a classmate), skills (reading, writing, listening, speaking, grammar), location (blended, distance, online) and technology (computer, Internet, chat, blog, wiki, gaming, video)

a. Approach & Design

Technology is theoretically neutral, but a TELL activity: (1)reflects a theory of teaching, learning, and foreign language learning of the designer and/or instructor (2)reflects a theory of technology as:

- Drillmaster: *behaviorist*
- Tutor: *cognitive*
- Tool: *constructivist*
- Mediator: *socio-cultural*
- Part of an ecology: *socio-cognitive*

TELL activity has **goals** and **objectives** like any other language learning activity It can be **integral** or **peripheral** to the lesson or curriculum. It can integrate **skills** or treat them separately

b. Preparation & Implementation

A TELL activity: requires instructor technological literacy, requires (but can also develop) student technological literacy , requires class access to technology, sometimes requires technical support.During a TELL activity, the instructor may be monitoring, guiding, facilitating, assisting, and evaluating, the students may be working individually, in pairs, or in groups , the students are clicking, dragging, and scrolling, but also listening, speaking, reading, and writing

c. Assessment & Evaluation

A TELL activity has processes, products, and actions that can be assessed. These should be

assessed in a way that matches the activity objectives and approach.A TELL activity should be evaluated during and after implementation. It can be altered during implementation based on evaluation to meet student needs. It reflects principles of language learning

Advantages of TELL

- Using TELL provides a lot more flexibility and caters to more learning styles of the language learners compared to traditional styles of teaching.
- TELL can be used alongside textbooks for a much more in depth learning experience
- TELL turns the classroom into a student centered environment. Students can:
    - ***Select order in which material is presented to them*** (ex. grammar program first and vocabulary building game last)
    - ***Control the material presented to them*** *(*ex. Visit the Coliseum in Rome, Italy on CD-ROM or learn about the 2006 Olympics in Torino, Italy)
    - ***Control the pace of progress*** *(*ex. students can work through level 1 & 2 on grammar today and then level 1 on vocabulary the following day)
- TELL improves motivation and develops better attitudes in students towards learning.
- Learning is not confined to the area within the classroom environment, it is enlarged Students can learn about language at home and practice language in class.

Disadvantages of TELL

- Cost of technology
- Cost of training
- Cost of media
- Teacher or instructor must be comfortable with using technology
- Technology not 100% fault proof
- Access issues outside the classroom
- Problem of too much work done by the computer. The langauge student must not rely entirely on the help system of langauge software to guide them htrough exercises but must make conscious effort to attempt exercises for a better learning experience.

Main types of media using TELL

1. Sound (audio)
    - Radio broadcasts
    - Recorded playback of speeches
    - Recorded storytelling
2. Films (video + audio)
    - Short films
    - Interviews
    - Full length full feature movies
3. Images/Graphics
    - Charts
    - Paintings
    - Photos
4. Texts
    - Essays
    - Journals
    - Articles
    - Email
    - Chatting
    - Books

3.6 Examples of Activities using TELL

Type of Activity	Individual?	Group?	Areas of language learning
Dialogue (Audio)	No	Yes	Pronunciation, vocabulary, context
Audio Recording Playback(Audio)	Yes	Yes	Pronunciation, vocabulary, context, comprehension
Film (video)	Yes	Yes	Nonverbal communication, pronunciation, context, vocabulary
Online Journal (text)	Yes	Yes	reading, writing, syntax, spelling, vocabulary, context, comprehension

These are some of the trends developing in technology-enhanced language learning. With increasing sophistication in both the technology and the users of that technology, it is sure that more appropriate technology-based second language learning systems will emerge.

WEB- ENHANCED LANGUAGE LEARNING (WELL)

This Chapter deals with one form of CALL, what we call network-based language Teaching (NBLT). NBLT is language teaching that involves the use of computers connected to one another in either local or global networks . Whereas CALL has traditionally been associated with self-contained, programmed applications such as tutorials, drills, simulations, instructional games, tests, and so on, NBLT represents a new and different side of CALL, where human-to- human communication is the focus. Language learners with access to the Internet, for example, can now potentially communicate with native speakers (or other language learners) all over the world twenty-four hours a day, seven days a week, from school, home, or work. That learners can communicate either on a one-to-one or a many-to-many basis in local-area network conferences further multiples their opportunities for communicative practice.

Computer-assisted language learning (CALL) has rapidly shifted to network-based language learning. However, the tsunami of web-based language learning and teaching has come so fast and overwhelmingly that a large majority of English teachers in Taiwan have not technically or pedagogically prepared for this educational reform. This paper will first introduce theoretical framework of network-based language teaching. Next, it will present how Internet can be effectively used in language teaching and learning and also give some practical guidelines on preparation for web-based English learning and teaching. Then, it will also explore some challenges that most English educators may face when we would like to apply Internet to our teaching and how we can overcome those difficulties. Finally, the paper will conclude with the implications and future possibilities for using Internet in foreign language classrooms.

Affordable microcomputers became widely available to language learners and teachers in the early 1980s. Throughout the 1980s computer-assisted language learning (CALL) widened its scope and gained professional visibility, embracing the communicative approach and a range of new technologies, especially multimedia and communications technology. According to Chapelle (2001, p.8), in the 1983 annual TESOL convention, some papers arguing methodological issues were presented and suggestion was put forward to establish a professional organization – Computer-Assisted Language Instruction Consortium (CALICO) – devoted to the issues involved in language learning technology.By the middle of 1990s, because the creation of

World Wide Web, instructional network was no longer confined to the network of a LAN in a computer lab.

According to Wikipedia, a free online encyclopedia, the idea of computer network intended to allow general communication between users can date back to ARPANET of 1969. The ARPANET computer network also made a significant contribution to the evolution of e-mail. However, the creation of modern Internet originates from 1990s; in August 1991 Tim

Berners-Lee publicized his new World Wide Web (WWW) project and laid a solid foundation of today's Internet. In 1993, he created HyperText Markup Language (HTML), a computer language designed for the creation of web pages, and HyperText Transfer Protocol (HTTP), a primary method used to convey information on the WWW. Since then, the modern Internet has been booming in almost every aspect of our life including EFL learning and teaching. Before the growing prevalence of WWW, efficient and convenient emails are probably the most popular application of Internet on English learning and teaching. Since the 1990s, many researchers have used email in foreign language instruction (Lunde, 1990; Soh & Soon, 1991; Kelm, 1992), in writing (Hawisher & Mora n, 1993), and in comparison of different communication modes (Mabrito, 1991; Kern, 1995; Warschauer, 1996a). It can be concluded that because reasonably priced computers were readily available in 1980s, the development of CALL peaked from 1980s to the early of 1990s. Then, the growth of modern Internet dramatically changed language education and more or less replaced the role of CALL. The explanation about CALL and NBLT given in the first chapter of Network-based Language Teaching: Concepts and Practice (Kern & Warschauer, 2000) properly depicted the changes of CALL in 1980s and 1990s.

Web Sites as a Learning Community

The birth of WWW in 1991 has drastically altered facets of CALL and NBLT. Features and functions of web-based learning environment are greatly different from previous applications of Internet in the following aspects.

A. Multimedia Presentation. The WWW uses a web brow ser as a graphical user interface to the Internet. With rapid progress of information technology, web sites, which contain pages of text and graphics, have become more sophisticated because richer data types are now available, including audio, animation, and video (Galbreath, 1997; Doherty, 1998).

B. Dynamic Interaction. Through CGI, Javascript, PHP, ASP, and some other computer programs, English teachers can add discussion forums or chat sessions to their online courses and receive feedback from users they have never met.

C. Database-enabled Interactivity. The more advanced application of Internet is the integration of web sites and database by compiling scripts. Search engines, computer-adaptive test (CAT), and course management system (CMS) are some examples of database-enabled interactivity.

Computer-Mediated Synchronous Interaction

A. Instant Messenger . According to Wikipedia , an early form of instant messaging was implemented on the PLATO system in the early 1970s. ICQ was the first general instant messenger introduced to the internet, in November 1996. However, two dominating instant messengers in the early of 2000s in Taiwan are MSN Messenger and Yahoo Messenger. Most instant messengers can automatically keep a record of a user's conversations as an XML format which is useful for instructors and researchers to retrieve their own chat log. An experimental 4- hour online virtual class with MSN Messenger was arranged by Wu (2004). A group of 3 to 4 students logged in during a given period to have written synchronous communication with their instructors. Students are required to type only English; those who didn't log in had to access an online supplementary learning web site to read articles and answer questions given. The result of a survey showed that the learning effectiveness was not satisfactory, but most students found that they had better interaction with teacher in this MSN online virtual class.

B. Internet Telephony Skype. Most instant messengers also have audio function.With microphone and speaker attached to computers, users can talk their friends far away. However, the audio quality of conversation is not acceptable compared to global peer-to-peer telephony software Skype. Skype offers high-quality computer-mediated synchronous audio and textual communication. Nevertheless, Skype is a new emerging technology and the potential application of it to language learning and teaching needs to be further explored.

Guidelines of Web-Based EFL Teaching

What are the guidelines for English teachers who would like to use WWW in their language

classroom? In order to make effective e use of WWW, English teachers should focus on some basic pedagogical requirements rather than just dedicate ourselves to improving computer skills. Warschauer and Whittaker (1997) set five following guidelines to help teachers implement network-based activities into the EFL classroom: (1) consider carefully your goals, (2) think integration, (3) don't underestimate the complexity, (4) provide necessary support, and (5) involve students in decisions. These guidelines are further elaborated below

Challenges Of Web-Based EFL Teaching

Even though web-based EFL teaching seems to have enjoyed a bright prospect because of potential benefits of the In ternet, it is in fact full of challenges and obstacles.

Technical Issues: Even if an English teacher has learned how to design a web for web-based class, it may still not attract enough students to make the best use of teachers' web site because of the functions, purposes, and interactivity of it. Employing user-friendly web design software to create a web site is, to an extent, not that difficult, but integrating database-enabled interactivity into teacher's web site is a current trend in NBLT and is also a high threshold to English instructors without the help of programmers. In addition, when the network traffic stalls due to many users or some other network glitches, it may take time to access information or browse the Internet. Most students may feel discouraged if they have to wait long for web sites to appear. English teachers may also feel frustrated if they are not computer literate to debug computer- or Internet-related problems in web-enhanced language classes (Singhal, 1997). One of the possible solutions is that the computer center of universities can offer some training programs or schools reimburse tuition for English teachers who attend computer courses or seminars given by professional institutes.

Digital Skepticism

Most EFL teachers in Taiwan are prone to technophobia because of lack of experience with computers. In addition, not all English teachers praise the merits of technology in the digital classrooms. Peterson (as cited in To wndrow & Vallance, 2002, p.41) highlighted a number of negative impacts of computers on education. Some of the doubts are:

(1) information overload can lead to techno-stress;

(2) computer-mediated synchronous communication has generated more text with minimal

interaction;

(3) learners' disappointment due to a lack of immediate feedback;

(4) without enough CALL training for English teachers, NBLT simply result in learner apathy, disorientation and abuse.

Time-Consuming

Most EFL teachers who have ever used self-made, web-based language learning materials in their instruction will agree that it is quite time-consuming to design, edit and modify your digital learning materials. Therefore, instructors may resist using Internet-based activities or projects that require substantially more preparation time (Lee, 2000). If institutes that teachers are working for don't offer funds as an incentive to support their English teachers, some may feel not worthwhile to spend so much time designing and updating their web-based learning materials. A rule of thumb to estimate how much time one has to spend in developing one-hour online materials is multiple three times. That is, it may take you as many as three hours to prepare a one-hour online material.

Credibility of Web sites

In this information explosion age, millions of web sites we found from a powerful search engine such as Google are just the tip of the iceberg. For example, if I type "English learning" as key words in Google to look for web sites; it responds 55,600,000 matched items found in 0.08 second. Does it make any sense to English learners? Who will browse all these matched web sites? Are students well trained to judge what features a good web site should have? Are articles of the web site genuine and credible? Are they unbiased and updated? In addition, the Internet like a reservoir of knowledge offers access to all types of issues and topics, some of which are unsuitable for younger language learners (Singhal, 1997).

Implications and Conclusion

Even though there are formidable challenges that we have to face and technology has also brought some negative impacts on language learning, Internet can also add value to a student's learning if this new technology is effectively harnessed. If NBLT is a growing trend that we cannot reverse, we as English educators can be critical of the use of web-based learning materials in our teaching, but cannot become an academic Luddite resisting progress of educational

technology. Applying NBLT to EFL instruction, English teachers must become familiar with operating system, common packaged applications (such as Word, PowerPoint and Media Player)and web design software (such as FrontPage or Dreamweaver). The basic functions of computers and Internet are also necessary; some examples are using search engine, transferring files, and creating digital audio and video files. Obviously, the computer itself, like any other educational technology (e.g., overhead projectors, tape recorders, CD players), does not bring about improvements in language learning. Never can they substitute English teachers. Engaging in CALL and NBLT is a continuing challenge that requires time and commitment. Internet is just a fast, convenient and powerful learning tool; what matters is social interaction behind it.

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NETWORK-BASED LANGUAGE LEARNING (NBLL)

Introduction:

This chapter deals with one form of CALL, what we call network-based language teaching (NBLT). NBLT is language teaching that involves the use of computers connected to one another in either local or global networks. Whereas CALL has traditionally been associated with self-contained, programmed applications such as tutorials, drills, simulations, instructional games, tests, and so on, NBLT represents a new and different side of CALL, where human-to- human communication is the focus. Language learners with access to the Internet, for example, can now potentially communicate with native speakers (or other language learners) all over the world twenty-four hours a day, seven days a week, from school, home, or work.That learners can communicate either on a one-to-one or a many-to-many basis in local-area network conferences further multiplies their opportunities for communicative practice. Finally, the fact that computer-mediated communication occurs in a written, electronically-archived form gives students additional opportunities to plan their discourse and to notice and reflect on language use in the messages they compose and read.

It is not surprising that many language teachers have enthusiastically embraced networking technology and have developed creative ways of using networked computers with their students . On the other hand, many other teachers remain skeptical of the value of computer use in general. A 1995 survey of instructional use of technology in twelve academic areas (Cotton, 1995), for example, showed that 59% of foreign language programs and 65% of ESL programs used no form of computer technology in their courses placing language teaching at the bottom of the list of academic areas surveyed.

To date, there has been relatively little published research that explores the relationship between the use of computer networks and language learning. The simple question to which everyone wants an answer: does the use of network-based language teaching lead to better language learning? turns out not to be so simple. The computer, like any other technological tool used in teaching (e.g., pencils and paper, blackboards, overhead projectors, tape recorders), does not in and of itself bring about improvements in learning. We must therefore look to particular practices of use in particular contexts in order to begin to answer the question. Furthermore, these practices of use must be described as well as evaluated in terms of their specific social context.

Socio-cognitive and Socio-cultural Approaches:

Researchers who question the assumed stability and neutrality of linguistic forms and functions in virtual discourse have turned their focus to two main areas: genre differentiation and culture learning in networked classrooms.

Genre differentiation

Online communication is not a single uniform genre, but rather a range of genres generated situationally for different media (e.g., blogs, e-mail, instant messaging, wikis, online forums, MOOs, chat groups) and according to the particular needs and purposes of participants. For example, synchronous online language is typically characterized by the fragmentary nature of conversation flow, the multiplicity of discussion threads, the difficulty of back channeling to clarify one's message, the lack of paralinguistic and contextual cues and the tendency to emphasize communication. Asynchronous modes such as threaded discussion, however, tend to be less fragmentary, more informationally dense and complete, and focused on a single discussion topic. Variability in both technology and purpose leads to a range of online language that can resemble hybrid forms of standard and nonstandard language. Herring (2001) maintains that the fragmented, nonstandard language found in some online interactions is not the result of errors, but rather the result of deliberate choices by users to save typing time or to be creative with language. From a critical pedagogical perspective, however, such tendencies in online discourse create tensions for teachers' intent on assisting their students in developing, if not proficiency in standard forms of language, at least the ability to discern among standard, nonstandard, and hybrid uses.

Culture in NBLT

A significant shift in NBLT in the last five years is the growing emphasis on cultural aspects of language learning. In part, the result of theoretical trends toward sociocultural and social constructivist frameworks, and in part an outgrowth of the increasing popularity of online collaborative partnerships, many researchers are turning to a broader conception of language learning that insists on its inextricable cultural layering.Often referred to as telecollaboration, these international partnerships link language learners in online discussions to promote language use and intercultural learning. Within the key pedagogical and discourse analytical work on culture and NBLT (for anextended analysis see Kern, Ware, and Warschauer, 2004), the most

significant trends have been the move from monolithic to multidimensional presentations of culture (Furstenberg, Levet, English, and Maillet2001); the notion of authenticity in online cultural texts (Kramsch,A'Ness, and Lam, 2000); the potential for communication breakdown (Ware, 2005); and the development of intercultural competence (Belz,2003)

Research on Network-Based Language Learning

As NBLT is an emerging area, the corpus of NBLT research includes few published studies that examine in depth the development of discourse and discourse ommunities in online environments. Those studies that have been published have tended to focus on the most quantifiable and easily-measured aspects of online communication. For example, a number of studies (e.g., Kern, 1995; Sullivan and Pratt, 1996; Warschauer, 1996) have quantitatively compared amount of participation in face-to-face and computer-assisted discussion, and have found more balanced participation among students (and between students and teacher) in the computer mode. Other studies have attempted to quantify the language functions used in online communication, concluding to little surprise that learners use a variety of functions in computer- mediated communication (Chun, 1994; Warschauer, 1996). Researchers have also quantitatively examined the linguistic features of online discussion, finding that it is lexically and syntactically more complex than face-to-face discussion (Warschauer, 1996). These are all examples of a product-oriented, structuralist approach to NBLT research.

NBLT research areas are context, interaction, and multimedia networking. The contexts in which networked-based teaching and learning occur have not, by and large, been studied in sufficient depth. As Gee (1996) explains, discourse represents not just language, but "saying(writing)- doing-being-valuing-believing combinations" (p. 127). To understand the full impact of new forms of interacting in the language classroom, we must look beyond the texts of interaction to the broader contextual dynamics that shape and are shaped by those texts. This entails holistic, qualitative research that goes beyond inventories of linguistic features and attempts to account for the way classroom cultures take shape over time. While a number of educators have attempted to look at such phenonema, much of the published work to date in this regard has consisted of informal reports by teachers of what they have observed in their classes.Great efforts have also been made to explore the nature and characteristics of Network-based learning. The impressive progress that Internet-based learning research has achieved so far includes the

exploration of the nature and characteristics of Internet-based learning and the establishment of the conceptual framework of Internet-based learning.

A comprehensive understanding of Internet-based learning

(1) Internet-based learning is a way of being instructed, characterized by new mode of communication and interaction in education. The new approaches to interaction include Internet, multimedia, professional websites, information searching, electronic library, online classroom and so on.

(2) Internet-based learning refers to the Internet-based instruction and other related services.

(3) Internet-based learning ensures learning at anywhere and anytime, thus providing the potential of lifelong learning.

(4) Internet-based learners learn in a significantly new way.

(5) Internet-based learning has changed the role of teachers as well as the teacher-learner relationship, thus transforming the nature of education.

(6) Internet-based learning put an emphasis on learners' critical thinking and analytical ability.

(7) Internet-based learning can realize some teaching goals very effectively but it cannot replace face-to-face classroom instruction.

(8) Internet-based learning cannot replace campus-based education provided by physical educational institutions but it can significantly transform the aim and functions of classroom instruction.

Future Directions

As the field of NBLT develops in the coming years, research is needed that continues many of the strands discussed earlier. In addition, we anticipate that research will grow in a number of other areas. First, more work is needed that explores multimodal learning con texts. Computers have had an impact on the ways we communicate. To date, the research conducted on computer- mediated communication has been mostly text-based, but now image and voice are becoming integral parts of how we interact and represent ourselves online. As digital media become more readily available to wide audiences of users, teachers and students are increasingly able to develop novel ways of integrating multiple modes of learning into the language classroom. In some cases, such integration will certainly take the form of more conventional approaches, such as the use of audio or video clips to reinforce standard uses of the target language, but we also

anticipate innovation in NBLT driven by newer technologies such as podcasting and wikis, as documented by Thorne and Payne (2005).

A second area of future research will likely be directed toward critical explorations of how culture functions in NBLT. Until now, terms such as cross-cultural and intercultural have been used rather inter changeably, and the task of researchers will be to refine the terms and develop viable methodologies and theories for examining issues of (pluri)cultural representation, identification, and contact in online contexts. Work in this area will not only influence how we define language learning in general, but also how we define key concepts such as communicative competence, and how we frame online pragmatics and sociolinguistics. Third, expanded research will be needed on the relationship between form-focused in-class activities and online collaborations whose primary goals are social interaction and the presentation of identity and knowledge. Crucial to this research will be attention to changes in the roles of teachers and students and how the classroom is imagined accordingly. Fourth, as ethnographic work on language use and learning outside of educational contexts continues to grow, we anticipate that researchers will turn to the issue of curricular integration. As discussed earlier, much of the work on NBLT has taken place in postsecondary contexts.

However, educators are increasingly interested in integrating technology into language classrooms, so researchers will need to explore ways to support such curricular initiatives. With an emphasis in many educational contexts on high-stakes testing, such work will undoubtedly facilitate the development of assessment tools and feedback loops for learners and teachers. Finally, as more learning resources of all kinds become available via the Internet rather than as stand-alone applications, the distinctions between CALL and NBLT will increasingly fade. New forms of research will be required to investigate the learning processes and outcomes that occur when traditional CALL activities are carried out in networked environments and combined with computer-mediated communication.

Conclusion

Over the past 20 years, a rich body of research has been conducted on NBLT. The accelerating diffusion of digital media and wireless networks, together with the increased naturalization of computer- mediated communication, promises that NBLT will remain a critical area for teaching

and research. We note, for example, that the first generation of digital natives who have grown up using the Internet and view it as an entirely ordinary environment of interaction is now enter- ing higher education. What is more, the Internet itself has changed dramatically in recent years, with the rapid spread of participatory tools and sites facilitating social networking, interactive game playing, collaborative writing and editing, and multimodal production. These tools provide opportunities for students in read, write, communicate, and construct knowledge in a second or foreign language in ways that are both new and unexplored. Although the potential role of NBLT is thus greater than ever before, research has also shown that sound pedagogy and not computers or networks per se is what really counts in NBLT. Future success will thus require teachers' continued attention to the close integration of project goals, activity/task design, and technology interface within often complex logistical realities. Teachers also need to know how NBLT can constrain as well as enhance their students' language use and know when it is better not to computerize a particular activity. The growing complexity of decisions involved in NBLT highlights the importance of technology integration in both pre-service and in-service teacher education. Finally, given the rapid evolution of technologies and the fluidity of communicative environments, flexibility will be a prime requirement for teachers and researchers as they continue to explore language teaching and learning in new networked contexts. By adopting the same habits of mind that we seek to inspire in our students autonomous learning; inventive thinking; and critical perspectives on the intersection of language, technology, and culture teachers and researchers can help ensure that the impressive potential of network-based teaching to transform language learning is achieved.

MOBILE ASSISTED LANGUAGE LEARNING (MALL)

In the world that emerging technology-supported devices are rapidly growing, wireless communication technology is not an exception in this respect. As mobile phones with high capabilities extend into all areas of human life, it is expected that this wireless computing device soon becomes accessible for all urban and rural areas of each country. So, widespread access to such an inexpensive and sophisticated device has rather changed the landscape of e-learning in many ways. In fact, mobile learning can be considered as the next generation of e-learning. Mobile devices are not substitute for existing learning devices, but they serve as extension for learning in new environment having new capabilities, though, not all learning content and activities are appropriate for mobile devices . Mobile learning is characterized by its potential for learning to be spontaneous, informal, personalized and ubiquitous. Such learning is reinforced when people encounter shortage of free time as the result of working longer hours. In such an environment, busy people tend to use portable devices to learn new materials rather than taking time for traditional classroom-based courses.

There are some factors having key roles in the use of mobile devices in learning environments. Physical characteristics of a mobile phone such as its size and weight as well as input and output capabilities such as keypad vs. touchpad and screen size and audio functions are among the factors which should be assessed in this respect. The learner skills and his/her prior knowledge and experience with mobile devices for learning, as well as the learner's attitude towards the learning through mobile phone play a crucial role in the output quality of such a mobile-based tasks. In this chapter we try to investigate the way of effective learning through mobile technologies, a shift from teacher-led learning to student-led one, via m-learning. The possibilities of learning a second language in a mobile-based environment are demonstrated accompanying by some examples of learning via mobile devices. Also, it has been tried to show the benefits of using mobile phones in learning English as a second language. Areas of mobile- based language learning discussed in this paper are vocabulary, listening, grammar, phonetics, and reading comprehension.

Mobile Learning, Advantages and Disadvantages

Among all modern communication devices, mobile phones are the most powerful communication medium even richer than email or chat as it can act as a learning device despite its technical limitations. With such a learning device the learner controls the learning process and progress in his/her own space based on his/her cognitive state. Learning through the computer or e-learning enables the learners to learn in a non-classroom environment when they are at home in front of their personal computers online or offline. However, learning through the mobile phone or m-learning provides the learners with the opportunity to learn when they are in the bus, outside or at work doing their part-time jobs. In fact, they can learn every time and everywhere they are. Two main characteristics of mobile devices are portability and connectivity. As for connectivity, designing the mobile system must have capability of being connected and communicated with the learning website using the wireless network of the device to access learning material ubiquitously including short message service (SMS) and mobile e-mail. Portability enables learners to move mobile devices and bring learning materials.

Properties of mobile devices:

1) Portability: such devices can be taken to different places due to small size and weight;
2) Social interactivity: exchanging data and collaboration with other learners is possible through mobile devices;
3) Context sensitivity: the data on the mobile devices can be gathered and responded uniquely to the current location and time;
4) Connectivity: mobile devices can be connected to other devices, data collection devices, or a common network by creating a shared network;
5) Individuality: activities platform can be customized for individual learner.

The widespread influence of the market increased the popularity of the mobile phone, and this fulfills the need of teachers to provide tools and software for the learners in teaching contexts. Moreover, comparing with other wireless devices such as laptop computers, mobile phones are rather inexpensive having functions as Internet browsers available in most devices. With such inexpensive devices accessible to even the poorest areas and having the functionalities of e-mail

or SMS, it is now possible to transfer information to and from mobile phones between instructors and learners without any difficulty.

Although learning service through mobile devices has some advantages, it has its own constraints as small screen, reading difficulty on such a screen, data storage and multimedia limitations, and the like. Many of the mobile phones are not designed for educational purposes. That is, it is difficult for the learners to use them for the task given by the teachers to be carried out. This is partly due to the initial design of such devices, and partly due to non-existence of such developed mobile phones. However, those devices which are appropriate for specific learning tasks are too expensive for most of the learners to buy. Thus, teachers should be aware of what kinds of tools learners have, and then set to chose or adapt resources compatible to such tools . Research shows that the learners found the activities take too long to complete on the mobile devices, and consequently, some of them preferred to use their PCs to do their assigned tasks. In that experiment many learners indicated from the outset that they did not intend to use the mobile phones for doing their tasks because of the cost of Internet access, the screen size, and the keypad .

Examples of Mobile Learning

Wireless communication technology is applied to many fields such as GPS navigation, wireless monitoring system as well as learning various materials including learning language skills. Mobile learning can take place either within the classroom or outside it. In the former case, mobile phones possessing appropriate software are very effective in collaborative learning among small groups. Although this type of learning has nothing to do with the mobility property of such devices, it provides the learners with the opportunity of close interaction, conversation, and decision-making among the members of their group due to the specific design of the learning activity on mobile phones. These types of interaction among learners and their physical movement can hardly be achieved when desktop or laptop computers are to be used. Mobile learning technology is more useful for doing activities outside the classroom. Such activities enable learning to be more directly connected with the real world experiments. Moreover, learning through mobile phones outside the classroom has the advantage of better exploiting the

learner's free time; even the students on the move can improve their learning skills . SMS-based learning is another development in the use of wireless technologies in education in which receiving wanted text messages supports learning outside of classroom and helps learners benefit from their teacher's experimentation with mobile technology.

Game-based learning is another theme for mobile learning in which learning materials are so designed to be integrated with aspects of physical environment. In such environments, learning activities are facilitated using the mobile technology which serves as a link between the real world of knowledge and the visual world of the game. Time Lab, for instance, is a game about climate change and its effects. Players succeed to get information about the introduction of possible new environmental laws via their mobile devices in different locations as they progress in the game. They will later discuss the results of the game in the classroom . The m-learning games can also be used to teach second language skills such as vocabulary, pronunciation, grammar, listening and reading comprehension and spelling. Mobile phones offer an ideal platform for learning since they are ubiquitous, affordable, compact and wireless The researchers need to concentrate on simple English language skills and designate a series of games that constitute a curriculum equivalent to an ESL course. The game play can produce significant learning benefits, and this type of learning will enhance student's basic skills and provides clues to the sustainability and scalability of their approach Microsoft research program).

Mobile Phones

Many researchers were so interested in MALL approaches that they attempt to provide some strong supports to conduct further studies on this discipline. Today, mobile learning is easily possible by delivery of various learning materials or content to learners through the mobile devices. Various activities related to language learning are supported by mobile devices among which we can name SMS, internet access, camera, audio/video recording, and video messaging (MMS). Different activities supported and performed by various mobile devices depending of the model and facilities of the device. One of the advantages of mobile learning is that collaborative learning is very encourages in this kind of learning. That is, different learners are able exchange their knowledge, skills and attitudes through interaction. Collaborative learning

helps the learners to support, motivate and evaluate each other to achieve substantial amounts of learning, the property which is almost absent in other kinds of learning. One can attain a good collaborative approach simply by using a mobile device as an environment for learning, which is, of course, highly dependent of the users than the devices. Devices, in fact, act as pencils and calculators which are the basic equipment in a learning process of a student. What is important, here, is the communication between the learners, as an important factor in language learning is the interaction in the target language.There are different mobile devices in the market compatible to the needs of different users. The basic activities can be performed by many mobile phones. However, for language learning, the cost and technologies related to the mobile devices should be taken into consideration. Such learners can use their customized mobile devices for language learning based on their own abilities.

Mobile-Assisted Language Learning (MALL)

When, in 1973, the mobile devices were invented for the first time, no one ever thought some day they would become an important part of routine life. As soon as the mobile phones became a crucial part of our lives, we felt a need for using them in language learning tasks. These days mobile devices such as PDAs, phones, and other handheld devices, are used everywhere for doing everything ranging from voice calling to making short message, video chat, listening to audio (Mp3, Mp4, Mpeg), web surfing, shopping, and the like. Apart from these benefits, mobile devices have increasingly grown toward becoming tools for education and language learning, and all its users from teachers or students are getting used to this environment to make education as ubiquitous as possible. Moreover, the emerging of internet made open and distance learning a means of receiving education from all parts of the world. In a short period, the attractiveness of distance learning led to the realization that various mobile devices provide a very effective resource for education. This way, many researchers tried to make mobile devices a rich resource for teaching and learning. It was, in fact, a challenging affair to cover learning tasks by a mobile phone. MALL deals with the use of mobile technology in language learning. Students do not always have to study a second language in a classroom. They may have the opportunity to learn it using mobile devices when they desire and where they are. As learning English is considered a

main factor for professional success and a criterion for being educated in many communities, providing more convenient environment for people to learn English is one of the strategic educational goals towards improving the students' achievement and supporting differentiation of learning needs.

There are many researches and developments towards the use of wireless technology for different aspects of language learning. Areas of mobile-based language learning are diverse among which the most common ones are vocabulary, listening, grammar, phonetics, reading comprehension, etc.

Vocabulary:

The type of activities focusing on vocabulary learning via mobile phone differs from one research project to another, depending on the level of language proficiency of the learners. Sending e-mail or SMS to students is a common way of learning new vocabulary based on the lessons covered in the classroom. In a study Kennedy and Levy gave the learners the option to receive messages covering known words in new contexts through SMS to their mobile phones amounting nine or ten messages per week. The results indicated that the messages were very helpful for learning vocabulary .Similarly, Thornton and Hiuser sent short mini-lessons for learning vocabulary through email to mobile phones of the students three times a day. They used new words in multiple contexts for the learners to infer the meaning. The results showed an improved range of scores on post-tests which were very encouraging .There are other strategies for learning vocabulary via mobile phones. Learners can be provided with some tailored vocabulary practices based on activities performed in the classroom. They are, then, asked to complete them on their mobile phones and send them back to their instructors. Learning vocabulary can also be accompanied by the pictorial annotation shown on learners' mobile devices for better understanding of new words. In a study conducted by Chen, et al., learners were provided with verbal as well as pictorial annotation for learning English vocabulary. Results of a post-test showed that the pictorial annotation assisted learners with lower verbal and higher visual ability to retain vocabulary

Listening Comprehension:

Listening exercises may be considered the first stage in learning a second language. With the advent of the second generation of mobile phones, it is now possible to design a mobile

multimedia system for learning listening skills through listening exercises. Huang and Sun designed a system composing of two subsystems. A multimedia materials website that uploaded and maintained video materials, and a set of multimedia English listening exercise on the mobile phone for the learners to repeat exercises in English listening in a ubiquitous learning environment. They attempted to implement the mobile multimedia English listening practice system based on capabilities of the mobile technology providing learners download multimedia sound contents from mobile devices, register the learning website, order mobile learning courses and activate reception of learning courses. According to Huang and Sun, mobile multimedia English listening exercise system can enhance learner's English listening abilities to a high degree. It is also possible to design a platform in which learners listen to a text by vocal service on their mobile phones, followed by a listening comprehension quiz based on the text.

Grammar:

Grammatical points can be learnt through a specifically designed program installed on mobile devices, in which grammatical rules are taught, followed by multiple-choice activities where learners select the correct answer from the given alternatives. Grammatical exercises can be in the form of 'true-false' or 'fill-in the blanks' which are to be responded by the learners. Grammatical explanations may also be presented to learners via vocal service or short message service.

Pronunciation:

The second generation of mobile devices enable their users to access multimedia functions including listening and speaking ones. A good m-learning service should consist of speech facilities for transmitting voice. Having such facilities, the learners may download dictionaries on the PDA1 with sound functions so that they can learn the correct pronunciation of unfamiliar or new words to be able to fulfill their learning needs. Mobile devices with multimedia function give the learners the opportunity to record their own voice. Then, teachers are able to make a better assessment of the students' weaknesses in pronunciation. This way, by enhancing various functions of the system like providing a dictionary for looking up unfamiliar words and their correct phonetic form, the pronunciation as well as speaking skills of the learners can be well improved. The Praxis learning podcast line is a platform providing a context-driven, social-

based, and software-enhanced website for learning foreign languages. It has recently been working to release mobile language learning features for PDAs, smart phones, etc., enabling learners to learn phonetics of a given language in an interaction way using multimedia functions on the mobile phones (Microsoft research program). The speech aspect of mobile learning is as significant as textual aspect of it, since it enables learners to comfortably speak with a system recording their voice and allowing them to listen back to themselves. Then, they can compare their voice with an ideal pronunciation and make an improvement in this skill.

Reading Comprehension:

Reading practices help learners to enhance their vocabulary, and vocabulary knowledge, in turn, helps them to promote reading comprehension. Reading activities can be offered to learners either via a well-designed learning course installed on the mobile devices or through SMS sent 1-Personal Digital Assistant like a basic palmtop computer to the learners. In either case upon finishing the reading activity, the learners are provided with a reading text function to evaluate their reading comprehension skill. To offer an effective and flexible learning environment for English learning, Chen and Hsu attempted to present a personalized intelligent mobile learning system known as PIM in which the learners were provided with English news articles based on their reading abilities evaluated by fuzzy item response theory. To promote the reading abilities of English news, the PIM system would automatically discover and retrieve unknown vocabularies of individual learners from the reading English news articles. The experimental results of the study indicated that English news reading learning along with unfamiliar vocabulary learning with self-assessing feedback response are very effective in prompting reading comprehension and reading abilities of the learners .Mobile learning programs in which reading function accompanied by text announcer pronunciation will be more helpful to promote at the same time both reading comprehension and listening comprehension.

Conclusion and Further Development

The rising speed of mobile technology is increasing and penetrating all aspects of the lives so that this technology plays a vital role in learning different dimensions of knowledge.Today, a clear shift from teacher-led learning to student-led learning that m-learning allowed causes the students feel using the technology more effective and interesting than before. In fact, we can provide a richer learning environment through mobile phones for our language learners. Though

research has been carried out towards MALL technology as a growing field of study in language learning, there are still so many works left to be done and a large amount of information to be uncovered. Moreover, the methods with the help of which mobile device technology can be used to provide a more robust learning environment have to be further improved. The ways through which the barriers of CALL have been removed can help the MALL technology to grow with less effort and cost.Some language skills such as speaking and listening skills as mobile-based activities need some further improvements due to the hardware weaknesses. Mobile-based learning or m-learning faces many challenges, but it has grown in exponentially in spite of all its problems to provide a better environment for language learning. Mobile learning technology, however, has a rapid pace of development from a teacher-learner text-based approach to a forthcoming multimedia supporting technology. In addition, podcast lectures and digitized audio comments made the online interaction between teachers and learners possible in a more convenient way without any time and space limitations.

Though doing the language activities on mobile phones may take longer time compared to computers, the learners feel a greater sense of freedom of time and place, so that they can take the advantage of spare time to learn a second language when and where they are. Mobile technology gets learning away from the classroom environment with little or no access to the teacher, though the learning process can hardly be accomplished without a teacher's direction or guidance. As the demand for acquiring a foreign language increases and the people time for more formal, classroom-based, traditional language learning courses decreases, the need felt by busy users for learning a foreign language through MALL will inevitably increases. In other word, MALL can be considered an ideal solution to language learning barriers in terms of time and place.

According to Yamaguchi, "A computer is better than a mobile phone or handling various types of information such as visual, sound, and textual information, but the mobile phone is superior to a computer in portability. Further, some students do not have their own computers.”. There are some limitations in MALL approaches which are hoped to be handled with some future works, since the discipline has high potential for further development and improvement. Enhancing mobile devices with video and voice chat features will make such MALL-based technology more efficient both for

the teachers and the students, as the teachers can use voice or video chat to provide their students with learning material and receive their feedback. Further research and experiments on MALL-based techniques should be carried out for different languages having different properties. Arabic and Persian languages, for example, are written from right to left and Chinese language is written both from right to left and from left to right. As a result, mobile devices need to be so devised to be more compatible with such languages with different orientations, making the scope of these devices usage greater than before.

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UNIT-III

COMPUTER ASSISTED LANGUAGE LEARNING- SHS5017

UNIT-III

CONTENTS

UNIT	ACTIVITY	TOPIC
III	**CALL Design**	CALL programs and applications
		CALL and Language skills
		Listening, Speaking and Pronunciation
		Reading and Writing
		Grammar, Vocabulary and Data-Driven Learning
		Learner training and autonomy
		Teacher education
		Role changes for teachers and students
		Evaluation and feedback

Complete Reference:

http://www2.nkfust.edu.tw/~emchen/CALL/course_content.htm

CALL PROGRAMS & APPLICATIONS

CALL programs/materials include

a. CALL-specific software: applications designed to develop and facilitate language learning, such as CD-ROMs, web-based interactive language learning exercises/quizzes

- ***Generic software***: applications designed for general purposes, such as word- processors (Word), presentation software (PowerPoint, see an e-book made by students "Many Moons"), and spreadsheet (Excel), that can be used to support language learning

- ***Web-based learning programs:*** online dictionaries, online encyclopedias, online concordancers, news/magazine sites, e-texts, web-quests, web publishing, blog, wiki, etc.

- ***Computer-mediated communication (CMC) programs***: synchronous - online chat; asynchronous - email, discussion forum, message board

CALL authoring programs

CALL authoring programs offer a do-it-yourself approach to CALL. They were originally developed to enable programmers to simplify the entry of data provided by language teachers. Modern CALL authoring programs are designed to be used by language teachers who have no knowledge of computer programming. Typical examples are authoring packages that automatically generate a set of pre-set activities for the learner, e.g. Camsoft's Fun with Texts (Camsoft) and The Authoring Suite (Wida Software). Generic packages such as Macromedia's Director (http://www.macromedia.com/) are more sophisticated and enable the user to create a full-blown course, but they are probably too complex for most language teachers and are best suited to the template approach to authoring. CALL software design and implementation: http://www.ict4lt.org/ Web authoring packages are also available,

e.g. Hot Potatoes software: http://web.uvic.ca/hrd/halfbaked.

Considerations for the Design of CALL Programs

Pedagogy First and Technology Second :

When creating and developing CALL programs, it is important to remember that the element that is in control at all times should be the pedagogy, rather than technology. Pedagogy, in turn, is driven by learners' needs and learning objectives.

Technical considerations are also important, but without good-quality content and good pedagogical support, the use of advanced technology does not guarantee the success of

computer-assisted learning materials.

To create a multimedia CALL program it is essential to consider:

- the target audience/learners (age, cognitive ability level, learning styles, motivation of learning, familiarity with technology, etc.)
- the language level of the learners
- the purpose (learning objectives) of the program
- the pedagogical approach
- the appropriate use of technology
- the learning context

CALL Program Design Principles

Content Design

Brevity:

Remember that "reading from computer screens is about 25% slower than reading from paper... people don't want to read a lot of text from computer screens: you should write 50% less text and not just 25% less since it's not only a matter of reading speed but also a matter of feeling good."

As a general rule it is advisable to use:

- short paragraphs
- bullets and tables to make reading easier
- lots of white space - more than on the printed page
- multimedia to convey meaning
- one screen to present all related information

Comprehensibility:

The program needs to provide comprehensible input to learners. That is, the difficulty level of learning materials should be appropriate to learners' language level and the information needs to be organized systematically and presented clearly.

Accuracy:

Make sure the content to be presented is accurate, valid, and unbiased. Double check all the information presented in the program and avoid making typos and grammatical errors.

Interestingness:

The content of the CALL program needs to be of great interest to learners in order to motivate them to learn with the program.

Organization:

The organization of the content, such as a hierarchical way with topics and sub- topics and an associative way with word/icon links, needs to be well-structured.

Visual Design

Consistency: The placement of elements on the screen needs to be consistent from screen to screen, including the use of color, layout, capitalization, typefaces and fonts. Also, the terminology used in prompts, menus, and help screens needs to be consistent too.

Good Use of Space:

Each section of content should fit onto one screen. Different parts of the information should be distinguished from one another spatially rather than through variations in color, style, or other visual treatments. Too many other treatments can clutter the screen with visual noise, which distracts from the content being presented.

Legibility:

The text on the screen must be legible and readable. For legibility, avoid using elaborate typefaces on screen, and text in paragraphs should not be smaller than 12 points. For readability, lines of text should be aligned on the left (i.e. left justified), not on the right, and individual lines of text should be at least several pixels apart.

Careful Use of Color:

Color needs to be used with caution. Overuse of color makes information more difficult to read because the user slows down to think about what the color means. It is important to ensure good contrast between text and background. Dark text on light background is more preferable. Avoid the use of combinations of complementary colors (e.g. red and green, blue and orange, yellow and violet).

Contrast, Repetition, Alignment, Proximity:

Effective screen design exhibits good use of contrast, repetition, alignment, and proximity, which are four basic principles of visual design. Different elements should contrast clearly with each other, whereas common elements, like logos and navigation buttons, should be repeated. Each element on the screen should be aligned either horizontally or vertically. Related items

should be placed close to each other, and unrelated items placed farther apart, because users assume that items in close proximity are related.

Multimedia Design

High-Quality Playback

Audio and video playback must be of sufficiently high technical quality. The synchronization of video with audio is more important than the quality of the video display.The quality of audio needs to be taken into account, particularly because language learners may use some listening materials as a model for their learning of speaking skills.

Media File Size

The size of sound files and video files can be very large, which may result in very long download time and cause inconvenience for learners to use web-based activities using multimedia. It is better to use some sound editing software to compress large files before upload them on the web.

Using Authoring Programs to make Interactive Exercises

Please go to CALL Authoring Programs and Resources to learn how to make interactive exercises.

CALL AND LANGUAGE SKILLS

Learners can use ICT (Information Communication Technology) in developing and improving their language skills, in particular listening comprehension for the following good reasons:

1. Current university students have been characterised as the "Net Generation" (Oblinger & Oblinger, 2005; Barnes, Marateo, & Ferris, 2007; Prensky, 2001) and "native speakers" of the digital language of computers, video games, and the Internet (Presnky, 2001). Learners today have high expectations when it comes to technology and they expect a language school or programme to offer opportunities to use technology in their courses, for example via a well-equipped self-access centre (Sharma & Barrett, 2007).
2. The use of technology outside the language classroom or in the self-access centre can make learners more autonomous. One key feature of using technology in learning is that it allows language practice and study away from the confines of the classroom at your own pace anywhere: a hotel room, the office, an Internet café, at home or, of course, in the self-access language centre.
3. New ICT skills learnt in the classroom (e.g. Internet search skills) can be transferred to real life. Using a range of ICT tools and a web-based environment can give learners exposure to practicing listening regularly, and consequently, become a more effective listener.
4. The use of technology via web-based environment can be current, e.g. using a listening activity with today's news from news websites can add a dimension of immediacy to listening practice.
5. While listening to digital audio or watching a video clip, learners have the opportunity to pause at will, and listen and read a transcript. Moreover, learners can get instant feedback on what they have done (e.g. you watch a video clip/listen to audio and check answers immediately after watching/listening).
6. Learners can access authentic websites, as well as websites for EFL/ESL learners. As learners become used to selecting and evaluating listening materials, they are able to plan out their own use of web-based materials in their own time. This helps them become effective listeners and independent learners.

CALL – Listening Skills

- Randall's ESL Cyber Listening Lab

- Adult Learning Activities - California Distance Learning Project
- BBC Learning English: Watch and Listen
- Voice of America - Special English

CALL – Speaking Skills

- My English Tutor
- English Pronunciation (Okanagan University College, Canada)
- Conversation Questions for the ESL & EFL Classroom
- Top 100 American speeches in the 20th century
- Reader's theater (an example: "Many Moons")

Content / World Background Knowledge

Activating the reader's knowledge of the subject matter and cultural content of the text is a significant factor in both reading comprehension and recall. Research shows that L2 learners can better recall information from text on topics familiar to them than readings of equivalent difficulty level on subjects with which they are less familiar. Moreover, readers can more easily comprehend and recall texts of which the content is based on their own culture than texts based on unfamiliar and more remote cultures.

The use of computers to facilitate the development of content/world knowledge: Examples:

- BBC Learning English
- BBC Schools (for ages 4-11, ages 11-16, and ages 16+)
- CNN International and CNN Student News
- Public Broadcasting Service (PBS) and PBS Kids
- Discovery.com and Discovery Kids.com
- New York Times Learning Network

LISTENING, SPEAKING AND PRONUNCIATION

Developing listening skills comes "naturally" for some students, but with great difficulty for others. Acquiring listening skills can even be frustrating for some students. For some time, listening was regarded as a "passive" or "receptive" skill and, consequently, not particularly crucial as a skill area to be taught. Researchers then began to recognize the importance of listening and its role in comprehensible input (Krashen, 1982), and attention to and adoption of newer comprehension-based methodologies brought the issue to the fore. Listening became a skill to be reckoned with and its key position in communication recognized (Feyten, 1991; Omaggio Hadley, 2001). In the communicative approach to language teaching, this means teachers modelling listening strategies and providing listening practice in authentic situations: those that learners are likely to encounter when they use the language outside the classroom. Given the importance of listening in language learning and teaching it is essential to give our learners opportunity to develop and improve their listening skills not only in the classroom, but outside the classroom as well.

We have now entered a digital era in which technology is no longer a novelty. Technological advancement has always occurred in the past, but never at this speed.Although "technology is not a panacea that can replace language teachers and face-to-face classrooms, it is something that can be used to enhance language learning" (Sharma & Barrett, 2007). Self-access learning centres promote the approach whereby students study independently choosing from among different resources that are available. Listening lends itself to self-access in the same way that reading does. Listening in the real world and listening to authentic texts, however, is obviously more complex. But how can we help our learners become effective listeners and to overcome difficulties in listening comprehension and other barriers to listening?

The Internet – A Goldmine of Listening Materials

Some years ago the Internet held the promise of access to authentic audio and video. Today that promise has been realized. An unending stream of audio and video lessons, television and radio broadcasts, including news and documentaries, and music videos are now at our fingertips through different sources. In addition to this, a new generation of internet tools are available (Skype, podcasts, online webcasts and conferences, voice boards). Moreover, social networks

create multiple opportunities for authentic communication.

Audio and Video

The principal benefits of online audio and video start with the range of material in terms of subject matter, accent of the speaker, and length. Some of the activities will only take up a short amount of time, for example listening to the news, whereas others, such as participating in conference calls or listening to TV broadcasts will require learners to set aside quite a lot of time.

Online audio and video news.

Online listening activities are divided into those that are specifically scripted for English learners, while others consist of authentic materials which have been specially selected.

The BBC World Service Learning English offers both types of activity. News English Extra http://www.bbc.co.uk/worldservice/learningenglish/language/newsextra/ http://www.bbc.co.uk/worldservice/learningenglish/language/newsaboutbritain/ Short reports from the BBC World Service international radio news with a short summary, transcript, and a glossary of some vocabulary terms.

Listen and Watch http://learnenglish.britishcouncil.org/en/listen-and-watch

Five-minute audio reports and transcripts on subjects such as famous people, pop music, and entertainment. Students can listen to or watch news on the computer, or download audio and video files to their mp3 players. Audio and video materials are accompanied by language practice activities that learners can do on their computers while they listen or watch, or print out and do them when they want to.

The BBC News http://www.bbc.co.uk/news/video_and_audio/

A very useful thing about the BBC audio/video is that it contains recordings of individual stories which are one to two minutes long. Learners can choose which topic they would like to listen to. There is a wide variety of different categories – Business, Technology, World News, UK News, Technology, and so on. The BBC site is predominantly British English.

CNN News http://edition.cnn.com/video/

Similarly to the BBC site, learners can listen to clips of individual news items or to whole programmes. The CNN site is predominantly American English.

Breaking News English http://www.breakingnewsenglish.com/

This site has news articles on different topics along with a sound recording of the article

accompanied by a resource book with ready-to-use ESL/EFL lessons and worksheets that learners can work with on their own.

Monthly News Digest Online http://www.englishclub.com/listening/news.htm

A "news digest" is a summary of news stories. Each month EnglishClub creates a digest in easy English with four short audio news reports from the past 30 days. Monthly News Digest Online has been designed so that English learners can use it on their own not only for practising listening but for reading, writing, and even speaking. It is posted on the first day of each month and includes audio feeds, texts, and exercises. Some tips for listening to the summary of news:

Pre-listening: Try to guess what words might fit in the blanks.

Listening: Listen to the audio three times: 1) to get the gist, 2) to fill in the cloze passages, and 3) to check answers.

Other ideas for listening activities can be found in Business English Using the Internet (Barber, 2007, p. 69-70) and Blended Learning (Sharma & Barrett, 2007, p. 39-40). Barrett and Sharma (2005, p. 96-101) offer four worksheets for using video or audio clips on the BBC site to develop such different listening skills as summarising, deepening, updating, widening, and so on.

More audio and video resources.

Daily ESL, Randall's ESL Cyber Listening Lab, and EZSlang are created and maintained by Randall Davis. Reading newspapers and textbooks can be helpful for Academic English, but many students often spend their time reading information that is very difficult and might not be used in day-to-day conversations.

Thus, Daily ESL (www.dailyesl.com) is designed to help learners become familiar with common vocabulary and expressions they can use all the time in many situations. Learners choose a topic, listen and read along with a paragraph, and then discuss the questions with a partner. They can then compare their thoughts to the recorded interview.

The site EZSlang (www.ezslang.com/) is designed to help learners (from low- intermediate to advanced) improve their survival skills in many different situations and to make learning slang an easier process for better communication.

Randall's ESL Cyber Listening Lab (www.esl-lab.com) has short and long listening activities for beginner-level as well as advanced-level students accompanied by pre-, while and post-listening tasks, transcripts, and cultural video clips. Randall Davis states that the main objective of the site is not to test students listening skills; rather, by doing the variety of pre-listening, listening, and post-listening activities, students can discover ways to learn how to develop their

listening skills. He believes that listening and speaking skills must be developed together, and working together with other students in groups and discussing the content of the listening activities help learners improve their overall communication skills by focusing on specific tasks.

Ello http://www.elllo.org/

You can find free, well-produced, and clearly-organised content on one site called Ello. Ello includes interviews, videos, games, and more. There is News Centre (with animated newscasts), which can help students learn Academic English and develop test taking skills for standardized listening components of tests such as TOEFL, TOEIC, and IELTS. There are other sections to explore, such as Mixer, Views, Points, and even Songs, and each section has a wide selection of material.

Video Jug http://www.videojug.com/

Video Jug is the world's most comprehensive library of free factual video content online. Video Jug gives numerous opportunities for learners to practice listening skills and to become actively engaged in the listening process. Learners can practice their listening skills by listening to the interview with Stephen Fry (see Appendix A). There is a tapescript to accompany the listening text.

Podcasts

Podcasts are audio recordings which a user can subscribe to and download to his/her computer or portable listening device such as an MP3 player (Barber, 2007). The closest analogy to a podcast is that of a radio or TV show, but the difference is that you can listen to or watch a podcast on a topic that interests you whenever you want

to. A podcast can be on any topic and can include music and video. Video podcasts are also known as Vodcasts or PodClips. Podcasts can be used not only for authentic listening in the classroom but for self-study outside of the classroom as well. According to Dudney and Hockly (2007), recording lectures as podcasts (referred to as course casting) is becoming increasingly common in tertiary education. By doing that, students who miss a class can then download the lecture podcasts for later listening on their computers or mobile devices like an MP3 player. More demanding, but ultimately perhaps more rewarding, is the option of learners actually producing their own podcasts. You can find detailed information related to podcasts from Podcasting Tools (http://www.podcasting-tools.com/blog.htm). According to Barber (2007) making podcasts is simple and you can find guidelines from his book Fifty ways to improve

your Business English using the Internet (p. 77-78).

Since it is easy to create podcasts, they are appearing in every area of the World Wide Web. Lewis (2009) draws attention to the fact that "there are good and bad podcasts, and since everything can look so professional, it is hard to know which is which at first glance. Hence, broad searches can be a bit hit and miss" (p. 70). Podcast directories are one place to start looking for podcasts. Learners can click on a category and scroll though a list of podcasts, listening to and subscribing to any that interest them. Students can also find tips for podcast searches on iTunes (http://www.apple.com/itunes/podcasts/). A podcast directory aimed specifically at teachers and learners of English is Englishcaster (http://www.englishcaster.com). ESL podcast sites have been developed for different purposes: vocabulary and grammar topics, idioms and slang, business English, world news and current events, limericks and jokes, songs, and poetry.

BBC Podcasts http://www.bbc.co.uk/podcasts

The BBC, the quintessential international news and media organization, was one of the earliest creators of podcasts. They first offered a limited number of traditional BBC audio programs as podcasts. Since then, the BBC expanded the list of podcasts they offer (covering everything from drama to news and sports) to many more audio podcasts, video trials (an experiment they stopped in 2007), and music-only podcasts (started in November, 2007).

ESL Listening: Podcasts http://iteslj.org/links/ESL/Listening/Podcasts/

This is a sub-page of The Internet TESL Journal with different categories of podcasts: for native speakers, newest podcasts by ESL podcasters, listen and repeat podcast for practising intonation, rhythm and intonation, jokes in English podcast, "Learn a song" podcast, and so on.

Learn Songs http://www.manythings.org/songs/

This site features folk songs, campfire songs, and group-singing songs that native English speakers sing. These podcasts are short and designed to be listened to more than once, so learners can listen and sing along as many times as they need to in order to learn the song.

English Feed http://www.podcastdirectory.com/podcasts/7538

English Feed is a weekly podcast including review and listening exercises on important grammar and vocabulary subjects. It is an ideal podcast for beginning to intermediate level students to study basic structures like phrasal verbs, past forms, modals, listening comprehension quizzes, and more. English Feed also includes the transcript, grammar resources, and exercises.

ELT Podcast http://www.eltpodcast.com/

ELT Podcast provides basic conversations for EFL and ESL students and classes. ELT Podcast presents a common conversation theme in each episode. The first presentation is at a normal speed, and then at a slower, less natural speed to help with comprehension. The site also provides a transcript of the conversation.

Elementary Podcasts http://learnenglish.britishcouncil.org/en/elementary-podcasts

A variety of listening activities (episodes) on different topics (e.g. family, pets, travel problems, clothes, and so on) that learners can do on their computers while they listen. They can also be printed out to do later.

Professional Podcasts http://learnenglish.britishcouncil.org/en/professionals-podcasts This series of podcasts helps learners to improve their English for their career in the workplace and covers a large number of business and work themes. They are suitable for learners at intermediate to advanced level.

Business English http://www.businessenglishpod.com/category/esl-podcast/ Business English Pod provides free weekly MP3 podcast ESL lessons and audio/e- Book courses for intermediate and advanced business English learners. Each business English podcast lesson is focused on a particular workplace English skill (such as meetings, presentations, telephoning, negotiating, socializing, travel, and conversation) and language function (such as clarifying, disagreeing, questioning, expressing opinions, and persuasion). Video Vocab is a video podcast (vodcast) published by Business English Pod for ESL learners who want to expand and improve their English vocabulary for business (http://www.videovocab.tv/). Each ESL video lesson looks at a group of key English vocabulary words and terms related to a particular business topic. The meaning of the vocabulary is explained with simple definitions and pictures along with an example of how the vocabulary can be used. Current lessons feature vocabulary on the economy, law, project management, accounting and finance, the credit crisis, and Web 2.0 Internet technologies.

The Role of Speaking in SLA (Second Language Acquisition)

Speaking is viewed in the larger context of communication with the focus on the speaker's ability to 1) take in messages, 2) negotiate meaning, and 3) produce comprehensible output. This view recognizes the interactive nature of listening and the crucial role of negotiating meaning in order to produce comprehensible speech.

The importance of comprehensible output:

Swain (1985) argued for the importance of comprehensible output that requires the learners to negotiate meaning and formulate and test hypotheses about the structures and functions of the language they produce. In this way, when non-native speakers receive feedback from their interlocutors that their message is not clear, they revise their speech to clarify their meaning. Through this process of adjusting their language output in order to make their messages more comprehensible to native speakers, language learners improve the accuracy of their language production.

Types of oral interactions:

Discussion Questions:

Can you identify the differences of language use in the two types of oral interactions? For example, you may find people use different tones, styles, and terms/words for information and interaction routines. Can you give examples to illustrate your points?

Based on your foreign language learning experience, which type of oral interactions is more difficult to learn and why? How do you think the use of technology can help you improve your oral communication skills in the target language? Please give specific reasons and examples.

Approaches to the Teaching of Speaking Skills

Teachers need to draw on more than one approach and use a variety of instructional tools, such as audiotapes, videos, and multimedia computer technology, to meet different students' needs in teaching speaking skills. For the beginning levels of instruction: audio-lingual method (ALM), total physical response (TPR), the natural approach, the silent way, and suggestopedia.

For the more advanced levels of instruction: communicative language teaching (CLT) and the task-based approach.

The Role of Pronunciation in SLA

A historical view of the role of pronunciation in SLA:

1940s - 1960s	1970s - 1980s	late 1980s - present
• the teaching of pronunciation was greatly stressed • behavioristic audio- lingual methods; used imitation drills, pattern practice, and dialog memorization.	• the teaching of pronunciation was largely ignored • communicative approaches; focused more on fluency than form	• pronunciation was a key ingredient to the • development of communicative competence • a more balanced approach that valued both accuracy and fluency

Current integrative approach

- Pronunciation is viewed as an integral component of communication, rather than an isolated drill and practice sub-skill
- Pronunciation is practiced within meaningful task-based activities
- Use pronunciation-focused listening activities to facilitate the learning of pronunciation
- There is more focus on the supra-segmentals of stress, rhythm, and intonation as practiced in extended discourse beyond the phoneme and word level.
- Pronunciation is taught to meet the learners' particular needs
- A dual-focus oral communication program (Morely, 1994):

* *Discussion Questions*:

Do you think pronunciation is important in learning a second/foreign language? Based on your learning experience, which pronunciation goal or goals do you think is/are more difficult to achieve? How do you think the use of technology can help you achieve your pronunciation goal(s)? Please give specific reasons and examples.

The Use of Computers in Teaching Speaking and Pronunciation Skills

Purpose of using computers:

We use the computer technology to create an environment that encourages communication and provides increased and more varied communicative opportunities for students to utilize their oral skills.In teaching speaking skills:

The Computer used as a Tutor (human-to-machine interaction) Examples: My English Tutor

TriplePlay Plus (CD ROM)

The Computer used as an Instructional Tool (human-to-human interaction via the computer in the classroom)

Examples: Focus English: Everyday English in Conversation Conversation Questions for the ESL & EFL Classroom

The Computer used as a Communication Medium (human-to-human interaction via the computer outside the classroom) - using MOOs (Multi-user domains, Object Oriented) and Chat Rooms (or IRC - Internet Rely Chat) for "live" real-time communication (i.e. synchronous communication)

Examples: schMOOze University

ESL Cafe's Chat Central

ESL Chat Room in EnglishClub.com Chat Room in Englishbaby.com VLC Chat Rooms (Hong Kong)

In teaching Pronunciation skills:

Computer-based activities/programs of pronunciation instruction include the following

- Articulatory charts
- Sample words utilizing the targeted sound
- Minimal pairs/comparison words
- Listening discrimination of minimal pairs within a sentence
- Sample sentences with several words utilizing the targeted sound
- Dictations
- Cloze exercises

Suprasegmental exercises (including intonation, rhythm, stress, and timing) Examples:

American English Pronunciation Practice

- Sounds of English
- English Pronunciation at EnglishClub.com
- Phonetics: English Sound Library (University of Iowa)
- English Pronunciation/Listening (Okanagan University College, Canada)
- Exercise 6 Using Technology to Teach Speaking and Pronunciation Skills

Splendid Speaking Podcasts http://www.podcastdirectory.com/podcasts/21609

This site supports upper-intermediate and advanced learners of English develop their top-level speaking skills and communication strategies. In 2005, Peter Travis, the host of the Splendid Speaking podcasts, was shortlisted for the Quality Improvement Agency Star Award for the "E-Learning Tutor of the Year" sponsored by Microsoft. Users sign up for the Splendid Speaking newsletter (http://www.splendid- speaking.com/subscribe1.html) and receive transcripts, comprehension questions, a weekly task sheet to help them prepare for a similar talk, and a vocabulary worksheet to record the "Splendid Expressions" daily quiz.

Video clip tools

YT (YouTube) invented by Steve Chen, Chad Hurley and Jawed Karim has gained enormous popularity in a relatively short time. This online video-sharing social network has been enthusiastically welcomed by EFL learners and teachers because of its potential to provide "a huge multimedia library of real language use by real people, a potentially rich resource for language learning or corpus collections" (Godwin-Jones, 2007). By browsing video clip sites, learners can find videos on almost any topic (education, politics, science, technology, entertainment, and so on), spoken in different varieties of the language (standard, foreign accented, and so on) and at different levels of difficulty. According to Bearer (2010) the real advantage to these sites – at least from a language learning point of view – is that they offer authentic examples of everyday English used by everyday people. However, learners

may enjoy watching these clips, but poor sound quality, pronunciation, and slang can make these short videos even more difficult to understand. Task sheets can help them to explore the world of online English learning possibilities (

Conclusion

Listening comprehension is often the most difficult task for learners of English as a foreign language. Listening in the real world and listening to authentic texts is more complex than listening to non-authentic texts in the classroom environment. Effective listening does not just happen. Access to up-to-date materials via the Internet gives the students opportunities to develop and improve their listening skills by using materials in the self-access language learning centre or outside the classroom. With the appropriate use of technology, learning can be made more active, motivating, and learner-centred, especially with such internet-based resources as audio-video, podcasts, and video clip tools.

READING AND WRITING

The Role of Reading -Three Models of Reading Process

The reading process involves the text, the reader, and the interaction between the two. Theorists have proposed three basic models of how reading occurs: bottom-up, top-down, and interactive.

The Comparison between the Three Models:

Bottom-Up Models	**Top-Down Models**	**Interactive Models**
1960s - 1970s	**1970s - 1980s**	**late 1980s - present**
• Reading is a decoding process (focus on the text). • The phonics approach to teaching reading is used.	• Reading is a psycholinguistic guessing game (focus on the reader). • The "whole language" approach to teaching reading is used.	• Reading is a process of constructing meaning from text through the use of both bottom-up and top-down processes, strategies, and skills (focus on the interaction). • The balanced approach to teaching reading is used.
• alphabet letters + sounds words • words + grammar rules • sentences • sentences + discourse rules • paragraphs longer discourse	• The reader receives input from the text, makes predictions (based on conceptual abilities, background knowledge, and language processing skills), tests and confirms or revises those prediction. • Use a holistic approach to reading and writing that advocates the use of children's literature and authentic reading materials.	• Both bottom-up and top-down processes occur simultaneously for the reader to comprehend the meaning of the text. • Two levels of interaction: o the interaction between the reader and the text. o the interaction between two kinds of cognitive skills: identification and interpretation.

Teaching Reading Skills and the Use of Computers

Grabe (1991) identified six component skills and knowledge areas essential for reading fluency:

- Automatic word recognition skills
- Vocabulary and structure knowledge

- Formal discourse structure knowledge
- Content/world background knowledge
- Synthesis and evaluation skills
- Metacognitive knowledge and skills

Automatic Word Recognition Skills

Automatic recognition skills allow readers to identify letters and words without being consciously aware of the process. Good readers are able to read rapidly because they can recognize most words automatically, and therefore process this information very efficiently. The combination of rapid and precise word recognition has proven to be an effective predictor of reading ability, particularly of young readers.

The use of computers to facilitate the development of recognition skills

Examples of using the phonics approach:

- Learn to Read at Starfall
- BBC Words and Pictures

Examples for Speed Reading:

- AceReader (download the AceReader Original Demo)
- Best Reader (download the trial version)

The importance of vocabulary learning for reading comprehension:

Readers need to know a large percentage (approximately 95%) of the words in any given text in order to comprehend the meaning of the reading or to guess the meaning of words unfamiliar to them. Vocabulary is not acquired in quick doses, but rather is a process of incremental learning and constant reinforcement. Readers need to know not just one meaning of a word in a particular context but also its alternative meanings in different contexts and other aspects of the word such as its grammatical properties.Things needed to be included in vocabulary lessons (Zimmerman, 1997):

- Multiple exposure to words
- Exposure to words in meaningful contexts
- Rich and varied information about each word
- Establishment of ties between instructed words student experience, and prior knowledge

- Active participation by students in the learning process

The use of computers to facilitate vocabulary development:

Examples:

- Online dictionaries (see 3.2.2 Online Dictionaries)
- Online concordancers (see 3.2.3 Online Concordancers)
- Word games: Word Based Games for ESL Students
- Vocabulary for K-12 and ESL Kids
- ESL games in EnglishClub.com

The importance of grammar learning for reading comprehension: Grammatical structures provide readers significant information that allows them to understand the meaning relationships among words and among sentences in a reading text.

The use of computers to facilitate the development of structural skills:

Grammar Website Examples:

- English Grammar from EnglishClub.com
- Grammar from EFLnet.com
- Guide to Grammar and Writing
- Guide to Grammar and Style
- English Grammar

Formal Discourse Structure Knowledge

Knowledge of the structure of formal discourse / rhetorical organizational patterns (i.e. formal schemata) assists the learner in understanding and remembering the text. Research indicated that explicit teaching of rhetorical organization of text facilitated ESL students' reading comprehension. The use of computers to facilitate the development of discourse structure knowledge:

Examples:

- Advice on Academic Writing (from the University of Toronto)
- Professional Writing Handouts and Resources (from Purdue University)

Synthesis and Evaluation Skills

Fluent readers are able not only to comprehend the text, but to make judgments about the information, the author's purpose, and the usefulness of the text. They usually use strategies like predicting to assist them in anticipating text development and evaluating the author's perspective as they read. The use of computers to encourage students learning to synthesize and evaluate reading text:

Examples:

- Ace Detectives (mystery-solving game)
- Story Mapping Activity

Reading Development

The computer can provide help to your reading development of that particular skill or knowledge area.

* Please do Exercise 7 Using Technology to Teach Reading Skills

* Good reading material collection websites:

- The Online Books Page (University of Pennsylvania)
- English Reading from E.L. Easton
- English reading from EnlgishClub.com
- Repeat after Us - Online Library and Language Lab

CALL – Reading Skills

- Learn to Read at Starfall
- Phonics and Word Study
- Vocabulary for K-12 and ESL Kids
- ESL games in EnglishClub.com
- Mother Goose Rebus Rhymes
- SurLaLune Fairy Tales
- The Online Books Page (University of Pennsylvania)
- English reading from EnlgishClub.com

- Repeat after Us - Online Library and Language Lab
- The Gold Scales of Tales, Poems and Wisdom

CALL – Writing Skills

- ABC Letters, Writing, Words, Numbers, Shapes, & Colors
- ESL Blues
- Advice on Academic Writing (University of Toronto)
- Purdue University's OWL (Online Writing Lab):
  a) Grammar/Writing Resources, Handouts and Exercises for ESL Students
  b) Grammar, Punctuation, and Spelling

Using Web-Quests - Thinking Skills

A Web Quest usually includes the following elements:

- An introduction or scenario
- A task that is meaningful and doable
- A process for completing the task
- Information resources to support the task
- A conclusion that brings closure and evaluation

WebQuests facilitate cooperative learning, offer different kinds of resources, and provide a variety of ways to access and demonstrate knowledge.

- Dr. Alice Christie's Matrix of 320 WebQuests
- WebQuest Resource Bank

Concordancing

A concordancer is a computer program that allows users to search a collection of authentic texts (i.e. a corpus) for multiple examples of selected words or phrases.

Users can use a concordancer to find examples of authentic usage to demonstrate word collocations, word usage, or even the structure of a text.

Examples:

- CANDLE Project - TOTALrecall, VN Collocation (TANGO), and Collocation Checker
- Collocation Explorer
- VLC's Web Concordancer
- Google

CMC Activities

Synchronous

- ESL Cafe's Chat Central
- Chat Room in Englishbaby.com
- VLC Chat Rooms (Hong Kong) Asynchronous

Dave's ESL Cafe:

1) Student Discussion Forums, and 2) Teacher Discussion Forums

- Englishforums.com
- EnglishClub.com ESL Forums
- BBC Learning English - Communicate

What knowledge/competence do language teachers need for CALL?

Content Knowledge + Electronic Literacy

1. Communication:

how to express and interpret meaning in the computer-mediated communication environment

2. Construction: how to write 1) from essay to hypertext, 2) from words to multimedia, and 3) from author to co-constructor

3. Research:

how to navigate Web sources, search for information, and evaluate and interpret the found information

The Role of Writing

Reading and writing are integrally linked and in fact share many of the same cognitive and

social processes.

- Readers and writers are both active participants in interpreting and constructing meaning from text.
- Reading and writing both emphasize the importance of schemata in mind about the content and form of text.
- Reading and writing are both complicated, interactive, and recursive processes.

Approaches to Teaching Writing and the Use of Computers

According to the different focuses in second language writing, there are four major approaches to L2 writing instruction:

- Form-focused Approach
- Process-focused Approach
- Content-based Approach
- Reader/audience-dominated Approach
- Good writing instruction draws on each approach in varying degrees and attends to the interaction among these different focuses.

Website Examples:

- ESL Blues
- Guide to Grammar and Writing
- Grammar Safari
- Purdue University's OWL (Online Writing Lab):
- Grammar/Writing Resources, Handouts and Exercises for ESL Students
- Grammar, Punctuation, and Spelling
- Writing Den (The site is designed to assist students to write creatively. Online examples assist students in their abilities to write sentences, paragraphs, and even essays)
- Purdue University's OWL (Online Writing Lab):
- General Writing Concerns (Planning/Writing/Revising/Genres)
- Professional Writing Handouts and Resources
- The University of Victoria Writer's Guide
- University of Richmond Writer's Web
- University of Illinois at Urbana-Champaign - Writer's Workshop: Tips and Techniques

The World Wide Web offers numerous resources for authentic content materials and lesson plans.

Examples:

Websites of world news agencies and magazines:

CNN News, BBC News, World Headlines, World Press Review, Newsweek, Time Online, National Geographic Magazine, Reader's Digest, Weekly Reader(designed for students)

Online encyclopedias:

Bartleby.com: Great Books Online (including encyclopedias, dictionaries, quotations, English usage, biographies, literary works, and many other reference books)

Infoplease (including almanacs, atlas, a dictionary, and an encyclopedia)

Encyclopedia Britannica (offering news, links, and access to abbreviated encyclopedia entries)

Encyclopedia.com (offering over 17,000 short articles from the Concise Columbia Encyclopedia, 3rd edition)

Wikipedia (an open content, community-built encyclopedia with thousands of articles on various topics)

Online literature libraries (e-texts):

Online Library of Literature, The Literature Network, Open Directory: Literature, American and English Literature Online Books, Literary Encyclopedia,

Online Children's Stories, Classis Bookshelf, Great Books, Literature Collection

Online lesson plans:

Please see examples in Web Resources (IV): English Teaching Resources

1) Online lesson plans for ESL/EFL

2) Online lesson plans for all grade levels and all subjects Examples of online learning English discussion forums:

- Dave's ESL Cafe:
  1) Student Discussion Forums, and 2) Teacher Discussion Forums
- Englishforums.com
- EnglishClub.com ESL Forums
- ESLgo.com's ESL message boards
- BBC Learning English - Communicate Examples of email exchange projects :

- Please see examples in Web Resources (III): CMC Activities and Projects

a) "Discussion Forum" from Flexible Education. It provides the possible uses of a discussion forum, its strengths and limitations, and tips for use.

b) "The Impact of Electronic Communication on Writing" by Abdullah, from ERIC Digest. This digest summarizes some insights gained from research on writing behavior and performance affected by electronic communication.

GRAMMAR, VOCABULARY AND DATA-DRIVEN LEARNING

Data-driven learning (DDL) developed from corpus linguistics plays a pioneering role in the evolution of EFL teaching, allowing the learners to indentify and induce language rules by observing numerous real corpora concordances. With the guidance of new teaching notion advocated by College English Curriculum Requirements in China, DDL model has become the tendency for college English learners' efficient and autonomous learning. It becomes urgent to take advantage of this method and apply it to college vocabulary teaching. Compared with traditional foreign language teaching and learning method, data-driven learning is characterized by “autonomic learning”, “authentic language input”, “self-discovery”, and “bottom- up inductive learning”, which will conducive to the formation of the students' personalized learning abilities and the development of their autonomic learning abilities.

Definition of DDL

DDL (data-driven learning) is defined by Johns (1991) in 1991 as “the use in the classroom of computer-generated concordances to get students to explore regularities of patterning in the target language, and the development of activities and exercises based on concordance output.” It is an approach based on corpus and concordance-based materials to learn language. Learners who have a certain problem will use of retrieval software to discover rules and draw conclusions on the basis of observing and analyzing a large number of real corpus, and master a grammatical structure or word usage through real-time practice. So the learning is also known as "research-then-theory" approach. Since the concept was proposed in 1991, an increasing emphasis on data- driven learning has been paid at home and abroad. Many scholars in China have proposed the application of DDL into the innovation and development of English teaching. Hunston (2002, p.170) also points out that “DDL involves setting up situations in which students can answer questions about language themselves by studying corpus data in the form of concordance lines or sentences”.

The Problems Of Current College English Vocabulary Teaching And Reform Vocabulary is a fundamental component of a language and of critical importance to the EFL learners. Vocabulary teaching is an important component of language teaching.However there are still many problems existing in vocabulary teaching in China‟s EFL class. The teaching forms are relatively simple, and the teaching methods are lack of innovation. In traditional vocabulary

teaching, the sample sentences are usually extracted from a certain dictionary or compiled by teachers, which contain a limited amount of information and are difficult to guarantee the authenticity of the sentences. The Sentences, which show no adequacy and vividness, fail to arouse the students' attention, and is unbeneficial to cultivating learner‟ initiative. In general, the present English vocabulary teaching still sticks to the teachers and textbooks centered pattern, and the top-down traditional foreign language teaching mode, in which teaching content and methods focus on abstract explaining and simple exercises.

Corpus

A corpus (plural „corpora‟) is simply a collection of texts. A corpus is a large and principled collection of naturally occurring texts. The size of a corpus can range from tens of millions of words to a few thousand. The texts can be either transcripts of spoken language (increasingly with sound or visual files attached) or written language that has been scanned from books, newspapers etc. or downloaded electronically.

With the rapid development and wide application of computer technology, computer technology-based corpus technology becomes mature and become a powerful tool for the language study and teaching. Great concern given by the language researchers and language teachers, contemporary large-scaled corpora came into being.For example, British National Corpus (BNC) comprises approximately 100 million words of written texts (90%) and transcripts of speech (10%), which aims to represent the universe of contemporary British English. Zhen (2005) makes a systematic introduction and illustration of the idea, methods and techniques of corpus based data-driven foreign language learning. He believes that compared with traditional English teaching and learning, data-driven learning is characterized by “autonomic learning”, “authentic language input”, “self-discovery”, and “bottom-up inductive learning”.

Data-Driven Learning

One of the significant features of corpus-based study is data-driven. The data-driven quantitative analysis makes us discover the problems that we could not find by intuition. DDL (data-driven learning) refers to the discovery and exploration-based learning model based on corpus by using the original data in the corpus or the retrieval results by the corpus se retrieval tools.

DDL, Constructivism, Lexical Grammar Theory

Constructivism as a paradigm or worldview posits that learning is an active, constructive

process. The learner is an information constructor. People actively construct or create their own subjective representations of objective reality. New information is linked to prior knowledge, thus mental representations are subjective (Feng & Cai, 2009).In the view of constructivist, learning is a constructive process in which the learner is building an internal illustration of knowledge, a personal interpretation of experience. This representation is continually open to modification, its structure and linkages forming the ground to which other knowledge structures are attached. Learning is an active process in which meaning is accomplished on the basis of experience. This view of knowledge does not necessarily reject the existence of the real world, and agrees that reality places constrains on the concepts that are, but contends that all we know of the world are human interpretations of our experience of the world. Conceptual growth comes from the sharing of various perspectives and the simultaneous changing of our internal representations in response to those perspectives as well as through cumulative experience.

The Characteristics of DDL

There is a big difference data-driven language learning and traditional teaching mode. Its characteristics can be summarized in four aspects (Zhen, 2005).

First, DDL centers on learner autonomy. Data-driven learning emphasizes the students' autonomic learning, in which activities in the class are student-centered rather than led by the teacher to give full play to their personal characteristics. Learners are not passive recipients of the knowledge, but take on the active roles of discoverers and researchers, sorting through massive language data to discover rules and patterns embedded in the data, and can self-regulate learning strategies according to their own requirements. In other words, learner autonomy is cultivated by encouraging students to be responsible for their own learning.Second, DDL uses authentic, rich massive corpora as the main language input. Corpus-based data- driven learning provides students with high quality, vast amounts of language data from real communicative activities. In a word, data- driven learning can create an authentic language environment for students to improve their language intuition to practice their ability to deal with language variation, in order to help them acquire authentic language.

Third, DDL emphasizes the exploration and discovery of learning process. Students learn through problem-solving activities rather than being instructed directly by the teacher. Data-driven learning provides students with a lot of real data based on corpus, to guide students to observe the learning process according to their own needs to experience, explore, and discover

the knowledge of language. As a result, the language knowledge that students acquire will be more authentic and systemic, and the impression will be deeper. Finally, DDL advocates bottom-up, inductive learning. Not in the data-driven learning, students first come into contact with a large amount of authentic language data, but not prescriptive grammatical rules. After their independent observations, they will generalize grammatical rules. With concordance software, students can easily obtain a list of contextualized examples of the investigated feature when dealing with tasks such as the acquisition of grammatical structures and lexical items.

Three Procedures of DDL

Tim Johns (1991) describes his procedures of Identify-Classify-Generalize for classroom based on concordances and data-driven learning.The first step of the procedure is to identify the structure under examination. It is possible for the structures or words to be teacher- or class-generated. Class-generated questions would create an immediate interest in the lesson as it would be a response to a learner's question. After identifying the area of inquiry a concordance research is necessary to find the citations. The citations are then edited to produce a list of the structures or words in the chosen context. Classification is the second step of Johns' procedure. It is necessary so that the learners will not be discouraged by encountering overwhelming files of data. The teacher may make the classification for the students if the corpus is too big or the citation is too difficult. Generalizing is the act of inductively constructing rules describing the usage of the structures or words. The act of generalizing represents an essential part of the learning process with a DDL activity because students are actively engaged with the cognitive process of generalizing rules for the language. This process of generalizing is completely foreign to many Chinese students who are educated in an educational system that values memorization rather than the production of generalizations or theories.

The Application of DDL in Vocabulary Teaching

In China, though corpus is still dominantly used in language research, there have been several researchers putting it to classroom teaching. Based on the theoretical directions, both home and abroad, latest researches have attempted to integrate corpus to language learning, vocabulary learning dominantly. In effect, DDL can provide such a space in which natural language is the dominant component, for in the term of "data-driven learning", "data" refers to authentic texts, the fundamental elements of the corpora.Vocabulary is the "building blocks" of language, and is the basis of language understanding expression.

DDL is an advanced computer-aided teaching mode based on corpus index. DDL advocates students to take the initiative to explore vocabulary usage to accurately grasp the vocabulary by observing authentic linguistic phenomenon. Through DDL, the authentic data can assist learners in getting accustomed to the target language communication and help them acquire the language use successfully. The fact that the corpus can offer authentic materials conveniently makes data-driven learning valuable in foreign language pedagogy.This new teaching model can really enrich the amount of information in the classroom. On the other hand and change the traditional vocabulary teaching method. More importantly, the large amount of language materials in corpus will provide learners with a variety of inductive and deductive language learning opportunities, to deepen learners' acquisition of the target knowledge.

It not only brings about a challenge to the traditional foreign language teaching model which centers on teachers and textbooks, but also provides a new idea to solve the various problems in English vocabulary teaching.

The Innovative Application of DDL in Vocabulary Teaching

With the extensive application of information technology, the growing popularity of multimedia technology in language teaching no doubt provides the necessary technical prerequisites for foreign language learning. At present, classroom teaching equipments have realized networking, and students' abilities of using network technology have gradually increased. Multimedia teaching has been applied into various disciplines. The major corpora have become shared resources, and part of the corpus retrieval software can be downloaded directly on the computer. All these factors provide research basics for the implementation and carrying out of data- driven learning in foreign language teaching.

In vocabulary learning, learners can enter the word string that they want to retrieve, and will extract the examples related to this word or a particular language phenomenon with corpus retrieve function within a few seconds from a corpus of thousands of millions of words.Learners can find the grammatical rules of the word by the help of these instances to achieve the effect of drawing inferences. The examples can also help them grasp the usage of words, their collocations, their language environment, and their co-occurrence with a specific grammatical structure. The observation and analysis of concordance can deepen their impression on some of the vocabulary and linguistic phenomena, and enhance their language awareness, which will make them truly master the word usage and collocation context in the target language in the process of the self- exploration.

One of the main techniques of corpus linguistics is a word concordance, which should also be a common means of data-driven learning. The target words are always presented in the KWIC (keywords in context) format, which lists all the contexts of the same word together, where the target word is always highlighted, which can save learners‟ energy and help to focus their attention. In this way, the learners could learn the target words intentionally. Concordance line refers to the co-occurrence of keywords and their context. Currently, much corpus software has index functions, such as Mconcord, Wordsmith. Inputting keywords, the software automatically retrieves the corpus, showing the context with a fixed number of words around the keywords, and the keywords are displayed on the screen. The number of words on the left or the right of the keywords makes up the "word span" of the keyword. The words in the word span constitute the context of the key words. The context is a continuous text around the keywords, which can be extendedly displayed in the line, paragraph, or even discourse that the keywords lie in. Retrieval can be widely used in the study of English vocabulary, grammar and discourse. At present, data-driven learning is mostly applied in English vocabulary teaching, including collocation, colligation, and semantic prosody.

Collocation

Collocation is undoubtedly one of the most important concepts in the field of linguistics and applied linguistics. Sinclair (1991) defined collocation as the co- occurrence of two or more words within a short distance in the text. For general language teaching and research, collocation is a sequence of words with certain non- idiom meaning in the text and used following certain grammatical forms, the words making up the sequence co-occur with a greater probability than accident. (Wei, 2001)The analysis of collocation is of great significance in the study of word behavior. Words and words‟ collocation not only play a restrictive role to the establishment of the syntactic structure relations, but also are the fundamental basis for the realization of meaning and the elimination of ambiguity.

Colligation

Colligation is an important concept in the study of word collocation, which refers to the combination of abstract grammatical categories in the text, that is, the grammatical structure and framework of the collocation. For example, "V+ N" represents a colligation. Through the establishment of colligation, we can find the grammatical pattern of the vocabulary. Words

with different meanings have different grammatical patterns, and different words in the same grammatical pattern have certain connection in the meaning.

The Vocabulary Teaching Mode Based on DDL

According to the teaching objectives and content, teachers will select appropriate content from the corpus to produce the illustrated teaching classes, and design individualized teaching task in view of the characteristics and language skills of students. On the first stage, determine the problems to be solved and the solutions to the problem by using corpus. On the second stage, carry out classroom activities based on corpus to guide students to find answers to the questions independently and participate in classroom exchanges. On the third stage, assign some tasks to enable students to use corpus resources with target.

Teachers can fist give students the available corpus, and teach them how to use the retrieval tools for autonomic learning. Here are several teaching modes. Before class, teachers need to extract the concordance lines of a word in the corpus by retrieval software, and in the class, show the data to the students by multimedia. Next, the students are asked to discuss the law behind the authentic language phenomena in groups in the classroom. If permitted, we can also enable students to independently use the retrieval software to extract and analyze more real data from the corpus. Finally, under the guidance of the teacher, students need to summarize the characteristics of collocation, grammar patterns, context and co-occurrence.

Before starting a new lesson, first teachers need to determine word to learn in this unit, and require students to produce “co-occurrence in context” of the word in groups with corpus to observe and induce language rules. In the class, each group exchanges their retrieval results, and then summarizes the rules of usage again. At the same time, teachers can lead students to contrast the results of discussion to that in the dictionary, and further find examples from the corpus for those usages which are not clear enough to strengthen the students‟ language awareness. Teachers can produce co-occurrence of a word from a corpus according to the difficult levels of the unit, and replace the word in the concordance lines with other unrelated alternative symbols. Students are asked to determine its part of speech with the context before and after the word, guess its meaning and summarize its usage.

The Orientation of Teachers' and Students' Role

There is great difference between the traditional teaching model and corpus-based data-driven teaching mode, the latter reflecting the principle of combining practicability, infotainment and interesting in English teaching in favor of mobilizing the enthusiasm of both teachers and students. This new teaching mode, in particular, reflects the dominant position of and the leading role of teachers in the teaching process. Teaching space becomes open, and teachers‟ role changes from the traditional knowledge initiator to the organizers and instructors of the teaching process, the assistors and promoters of the construction of meaning. The status of students changes from passive recipients into active constructors of knowledge. The most critical step in DDL is learners summarize the concordance lines to arrive at language rules under the guidance of teachers. DDL emphasizes the student-centered exploratory learning mode, which fundamentally alters the traditional top-down teaching mode. Students, who change to researchers, constantly summarize from a large number of language input. The learning process makes them get the satisfaction of success, enhance their self-confidence, and further stimulates their interest in learning. The questions brought up in DDL could be set by the teacher according to the syllabus, or could be created by learners in their summarization. Learners collect large amounts of authentic information from the "context" in corpus, breaking the traditional teaching mode in which learners only rely on reference books and dictionaries to learn a word, so that students can get a lot of authentic language input.

Conclusion

Foreign language teaching has always insisted on the innovation of teaching method. Corpus-based data-driven teaching and learning provide a large number of instances of real context, and create a learning environment to attract learners‟ attention, be conducive to enhance their memory and help them to use context to obtain the word semantics and summarize the grammatical rules. In DDL, the student-centered classroom design puts more emphasis on classroom interaction, in which students can communicate through their own understanding of the language knowledge inducted from the corpus, to achieve the purpose of the acquisition of language rules. This learning mode emphasizes the learner‟s autonomic learning ability to explore and discover language knowledge based on corpus according to their own needs so as to continuously introspect and induce language rules. DDL changes the dominant position of teachers in traditional teaching. Teachers change from initiators into the organizers and counselors of teaching. The relation between teachers and students has thus become more mutually cooperative.

LEARNER TRAINING AND AUTONOMY

Developing Learner Autonomy

As busy teachers it is easy to get stuck in a rut. Our Teaching Tips articles are aimed at those of you who are teaching and are looking for some new ideas or activities to use in their classes. We hope that these articles will inspire you to try something new with your students.

Developing Learner Autonomy

'Autonomy is your capacity to take responsibility for, and control of, your own learning, whether in an institutionalised context, or completely independent of a teacher or institution.' (Thornbury, 2006: 22)In contrast to traditional 'lockstep learning', which has learners doing the same thing at the same time, in the same way, and all expected to achieve roughly the same results, autonomous learning starts from the premise that the individual has the potential to take responsibility for everything in their own life, including learning.While in the past what the learners should do, and how they should do it was typically decided by an authority figure i.e. the teacher, the director of studies or the education department, the notion of autonomous learning has gained in popularity since the 1980s.

Why foster learner autonomy?

Anyone who has attempted to learn a new language knows that language learning takes a relatively long time, and a learner may not want to, or be able to enrol in a teaching program for such a long duration. Likewise, for institutions, it means learning can take place without having a teacher/tutor/facilitator physically present in all instances of learning.The key benefit of learner autonomy is that autonomous learners 'will take more responsibility for learning and are likely to be more effective than learners who are overly-reliant on the teacher.' (Swift)

What do learners need to become autonomous?

The belief that they can learn independently of the teacher and the classroom setup. Some cultures have authoritarian learning systems that produce very dependant learners.A willingness to undertake independent learning i.e. to take on the responsibility in terms of goal setting, time management, selecting materials and conducting self/peer assessment. A realistic and positive attitude to language learning (sometimes this may be undermined by previous learning experiences, requiring coaching from the teacher). Strategies – this is where the teacher

becomes invaluable as a resource to the aspiring learners. There is a need for learner training, as autonomy does not happen overnight. Remember, autonomy does not equate with working in isolation. The teacher, the class and the school are still part of the learner's environment.

Doesn't fostering learner autonomy remove the teacher from the learning process?

In a word, no. Many learners come to the language class from a background of authoritative teaching. Their previous learning experience may well have conditioned them to be heavily reliant on the teacher for approval, direction, instruction, organization and learning strategies. We can't simply expect these learners to be autonomous, and there is typically a real need to develop learner autonomy in the classroom. Eventually the learner is equipped to conduct his/her ongoing learning outside the classroom and even evaluate it. The learner should come to see the teacher in her role as a facilitator and resource rather than the 'unquestionable authority'. Furthermore, although a learner may develop skills of autonomous learning, this doesn't preclude them from participating in language classroom lessons.

Which skills does the teacher need to foster to develop learner autonomy?

This is largely dependent on how independent you expect your students to become. Initially teachers can develop skills that students need in order to find access and use resources; such as internet sites or online journals, supported by activities that are completed as homework tasks. Eventually this leads to students developing their own skills for setting objectives, planning their self-study, and even self-assessment. It's important to acknowledge that autonomy is a matter of degree, not 'either/or'. Nunan points out that this is developed in stages, starting from fostering awareness of the learning goals and the content of the materials learners are using, and developing into a 'transcendence' as learners go beyond the classroom to make links between the content of the classroom learning and the world beyond. How deep the learner is able to develop this process depends on the teacher, the learner and the resources available.

How do we foster learner autonomy?

First of all, teachers can start to foster an awareness of the skills that are involved in learning, and demonstrate the learning strategies in use through the activities that they plan during the course. In this way teachers encourage learners to understand the rationale behind teaching methodology, such as learning through discovery. Through texts, questionnaires, surveys and discussion, different learning strategies can be brought to the learners' attention so that they can evaluate them for personal effectiveness, or decide which ones to develop.

Gradually, teachers may transfer some of the decision making and choices to the learners in order to develop their awareness and confidence for making decisions. For example, through pyramid discussions learners can identify their preference for scheduling different skills work or different activity types. With the wealth of resources available for self-study through multimedia and internet, language teaching is, now more than ever before, in a position to encourage learner autonomy –supported by learner training in the classroom. While classroom learning may result in extensive 'far reaching' learning in terms of the language input, autonomous learning may complement this by encouraging the learner to go 'deep' and exploit materials that assist with acquisition of language.

Suggestions for developing learner autonomy

There are many resources that teachers can draw from in order to encourage learner autonomy. Some, such as social networking sites, are often exploited by learners before teachers utilize them for teaching purposes.

General and specialist dictionaries:

Many have learner orientation tasks to teach learners strategies for using dictionaries as well as language references sections to aid learning.

- Journals and periodicals – especially for ESP or EAP students-Keeping a reflective journal about the learning experience
- Television
- Documentaries
- News
- Radio Streaming
- E.g. BBC radio 4 educational programs
- Internet

  Language exchange with other language learners e.g. livemocha.com Online PPT presentations e.g. authorstream.com or slideshare.com

ESL resources using graded or authentic material from the following websites:

- http://www.pearsonlongman.com/index.html
- http://www.bbcactiveenglish.com/

- http://learnenglish.britishcouncil.org/en/
- http://www.teachingenglish.org.uk/

Technologies used in CALL instruction

The technologies used in CALL instruction generally fall into two categories, software and ***Internet-based activities.***

Software

Software used in a CALL environment can be designed specifically for foreign/second language learning or adapted for this purpose. Most language textbook publishers offer educational software of some sort, whether it is meant to support a paper textbook or to stand alone for self-study. Most programs designed for language learning are tutorials. These generally are drill programs that consist of a brief introduction plus a series of questions to which the learner responds and then the computer gives some kind of feedback. With these kinds of programs, thematerial to be learned may already be programmed in by the publisher, which is more common, or may allow the instructor to program in the material to be learned.

Programs not designed specifically for language learning can be adapted for this purpose. Generally, these are task-based activities where the stated goal is something other than language learning; however, using the target language is essential for getting the task done. For example, with Facemaker, students create different faces by using words in the language to command the computer. Role playing games, where the user creates and controls a character in a fantasy realm, can be used in this manner as well.

Authoring programs allow an instructor to program part or all of the content to be learned and program part or all of how the content is to be learned. Some examples of these programs include Cloze master, Choice master and Multitester. With these, the format is pre-programmed and the instructor puts in the material. General authoring programs like Macromedia Director can be used to make an entire course; however, most teachers do not have the time or the technical ability to make use of such programs.

Use of CALL for the four skills

A number of studies have been done concerning how the use of CALL affects the development of language learners' four skills (listening, speaking, reading and writing). Most report significant gains in reading and listening and most CALL programs are geared toward these receptive skills because of the current state of computer technology. However, most reading and listening software is based on drills. Gains in writing skills have not been as impressive as computers cannot assess this well. However, using current CALL technology, even with it current limitations, for the development of speaking abilities has gained much attention.

There has been some success in using CALL, in particular computer-mediated communication, to help speaking skills closely linked to "communicative competence" (ability to engage in meaningful conversation in the target language) and provide controlled interactive speaking practice outside the classroom. Using chat has been shown to help students routinize certain often-used expressions to promote the development of automatic structure that help develop speaking skills. This is true even if the chat is purely textual. The use of videoconferencing give not only immediacy when communicating with a real person but also visual cues, such as facial expressions, making such communication more authentic.

Right now, there are two fairly successful applications of Automatic Speech Recognition (ASR) (or speech processing technology) where the computer "understands" the spoken words of the learner. The first is pronunciation training.

Learners read sentences on the screen and the computer gives feedback as to the accuracy of the utterance, usually in the form of visual sound waves. The second is software where the learner speaks commands for the computer to do. However, speakers in these programs are limited to predetermined texts so that the computer will "understand" them.

TEACHER EDUCATION

There have been a great number of changes in education systems worldwide recently. Together with the changes, new *expectations appeared towards our schools.* Nowadays schools need to teach their learners how to gain information and how to select and use them. This happens so quickly that students learn how to use the Internet together with their teachers. Parents are involved in decision-making so they take part in the life of the school. It is no longer enough to send the kids to school in the morning, pick them up in the afternoon. Parents have to have a view of what is happening in the educational institution. Exam preparation is still important, but for example in Hungary the entrance exams are 'past tense', the final examinations (matura) have changed, and the concept of learning to learn has slowly become a very important element of teachers' job.

The changes that took place in colleges have *changed the roles of teachers*, too. In the past teachers used to be the major source of knowledge, the leader and educator of their students' school life. Teachers would organize after-school activities. They used to be the authority in the class and often took over the role of parents. Nowadays, teachers provide information and show their students how to tackle them. If we focus on the *teaching process*, we still realize that there are a great number of changes in this field as well, and all of them have an influence on the role of teachers. First of all, teachers in modern classrooms are no longer lecturers, they are facilitators, their main task is to set goals and organize the learning process accordingly. Then, in the past, teachers used to follow a syllabus which was compulsory for them. Nowadays, teachers have a National Curriculum, a Core Curriculum and a local curriculum that they have to consider, but - on the other hand - they have independence to choose the teaching materials (textbook), make up a syllabus of their own and teach their pupils so that they can perform well both at examinations and in life. Curriculum design is a task teachers have to be prepared for, although the present generation of teachers has been growing into making up syllabi for years. Another difference between the past and present tasks of teachers is represented by the technical background they need to be able to use and handle effectively (computer, photocopier, power point, projectors, etc). Instead of teaching chalk face, they need to be an information technology expert, a technician or/and a photocopy master.

One of the biggest challenges for teachers is that their role in the *school management* has also changed. The school needs them as individuals, who can make decisions and cope with the

stress of the changing world of schools. At the same time teachers need to be able to work in teams, co-operate with colleagues and parents, they have to write projects to gain money for the school programmes, they have to be PR experts and need to do all these things for a modest monthly income. The main question is how these changes manifest themselves for the society, for the participants (teachers, learners, parents) of education. One of the mentioned European Union documents deals with teachers' role in the changing process.[2] This summarizes the characteristic features of future teachers who are to face a brand new situation in future education. According to the document, teachers realize the changes, but it is not sure whether they are able to face the new requirements or not. In the EU documents, a great emphasis is placed on both initial and in-service teacher education programs which are to prepare teachers to meet new demands.

Teachers' knowledge base

All the above-mentioned changes have a common root. They show that it is not enough for teachers to be masters of their profession ; they also have to be the artist of it. But what is the difference between a master and an artist ? How can a teacher be both ? What are the characteristic features of god or bad teachers/teaching ? This is an evergreen question which often cannot be answered without understanding the real contexts of teaching. However, researchers have examined and described the different components of teachers' knowledge (like Roberts : 1998), the characteristic features of teachers (Hargreaves & Fullan : 1992, Falus : 1998). They have come up with the importance of content knowledge (teachers' subjects), pedagogic content knowledge (how to adapt content to the learners), general pedagogic knowledge (e.g. classroom management), curricular knowledge, contextual knowledge (the context of teaching : community expectations) and process knowledge (learning skills, observation skills, etc.). Among the characteristic features, cooperation, flexibility and the ability to relate learners appear rather important.

Using a range of pedagogies

Effective teachers use techniques that best serve the learning needs of their students. There are many things that students can learn themselves through discovery, with the teacher structuring the learning to suit. There also are many things that require the teacher to teach in a more direct way. Students not only learn by being exposed to learning opportunities but they also need to be explicitly taught those things it is important for all students to know. Some students will learn

these things quickly and with only minimal direct teaching. Other students will need concerted direct teaching and correction by the teacher before they master the learning required. Effective teachers help students learn on their own as well as with and from others. They know that students learn best if they are provided with opportunities to learn not only from the teacher but also from other students and from sources outside the school that are now more readily accessible through various forms of technology.

Encouraging student responsibility

Effective teachers teach in a way that encourages students to take greater responsibility for their own learning. They make sure their students know what the goals of the learning program are; understand how these goals will be assessed; know whether they are on track to achieve success; and are actively involved in evaluating their own learning.

Having mastery of their teaching content

Effective teachers have a thorough knowledge of their subject content and skills. Through this, they inspire in their students a love of learning. They also understand how students learn the best concepts, content and skills. Effective teachers use their knowledge of learning processes to determine which will be most effective to help the particular students in their classes learn successfully

Monitoring progress and providing feedback

Effective teachers closely monitor each student's achievements. This enables them to provide every one of their students with regular feedback on their performance, and gives them valuable information to assess the impact of their teaching. Effective teachers are in the habit of constantly reflecting on how well they are getting through to their students and searching for better ways of teaching those who are not responding as well as extending those who are achieving well. Effective teachers understand the standards their students are expected to achieve and use a range of assessment methods to determine the extent to which those standards are being met and to plan the next steps.

Teachers' needs and expectations

Expectations can create reality. In a circular fashion, students' and teachers' perceptions and expectations both reflect and determine their achievement goals. They influence the strategies they use to meet these goals; the skills, energy, and other resources they use to apply these strategies; and the rewards they expect from making—or not making—this effort. And as

research shows, teachers' behaviors reflecting these expectations are related to measures of student academic achievement. Developing teachers' instructional capacities pays off because, the more effectively teachers teach, the higher all their students achieve—and the less accurate teachers' initial predictions become about who will or will not achieve well. Each player's positive expectation influences the other in a mutually reinforcing manner. As observed in Pygmalion in the Classroom, when teachers treat all students as high achievers—providing them with similar rigorous academic content, similar praise, and similar feedback and making similar demands for actual effort and products—students perform and achieve well.

Professional Development

Professional development is the enrichment training provided to teachers over a period of time to promote their development in all aspects of content and pedagogy. Professional development for teachers should be analogous to professional development of other professionals. Becoming an effective teacher is a continuous process that stretches from pre-service experiences to the end of the professional career. It is conceptually divided into pre-service and in-service teacher training. It is not simply a time-bound activity or series of events, but a continuous process.
From this perspective, the conventionally divided in-service and pre-service activities should be viewed as seamless components of the same process. It is the tool by which policy makers' visions for change are disseminated and conveyed to teachers.

Professional development for teachers is more than training or classes as it functions as an agent for change in their classroom practices. The growth of a teacher's skill and understanding is developed through personal reflection, interactions with colleagues and mentoring which gives confidence by engaging with their practices and reaffirming their experiences. It could have a positive impact on teachers' pedagogical content knowledge as many teachers feel challenged with teaching of curricular subjects due to lack of previous experience with hands-on activities, lack of content knowledge, lack of interest to acquire the resources needed to create appropriate learning environments and lack of confidence. We need to review and analyze participation of state level and national level organizations in these efforts and the extent to which meaningful progress in design and implementation of the professional development programmes were made, analyze the scope of participation and involvement of agencies working in the field of secondary education and the availability of capable

pedagogues. Enrich and update teachers' knowledge in their discipline, pedagogy and other areas of school curriculum continuously.

Teacher Education for the Future

Teacher education , rather than teacher training needs to change in the near future. Some experts say it is too late to begin the changes, as we need new competencies in teaching right now. However, if teacher education in Hungary follows its best tradition, and it remains practical, flexible and child-centred, there is a hope that the next generation of learners will get the support and skills they need in life during their schooling years from their own teachers.

The need of a generation of teachers who aim to develop learners instead of teaching them, who help their pupils to become independent (learning to learn), who provide students with motivation and interest for life-long learning and urge them to become autonomous learners, is essential in the education of the future.

The responsibility of governments, higher education institutions, and mostly teacher educators both in pre-and in-service education, is huge. European Union member states take part in several projects which help us to prepare for taking the responsibility in achieving relevant change.

What knowledge/competence do language teachers need for CALL? Content Knowledge + Electronic Literacy

Electronic literacy (Shetzer & Warschauer, 2000)

Communication: how to express and interpret meaning in the computer-mediated communication environment

Construction: how to write 1) from essay to hypertext, 2) from words to multimedia, and 3) from author to co-constructor

Research:how to navigate Web sources, search for information, and evaluate and interpret the found information

Professional Associations For CALL

An increasing number of professional associations devoted to CALL are emerging worldwide. The older associations are grouped together under WorldCALL, which is in the process of establishing itself as an umbrella association of associations. WorldCALL held its first conference at the University of Melbourne in 1998, and the second WorldCALL conference will take place in Banff, Canada, 2003: http://www.worldcall.org/.

The current professional associations represented in WorldCALL are:

EUROCALL: The leading European professional association for CALL. The ReCALL journal is published by Cambridge University Press on behalf of EUROCALL: http://www.eurocall-languages.org

CERCLES: The European Confederation of Language Centres in Higher Education. http://www.cercles.org/. CERCLES embraces a similar constituency to IALLT in North America.

CALICO: The leading North American professional association for CALL. Publishes the CALICO Journal: http://www.calico.org/

IALLT: International Association for Language Learning Technology, based in North America: http://www.iallt.org/. IALLT publishes the IALLT Journal of Language Learning Technologies and embraces a similar constituency to CERCLES in Europe.

CCALL/ACELAO: Currently in the process of establishing itself as a formal professional association in Canada. No website is available at present.

LLA: The Language Laboratory Association of Japan, also known as LET, which now embraces a wider range of language learning technologies:. http://langue.hyper.chubu.ac.jp/lla

ROLE CHANGES FOR TEACHERS AND STUDENTS

The traditional role of the teacher in higher education

Traditionally the teachers led the student up a well-worn path and failed to encourage him to think or to solve problems or to participate in research or to express new ideas. Traditionally the teacher was an authority rarely challenged by the student, a corrector of student errors and a talker rather than a listener. This traditional role was further emphasized by the dominant, traditional teaching method. But now, innovations will accelerate the pace of change with a faster flow of information via, for example, electronic mail and fax; new technology will produce new processes and products. It has been predicted that new portable teaching computers will transform the education system. Also we are witnessing the growth of a vast new industry as a result of the so-called computer revolution; the 'education mismatch'. The Information Society is a literacy intensive society in which we need reading and writing skills more than ever but the educational system is producing more functional illiterates. The Information Society requires at least two languages of everyone: English and Computer.

The human side of technology.

Technology is not absolute: 'it will succeed or fail according to the principles of high tech/high touch'. The introduction of high technology can bring isolation so there is a balancing need for more 'warm interaction' with fellow workers (and even with students!). A central belief in this trend towards the Information Society is that 'we are moving from the specialist who is soon obsolete to the generalist who can adapt'.

Forced Technology to High Tech

Whenever new technology is introduced there must be a counterbalancing human response - what we call 'high touch' - otherwise the technology is rejected: 'The more high tech, the more high touch'.[19] Even if more of us work with information at home we won't always want to work and study in our electronic cottages: we will still seek the 'high touch' of being with people, of rejecting the teleconference for the 'high touch' of a meeting. The issue of 'high touch' obviously has deep implications for the future role of the teacher.

When we think of the classroom teacher role and responsibilities, most likely planning instruction, delivering instruction, assessing student learning, and managing the classroom

environment come to mind (Stronge, 2007). These are typical ways we know how to think about what a teacher does in and outside of the classroom. Teachers have been prepared in very traditional ways to address these specific domains (Darling-Hammond, 2006). In this second decade of the 21st century, is it not time to reconsider these domains and propose new description of the term "effective".

New Perspectives For This Century

In this 21st century's new perspectives on teaching and learning, it is now necessary to open a new window for thinking about how 21st century skills and standards impact these traditional teaching roles. The goal is to make these roles relevant for today's evolving learning needs.

Thus, we visualize the aim of 21st century teaching as the development of knowledge, higher-order skills (such as the 4Cs of creativity, critical thinking, communication, collaboration), and character, as well as the establishment of lifelong learning habits and an ability to learn how-to-learn with technology as the central roles in the new picture of teacher effectiveness. The roles play out in five scenarios that redefine what it means to be an effective teacher.

(1) A Planner for 21st Century Careers

We predict there will be greater diversity and autonomy for 21st century students to choose what and how to learn and, in many cases, students' potential may lie in areas that are beyond the core standards and must incorporate new ways of knowing grounded in technology.

When planning instruction, teachers must abandon the mentality that they are content experts only and that their responsibility is to transmit a certain canon of knowledge. Instead, to remain effective in the new context where the 4Cs and learning to learn are central, teachers must plan to be facilitators who provide scaffolding to support students in developing their own personal ways of knowing and thinking.

Careers for today's students will be increasingly diversified. Rather than sticking with one static, linear, and predefined career path that former generations tended to follow, today's young citizens are likely to pursue several multidisciplinary jobs in a lifetime with more choices to frame their predictably diverse working experiences.

To prepare students for a multiple career life-path, we will need teachers capable of developing

learning plans for students who are ready to fulfill their capacity as a whole person adaptable for whatever career paradigm that will emerge. If trends hold, we will need more students who can specialize in science, technology, engineering, and mathematics (STEM) areas, but we also will need good journalists, media designers, storytellers, entertainers, and talents for careers that do not even exist now.

Given these multidisciplinary demands, effective teachers will plan lessons and learning units that give priority to the skills students will have to carry across the disciplines and into new and different jobs. Thinking, problem solving, collaborating and communicating must emerge onto center stage and provide the means for all students, not just a select handful, to traverse this multi-disciplinary landscape.

(2) An Instructor for Different Ways of Learning

Instead of using uniform strategies for all students, this century's effective teachers must design instruction that motivates each student by providing experiential, authentic, and challenging experiences. These teachers communicate content in such a way that students are able to comprehend based on their individual prior learning and ability.

Because these students are learning in various ways and at different rates, effective teachers deliver their lessons with appropriate differentiation. Robert J. Marzano, Debra Pickering, and Jane E. Pollock (2001) and John A. C. Hattie (2009) highlight a number of well-known high-yield instructional strategies that are supported by meta-analyses and allow teachers to differentiate their instruction.

Effective teachers can explore these tested strategies to find ones that are most aligned with their specific subject area, grade level, or instructional purposes. Examples of Marzano et al.'s strategies that promote the 4CS are cooperative learning; generating and testing hypotheses; identifying similarities and differences; using questions, cues, and advance organizers; and summarizing (Marzano et al., 2001). Hattie's (2009) strategies include actions such as students setting cognitive goals, giving and receiving feedback, and making metacognitive reflections.

It is important to note that effective teachers to not implement high-yield strategies in isolation.

They must be implemented simultaneously and in a differentiated manner to create meaningful learning opportunities for all students. Implementing a variety of classroom strategies also enhances student motivation and decreases discipline problems.

Furthermore, differentiated instruction enables teachers to adjust their curriculum, materials, learning activities, and assessment techniques to ensure that all students in a mixed classroom can have different avenues to process new knowledge and develop skills, even while having equal access to high-quality learning (Sousa & Tomlinson, 2011).

(3) A Technology Designer for Learning

The implementation of these strategies in the future will be increasingly harnessed by technology. We predict there will be an increasing emphasis on teachers' technological-pedagogical content knowledge (TPACK) marked by an integration of knowledge in all three key components: technology, pedagogy and content.

Designing technology-integrated learning will continue playing a crucial role. Teacher-related factors such as confidence, attitudes toward technology integration, and willingness to undertake a change incorporating technology use for student learning (Levin & Wadmany, 2008) are hallmarks of this century's best teachers.

It is becoming imperative to integrate the teaching of information literacy and technology skills into to regular curriculum (Chu, Tse, & Chow, 2011. Such skills are essential for effective functioning in today's knowledge society. Effective integration of technology into the classroom depends on teachers who have the knowledge of how to use technology to meet instructional goals. Exemplary technology-using teachers often times has greater personal technology skills, allow for open-ended learning activities, and see technology less as an add-on or as electronic drill sheets, and more as integral component of a learning plan.

Teachers' Barriers to the Use of Computer-assisted Language Learning

The barriers inhibiting the practice of Computer-assisted Language Learning can be classified in the following common categories (a) financial barriers, (b) availability of computer hardware and software, (c) technical and theoretical knowledge, and (d) acceptance of the technology.

Financial Barriers

Financial barriers are mentioned most frequently in the literature by language education practitioners. They include the cost of hardware, software, maintenance (particular of the most advanced equipment), and extend to some staff development. Froke (1994b) said, "concerning the money, the challenge was unique because of the nature of the technology." Existing universities policies and procedures for budgeting and accounting were well advanced for classroom instruction. The costs of media were accounted for in the university as a part of the cost of instruction. Though the initial investment in hardware is high, inhibiting institutions' introduction of advance technologies; but Hooper (1995) recommends that the cost of computers will be so low that they will be available in most schools and homes in the future.

Lewis et al. (1994) indicate three conditions under which Computer-assisted Learning and other technologies can be cost-effectiveness: Computer-assisted Learning costs the same as conventional instruction but ends up with producing higher achievement in the same amount of instructional time, it results in students achieving the same level but in less time. These authors indicate that in examples where costs of using technologies in education are calculated, they are usually understand because the value of factors, such as faculty time and cost of equipment utilization, is ignored (McClelland, 1996).

Herschbach (1994) argues firmly that new technologies are add-on expenses and will not, in many cases, lower the cost of providing educational services. He stated that that the new technologies probably will not replace the teachers, but will supplement their efforts, as has been the pattern with other technologies. The technologies will not decrease educational costs or increase teacher productivity as currently used. Low usage causes the cost barrier. Computers, interactive instruction TV, and other devices are used very few hours of the day, week, or month. Either the number of learners or the amount of time learners apply the technology must be increased substantially to approach the concept of cost-effectiveness. There are other more quick and less expensive ways of reducing costs, no matter how inexpensive the technology being used (Kincaid, McEachron, & McKinney,1994.

Availability of Computer Hardware and Software

The most significant aspects of computer are hardware and software. Availability of high quality software is the most pressing challenge in applying the new technologies in education (Herschbach, 1994; Miller, 1997; Office of Technology Assessment, 1995; Noreburg & Lundblad, 1997). Underlying this problem is a lack of knowledge of what elements in software will promote different kinds of learning. There are few educators skilled in designing it because

software development is costly and time-consuming (McClelland, 1996).

McClelland (1996) indicated having sufficient hardware in locations where learners have access to it problematic and is, of course, partly a financial problem. Computer hardware and software compatibility goes on to be a significant problem. Choosing hardware is difficult because of the many choices of systems to be used in delivering education, the delivery of equipment, and the rapid changes in technology.

Technical and Theoretical Knowledge

A lack of technical and theoretical knowledge is another barrier to the use of Computer-assisted Language Learning technology. Not only is there a shortage of knowledge about developing software to promote learning, as shown above, but many instructors do not understand how to use the new technologies. Furthermore, little is known about integrating these new means of learning into an overall plan. In the communication between McClelland and C. Dede (1995), Dede indicated the more powerful technologies, such as artificial intelligence in computers, might promote learning of higher-order cognitive skills that are difficult to access with today's evaluation procedures and, therefore, the resulting pedagogical gains may be under-valued. Improper use of technologies can affect both the teacher and learner negatively (Office of Technical Assessment, 1995).

Acceptance of Technologies

We live in a time change. Gelatt (1995) stated that change itself has changed. Change has become so rapid, so turbulent, and so unpredictable that is now called "white water" change (p.10). Murphy & Terry (1998a) indicated the current of change move so quickly that they destroy what was considered the norm in the past, and by doing so, create new opportunities. But, there is a natural tendency for organizations to resist change. Wrong conceptions about the use of technology limit innovation and threaten teachers' job and security (Zuber-Skerritt, 1994). Instructors are tend not to use technologies that require substantially more preparation time, and it is tough to provide instructors and learners access to technologies that are easy to use (Herschbach, 1994).

Engaging in Computer-assisted Language Learning is a continuing challenge that requires time and commitment. As we approach the 21st century, we realize that technology as such is not the answer to all our problems. What really matters is how we use technology. Computers can/will

never substitute teachers but they offer new opportunities for better language practice. They may actually make the process of language learning significantly richer and play a key role in the reform of a country's educational system. The next generation of students will feel a lot more confident with information technology than we do. As a result, they will also be able to use the Internet to communicate more effectively, practice language skills more thoroughly and solve language learning problems more easily.

EVALUATION AND FEEDBACK

In the fast changing world of the early 21st century public education is also changing. As part of the changes the role of schools, colleges and education will also be different both in the educational system and in the society. Together with them the role of teachers will also change. Many current language teachers have limited experience with CALL software from the learners' perspective and may be novices as well using technology for teaching. Unlike textbooks, software structure is often not transparent and can be difficult to "skim" for both content and program operation. Additionally, for commercial materials it may be difficult to get a fully operational version for review. Finally, as Bradin (1999) notes, "language teachers who are not accustomed to looking at CALL software may perceive its purpose very differently than those who are more experienced". All these factors combine to make CALL software evaluation a unique challenge.

Because evaluation can have various interpretations in CALL and other domains of language teaching, this chapter begins by clarifying the meaning of the term as it used here. Evaluation refers to the process of (a) investigating a piece of CALL software to judge its appropriateness for a given language learning setting, Identifying ways it may be effectively implemented in that setting, and (c) assessing its degree of success and determining whether to continue use or to make adjustments in implementation for future use. We may think of these three stages respectively as selection, implementation, and assessment.

Clarification is also needed for the term "CALL software." It is used here to refer to computer programs and accompanying content that have a recognizable instructional purpose, or a "teaching presence" (Hubbard & Bradin Siskin, 2004, p. 457) and language learning objective. These are sometimes called dedicated CALL or tutorial CALL programs, representing the computer functioning in what Levy (1997, p. 178) refers to as the "tutor" role (as opposed to a "tool" role the computer plays when the program in use is, for example, a web browser, word processor, or email application). Both the degree and quality of the teaching pres-ence vary considerably across CALL software, and, as with a live teacher, the teaching presence can come in different forms.

There is a lot of known information that can be brought to bear on the evaluation process. Such

information includes (a) an understanding of the technical infrastructure of the institution or the computing hardware and software available to the students if they are using their own equipment, (b) relevant data about other course materials, the student characteristics, and the structure and specific objectives of the course, and (c) the teacher's/evaluator's assumptions about how language is learned. Besides the classroom setting where many of the preceding factors are known, teachers may also evaluate software for use beyond their own courses.

Selection for Self-access or Other Instructors' Use

In some situations, teachers or other language professionals may be asked to recommend software selections for a self-access lab or for an entire language program. In this case, the same considerations of technology infrastructure will presumably be taken into account, but the information about student characteristics, course objectives and materials, and teacher assumptions may be less readily available.

Reviews

Reviews differ from other forms of evaluation in that they typically focus on the software itself rather than on the environment in which the software will be used. Published reviews such as those found in the *CALICO Journal* and on the *CALICO Review* web site are aimed at a broad audience of potentially interested parties. As a form of evaluation, a review is an important source of information that others can use both in making the initial identification of possible candidates and in informing their own evaluations

Three Approaches to Evaluation

Levy and Stockwell (in press) have identified three major types of CALL software evaluation: evaluation driven by checklists or forms, evaluation guided by meth- odological frameworks for language teaching, and evaluation linked to second language acquisition (SLA) theory and research-based criteria.

Checklists

Checklists have been present from the earliest stages of CALL and remain widespread. Typically, a checklist presents a series of questions or categories for judgement and the evaluator is expected to make a response based on information gathered through the reviewing process. Many checklists simply ask for a yes/no indication or a response along a Likert scale.

Methodological Frameworks

Methodological frameworks are compatible with some checklists but differ in two significant ways. First, methodological frameworks attempt to be largely descriptive rather than judgmental in their form. Second, they attempt fundamentally to link with the language teaching and learning considerations that take place out-side of technology. Richards and Rodgers characterized language teaching methods in terms of three descriptive categories: (a) *approach*, or the underlying theories of linguistics and language learning assumed by the method; (b) *design*, consistent with the assumptions of the approach and including the syllabus model, general and specific objectives of the method, and the roles of the students, teacher, and materials; and (c) *procedure*, or the classroom techniques and activities through which the design is realized. Hubbard (1988) adapted the approach, design, and procedure constructs into categories describing the key elements of evaluation and renamed them *teacher fit, learner fit,* and *operational description*, respectively.

SLA-based Approaches

Given that teaching languages with software *is* a form of language teaching, an-other reasonable procedure for developing software evaluation rubrics is to build on recommendations from theory or research in instructed SLA. Ultimately, we might expect to have definitive SLA results specifically from research on learning with software, but to date there has not been a sufficiently established base for such results. Consequently, this approach takes findings from non-CALL domains and interprets them in the CALL context.

Chapelle proposes a set of six general evaluation criteria useful in determining the appropriateness of a given CALL task for supporting language acquisition.

a) *Language learning potential:* The degree of opportunity present for beneficial focus on form;
b) *Learner fit:* The amount of opportunity for engagement with language under appropriate conditions given learner characteristics;
c) *Meaning focus:* The extent to which learners' attention is directed toward the meaning of the language;
d) *Authenticity:* The degree of correspondence between the learning activity and target language activities of interest to learners out of the classroom;
e) *Positive Impact:* The positive effects of the CALL activity on those who participate in it; and

f) *Practicality:* The adequacy of resources to support the use of the CALL activity.

Hubbard (1988)gives the following partial set of evaluation criteria for what were referred to in that work as "explicit learning" approaches:

a) Gives meaningful rather than mechanical practice, contextualized in a co- herent discourse larger than a single sentence;
b) Provides hints of various types to lead students to correct answers;
c) Accepts alternative correct answers within a given context;
d) Offers the option of explanations for why correct answers are correct; and
e) Anticipates incorrect answers and offers explanations for why they are in- correct.

Evaluating Student Outcomes

A final area of the evaluation process that needs to be touched upon is determining the degree to which the software is used and the manner in which it is used have been successful. This assessment process helps the teacher decide whether to use the software in the future, and, if so, whether to use it in the same way or differently. It also adds to the teacher's general understanding of what students do with the
software, which can influence future evaluations and implementation decisions. Although important in principle, this sort of evaluation can be quite challenging and time consuming to accomplish well in practice. Even some empirical information is better than none, however, so the use of one or more of the following methods is highly recommended. It should also be noted that this kind of empirical study with students can be done at a "pilot" level during the selection stage if a trial version of the software is available.

Observation

The most direct way to get information on whether the software is having a positive effect on learning is by watching the students as they use it. In a lab situation, particularly when dealing with software that is new to the student, the teacher can walk around, take note of how students are moving through the software, and interact with them as they are interacting with the software. Information gleaned in this manner can be used both to evaluate the software and to inform ongoing learner training.

Tracking Systems

Perhaps the best way to get objective information on student use is either to select software that includes tracking of student actions or to employ a screen capture device (e.g., *Lotus Screen Cam*) that will record the changes in the student display. Depending on the type of tracking system used and the nature of the data collected, this can allow for either a superficial overview, for example, student quiz scores or time on the computer (not necessarily the same as time on task) or a data set that is rich in detail but may be time consuming to analyze.

Student Surveys

Another approach to gathering information on student perceptions of success or failure with the software is to ask them by using a survey or questionnaire. While such information can be valuable, there are two concerns. First, if students know their responses are tied to a grade or other assessment, or if they believe (even erroneously) that this is the case, the results will be compromised. Thus, it can be important to ensure anonymity if feasible. Second, even when students are trying to be completely honest, their reports may not correspond to their actions. If surveys are to be used, then it is advisable to administer them either during or immediately after completion of a CALL activity to tap into fresh memories as much as possible.

Pre- and Post-testing

Evaluating student outcomes is a form of research, especially when it is done with software that is untried for a particular setting. Certain types of CALL instruction, particularly those which can be assessed with some degree of validity with discrete- point tests such as vocabulary development, may be empirically evaluated using a pre- and posttest regime. Note that while this may give useful information on the outcome, it does not provide the data about the learning process that most of the other options do. It does, however, often have strong face validity with students and school administrations, especially when results are positive.

Student Journals

Kolaitis et al. (in press) report success having students keep a "CALL journal" in which they include not only the time and description of the material worked on but also reflections on why they got certain answers wrong in exercises. Although this is mainly done for the students' benefit, this kind of journal also provides teachers with useful information on how their students are progressing and using the software. Note, however, that like questionnaires, the data in

student journals may not be fully reliable and should be interpreted accordingly.

Three key components to consider in CALL evaluation:

a) the nature of the materials/software

b) the nature of the teaching/learning situation

c) the suitability of rating criteria

Three evaluation criteria:

a) specification

b) program design

c) pedagogically relevant features

Conclusion

Software evaluation remains an important area of CALL and there are indications its role may be increasing, particularly in the domain of empirical evaluation. Reflecting on the material and procedures provided in this chapter is an important first step in mastering that art, but the challenge remains for the individual to gain the experience needed to determine a compatible CALL software evaluation procedure that is practical and consistently yields reliable results.

UNIT-IV

COMPUTER ASSISTED LANGUAGE LEARNING- SHS5017

CONTENTS

COMPLEXITY THEORY IN CALL

Complexity theory literally indicates the complexity of a system, behavior, or a process. Its connotative meaning, while, implies dynamism, openness, sensitivity to initial conditions and feedback, and adaptation properties of a system. Regarding English as a Foreign/ Second Language (EFL/ESL) this theory emphasizes on the complexity of the process of teaching and learning, including all the properties of a complex system. The purpose of the current study is to discuss the role of CALL as a modern technology in simplifying the process of teaching and learning a new language while integrating into the complexity theory. Nonetheless, the findings obtained from reviewing previously conducted studies in this field confirmed the usefulness of CALL curriculum in EFL/ESL contexts. These findings can also provide pedagogical implications for employing computer as an effective teaching and learning tool.

Complexity theory sheds a new light on Second/Foreign Language Learning (S/FLL). According to Hashamdar (2012) the idea of complexity theory comes from 1960s work of meteorologist Edward Lorenz. Lorenz designed a simple climate model including some differential equations. To save time and space, he rounded the original inputs of a set of equations of weather temperature, pressure, wind and etc. from six decimal-digits to three decimal-digits. Lorenz believed that this change (rounding the inputs) would not cause any change on the result, so he tried to reexamine the idea. Surprisingly he found that the second run was completely and dramatically different from the first one. He discovered that even tiny differences in initial conditions would cause large changes in the weather predicted. This discovery, sensitivity to initial conditions, is one of the basic features of complexity theory. According to complexity theory, small differences in input can result in large differences in outcome (Finch, 2001). This theory has been widely used in many fields of study especially science. It has been used in the social sciences and applied linguistics recently (Hashamdar, 2012).

Prediction has no room in complexity theory; instead, it mostly concerns with explanation. It aims to explain how complex systems emerge and are maintained (Nelson, 2011). In the field of second language research (SLR), Larsen-Freeman (1997, as cited in Nelson, 2011) in her article entitled “Chaos/Complexity Science and Second Language Acquisition” suggests that complexity theory gave us a new perspective on second language acquisition by “cast[ing]

several enduring SLA conundrums in a new light" (Nelson, 2011, p.141). Ahmadi (2011) views language as a complex system like other dynamic nonlinear ones; since, it meets the two main criteria of complexity, that is, first, it consists of a variety of subsystems such as phonology, morphology, lexicon, syntax, semantics and pragmatics. Second, these subsystems are interdependent.

However, with no doubt, complexity theory helps us design language tasks through providing us with another way of looking at language. One would feel that a complex systems approach does not in the first instance provide us with an alternative design for our teaching, but rather a novel view of language. It is the impacts of taking this perspective seriously that might influence language teaching design (Weideman, 2009).

SLA classroom and complexity theory

Taking the characteristics of SLA classroom into account, the SLA curriculum can be defined based on complexity theory. Here the agents of this complex changing network (SLA classroom) are teacher and students and the elements are materials, teaching procedures, assessments and teaching aids to name a few. These components (agents and elements) are interacting in the ecosystem of language classroom over time, that is, the classroom life is dynamic and the students' and teacher's subjective (personal) and inter-subjective (collective) experiences (Breen, 2001) in negotiating with the elements always create unpredictable and new realities as outputs. The rules and beliefs dominant in the society can be taken in by the classroom life and considered as another kind of feedback (outside of the system) to help the system to self-organize and self-regulate to produce order (adaptation).

Put it in a nutshell, regarding complexity theory, SLA curriculum is not so static and fixed as the traditional curriculum; while, it is dynamic and open to change based on the immediate situation of the classroom. This type of curriculum is mostly based on the shared decision made by teacher and students in the real context of the classroom. Teachers in the classroom life should not trust on any pre-set curriculum and should be an action researcher to decide correctly in time (Hall, 2011). Because of this the methodology and curriculum of an experienced teacher never can be predicted since it is changing during the process of teaching and learning in the ecosystem of language classroom (Hall, 2011).

Computer Assisted Language Learning (CALL) and Curriculum development in SLA

CALL is defined as "the search for and study of applications of the computer in language teaching and learning" (Levy, 1997, p.1) or "any process in which a learner uses a computer and, as a result, improves his or her language" (Beatty, 2003, p. 7). And curriculum is "an overall plan for a course or program" it includes the educational purposes, content, teaching procedures, learning activities, assessments and evaluation related to that program (Richards & Schmidt, 2002, p. 139). Integrating CALL into the SLA curriculum will cause changes in the components of the curriculum which are the content, materials, teaching procedures, learning activities and even the type of assessment and evaluation.

Nguyen (2008) believes that using internet can provide good possibilities and opportunities for teachers and learners of a foreign language to have access to up-to-date language materials and authentic language resources. Many changes will happen to the roles of teacher and learners too. Teachers are not considered as providers of information anymore and nor do the students as recipients. Through self-access to WWW learners are capable of providing authentic materials independently and actively (Nguyen, 2008). The teachers, instead, are more considered as consolers and active participants. Assessment and feedback will be web-based too. As discussed before these changes would affect all the curriculum steps.

Issues:

Besides the benefits, some problems are imposed on curriculum while integrating into CALL programs. Park and Son (2009) investigated teachers' perceptions and perspectives about implementation of CALL in EFL classroom. In general Park and Son's findings (2009) revealed that all teachers are optimistic toward the future of CALL. Considering all the contextual problems, including insufficient facilities, class size and limited flexibility in curriculum, teachers yet believed in the use of CALL in future as an inevitable part of SLT/FLT. Four teachers; however, emphasized on the appropriateness of the textbooks and flexibility of the curricula for CALL contexts. Another obstacle to CALL implementation found in his study is the implication of online sources. In order to integrate technology-based teaching to existing curricula, educators should be able to use and to teach how to use new software which are in line with textbooks (Park &Son, 2009).

Similarly, Kim (2008) argues that integrating CALL into language classrooms includes a variety of issues of language teaching, like pedagogical approaches, language skills, learning styles, students' target language proficiency levels, and motivation. While adding CALL into classroom practice, some essential factors should be concerned, e.g. teachers' perception on CALL communication; whether it is authentic and meaningful (Warschuer, 1996b), or their visualization of CALL practice; whether they are learner- or teacher-centered (cited in Kim, 2008).

Based on the theories from the sociolinguistic perspective of second language learning, an online chat-based curriculum was developed by Lee (2005). This blended type of curriculum aimed to improve students' oral communicative skills. According to most of Lee's participants the curriculum was very effective in improving oral communication. Chat-based instruction, compared to textbook instruction, seemed more attractive, relevant and effective. The findings indicated that as a result of receiving such treatment, learners identified their habitual errors made in oral language. Participants, also, emphasized on the importance of tailored instruction, emphasizing on the effectiveness of mixing of online and classroom chatting.

Discussion

The current study mainly focused on the importance of modern technology in EFL/ESL curriculum as well as on a discussion in order to find the status of complexity theory in such contexts. The succinct paper tries to show how the integration of CALL into the complexity second/foreign language curriculum can simplify the language teaching and learning processes.

To find relevant ideas a review-based study was conducted and a variety of already performed studies were scrutinized and effective data were gleaned. The data confirmed the application of computer as an effective teaching and learning tool in EFL/ESL contexts. Considering foreign language acquisition as a complex task, helpful ways should be introduced in and brought into this arena in order to provide its members (both teachers and learners) with equipment and tools so that the results may be extraordinary. Review of related works confirmed the usefulness of computer use in EFL/ESL classes.

The integrating of CALL into the language learning curriculum regarding the properties of complexity theory can simplify the process of second/foreign language learning and teaching. In this regard, the components of the curriculum (the elements and the agents) are defined based on CALL and complexity theory. The elements of the curriculum, educational goals, materials, feedbacks and assessment, teacher's and learners' roles, teaching and learning processes (Richards & Schmidt, 2002) will be influenced using CALL and complexity theory:The main characteristic of an educational curriculum is that it is pre-planned, before the presentation of materials. So the classroom affairs are predictable while the complexity curriculum is not a priori but a posteriori.

The materials are authentic and up-to-date (Nguyen, 2008) using WWW and online services, there is a possibility of chatting a real communication through MOO and internet-based chat rooms, the students have a free access to authentic audio-video materials using podcasts (Hegelheimer & O'Bryan, 2009). In this case the learners are exposed to a large amount of input which may cause complexity and chaos in the first steps but little by little they can self-organize their learning process by feedbacks from their teacher or other learners. In a shared decision manner, they will be able to select topics or materials of their interest so they will be more motivated to learn. Feedbacks can be immediate through chatting or with some delay using e-mail (Brandl, 2002). The classroom life as a complex system is sensitive to feedback in order to reach a kind of self-organization or equilibrium.

d. Assessment as another element of the curriculum will be revolutionized to an adaptive and dynamic process based on complexity theory. CALL can help this process so that the system is sensitive about feedbacks and the online assessment would not let the learners to be alone during the process of evaluation. The mediator, teacher or the system, will provide some hints for the learners to adapt themselves during the process of dynamic assessment. The use of computer as mediator can help learners to go beyond their independent performance and indicates what the students can do in cooperation rather than isolation.

The role of teachers regarding the new curriculum will be changed too; since the system is not traditional teacher-centered process; while, it will welcome the learners' voices and decisions on material development, methodology, assessment and etc. Using CALL, the learners have access to a wide range of materials and the teacher will select the topic which is of interest of

the learners and can be searched by them easily (Nguyen, 2008). Learning and teaching language is a 'fluid process', an ongoing process, so the teacher must be able to handle the classroom when there are factors beyond the scope of class and to act in real time (Blackman, 2008). The demanding and important role of the teacher as a mediator and source of feedback should not be undertaken. Learners will be more responsible (have agency) about their process of learning. Their role will be changed into active participants. They should choose the topics and select the related materials. They can search materials online, using internet search engines. The teacher and the students together, in a shared decision, will select the topics and materials to work on it. The process of choosing relevant, effective and appropriate input is a demanding and sensitive job for teacher and learners and may cause disorder at first, but little by little learners ,by the help of the experienced teacher, will make order and come to equilibrium, learning.

Another point worth mentioning is that the agents of the educational system (the members) need to receive effective instructions regarding how to employ computer as a facilitator in the way of teaching and learning. Lack of digital literacy on one hand, can result in harmful outcomes such as despair, stress, decreased interest and self-confidence and so on. On the other hand, based on complexity theory, the system may increase the complexity of difficulty of foreign language acquisition. EFL/ESL curriculum designers should include effective instructions (teacher training) regarding up-to-date software and the way to implement them. The discussion provides indications that CALL curriculum can help the complexity theory to be applied in EFL/ESL teaching and learning processes; however, it should not be forgotten that implementation of technology like computer in EFL/ESL settings need a plenty of requirements. As mentioned above EFL/ESL teachers and students alike, prior to employment of computer as an educational aid, should be trained, accordingly.

Conclusion

The present review goes through the prime aim of integrating complexity theory into CALL curriculum and as mentioned in the above sections the language classroom life is a social dynamic system which is not static and teaching and learning processes within this social entity are part of an adaptive system during which a new unpredicted behavior will be acquired/created. It seems that, as it was discussed before; these processes (teaching and learning processes) can be simplified using CALL, since the properties of complex systems are coincided the characteristics of CALL curriculum. For example, to name a few, complex

systems are sensitive to feedbacks which can be easily andimmediately provided by the computer (online and immediate, or by some delay), the systems are also sensitive to initial conditions and chaotic processes that might be provided by the access to large amount of data on WWW (Nguyen, 2008) and then the agents, here the teacher and the students, seek a kind of equilibrium or underlying order by shared decisions, that is synergy, which help them to acquire an unpredicted and totally new reality, so called a new language (Hall, 2011). As concluded there is no pre-written syllabus to deal with; while, it will be made during the process of teaching and learning based on a shared decision and cooperation that is the syllabus will be a priori. Assessment in complexity-CALL curriculum will be dynamic and adaptive: providing immediate feedbacks by computer as a mediator and changing the level of difficulty of the questions based on the learners' level of proficiency. Based on these discussions, the "Integrated" CALL (Bax, 2003) can be best suited to the complexity curriculum in EFL/ESL context. Further research is suggested to scrutinize if sub-categories of the computer including internet, specific softwares, weblogs, social networks and so on can decrease the complexity of a variety of language skills. Hopefully, the present findings will be helpful for future researchers, curriculum designers, EFL/ESL teachers and students and will pave the way for further investigations.

TECHNOLOGIES USED IN CALL

Computer-Mediated Communication (Internet) (1990s)

Technological Development by Year	Approaches to Language Teaching	Approaches to CALL & Examples
1969-Computer-mediated communication (CMC) but serious applications appeared in early 1990s. 1960s-Hypertext was invented by Ted Nelson. 1989- World Wide Web--the integration of hypertext and the Internet- was invented by Tim Berners-Lee. 1990- Internet applications became popular such as E-mail, FTP, Talk (UNIX system) 1992- Gopher was released. The release of CERN (WWW), a hypertext based system for finding and accessing internet resources. 1993- Mosaic (Web browser) was released.) 1994- Netscape 1.0 was released. 1995- Windows '95 was launched with Internet Explorer by Bill Gates & Microsoft. 1995 - JavaScript was introduced by Netscape. 1998 – Windows'98 was	Communicative Language Teaching Focus on using the internet applications for communicative language teaching: Foreign language learning will be an acquisition of language content through purposeful and reflective participation. The curriculum is dynamic. The role of the teacher is a facilitator, an inseminator of ideas, who draws student's motivation. The learner is responsible, reflective and creative. Textbook is a resource along with electronic resources. Classroom becomes a reconfigurable space with electronic facilities. (Debski (1997:47-48)	Integrative CALL: Internet Applications (eg. E-mail communication, FTP, World Wide Web, Chat, Gopher sites, MOO servers, CU-SeeMe, Desktop Video Conferencing) Aim at integrating computer-mediated communication applications for communicative language teaching as follows: E-mail Allow learners to have direct communication around the globe. FTP Allow learners and teachers to download documents, graphics, sounds, videos, and animation. WWW Learners search and share different kinds of files on the internet (documents, graphics, sounds, video, animation). Chat: Allow learners to have real

released.

1995-1999 - Development of:

QuickTime

Real Audio

Real Movie

Shockwave

Web-based E-mail

Web-based Chat

Voice Chat

Internet Phone

Emerge of web authoring software such as Hot Potatoes, Authorware, and Director.

Desktop Conferencing

time communication.

Main Characteristics:

Allow computer to incorporate a variety of media from the internet such as text, graphics, sound, animation, and video.

Internet resources are linked together by Hypermedia.

Based on communicative. language teaching approach.

Built on student's intrinsic motivation for authentic communication.

Encourage interactivity between the learner and internet users around the world.

More authentic language learning environments are created.

The four language skills are integrated (listening, speaking, reading, and writing).

Focus on a variety of content and multi-cultures.

Technologies Used in CALL

Free Technology Tools		
Audacity:	software for recording and editing sounds	http://audacity.sourceforge.net
VLC Media Player:	plays many multimedia formats	http://www.videolan.org/vlc/
Google Docs:	Create and share your work online (word processor, spreadsheet, presentation)	http://documents.google.com
LIveCode	a rapid application development tool	http://livecode.com/
Wordle:	"a toy for creating word clouds"	http://www.wordle.net/
Free Tech Tools for ESL Educators:	a longer list of free tools	http://edvista.com/claire/pres/free-esl/index.html
Online Courses, Communities, and Materials		
E-Teacher Scholarship Program:	Online courses for which EFL teachers may receive scholarships	http://exchanges.state.gov/non-us/program/e-teacher-scholarship-program/details
Shaping the Way We Teach English:	Online community of English teachers	http://shapingenglish.ning.com/
ENGLISH LANGUAGE TEACHERS INDIA - RELO Connect	Regional English Language Office in India	https://www.facebook.com/groups/184818291649549/
Electronic Village Online:	Free 5-week courses that are offered by TESOL	http://evosessions.pbworks.com

	each January and February	
Learning2gether:	Online community of English teachers who meet weekly to teach one another	http://learning2gether.pbworks.com
MOOCs:	Massive open online courses	https://www.coursera.org/
Kahn Academy:	Over 1200 videos lessons covering everything from basic arithmetic and algebra to differential equations, physics, chemistry, and biology.	http://www.khanacademy.org/exercisedashboard
iTunes U:	Choose from multiple topics and take a course or listen to a lecture from top universities across the U.S.	http://www.apple.com/in/itunes/download/
Ted Talks:	engaging, entertaining, inspiring talks to stir your curiosity. Browse by subject, length, or rating. Choose from over 700 talks. Captions can be added in English to aide comprehension if desired.	http://www.ted.com/talks
Royal Society for the encouragement of Arts, Manufactures and Commerce, including RSA Animate:	Using speed-frame technology, viewers listen to a short lecture, and the animators animate the ideas as they speak They provide scaffolding for the nonnative speaker to gain access to complex, interesting ideas of the day.	http://www.thersa.org/events/rsaanimate
Coursera	massive open online courses (MOOCs)	http://www.coursera.org

Film English:	This site promotes the innovate and creative use of English Language teaching and learning through the use of video. All the lesson plans revolve around the use of video and film to teach English.	http://film-english.com
For Teachers		
American English:	A Website for Teachers and Learners of English as a Foreign Language Abroad	http://americanenglish.state.gov/
American English Facebook page:	"American English at State is a Facebook page that provides English language learning materials for both learners and teachers."	https://www.facebook.com/AmericanEnglishatState/
English Teaching Forum:	A quarterly journal for professionals teaching English as a Foreign or Second Language, published by the Office of English Language Programs, Bureau of Educational and Cultural Affairs	http://americanenglish.state.gov/english-teaching-forum
Hot Potatoes	Information about Hot Potatoes, tools for creating interactive exercises	http://edvista.com/claire/hotpot/
Dave's ESL Café:	comprehensive site with discussion boards, jobs, activities for students	http://www.eslcafe.com/
Discovery Education Puzzlemaker:	Make word searches, crossword puzzles, etc using your own word lists	http://www.discoveryeducation.com/free-puzzlemaker/?CFID=3224607&CFTOKEN=23131798
Graphic Organizers:	over 20 free graphic organizer templates	http://www.eduplace.com/graphicorganizer/

eltpics:	Free database of photos for English instruction by category	http://www.flickr.com/photos/eltpics/sets
Glogster:	Creates online media posters. You can embed your own videos, images, and sounds.	http://www.glogster.com
Photo Peach:	Free website to create easy slideshows with captions and comments	http://photopeach.com/about
Voicethread 4 Education:	Interactive tool for having conversations around media, either photos,illustrations, and video, or a combination of all 3	http://voicethread4education.wikispaces.com
Instant Poetry Forms:	over 40 forms with easy-to-use templates	http://ettcweb.lr.k12.nj.us/forms/newpoem.htm
ReadWriteThink	classroom resources; sponsored by IRA and NCTE	http://www.readwritethink.org/
Rock and Roll Hall of Fame:	pairs American culture, literature and history around music. The "lesson plans" tab is an excellent start to increase motivation, interest, and reach different modalities.	http://www.rockhall.com/education/resources/
Teaching Channel:	promotes professional development for teachers via video	https://www.teachingchannel.org/videos/welcome-to-teaching-channel
UVic's Language Teaching Clipart Library:	3000 images designed for language instruction	http://web.uvic.ca/hcmc/clipart/

Visuwords:	online Graphical Dictionary	http://www.visuwords.com/fullscreen/
Wikimedia Commons:	database of freely usable media files	http://commons.wikimedia.org
Word Processing-based Activities for a Language Class	Suggestions for communicative uses of word processing	http://edvista.com/claire/wp.html
For Students		
American English:	A Website for Teachers and Learners of English as a Foreign Language Abroad	http://americanenglish.state.gov/
Self-study quizzes:	low-tech exercises	http://a4esl.org/q/h/
Interesting things for ESL/ESL Students:	various activities for language practice	http://www.manythings.org/
Randall's ESL Cyber Listening Lab:	listening activities and quizzes	http://www.esl-lab.com/
English as a Second Language Writing Online Workshop:	website designed to guide non-native speakers of English through each stage of the pre-writing, while-writing, and post-writing processes	http://esl-wow.org/
Rewordify:	website that simplifies text	http://www.rewordify.com

ESL Quizzes: Self Study:	dozens of quizzes for ESL students	http://iteslj.org/links/ESL/Quizzes/Self_Study/
English Access Microscholarship Program	a public group on Facebook	https://www.facebook.com/groups/403625476456620/
Dave's ESL Caffe	"the Internet's meeting place for ESL + EFL teachers and students from around the world"	http://www.eslcafe.com/
Voice of America	website for international news	http://www.voanews.com/
Activities for ESL Students:	quizzes, tests, exercises and puzzles to help you learn English as a Second Language	http://a4esl.org/
CALL		
General information about CALL:	links to organizations, journals, websites	http://edvista.com/claire/call.html
An Invitation to CALL:	Phil Hubbard's course on CALL	http://www.stanford.edu/~efs/callcourse2/
ICT for Language Teachers	comprehensive online course on CALL	http://www.ict4lt.org/
Pronunciation Links		
shiporsheep.com	English language pronunciation practice with minimal pairs	http://shiporsheep.com
MInimal	comprehensive listing	http://myweb.tiscali.co.uk/wordscape/wo

homographs, and homophones	English RP	
Games	list of games and classroom activities	http://edition.tefl.net/category/ideas/games/page/3/
Apps		
American English Mobile App	Improve your English: read e-books for learners, listen to audiobooks, explore American songs, and play a language game. works with Android operating system and uses very little data	http://m.binu.com/ae/
15 Great Free Android Apps for English Language Learners	list of useful apps	http://www.educatorstechnology.com/2012/06/15-great-free-android-apps-for-english.html
ESL Apps: 15 English Language Learning Apps for iPhone and Android	another list of apps	http://www.myenglishteacher.eu/blog/esl-apps-15-english-language-learning-apps-for-iphone-and-android/
The 9 Best Mobile Apps for Your ESL Students	another list of apps	http://busyteacher.org/12155-9-best-mobile-apps-for-esl-students.html
5 Great Apps for Learning English	and more...	http://www.simpleenglishnews.com/archives/stories/5-great-apps-for-learning-english-5314463

Claire's home page:	professional and personal links	http://edvista.com/claire/index.html

THE USE OF TECHNOLOGICAL RESOURCES IN FL LEARNING

Audio devices: CD, Web, audiocassette recorder. These continue to be the most popular and most widely used devices appropriated by modern language teachers.

Video:

DVD, cassette, Web, laserdisc, camera. The use of moving images linked to sound provides learners with exposure to all important elements of spoken communication: gestures, proxemics, pronunciation, intonation, all embedded in natural, cultural contexts. Thanks to modern technology, scenes can be located, isolated and replayed at random. There is a wealth of literature suggesting how to exploit film / video sequences meaningfully. Different forms of visual support can now be offered (e.g. optional sub-titles in the mother tongue or target language to assist understanding and facilitate access to the language).

Television:

Both satellite and terrestrial television programmes offer cheap access to contemporary, authentic and potentially culturally rich programmes for the language learner. The immediacy of current affairs programmes ensures that learners' exposure to the language is up-to-date and embedded in the real world of native speakers. A number of broadcasting companies still produce broadcasts, which are at their most effective when combined with face-to-face courses in educational institutions. Particularly useful for reaching sectors of the population who might not normally think of taking up language learning, but who might be wooed by attractive "taster" courses highlighting interesting or exciting elements in the target culture.

Telephone:

Because of the relatively poor quality of analogue transmissions this medium has not been widely used for language teaching. Its principal uses have been limited to supplementary

tutoring for those engaged in distance education. However, with the advent of digital quality and lower connection costs, there is now considerable potential for its extended use - including the possibility of conference calls.

Computers:

With the introduction of the multimedia computer, the learner and teacher have at their disposal an instrument which can combine all the advantages of the above-mentioned media in a compact and easily accessible form. The computer may be used as a local machine (stand-alone) or within a network. Computer Assisted Language. Learning (CALL) software, CD-ROMs, and office software applications have become commonplace in many teaching / learning environments and the case studies in Section 2 illustrate how teachers throughout Europe are making use of them. An inventory of current CALL software, including teacher evaluations of their usefulness / efficiency can be seen at the ICT4LT and GrazVoll websites, which also give links to other relevant sites. Internet: Extensive and profitable use is now being made by many language teachers and learners of email, the World Wide Web, text, audio and video conferencing.

INTERNET BASED CALL

The technology

Before discussing the use and relevance of ICT in FL teaching and learning, it would seem useful to review the technologies which are currently in use in education. The following table gives a general overview of the affordances and limitations of various technological resources widely in use today in education.

AFFORDANCES AND LIMITATIONS OF MODALITIES

MODE	INSTRUMENT	AFFORDANCES	LIMITATIONS
Text	Books/ magazines	> Portable > Durable > Can present complex information > Sequential structure guides learner > Little eyestrain > Moderate cost of development	> Difficult to modify (as in localization, updating, etc.) > Requires literacy plus higher-order thinking skills > Content is difficult to extract for use in other resources > High per-unit cost of publication
	Web page	> Dynamic and easily modified > Hyperlinks enable nonsequential navigation > Low cost of development and very low publishing costs > Supports interactivity (e.g., navigation, user-entered information, etc.) > Can support assessment	> Nonsequential structure may obscure critical information or cause confusion > Reading may cause fatigue > Requires PC, electricity, connection > Potential additional system requirements (e.g., Java, plug-ins)
Images	Printed photos, maps, and schematic drawing	> Concrete, specific, detailed information > Appropriate for learners with "visual intelligence" > Engaging and motivating for many learners	> Low information value relative to text > Resistant to reuse by learners > "Visual literacy" skills required for best use > High cost of reproduction
	Digital photos, maps, and schematic drawings	> Affordances similar to printed photos > Easily copied, shared, and used > Low costs for reproduction and publishing > Can be data-based or Web-served for delivery to handheld computers and other "anytime, anywhere" devices	> Limitations similar to printed photos > Require PC and electricity, possibly an Internet connection
Audio	Radio	> Can present contemporary and topical information easily > Highly accessible and potentially engaging format (no literacy skills required) > Widespread adoption in developing countries > Moderate production costs > Highly scalable > Low-cost hardware	> Information is not durable; learners can't "review" a broadcast > Poor presentation of complex concepts > No visual component (e.g., schematics, maps, photos) > Synchronous form requires system-wide coordination (e.g., announcements, class schedules, etc.)
	Audiotape	> Wide adoption, low-cost hardware > Information persists (tape may be reviewed many times) > Moderate production and reproduction costs > Highly accessible > Supports asynchronous presentation > Sequential structure guides learner	> Poor presentation of complex concepts > Medium is not durable, especially in extreme circumstances > Studio recordings not easily modifiable or well-suited for current events

MODE	INSTRUMENT	AFFORDANCES	LIMITATIONS
Audio (continued)	Digital audio (Web- and CD-based)	> Can present contemporary and topical information easily (Web) > Information is durable (e.g., it can be reviewed many times) > Medium is durable > Moderate production costs > Low reproduction costs; easily scaled > Easily catalogued and reused (by developers and users) > Can be indexed or catalogued to enable nonsequential access	> Requires robust PC and/or high-speed Internet connection > High storage "overhead" (in terms of hard drive capacity) > May not support presentation of complex concepts
Video	Analog	> Highly accessible and potentially engaging format (no literacy skills required) > Sequential structure guides learner > Concrete, specific, detailed information > Appropriate for learners with "visual intelligence" > Engaging and motivating for many learners > Moderate hardware costs	> High production costs; moderate reproduction costs > Complex information may be difficult to present effectively > Information may prove difficult for some learners to analyze/synthesize
	Broadcast	> Same as analog video > Can present contemporary or topical information easily	> Same as analog video; however, costs may be higher
	Digital (Web- and CD-based)	> Same as analog video > Can present contemporary or topical information easily > Easily catalogued and reused (by developers and users) > Can be indexed or catalogued to enable nonsequential access > NOTE: "moderate hardware costs" is not applicable	> Same as analog video > Requires robust PC and/or high-speed Internet connection > High storage "overhead" (in terms of hard drive capacity)
Simulations	Interactive (Web- and CD-based)	> Same as noninteractive simulations > Active-learning characteristics engage learners via several paths to reinforce concepts > Quantitative elements are supported (and reinforce conceptual learning) > Engaging and motivating for many learners > Can support assessment	> Requires robust PC and/or high-speed Internet connection > Potential additional system requirements (e.g., Java, plug-ins)

TRENDS & ISSUES IN CALL

Issues for CALL in EFL Context

Using technology has a very bright condition in many countries. However, CALL is not fully implemented in many educational institutions. There are many issues should be considered to make CALL normalized in these settings. The following section will discuss the issues CALL practitioners should bear in mind when CALL is to be implemented.

Personal Issues

Technology without human beings cannot create a good environment for language teaching and learning. Also, the users of technology have very important roles in the processes of language teaching and learning. Many issues related to individuals (i.e. teachers, students, and administrators) should be considered when CALL in integrated.There are some external factors that influence the teachers' use of CALL in their instruction. These factors are: ICT knowledge, lack of support from administrators, training, and accessibility, scheduling problems, lack of time to prepare lessons, connectivity, and home access. There are some other internal factors that influence the teachers' use of CALL in their instruction (e.g., teachers' attitudes, and teacher beliefs). There are also some instructional factors that influence the teachers' use of CALL. Problems with assessment and teaching experience are some of these factors.

ICT Knowledge

There are some basic ICT skills teachers need to know in order to implement CALL well. According to the report done by Directorate General Education and Culture language teachers need to:

- Recognise the individual learning problems of learners;
- Make a careful and considered choice concerning the use of the media;
- Check the truth of information content offered;
- Develop efficient search techniques and be capable of conducting effective research with the help of the computer;
- be able to use standard software confidently and competently;
- make wise and critical choices of information found.

Teachers' ICT illiteracy is a very crucial factor. Schemidt (1995), as cited in AlKahtani (2007), surveyed faculty who were still not using or integrating technology into their work and found that they did not use technology due to a lack of knowledge in operating them despite their awareness of the technology impact on education. Nowadays, most of the learners are accustomed to using many types of technologies in their daily activities. This generation is described by many authors as the "net generation" and the people of this generation are called "the digital natives". However, this does not mean that they automatically know how to study using CALL programmes in their learning. For CALL to be normalised, language learners need basic skills that are required for implementing CALL technology.

Training

The successful integration of CALL is also based on teacher training. Technology without teachers cannot create a good environment for language learning. However, teacher training in using technology is not enough. Teacher training should be done in two related directions:

(a) using technology such as operating computer programs, and other applications; and

(b) applying technology effectively for language learning.

Teachers should be exposed to the latest trends in ELT methodologies and approaches. Teacher training does not mean its formal ways which mean attending seminars, workshops, and so on, but it can be occurred in different ways. As Chambers and Bax (2006, p.475) point out "One way of doing this is to see development not in terms of training workshops but as an ongoing process, possibly through the formation of teams of 'experts' working with 'non- experts'".Unfortunately, many educational institutions are aware that their teaching staff needs ICT training, but very few realize that their learners also need ICT training. There are some important issues that language learners should be qualified with when they use CALL. For example, learners need to be trained properly for their written assignments, how to cite sources, and avoid plagiarism. Learners need to be trained to move from traditional face-to- face learning to be able to study in CALL settings. For CALL normalisation, language learners need to be qualified with the basic rules and conditions of using CALL materials.

Technical Support

Lack of technical support hinders the smooth release of language classes and affects the flow of classroom activities. The respondents of the Becta Survey (2004) stated that "technical

faults might discourage them from using ICT in their teaching because of the fear of equipment breaking down during a lesson'. Chambers and Bax (2006, p.476) pointed out that "Successful normalisation requires that teachers' concerns about technical failures, and their lack of skills to deal with such failures, be addressed and overcome by means of reliable support and encouragement" It is also necessary to determine the teachers' existing technical skills and the gaps in teachers' ICT knowledge. There are some examples of checklists that can be used as a starting point to determine the technical skills language teachers need to know .

Time

Successful integration of CALL requires enough time to plan lessons, find suitable internet sites, and check software to choose the areas that are related to the objectives of the lessons, and so on. Jones (2001, p.365) points out that ''what really prevents teachers from following an interest in CALL is lack of time, since they tend to be sufficiently burdened already by their conventional administrative and classroom duties.''Chambers and Bax (2006, p.471) point out that "For teachers to 'normalise' computer use within their daily practice, they may need additional time for preparation and planning."

Beliefs

Teachers' beliefs about CALL are shaped by their previous experiences as learners, by social, economic and political contexts. The environment where they grew up and the institutions where they worked are also important to shape the teachers beliefs about CALL and its benefits in language teaching and learning. Cuban (2001) as cited in Kumar and Tammelin (2008) pointed out that teachers will use technology only if they perceive it to enhance instruction. For CALL normalisation, teachers need to have positive attitudes towards CALL and its benefits in language teaching and learning.It is supposed that because the learners grow up in a technology environment, they have positive attitudes and beliefs about technology and its benefits for all aspects of life. A number of studies have examined the students' attitudes and beliefs about CALL. They concluded that many students had a positive attitude towards CALL. Today's learners are equipped with technology. Their use of technology enables them to be more confident in using CALL in language learning. Colley et al. (1994) as cited in McMahan, Gardner, Gray and Mulhern (1999) found that participation in a computer course significantly reduced anxiety and increased confidence among students (both males and females). However, this is not the case for all situations. There are still some

situations in which learners are not ICT literate and they are afraid of using technology in their learning. For CALL normalisation, language learners need to have positive attitudes towards CALL.

Administrators Issues

To some extent, the administrators play a crucial role to make CALL successful. Their beliefs and attitudes towards CALL is an important factor. The way that they plan to use CALL is a significant factor that should be considered. The administrators need some basic ICT knowledge to accept the integration of CALL at their institutions.

Technical Issues

Many colleges install high-tech labs designed for language teaching and learning. However, the use of these labs does not match the objectives and the cost of their establishment. In many situations, language labs are not well exploited by language teachers and learners. This happens because of many factors, such as ICT location, and classroom organization. To make full use of computer technology in language teaching and learning, the following issues should be considered.

Location

Computer equipments should not be separated from classes. Instead, computers should be a part of the classroom. When computers are separated and put in language labs or "language learning centers", their benefits are reduced. Scheduling problems, unexpected breakdowns because of others use and class clashes are some examples of problems that may occur in such situations. Instead, the classroom can be equipped with enough computers and the learners can use them when required. Chambers and Bax (2006, p.470) point out that "for normalisation to take place, CALL facilities will ideally not be separated from ‘normal’ teaching space."

Organization

Classrooms with computer technology can be organized in different ways. Some ways will be easier and beneficial for effective use of CALL. There are many ways of organizing computer technologies in classrooms. Chambers and Bax (2006, p.470) point out that "for normalisation to occur, the classroom will ideally be organised so as to allow for an easy move from CALL

activities to non-CALL activities". It is important to locate the proper amount of and right types of technology where teachers and students can effectively use them.

Adequacy

In many cases, the teachers have basic ICT skills and they perceive the benefits of CALL and they are willing to integrate CALL into their instruction, but the resources are inadequate. The inadequacy of CALL resources can occur in different forms. Few computers devoted for language teachers and learners is one of the problems that face CALL integration. . Pelgrum (2001) as cited in Becta (2004, p. 12) found that the most frequently mentioned problem when teachers were asked about obstacles to their use of ICT was the insufficient number of computer available to them. Also, inadequacy of CALL software is considered another issue that hinder CALL implementation. The teacher may not have enough options to choose the suitable software to match the content of a lesson. A third issue is that computers are not connected to the internet

Quality

The quality of hardware, software is a factor that affect the integration of CALL. Preston et al. (2000) as cited in Becta (2004) suggest that teachers are less enthusiastic about using ICT where the equipment available is old and unreliable.

Pedagogical Issues

Technology should be used under the command of pedagogy. Textbooks can be designed in a way that requires CALL materials to be implemented. According to a teacher participated in the study of Park and Son (2009), "having a flexible curriculum is a first step to facilitate technology use in the classroom.

Methodology

Outdated methodologies do not require technology to be used. Old methods don not encourage the use of CALL materials. These approaches neglect the skills that language learners need for their future life. It can be assumed that new methods require new technologies. Therefore, for CALL normalization, recent ELT methodologies are required so that it will urge for CALL implementation.

Textbooks

Almost all of the textbooks used for EFL learners are imported from European countries. Some of them were written for "any users". They may contain some aspects that these learners cannot cope with (for example, to talk or write about famous European film stars). Another issue is that most of these textbooks do not match the time allotted for them. Many units should be taught in a short period. In this case, the teachers tend to finish the book in the prescribed time and then neglect some extra activities especially CALL activities. CALL activities are neglected because they will not appear in the final exams which will be held with pen-and-paper methods. Therefore, to make CALL normalized, the textbooks should be designed to suit the level of the existing learners and match the time allotted for them, and encourage CALL to be implemented.

The Objectives

It seems that many textbooks used for EFL learners do not match the EFL learners' needs and objectives. The selection of textbooks in many cases depends on surface factors such as the publisher, authors, the cost, the availability, and so on. Most of these textbooks are attached with CALL materials (e.g., CD-ROMs and DVDs). However, their use is limited because of many factors. One of these factors is the objectives of these textbooks do not match the needs and objectives of the learners use them. Chambers and Bax (2006, p.474) pointed out that " progress towards normalisation may be enhanced by the use of 'authorable' CALL materials which allow teachers to tailor the CALL activities better to fit the existing syllabus aims, as opposed to the use of imported 'closed' materials."

Socio-Cultural Issues

The implementation of CALL is also influenced by the cultural perceptions of teachers and students. These perceptions are crucial factors for the implementation of CALL at any stage of CALL integration. There are some issues that can be discussed under the socio-cultural issues. The content and fear of influence are among them.

Fear of Influence

The "digital age" facilitates culture transfer. This leads some people to think about anything coming from other cultures. They are afraid of the influence of "foreign" cultures on their young people. To some extent, this may affect the flow of CALL integration. Some CALL materials are not welcomed by these people because they do not match the culture of their

learners. At first stages, local software or modified CALL can be used to overcome this kind of fear.

Institutional Issues

The success of CALL integration also depends on the objectives that the institution had chosen to implement CALL. The institution may implement CALL for quality assurance. It may be because of competition with other institutions. The fashion of ICT labs is an important aspect of modern universities that make many institutions tried to achieve.The level of administrative support to language teachers plays a major role in the success of CALL implementation. Administrative encouragement and rewards to the teachers are important factor to keep the dynamic of teachers in implementing CALL.

Conclusion

EFL contexts need special attention when CALL is implemented. Many issues should be considered. A great shift in the perceptions of language teachers, students and managers towards CALL needs to be manipulated. The integration of CALL should be accompanied with teacher training for the latest trends in language teaching methodologies. CALL practitioners and designers should be aware of the culture of the language learners and their society. Studies are needed to examine the issues of CALL normalization in poor countries. They may find different issues that could be considered.

PROBLEMS AND CRITICISMS OF CALL INSTRUCTION

The impact of CALL in foreign language education has been modest. Several reasons can be attributed to this. The first is the limitations of the technology, both in its ability and availability. First of all, there is the problem with cost and the simple availability of technological resources such as the Internet (either non-existent as can be the case in many developing countries or lack of bandwidth, as can be the case just about anywhere). However, the limitations that current computer technology has can be problematic as well. While computer technology has improved greatly in the last three decades, demands placed on CALL have grown even more so. One major goal is to have computers with which students can have true, human-like interaction, esp. for speaking practice; however, the technology is far from that point. Not to mention that if the computer cannot evaluate a learner's speech exactly, it is almost no use at all.

However, most of the problems that appear in the literature on CALL have more to do with teacher expectations and apprehensions about what computers can do for the language learner and teacher. Teachers and administrators tend to either think computers are worthless or even harmful, or can do far more than they are really capable of. Reluctance on part of teachers can come from lack of understanding and even fear of technology. Often CALL is not implemented unless it is required even if training is offered to teachers. One reason for this is that from the 1960's to the 1980's, computer technology was limited mostly for the sciences, creating a real and psychological distance for language teaching. Language teachers can be more comfortable with textbooks because it is what they are used do, and there is the idea that the use of computers threatens traditional literacy skills since such are heavily tied to books. These stem in part because there is a significant generation gap between teachers (many of whom did not grow up with computers) and students (who did grow up with them).

Also, teachers may resist because CALL activities can be more difficult to evaluate than more traditional exercises. For example, most Mexican teachers feel strongly that a completed fill-in textbook "proves" learning. While students may be motivated by exercises like branching stories, adventures, puzzles or logic, these activities provide little in the way of systematic evaluation of progress. Even teachers who may otherwise see benefits to CALL may be put off by the time and effort needed to implement it well. However "seductive" the power of computing systems may

be like with the introduction of the audio language lab in the 1960's, those who simply expect results by purchasing expensive equipment are likely to be disappointed. To begin with, there are the simple matters of sorting through the numerous resources that exist and getting students ready to use computer resources. With Internet sites alone, it can be very difficult to know where to begin, and if students are unfamiliar with the resource to be used, the teacher must take time to teach it. Also, there is a lack of unified theoretical framework for designing and evaluating CALL systems as well as absence of conclusive empirical evidence for the pedagogical benefits of computers in language. Most teachers lack the time or training to create CALL-based assignments, leading to reliance on commercially-published sources, whether such are pedagogically sound or not.

However, the most crucial factor that can lead to the failure of CALL, or the use of any technology in language education is not the failure of the technology, but rather the failure to invest adequately in teacher training and the lack of imagination to take advantage of the technology's flexibility. Graham Davies states that too often, technology is seen as a panacea, especially by administrators, and the human component necessary to make it beneficial is ignored. Under these circumstances, he argues, "it is probably better to dispense with technology altogether". It's been called CamSoft Collection of CALL Websites (Graham Davie's CALL Glossary), and another very extensive World CALL Directory is the Virtual Encyclopedia collected at http://www.CALL4ALL.us, maintained by John Paul Loucky. It integrates close to 5,000 CALL websites and programs for teaching or learning about 150 world languages, with links to over 7,000 distinct web dictionaries and technical lexicons as well. (For various views and meta-analyses of the effectiveness of CALL, see Felix; Stockwell; and Loucky, John Paul.(2009).

Rody Klein, Clint Rogers and Zhang Yong (2006), studying the adoption of Learning Technologies in Chinese schools and colleges, have also pointed out that the spread of video games on electronic devices, including computers, dictionaries and mobile phones, is feared in most Chinese institutions. And yet every classroom is very well equipped with a desk imbedded computer, Internet connexion, microphone, video projector and remote controlled screen to be used by the teacher for multimedia presentations. Very often the 'leaders' prefer to ban completely Learning Technologies for students at the dismay of many foreign ESL teachers.

Books and exercise books still prevail. In order to enhance CALL for teaching ESL and other languages in developing countries, it would be also crucial to teach students how to learn by themselves and develop the capacity to practice self evaluation and enhance intrinsic motivation. Tests and quizzes should be designed accordingly to encourage and enhance students autonomous practice. Teachers using CALL should be computer literate and trained continuously. Ideally each Foreign Language Department using CALL should hire an experienced Computer Scientist who could assist teachers. That expert should demonstrate dual expertise both in Education and Learning Technologies

CONVENTIONAL TEACHING AND CALL TEACHING

Traditional methods of teaching that are still being adhered to in the schools:

- Teacher-centric classrooms
- Teachers in the mode of knowledge dispensers rather than facilitators
- Chalk and talk methods
- Regimented classrooms
- Lack of collaboration and group learning
- More emphasis on examinations and results rather than understanding of concepts
- Improper alignment between objectives, activities and assessments

Modern methods in use in education

- Technology-driven classrooms
- Continuous comprehensive evaluation
- Cross-curricular connections
- Inquiry-based learning
- Emphasis on understanding of concepts
- Linking curriculum with life
- Emphasis on skill building, life skills and values
- Smart interactive boards
- BYOD – Bring your own device
- Collaborative learning
- Differential learning
- Activity-based learning and learning labs
- Interdisciplinary learning
- Integrative and social responsibility and civic engagement
- Digitisation in teaching, learning assessment and feedback
- Collaborative learning
- Differentiated instruction
- Flipped classroom
- Problem-based learning

Teacher-Centred Approaches	Learner-Centred Approaches
Content	
The content is established by a curriculum, and all learners study the same topics at the same time.	Learners study topics based on curriculum and standards but are allowed numerous choices in a topic of study.
Learners have access to limited information, selected by the teacher or the school library.	Learners have infinite access to unlimited information of varying degrees of quality.
Topics of study are typically isolated and disconnected from each other.	Learners study content in a way that shows connections between subjects.
Learners memorize facts and occasionally analyze information critically. There is little focus on applying facts or Concepts to a variety of real world situations.	Learners learn concepts as well as facts, and frequently engage in high-level analysis, evaluation, and synthesis of a variety of kinds of material. There is an emphasis on showing how concepts apply to a variety of real world situations.
Learners work to find correct answers.	Learners work to construct any one of a number of possible correct answers.
Teachers choose activities and provide materials at the appropriate level.	Learners select from a variety of teacher-provided activities and often determine their own level of challenge at which to work.
Instruction	
The teacher is the information giver—the sage on the Stage—helping learners acquire skills and knowledge.	The teacher is the facilitator—the guide on the side—providing opportunities for learners to apply skills and construct their own knowledge.
Learning starts with what learners do not know.	Learning starts with learners' previous knowledge.
Teaching is an instructive process.	Teaching is a constructive process.
Learners complete short, isolated activities and lessons around specific content pieces and skills.	Learners work on activities and projects connected to long-term goals aimed at building deep conceptual understanding and proficient

	strategy use.
Classroom Environment	
Learners learn passively in an often silent classroom.	Classroom environment resembles an active workplace with various activities and levels of sound depending on the kind of work being done.
Learners usually work individually.	Learners often collaborate with peers, experts, community members, and teachers.
Assessment	
Learners take paper-and-pencil exams, silently and alone. The questions are kept secret until test time, so learners have to learn all the material even though only part of it will be tested.	Learners know ahead of time how they will be assessed, have input into the criteria by which they will be assessed, receive feedback from the teacher and their peers throughout a unit, and have multiple opportunities to assess their own learning.
Teachers are primarily accountable for learner learning.	Teachers and learners share accountability for learning and achievement.
Learners are extrinsically motivated by the desire to get good grades, to please teachers, and to gain rewards.	Learners' interests and involvement promotes intrinsic motivation and effort.
Technology	
Teachers use various kinds of technology to explain, demonstrate, and illustrate various topics.	Learners use various kinds of technology to conduct research, communicate, and create knowledge.

COMPARISON RESEARCH

There's been a lot of talk about how technology in the classroom can enrich the learning experience, giving students multi-sensory, hands-on learning time. New tools such as iPads and even tools with fewer bells and whistles (such as cellphones) are becoming part of many schools' classroom teaching and learning experience.

The argument is that it just makes sense to teach using the tools and methods that students are already using to communicate and learn.The supporters say that it engages the students and can break down learning barriers crating greater student interaction.

In fact, some schools and colleges are experimenting with a new instruction model–the flipped classroom–which has kids listening to lectures via You Tube for homework, and using class time to complete assignments and interact with fellow students. They say that the traditional model is passive, and doesn't challenge the students using the tools that the student is already using.

However, not all schools and colleges think that technology in the classroom benefits learning. Some research actually suggests that the traditional instruction model–teacher lecturing at the front of a classroom while students take note–actually promotes better learning. Some schools firmly believe that traditional is best–going as far as banning computers from the classroom.However, for public schools and colleges facing budget cuts and staffing problems, the blended learning model–incorporating both lecture and self-teaching into lessons–seems to make the most sense. It encourages independence and provides guidance while still giving the structure that students are familiar with.

The traditional teaching approaches are generally teacher-directed and follow cookbook steps of activities and demonstrations. This approach may not provide students with valuable skills or even with a body of knowledge that lasts much beyond the end of the term (Udovic, Morris, Dickman, Postlethwait and Wetherwax, 2002). To enhance the quality of teaching and learning in the classroom non-traditional strategies such as active, cooperative, collaborative and problem-based learning can be utilized.

We must, however, begin with a disclaimer in regards to the utilization of non-traditional teaching and learning strategies. According to Herreid (1998) and the experiences of Harris and Johnson, faculty not trained in establishing non-traditional goals and objectives, implementation methodologies, and assessment techniques are not effective in utilizing these new strategies in the classroom. Traditional university expectations and department philosophies as well as the historical experiences by which faculty have traditionally learned to teach have driven the continuation of the lecture-based model.

Before faculty can consider non-traditional teaching and learning (NTTL) strategies, the first step in developing an active learning environment is to determine where you want your classroom and students to be. Instructors must reflect on their personal goals, their goals for the students, students' needs, and the level and purpose of the course. Next, the instructor must consider the specific knowledge, skills and attitudes each student should acquire during the course (Tanenbaum, Cross, Tilsons, and Rogers, 1998).

Under these circumstances it is very challenging for faculty to successfully initiate and sustain non-traditional teaching and learning techniques. It is imperative that faculty utilize specialized training workshops, newsletters, websites, and centers for teaching excellence to obtain the necessary knowledge, training, and support required to successfully adopt these strategies in the classroom.

PROFESSIONAL DEVELOPMENT

There are notions that students should be trained to learn more autonomously and to gain access to and digest information more independently than has been the case to date, and that the information gained must be converted into accessible knowledge and skills. New organizational and pedagogical models are called for, including ICT for teacher education (using a learning-by-doing-and-reflecting approach), and dissemination / upscaling of successful models..

The new role of the teacher

There is an increasing awareness amongst educationalists, researchers and administrators that the introduction of the new media into educational institutions calls for a change in learning and teaching patterns. The new media will lead to a major change in the culture of learning. The reasons given for this supposition are the learning efforts and learning possibilities linked to the new media. They believe that the new media:

- Call for and facilitate more independence on the part of the learner, more self-directed activities and the organization of learning processes;
- Encourage interactive work;
- Facilitate direct feedback;
- Call for a change in the role distribution of teacher / learner, where learners take on teaching functions;
- Enable contents to be continually updated with minimum efforts;
- Provide faster access to teaching materials.
- Provide greater opportunities for individual forms of learning; but also demand more social learning in group and team work;

Experts, however, emphasize that new teaching and learning media do not automatically lead to a new culture of learning but simply offer the opportunity for change. Teachers' attitudes to the new media and appropriate concepts for their use and for the orchestration of learning will decide whether the desired outcomes can be achieved and whether a major shift in the culture of learning is possible. The pluralisation of learning spaces beyond the institutional context (school,

university, teaching institution) is of particular relevance and will change the character and contents of school-based learning and allow teachers to take into consideration the complexity and individuality of learning. In addition, it should be stated that the new media are not seen as a panacea for teaching / learning problems, nor are they a replacement for present models of language learning. ICT alone cannot provide a comprehensive basis for language learning. ICT must be integrated into present, proven and successful practice if full benefits of their advantages are to be reaped. Their adoption should represent a complement and addition to present models, contributing to an evolution towards the concept of a new culture of learning.

ICT competencies required of language teachers:

Language teachers working in a media-rich environment will, like their counterparts in other disciplines, need to:

- Recognize the individual learning problems of learners;
- Make a careful and considered choice concerning the use of the media;
- Check the truth of information content offered;
- Develop efficient search techniques and be capable of conducting effective research with the help of the computer;
- Be able to use standard software confidently and competently;
- Make wise and critical choices of information found.

New media and the culture of learning

The new media not only facilitate a changed culture of learning in institutional contexts, they also demand such changes. They provide new opportunities and challenges by:

- Offering a wider range of teaching contents (especially teaching methods);
- Enabling more self-directed learning, offering a range of choices, individual learning pathways and freer forms of learning;
- Offering teachers and learners the chance to plan and organise courses together (empowering learners to influence the choice of teaching contents);

- Freeing learning and teaching from the limitations and constraints of the traditional classroom by opening up and using spaces outside the school/ teaching institution;
- Facilitating communication between learners and between learners and the teacher via the internet.

Consequences for teachers

The changed diversity of the media in teaching and learning in schools not only changes the places and the quality of learning, but influences learning processes from a didactic and methodological point of view, requiring special competencies of teachers. Changes in society at large (globalisation, networked environments, working across time, place and cultures) demand new types of working styles and language competencies. At the same time, much language acquisition often takes place in out-of-school contexts, often in online environments, and becomes a strong socialisation factor for learners.

In ICT-rich environments, teachers must above all:

- Improve their didactic competencies linked to media;
- Provide less information and instruction, but offer more consultation in learning processes;
- Monitor learning processes rather than direct them;
- Offer and organise group work to a greater extent.

This means that teachers need to focus on the design of situations, sequences and activities conducive to learning languages by encouraging learners to participate in collaborative efforts. Indeed, the management of learning scenarios, where learners and teachers complement one another's skills, expertise and knowledge in collaborative efforts, must form the basis of the education of the language teachers of tomorrow.

Teachers and CALL

Teachers interested in using technology can get involved in a number of different ways, which can be seen as different teacher roles.

- As researchers: into second language acquisition, human-computer interaction, what works for CALL
- As consumers of CALL for class use or for homework or other outside student activities
- As directors, helping students find and use supplementary CALL materials or web resources
- As managers of computer-mediated communication among learners in and out of class
- As software or web developers, either "from scratch" or adding new materials to existing templates
- As coaches to help students develop software, websites, and general computer literacy
- As CALL experts for your program, helping other teachers and administrators with CALL implementations
- As CALL professionals, consulting on external projects, doing software reviews for journals, making conference presentations, writing papers, interpreting and applying CALL research, and/or providing input to the field at large.

CALL Programs

- Lead teachers to learn to use digital technology appropriately and effectively for language learning and insure their students can do likewise
- Lay out a clear set of targets for judging technology competencies for language learning;
- Motivate teacher educators and teacher education program to integrate technology training and use into their curricula;
- Guide administrators and policy makers as they develop curriculum, arrange training for in-service teachers, and make new hiring decisions

LIMITATIONS - CALL

Actual challenges of implementing CALL

In addition to the advantages and disadvantages stated along the three phases of CALL development for the learning process, taking into account the main guidelines outlined above the actual CALL phase which is continuously developing, updating and improving some other advantages and disadvantages can be identified by teachers of foreign languages. Among the advantages and benefits of integrating a computer during a language learning lesson development notable are the following:

- Computer can promote language interaction between teacher and learners;
- It offers the possibility to simulate some processes and phenomena in motion through animation, and thus some experimental demos;
- Methods and manners of organizing efficiently and modern the educational / learning process;
- Getting used to computer technology from an early age influences students intellectual development;
- It offers the possibility of realising a string of did actic operations which are very important for evaluation and also for developing students creativity;

Some disadvantages that may alter the educational process in general and language learning process as well can be:

- Deterioration of the teacher role in the learning process;
- Division in small sections and well delimited of content leads shortening the matter, favouring those students with analytic thinking, but not those with synthetic thinking;
- Controlling step by step student's mental activity by the teacher stops them from developing creative abilities and entrepreneur spirit and initiative;
- Excessive individualization of learning can lead to denial of the teacher – student dialogue and leads to the isolation of the learning process from its psycho – social context.

Although there are many advantages of computer, the application of current computer technology still has its limitations and disadvantages. Some disadvantages of CALL are as follows:

Less-handy equipment.

According to Ansel *et* al (1992) in Hartoyo (2006, 31), the CAL program is different from traditional books that can be carried around and studied wherever and whenever they wish: on a train, at home, in the middle of the night, and so on. School computers or language laboratory can only be accessed in restricted hours, so CALL program only benefits people who have computers at home or personal notebook.

Increased educational costs.

Gips, DiMattia, and Gips (2004) in Lai (2006) indicated that CALL will increase educational cost, since computers become a basic requirement for students to purchase, and low-budget school and low income students cannot afford a computer

Lack of trained teachers

It is necessary for teachers and students to have basic technology knowledge before applying computer technology in second language teaching and learning. Therefore, computers will only benefit those who are familiar with computer technology (Roblyer 2003 in Lai 2006).

Imperfect current CALL programs

At present, the software of CALL mainly deals with reading, listening, and writing skills. There are some speaking programs have been developed recently, but their functions are still limited. Warschauer (2004) in Lai (2006) stated that a program should ideally be able to understand a user's spoken input and evaluate it not just for correctness but also for '*appropriatness'*. Speaking program should be able to diagnose a learner's problem with pronunciation, syntax, or usage and then intelligently decide among a range of options.

Inability to handle unexpected situations

The learning situation that a second-language learner faces are various and ever changing. Computers merely have artificial intelligence, and it cannot deal with learner's unexpected

learning problem or response to learner's questions immediately as teachers do. Blin (1994) in Lai (2006) stated that computer technology with that degree do not exist, and are not expected to exist quite a long time. In other words, today's computer technology and its language learning programs are not yet intelligent enough to be truly interactive.

Boring

On the other hand, while computers always deliver the same type of information in the same way, teachers in classrooms are very important because they offer various significant examples in order to provide a better understanding of a particular topic, adjusting their pace and rhythm according to the students individual needs. The role of the teacher in the classroom is very important and even though computers have become part of the learning process, helping students with information, it is the teachers that can provide valuable feedback and offer always good information to their students, teach them how to correctly choose the right and genuine sources of information on the Internet and also be creative. In other words, computers are valuable tools for the learning process and the Internet can show a good potential for use during language learning and teaching, but the most important is the human factor, that is the teacher whose role is irreplaceable when it comes to providing moral guidance, to being a mentor who shapes career and social development and encouraging intellectual growth.

Limitations of CALL Cost

Schools may lack funds for CALL implementations. Some CALL hardware and software are very expensive. It is problematic in schools that have limited funding.

The design of good CALL software needs expensive equipment and cooperative team work.

Not all students can access CALL (e.g. the internet). In many developing countries, there is a problem of "have" and "have not" internet between the rich and the poor.

Teacher's Attitudes and Anxiety

ELT teachers may have negative attitudes towards CALL. There is fear that CALL might replace teachers.

- Many ELT teachers are anxious about CALL because they have limited skills and experience in CALL theory and delivery.
- There is fear that the computer might isolate students from social activities.
- Training
- A lot of ELT teachers still lack training and skills in using the CALL, and training costs are high.
- Training learners to use computers takes students' time away from other educational activities.
- ELT teachers may lack the necessary computer-related skills.
- Hardware, Compatability, and Technical Support
- Computer hardware is difficult to install and maintain for classroom teachers.
- Spontaneous language production (e.g. speaking) is still limited by the hardware capabilities such as voice-recognition and voice recording.
- Graphics and sounds provided on the computer are sometimes unrealistic and incomprehensible.
- CALL presentation is sometimes restricted by the capabilities of the hardware (e.g. not enough RAM to run big CD-ROM programs).
- Disk space is still problematic for storing large multimedia files.
- CALL (e.g. CD-ROMs) are sometimes not suitable for all computers, platforms and hardware.
- Web pages appear differently on different computer platforms (e.g. Windows, Mac). It sometimes makes students confused.

Software

There are many poor CALL software programs due to the lack of programmers with linguistic knowledge, language teaching approaches, and experiences.

A lot of CALL software (e.g. Drill and Practice type) focus on teaching separate, discrete language skills and component, ignoring discourse, contexts, and cultures.

Some CALL (e.g. the internet) does not support face to face communication (e.g. E-mail, chat) well, though some present technologies can provide sounds and pictures during communication there are some limitations with speed, sound and picture quality.

A lot of CALL activities (e.g. Behavioristic CALL) are limited to certain types of exercises such as multiple choices, true false, matching, ignoring question-answer interactions.

Conclusion

It is agreeable that technological advancement and development has enabled the application of CALL programs in language learning and instruction, and it has become a new trend recently. Computer technology still has its limitation and weaknesses. Therefore, we must first realize the advantages and disadvantages of current CALL programs before applying them to improve our teaching or to help student learning. In the end, we can avoid the mistake in employing CALL program and get the maximum benefit for our ESL teaching and learning.

Even though computers cannot and should not ever replace teachers for the reasons above mentioned, and even if there are more advantages that favour computer assisted language learning and teaching in a classroom, such developing technology should only be seen as integrated into the learning and teaching process, as part of a daring endeavour in developing a successful educational system. Some considerations must be given to the disadvantages of CALL, such as less handy equipment, high cost of education, lack of trained teachers and of CALL programs of perfect quality and limited capacity of computers to handle unexpected situations. To conclude, CALL has certain advantages and disadvantages and teachers should know the strengths and weaknesses in applying CALL in ESL classrooms. There are a lot of web pages of poor quality. There is a lot of junk on the internet. Teachers need to evaluate internet web pages with great care before downloading or assigning the students to access them. At present CALL software still lacks ability of abstract reasoning and problem-solving processes.

UNIT-V

COMPUTER ASSISTED LANGUAGE LEARNING- SHS5017

CONTENTS

THEORY AND PRACTICE IN CALL - IN FUTURE

Theoretical sources in technology and language learning

Those who venture into a discussion of theory in the field of technology in language teaching and learning must tread carefully. Background and biases may lead one to expect more coherence and consistency than demonstrably exist. Although digital technology has only been a significant component of language teaching and learning for a few decades, the theoretical landscape captured by its researchers and practitioners is already wide-ranging. In a review of theory in a single specialist journal (the CALICO Journal) over the period 1983 to 2007, Hubbard (2008) extracted references to 113 distinct theories across 166 articles. With the exception of a small number of general labels (SLA theory, learning theory, linguistic theory, etc.), these were specific references (activity theory, item-response theory, speech-act theory, schema theory, cognitive theory of multimedia, etc.).

Four primary sources for the theories:

(1) language learning–centred extensions of human-computer interaction or technology in education theories, (2) technology-centred extensions of second language acquisition theories,

(3) learning theories from psychology and education and (4) linguistic theories. Interestingly, across twenty-five years of articles, it identified just one solid reference to a theory developed specifically for this field: Oller's (1996) technologically assisted language learning theory, along with one reference to generic 'CALL theory' and two to 'CMC [computer-mediated communication] theory'. Despite all the work in CALL-specific research and methodology, there appears little at the CALL-specific theory level.

In order to understand the role of theory in CALL, it is not enough to focus just on their number and the diversity of their sources. It is also important to see how these theories are co-opted, combined and potentially evolve as a result of being applied in an environment they were not originally conceived for. To address this issue, Hubbard (2009) introduced a framework for categorizing the type of theoretical presence in CALL works. We next summarize that framework and expand it with two additional categories. The categories presented stand in

contrast to a theoretical CALL (Hubbard 2009), a label that can be applied to studies that have no explicit theoretical connection.

The Practitioners of CALL

The practitioners in the new CALL era must master some basic conceptions and skills. As facilitators, teachers must in many ways know more than they would as directive givers of information. Facilitators must be aware of a variety of material available for improving students' language skill, not just one or two texts. They also need to know how to teach learners to use the material effectively. Teachers as facilitators have to be able to respond to the needs that students have, not just what has been set up ahead of time based on a curriculum developer's idea of who will be in the classroom. Therefore, the practitioners themselves should obtain some basic skills which include: word operating and editing, electronic communication, simple internet front-page making, web resources searching, reorganizing and reusing, e-exercising and e-testing, and etc. Only with these concepts and skills, can the practitioners take advantage of the new era of CALL practice.

The Role of CALL

Previously, it was used mainly for drills and exercises. Technological and pedagogical developments now allow us to better integrate computer technology into the language learning process. Multimedia programs incorporating speech-recognition software can immerse students into rich environments for language practice. Varied Software and large language corpora provide students' the means to investigate language use in authentic context. And the Internet allows for a great number of opportunities to communicate in the target language and multimedia information. Future developments in networked communication, multimedia, and artificial intelligence will likely converge, creating a potentially more central role for the computer as a tool for authentic language exploration and use in the second language classroom (Warschauer & Healey, 1998). As our focus of attention gradually shifts from the computer itself to the natural integration of computers into the language learning process, we will know that computer technology has taken its rightful place as an important element of language learning and teaching.

Teachers' preferences in CALL practice

The teachers in the study agree that computer technologies are helpful for enhancing students' language learning. They prefer to use a Word Processor, PowerPoint, the Internet and CD-ROMs in the classroom as teaching tools. Among the tools, they consider the Internet and CD-ROMs as the most effective teaching aids in their teaching. In spite of limited computer facilities at schools, they tend to believe that the Internet can be used in various ways and provide students with opportunities to engage in real and authentic learning, which is in great demands in Korean EFL contexts. They also agree that teachers and students can communicate with native speakers of English with computer-mediated communication (CMC) tools over the Internet. Such experiences can help language learners develop their communicative competence through interaction with other people, practice the language beyond the classroom and understand cultural diversities. It is in line with current Korean EFL education, which is focused on the development of learners' communication ability to use the language in socially, contextually and culturally appropriate contexts. The teachers are convinced by their own experiences with computers that CALL can make the class more appealing to students and increase students' motivation. They seem to accept the Internet as a valuable source of information for experiencing foreign culture and understanding people with different backgrounds.

Although all teachers in the study perceive that the Internet can be a powerful tool in language learning and teaching, however, they report that they cannot employ it directly in the classroom for a number of reasons (e.g., teachers' lack of computer skills, strict curricula and insufficient time). They also insist that they need to adapt Internet-based resources and materials in a way to respond to the needs and levels of students. The teachers tend to employ CD-ROMs most frequently in their teaching since the Ministry of Education (MOE) in Korea had developed software on the basis of textbooks and approved its use for each grade level. Once textbooks and CD-ROMs have been developed and approved by MOE as authorized educational tools, they are distributed in the whole country and, as a result, teachers are expected to use the CDROMs in language classrooms for 6-7 years. Eleven teachers report that they use the CD-ROMs simply due to the ease of use. Nevertheless, they recognize the

disadvantages of using the CD-ROMs excessively. The teachers point out that the fact that they depend on the CD-ROMs too much influences their teaching styles and attitudes toward the preparation of class negatively. According to them, it is possible to teach students without any preparation of additional teaching materials even though there are problems of upgrading and selecting level-differentiated contents of the CDROMs. They also state that they have never been asked to respond to questionnaires, surveys or interviews regarding their experiences in using educational tools such as CD-ROMs. In order to meet the demands or needs of teachers, therefore, the MOE and educators should make their efforts to develop appropriate software programs and textbooks that reflect teachers' and students' needs and interests and encourage their active involvement in developing and upgrading the educational tools. Also, individual teachers need to find ways of using the Internet and CD-ROMs effectively although they are facing difficulties in their teaching contexts.

CALL SOFTWARES

Viewed against the CALL history in terms of the global context, CALL in India seems to have no history. Computers applied for educational purposes are only a very recent event. Nevertheless, the turn of the millennium witnessed cyber rush in India with some CALL faculties established within a very short space of time (Gu, 2006). So China seems to have bypassed the pre-network CALL and stepped straightway into Web-based CALL. In the new context, we must confront some issues of practice on CALL. A. The Model and Pedagogy of CALL Generally speaking, there are three kinds of CALL models: 1) computer supported classroom teaching, 2) hybrid teaching, and 3) completely online course, long distance or local (Xie, 2007).

New technologies do not only serve the new teaching/learning paradigms, they also help shape the new paradigms. The very existence of networked computers creates possibilities for new kinds of communication. A pedagogy of networked computers must therefore take a broad view, not only examining the role of information technology in language learning, but also the role of language learning in the information technology society. If our goal is to help students enter into new authentic discourse communities, and if those discourse communities are increasingly located online, then it seems appropriate to incorporate online activities for their social utility as well as for their perceived particular pedagogical value. B. CALL Software and Resources on Internet Where the computer is not seen as a substitute for a teacher, smaller, more limited, but more flexible software that individual teachers will use as an add-on to instruction or that will be placed in libraries as language references and resources would be more welcomed and practical. Language teachers could easily acquire this category of software, with hundreds of programs available.

However, we must design some software with the thought of providing an integrated teaching solution--something that will (1) provide realistic, native-speaker models of the language in a variety of media, (2) offer a language learning curriculum,(3) do a needs assessment, (4) determine the best next step for the learner and provide practice with that skill area,(5) record

what the student has done, along with an evaluation ,(6) be available at any hour and require no

additional pay or benefits (Warschauer & Healey, 1998). One of the great benefits of the growth of multimedia is that software vendors (and language teachers) no longer feel bound to grammar practice as the main goal of computer use in the language classroom. While the process has taken longer in the foreign language arena than in English language teaching, the movement toward communicative teaching with computers is clearly taking place (Warschauer & Healey, 1998). There are still a great many grammar and vocabulary drill programs available, but at least the vocabulary ones have started to be contextualized and to incorporate graphics, audio recording and playback, and video. Drills do have a place in language learning, particularly in the first stages of vocabulary acquisition where giving the same information in multiple modes, such as visual plus aural plus textual, enhances recognition and recall (Warschauer & Healey, 1998). More sophisticated error-checking can provide students real help in the feedback they receive, directing them to further practice or moving them to the next stage. Those who do need extra help with those aspects of language that improve with practice can use small, focused programs to give them additional time and assistance outside of regular class time.

Another direction in current software is the integration of media. As computer storage and memory prices have dropped, software developers have been able to add in graphics, sound, animation, and video clips. Foreign language teachers are particularly helped by access to a variety of media to help make the language come alive to students for whom it is largely a distant abstraction. This trend can only accelerate, with faster and more powerful computers making longer video and sound clips practical. Intelligent CALL will fit the medium to the learner, ensuring that the media work in concert to enhance understanding. Developers need to restrain the urge to add anything and everything just to make a fancy-looking product, and instead focus in on selecting media to fit pedagogy, not vice-versa (Kozma, 1991). Hence, students can obtain large quantities of language data and the tools to examine the "data-driven learning". They can then build their own explanations of how language works. Having discovered the linguistic rules themselves, students are more likely to remember and use them through resources on internet.

RESEARCH ON CALL

Just as the paradigms of CALL have changed, so has research on the role of computers in the language classroom. Early CALL research focused mostly on the language performance of students who had used CALL programs, attempting to determine whether those programs were superior to other methods for maximizing structural accuracy. The cognitive paradigm brought about research that looked at the development of individual processes, strategies, and competencies, using measures such as motivational surveys, observations, recordings of keystrokes, and think-aloud protocols. The socio-cognitive paradigm and an emphasis on learning through computer networks have brought about a focus on the way that discourse and discourse communities develop during use of computer networks (Kern & Warschauer, 2000).

Language Teachers and CALL

Current advances in ICT have changed the roles of language teachers and learners. Learners are expected to be active participants in the learning process rather than passive recipients since they control their own learning in a technology-enhanced learning environment (Brown, 1991). Teachers encounter new demands of those learners in integrating new technologies into the second/foreign language classroom. They also look for better ways of providing students with linguistic skills, meaningful communication and culture. Lam and Lawrence (2002) found that using computers in a communicative classroom brings about the shift of traditional teacher-student roles. In the technology-enhanced environment, learners could manage their own learning process by gathering information and negotiating meaning themselves. The classroom became more learner-centred, that is, learners were able to make their decisions and became responsible for their work more independently. The teacher, on the other hand, became a "facilitator, a resource person and a counselor rather than the only authority and decision-maker" (p. 305). Bancheri (2006) also asserts that the role of teachers in the new era of technology is not only to transmit new knowledge, but to give students tools to acquire knowledge and recognize the value of what they see in books and software as well as on the Internet. In addition, Jeong (2006) emphasizes that the role of teachers in EFL settings is more crucial than ever before because teachers are able to motivate students and try to create language learning environments

which are nonthreatening, meaningful and affectively supportive by using Web technology. Transition from conventional teacher-centred teaching to computer-assisted, learner centred learning requests teachers to be adequately prepared to work in Web-based environments (Rilling, Dahlman, Dodson, Boyles & Pazvant, 2005). In order to cope with technological paradigm shifts effectively, therefore, teachers need to become familiar with Web technology and have technical competence required to accommodate CALL applications and use various functions of the applications for educational purposes (Cunningham, 2000). If language teachers have a variety of positive teaching and learning experiences in using computers, they are likely to be more confident and skilful in implementing CALL in their own classrooms. Therefore, teacher development programs should be provided for language teachers to deal with issues of using computers (Jung, 2001; Lee & Son, 2006; Son, 2002, 2004; Suh, 2004) and gain competent skills in managing computer-based tasks and activities in the classroom (Johnson, 2002; Oh & French, 2007).

CALL implementation

As CALL can be enriched by teachers, teachers' views on CALL implementation are crucial. Considering that CALL activities should be integrated into the existing curriculum according to learners' levels of language and computer literacy, teachers need to explore the full potential of CALL programs and utilize them creatively in the classroom. Liu, Theodore and Lavelle (2004) insist that teachers' attitudes or concerns about technology can influence successful technology integration. This is in line with the argument put forward by Atkins and Vasu (2000), who argued that teachers' technology use and knowledge are significantly related to their confidence level. Similarly, Lam (2000) notes that teacher confidence is influential because a lack of confidence can hinder teachers' use of technology in the classroom. Rakes and Casey (2000) also stated that teachers must be comfortable with technology and have positive attitudes toward technology integration to improve students' achievement. They added that teachers' concerns on technology use need to be considered because they affect teachers' behaviour. This implies that teachers' personal comfort with technology is essential for the successful integration of technology. Several researchers (e.g., Egbert, Paulus & Nakamichi, 2002; Lam, 2000; Oh & French, 2007; Yildirim, 2000) found that, as a result of teacher training programs, teachers improved their capabilities with computers, gained confidence with technology and expressed

the view that teacher development programs influenced their attitudes toward technology positively. For instance, Yildirim (2000) examined changes in pre-service and in-service teachers' attitudes toward computers following their participation in an educational computing class and explored factors that contributed to their computer use. All of the participants agreed that the computing class had positive effects on their attitudes and helped them gain more confidence in the use of computers. This finding is well supported by other researchers (e.g., Arnold, Ducate, Lomicka & Lord, 2005; Egbert, Paulus & Nakamichi, 2002; Han, 2006; Johnson, 2002; Jung, 2001; Lam, 2000; Liu, Theodore & Lavelle, 2004; Luke & Britten, 2007; Oh & French, 2007) who assert that teacher education programs should be beneficial for pre-service and in-service teachers in fuller integration of technology into the curriculum. Egbert, Paulus and Nakamichi (2002) discovered that teachers who had previous experience with technology use were more likely to use CALL activities in the classroom. They added that peers and colleagues are the most common resource of finding out about new CALL activities. The results of their study indicate that teachers are likely to learn best by observing fellow teachers' class and teaching methods used in actual classrooms, trying out new techniques, getting feedback on their teaching and talking to colleagues and fellow teachers. With similar views of teacher education, Jung (2001) claims that school-based, workshop style technology training programs should be introduced, where well-trained colleagues help less skilful teachers use technology in their classrooms and tutor each other on a one-on-one basis. Interestingly, a study conducted by Bax (2003) indicates that many people have excessive beliefs on computer technology in language learning. In other words, they tend to think that CALL should do everything and replace current teaching tools such as dictionaries and even the teacher. This leads to a misguided assumption that the mere existence of computer technology in schools was the only relevant factor in achieving successful implementation of CALL, while all other crucial factors such as teacher training, pedagogical support and ways of CALL integration had been neglected. To avoid the mistaken idea, which is an obstacle influencing the implementation of CALL International Journal of Pedagogies and Learning, 5(2). November 2009 (Bax, 2003), it is important to note that CALL practitioners should take into account various elements, including teachers' perspectives of and attitudes toward the use of technology, for achieving the successful implementation of CALL.

Factors Influencing CALL Implementation

A number of studies (e.g., Atkins & Vasu, 2000; Egbert, Paulus & Nakamichi, 2002; Jung, 2001; Kim, 2002; Lam, 2000; Lee & Son, 2006; Shin & Son, 2007; Suh, 2004; Yildirim, 2000) indicate that factors such as teacher training and computer facilities, teachers' attitudes toward computers and prior teaching experiences with ICT are strongly related to the success or failure of CALL in the classroom. They also point out external or environmental factors (e.g., financial problems, strict curriculum) and teacher-related factors (e.g., pedagogical, affective or other personal attitudes and beliefs). Specifically, financial problems, insufficient materials and time, lack of technical support and inflexibility of curriculum are mentioned as common external barriers affecting CALL practices. A report on American public teachers' use of technology (Smerdon, Cronen, Lanahan, Anderson, Iannotti & Angeles, 2000) also reveals that insufficient numbers of computers and lack of time for teachers to learn how to use computers or the Internet are great barriers to their use of computers for instruction. In the Korean context, additionally, Lee and Son (2006) found that Korean EFL teachers have difficulties in finding appropriate teaching materials and inconvenience of the use of computer labs hinders their willingness to use CALL. External factors such as time constraints (Lam, 2000; Smerdon et al., 2000), limited computer facilities (Shin & Son, 2007), lack of financial or technical support (Lam, 2000; Shin & Son, 2007; Smerdon et al., 2000; Toprakci, 2002), inadequate teacher training and inflexible curricula (Lam, 2000; Smerdon et al., 2000) may lead to failure to technology use. Other external barriers related to individual contexts or work environments are poor Internet access, limited capacities of school network and inadequacy of technical support. The limitations stemming from those external factors seem to focus on computers and work environments, not on teachers. Internal factors, on the other hand, stemming from teacher-related problems include teachers' lack of ICT knowledge and resources, lack of experience with ICT as a learner and no access to appropriate materials and models of teaching with ICT (Kim, 2002; Lam, 2000). Since teachers somehow tend to teach in the same manner they were taught in the past, teachers' own previous experiences with technology are critical factors determining CALL implementation (Egbert, Paulus & Nakamichi, 2002). The characteristics of internal factors are invisible and unnoticeable when compared to external factors which are easily recognizable. In addition, it is important to consider that there are other barriers related to teachers' perspectives, personal attitudes, beliefs, confidence, motivation and awareness of the advantages of technology. Atkins and Vasu (2000) regard teachers as one of the most important factors influencing technology use and argue that

teachers' attitudes or concerns have a significant impact on the integration of the computer into the classroom. Kim (2002) also agrees that a teacher as an individual with complex internal variables is a key element affecting the use of the computer in the classroom. This research suggests that teachers who have basic computer competencies are more confident in using computers and are more likely to integrate computers into their teaching than those who have not.

PRACTICAL APPLICATIONS USING DIGITAL LAB

How Teachers Can Overcome Obstacles to Computer Assisted Language Learning

Although its possibilities are alluring—working with technology is guaranteed to be fun and attention-grabbing—it has been challenging for educators to make the most of CALL. Technology in the classroom is a moving target, a constantly-evolving landscape. There's always some new technology or educational tool in the works. Plus, struggling with limitations of budget and the even more stringent limitations of time, teachers often feel that the successful use of CALL in their classrooms is beyond their reach.

The More Things Change, the More They Stay the Same

Do you use some of the same methods employed by your favorite language teacher? Perhaps there was a game he or she liked that your students now love to play, or perhaps you use some of the same clever catchphrases to help your students remember grammar concepts. At its heart, the teaching and learning process remains the same as it's always been. However, this process has also been impacted by rapid and profound changes in the larger culture. With technology and digital media permeating every aspect of our world, educators can no longer easily ignore their challenges and possibilities. The fact that students can easily find superficial answers to all their questions online has upped the ante in terms of providing them with a meaningful educational experience and homework that puts their knowledge to the test.

Our role has gradually evolved from "sage on the stage" lecturer to that of guide and coach in a digital landscape of information overload. Learning is no longer solely confined to the classroom, as students can access it anywhere at any time. Our task has become to show students how to make meaning out of this deluge of tools and information. The sobering reality is that most of the jobs our students will have don't even exist yet.

Fortunately, there are some reliable resources for language learning to help you navigate this new territory. Some are apps or tools that you can use to present information or to assign meaningful learning tasks. Others are websites that provide engaging possibilities for homework

or in-class practice. And don't forget that CALL can be part of your learning experience too, giving you many convenient opportunities to connect with other teachers and build your personal and professional networks.

Tips to Incorporate CALL Tools Effectively

Now that you have a host of resources at your disposal—as you'll soon discover below—how can you incorporate them into your classroom? Here are some ideas.

- Technology must support the lesson, not the other way around.
- Your instructional goals should always drive your decisions about technology.
- Don't become so excited about a great new website or app that you lose sight of your objectives.
- Create stations.
- Give your students specified areas in the room to store their devices.
- Put them aside when you need to focus on something else.
- Solicit student feedback frequently.
- Be sure to survey them often and make adjustments as necessary.
- Choose tools that work best for you. Not every tool works for everyone.
- Try out new apps and tools often.

PLEASE REFER

https://edvista.com/claire/relo/resources.html

INBUILT LEARNING ACTIVITIES

Making a plan. Although any activity that supports building and maintaining technology skills is helpful, a useful step in professional development is planning and commitment to the plan. This does not mean laying out in detail a fixed series of steps over a period of months or years, but it does mean setting one or more short-term objectives with a connection to a longer-term goal. This objective could be exploration, education, or a project for example. Project-based learning is particularly powerful here (see Debski, 2006, for an example) both because of the depth of learning it entails and because of the motivational element of producing something of educational value for the teacher to bring into his or her classroom. The process of learning through a project should involve considering why and how to do it, doing it, and reflecting both along the way and at the end. To this end, it is useful to keep a journal (and why not make it a digital one), to record thoughts and experiences to document the journey. If formalized, this material can become part of a professional digital portfolio (van Olphen, 2007).

Processes

There are a number of ways to proceed in professional development. These can be accomplished through formal classes, workshops, or self-directed individual or collaborative learning. Reflective learning, often with a nod to constructivist principles, is an important part of any of these processes (Slaouti & Motteram, 2006), especially when supported by journals or portfolios. When the learning is situated (Egbert, 2006), preferably in the teacher's own classroom setting, it is more likely to be relevant and retained.

Professional Journals.

Academic journals provide a means to sustain a general knowledge base in CALL as well as to gather support for development of specialized skills in the field. Three are of note because of their accessibility. Language Learning & Technology, the most highly ranked journal in the field, is freely available online at llt.msu.edu. The CALL Electronic Journal (callej.org) similarly has all issues available for free. Current issues of the CALICO Journal are open only to subscribers, but articles over three years old are available free online at http://www.equinoxpub.com/journals/index.php/CALICO.

Web sites.

A number of Web sites exist to provide support for particular areas in CALL. For those looking for a general overview of the field, the Foundations of CALL Web site, updated annually, provides a useful source at http://web.stanford.edu/~efs/callcourse2. A collaborative Web site offering a wide range of tagged resources is the TESOL CALL Interest Section's Virtual Software Library at https://www.diigo.com/user/Call_is_vsl.

Formal study.

Besides the CALL-oriented courses found within degree programs, there are other opportunities for formal study to be found. TESOL offers a certificate in the principles and practices of online teaching (http://www.tesol.org/attend-and-learn), and www.theconsultants-e.com has a range of both standalone and certificate programs. In these and similar cases, there is the advantage of using the online environment to experience online learning firsthand.

CoPs.

Professional organizations along with special interest groups (SIGs) offer CoPs, allowing support from peers and more knowledgeable colleagues. For English language teaching, these include TESOL's interest sections for Computer-Assisted Language Learning (www.call-is.org) and Video and Digital Media (http://www.tesol.org/connect/interest-sections/video-and-digital-media) as well as affiliate organizations such as California TESOL's Technology Enhanced Language Learning interest group (https://tellig.wordpress.com/). IATEFL has the Learning Technologies SIG (ltsig.org.uk). Other professional groups specializing in language learning and technology offer opportunities for further learning as well. CALICO (www.calico.org), IALLT (www.iallt.org), EUROCALL (www.eurocall-languages.org), PacCALL (www.paccall.org), and APACALL (www.apacall.org) are examples of international and regional organizations bringing together teachers, developers, and researchers through discussion lists, workshops, and conferences. Outside the structure of professional organizations, there are informal groups such as learning2gether.net. Learning2gether is particularly useful because the presentations and discussions have been archived at http://learning2gether.net/page/9/ for those unable to attend when the online sessions are streaming live.

TESOL Electronic Village.

Every year at the TESOL convention, the CALL interest section operates the Electronic Village, supporting workshops, demonstrations, and discussions for professional development as well as "drop in" opportunities for those interested in learning more about the field. The schedule of events is typically available at www.call-is.org prior to the conference.

TESOL Electronic Village Online (EVO).

A more lengthy learning experience, and one free to anyone interested regardless of TESOL Membership, EVO offers a series of online workshops each lasting five weeks in January and February every year. Unlike traditional online classes, these tend to be more collaborative ventures guided by groups of volunteer moderators. Thirteen were offered in 2015:

see http://evosessions.pbworks.com/w/page/10708567/FrontPage or www.call-is.org for more details.

MOOCs.

MOOCs are educational and professional development opportunities typically offered for free at no charge. Of interest here are those that involve ESOL and technology. Examples include one for multiliteracies, MultiMOOC, offered regularly as an EVO session at **https://plus.google.com/communities/104523567430842485789**.

PROFESSIONAL ASSOCIATIONS

The following professional associations are dedicated to the promulgation of research, development and practice relating to the use of new technologies in language learning and teaching. Most of them organise conferences and publish journals on CALL.

APACALL: The Asia-Pacific Association for CALL: Organises the Globalization and Localization in Computer-Assisted Language Learning (GLoCALL) conference jointly with PacCALL.

AsiaCALL: The Asia Association of Computer Assisted Language Learning, Korea. AsiaCALL publishes the AsiaCALL Online Journal.

Association of University Language Centres (AULC) in the UK and Ireland.

CALICO: Established in 1982. Currently based at Texas State University, USA. CALICO publishes the CALICO Journal.

EUROCALL: Founded by a group of enthusiasts in 1986 and established with the aid of European Commission funding as a formal professional association in 1993. Currently based at the University of Ulster, Northern Ireland. EUROCALL's journal, ReCALL, is published by Cambridge University Press. EUROCALL also publishes the EUROCALL Review.

IALLT: The US-based International Association for Language Learning Technology, originally known as IALL (International Association for Learning Labs). IALLT is a professional organisation dedicated to promoting effective uses of media centres for language teaching, learning, and research. IALLT publishes the IALLT Journal.

IATEFL: The UK-based International Association of Teachers of English as a Foreign Language. IATEFL embraces the Learning Technologies Special Interest Group (LTSIG) and publishes the CALL Reviewnewsletter.

JALTCALL: Japan. The JALT CALL SIG publishes The JALT CALL Journal.

IndiaCALL:The India Association of Computer Assisted Language Learning. India

CALL is an affiliate of AsiaCALL, an associate of IATEFL, and an IALLT Regional Group.

LET: The Japan Association for Language Education and Technology (LET), formerly known as the Language Laboratory Association (LLA), and now embraces a wider range of language learning technologies.

PacCALL: The Pacific Association for Computer Assisted Language Learning, promoting CALL in the Pacific, from East to Southeast Asia, Oceania, across to the Americas. Organises the Globalization and Localization in Computer-Assisted Language Learning (GLoCALL) conference jointly with APACALL.

TCLT: Technology and Chinese Language Teaching, an organization of Chinese CALL studies in the United States, with biennial conference and workshops since 2000 and a double blind, peer-reviewed online publication-Journal of Technology and Chinese Language Teaching since 2010 and in-print supplement Series of Technology and Chinese Language Teaching in the U.S. with China Social Sciences Press since 2012.

WorldCALL: A worldwide umbrella association of CALL associations. The first WorldCALL conference was held at the University of Melbourne in 1998. The second WorldCALL conference took place in Banff, Canada, 2003. The third WorldCALL took place in Japan in 2008. The fourth WorldCALL conference will take place in Glasgow, Scotland, 2013.

FUTURE OF CALL

Intelligent CALL

A subfield that continues to hold interest in fulfilling an earlier promise of CALL, where the computer would take on more of the role of the teacher, is that of intelligent computer assisted language learning, of ICALL (also referred to as NLPCALL for "natural language processing", at least for some applications). There are at least three possible objectives for ICALL. One, perhaps the best developed to date when the domain is restricted, is the ability to identify errors in student input and provide feedback so that the student can address them (Nagata 1993; Heift 2002). A second area is the ability to manage a student's learning based on building a model of the student's achieved proficiency and providing materials and tasks appropriate for further development at that level. A third area is the capacity to interact with the student through conversational agents, programmed entities that simulate the linguistic facility of a human interlocutor, reacting and responding appropriately to student input. These can either be dedicated programs as part of a language lesson, (Bernstein, Najmi & Ehsani, 1998) or chatbots, which maintain conversations through a clever mix of set responses and integration of keywords (Coniam, 2008). Some progress has been made toward each of these objectives, but ICALL use remains fairly limited at present. Future Directions So where is CALL headed at the time of this writing? There are at least three relatively new areas already being developed by CALL practitioners that look promising. One is linked to the proliferation of what has been called Web 2.0, a more participatory version of the web with greater collaboration and democratization, including social networks like Facebook (http://www.facebook.com), folksonomies (social tagging and indexing) replacing taxonomies, text publication through blogs, video publication through sites like YouTube (http://www.youtube.com), and collaboration through wikis, including massive collaborations like Wikipedia (http://www.wikipedia.org). A second is mobile language learning, which offers the opportunity for ubiquitous connection with language learning materials and applications. Research is already providing some direction to this frontier (e.g., Thornton & Houser, 2004) and as the distinction between "computer" and "mobile phone" becomes more blurred, we can expect to see further developments. The third area is that of virtual worlds, where learners in the form of avatars explore, create, and interact through chat and increasingly voice with one another and other denizens of these domains. Already EuroCALL has set up a virtual headquarters in one of these worlds, Second Life

(http://www.secondlife.com). 14 As pointed out at the beginning of this paper, CALL is a dynamic field that changes rapidly because the technology that helps to define it changes rapidly. Thus, even the newest material in the volumes in this set is in a sense obsolete by the time readers encounter it. In fact much of it falls into what Levy and Stockwell (2006) would label established rather than emergent CALL, and some of it may appear on the surface to have limited relevance to today's technology and learning environments. I believe, however, that looking a bit below the surface, there are valuable lessons to be learned. Asimov (1964), writing about his experiences as a graduate student presents a cautionary note to those who would ignore or dismiss the contributions of the past: "I had fallen victim to the fallacy of the 'growing edge'; the belief that only the very frontier of scientific advance counted; that everything that had been left behind by that advance was faded and dead" (p. ix). "If the growing edge only is studied," he continues, "science begins to seem a revelation without a history of development" (p. x). As the field of CALL keeps evolving and more of what astounds us today becomes commonplace, it is hoped that the articles in Computer Assisted Language Learning: Critical Concepts in Linguistics will continue to capture valuable insights about where we have come from to help provide a foundation for understanding where to go next.

Factors affecting CALL implementation in the classroom Although most teachers in the study have accepted the usefulness of technology and somehow utilized computers in the classroom, they are confronting a number of difficulties or barriers in CALL implementation. The results of the study confirm several factors that have already been identified in previous studies (e.g., Albirini, 2006; Egbert, Paulus & Nakamichi, 2002; Kim, 2002; Lam, 2000; Lee & Son, 2006; Shin & Son, 2007; Smerdon et al., 2000; Yildirim, 2000). External factors such as limited time, insufficient computer facilities at school, inflexibility of curriculum and textbooks, lack of administrative support from the school or the government and pressure from the society are closely related to educational environments or contexts. On the other hand, internal factors such as teachers' limited computer skills and knowledge about CALL and their perceptions of and attitudes toward CALL are directly related to teachers. It appears that these external and internal factors affect the implementation of CALL significantly. Limited time is one of the most common barriers that influence teachers' use of technology in the classroom. It seems time-

consuming for teachers to search for appropriate on-line materials and use them together with textbooks to meet the levels and needs of students. Teachers' lack of computer skills and knowledge, in particular, make them uncomfortable in front of a class and add extra time for preparing teaching materials and resources. This indicates that teaching with computers requires more time and effort from teachers. A lack of computer facilities in school also prevents teachers from using computers actively in the classroom. Technical difficulties such as outdated computer hardware and software and Internet connection problems also discourage teachers to use computers. This means that teachers need better technical support and more advanced computer facilities to use CALL effectively for teaching purposes. Another obstacle to CALL implementation perceived by the teachers in the study is the difficulty of using on-line resources within the existing curricula. The teachers assert that they must follow strict teaching plans and class schedules given by the MOE. Teachers' instruction, class activities and evaluation plans have to be suitable for the standard of the national curriculum. Several teachers also point out that a lack of administrative support influences their use of CALL. They state that there never seems to have enough time to prepare Internet-based materials and to incorporate CALL activities with the contents of textbooks since they are confronted by an overwhelming amount of administrative work. The results of the study also indicate that social pressure can have a negative or positive impact on teachers' decision about the use of CALL, material preparation, activity design, class management and lesson planning. While four teachers have negative feelings about social pressure and expectations from others, three teachers assert that they should do their best to meet the demands from the school and society as an innovative teacher. They add that the pressure makes teachers be frustrated and discouraged at first, but eventually it is a driving force or a facilitating factor to improve their teaching skills and knowledge. They emphasize that teachers should participate in teacher training actively to improve their computer skills and build up self-confidence. At this point, it seems certain that teachers' positive attitudes toward social demands and enthusiasm for professional development significantly influence their willingness to utilize CALL in the classroom. These findings suggest that the difficulties and obstacles teachers encounter in their teaching situations affect the implementation of CALL. Therefore, teachers should look for possible ways to overcome those external and internal barriers that influence their decisions on the use of CALL. They need to accept and respond to the changes to educational environments. To do so, they should participate in teacher

development programs actively and make personal efforts to apply what they have learned to their own teaching contexts.

Suggestions for improving CALL practice For the implementation of CALL in the classroom, the teachers in the study suggest that well-equipped computer facilities, language labs and appropriate technical and administrative support should be provided. The teachers also urge the need for reconsidering current textbooks and national curriculum for CALL practice. They also emphasize the importance of the improvement of the CD-ROMs they use frequently in the classroom. They insist that their CD-ROMs need to be upgraded and adjusted to meet the demands of teachers and students. This implies that teachers' decision to use CALL in the classroom can be influenced by the availability of resources, convenience of tools and their personal experiences.

Practice. On-going teacher training should be organized and conducted to improve teachers' confidence and competence in the use of CALL with positive views of CALL. Although the findings of the study cannot be generalized due to the small sample size and limited reflection of a particular teaching context, they offer several theoretical and practical implications for effective CALL implementation in EFL contexts. First, it is suggested that teachers should be provided with well-equipped computer facilities and technical and administrative support. Even though teachers have positive attitudes toward CALL, limited availability of computer facilities can make them feel discouraged to use CALL. If sufficient computer facilities assisted by technical support are available at schools, teachers would be inspired to use CALL actively in their classrooms. Second, in order to reduce the discrepancy between teaching with technology and existing curricula, educators who develop educational software and language programs should make links between textbooks and curricula in line with CALL pedagogy. Third, educators should develop level-differentiated CALL software programs to respond to students' needs, interests, backgrounds and learning styles. The programs must be upgraded regularly to reflect feedback from teachers and students. Fourth, school-based small group teacher training is recommended because it can provide individual teachers with sound pedagogy and practical skills for CALL. It can be based on one-to-one or small group tutoring in order to give teachers enough opportunities to practice necessary computer skills and teaching methods applicable to

their classrooms. Through this kind of training, teachers can acquire computer literacy and integration skills, develop positive attitudes toward CALL and build up supportive and collaborative relationships with colleagues at their schools. Fifth, CALL-related organizations, communities or ESL/EFL Websites for local teachers can be helpful for sharing valuable teaching experiences with CALL, creative ideas, useful information and resources with others. Through on-line discussions or off-line meetings, teachers can discuss practical issues of CALL with other teachers. Finally, teachers need to have positive attitudes toward the changes of society and technology use. Teachers' personal beliefs of the advantages of CALL are helpful for improving their self-confidence and practical teaching skills. Therefore, it is important for teachers to make personal efforts to set up learning goals, prepare authentic materials suitable for the level of students and integrate them into the classroom.

SELF DIRECTED LEARNING

"*In its broadest meaning, 'self-directed learning' describes a process by which individuals take the initiative, with our without the assistance of others, in diagnosing their learning needs, formulating learning goals, identify human and material resources for learning, choosing and implement appropriate learning strategies, and evaluating learning outcomes."*
Self-directed learning can be challenging, even for the brightest and most motivated students. As a means of better understanding the processes involved in this mode of study, this tip sheet outlines key components of four key stages to independent learning – being ready to learn, setting learning goals, engaging in the learning process, and evaluating learning – and offers some tips for both faculty members and students.

Background

The concept of self-direct learning first appeared as a viable concept the 1970s. While it has experienced success in higher education, it has not been readily adopted by the corporate sector. Where it has, for all intents and purposes, it has been adopted in name only. Letting employees choose what training programs they want to attend or modules they want to study is not self-directed learning as originally conceived by Malcolm Knowles.Until now there has not been an articulated approach to implementing self-directed learning in the world of corporate training. Self-directed learning represents a major paradigm shift in thinking about the responsibility for workplace learning. In addition, it offers practical benefits for organizations in keeping their employees skills up-to-date in a cost-effective manner.

Being ready to learn

Various skills and attitudes towards learning are required for successful independent study (See the Centre for Teaching Excellence (CTE) teaching tip on "Readiness to Learn"). This step requires time for analyzing a student's current situation, study habits, family situation, and support network both at school and at home – and as they continue in the program, progress in degree program and past units taken that will prove useful. Signs of readiness for self-directed learning include being: autonomous, organized, self-disciplined, able to communicate

effectively, and able to accept constructive feedback and engage in self-evaluation and self-reflection.

Setting learning goals

Communication of learning goals between a student and the advising faculty member is critical ("Unit Planning Decision Guide"). Learning contracts are highly recommended tools for successful self-directed learning experiences (see example on CTE's "Learning Contracts" teaching tip). Learning contracts generally include:

- Goals for the unit of study
- Structure and sequence of activities
- A timeline for completion of activities
- Details about resource materials for each goal
- Details about grading procedures
- A section for advising faculty member feedback and evaluation as each goal is completed
- A plan for regular meetings with the advising faculty member and other unit policies, such as work turned in late

Once created, contracts should be assessed by the advising faculty member. What could go wrong? Is there too much or too little work? Is the timeline and evaluation reasonable?

Engaging in the learning process

Students need to understand themselves as learners in order to understand their needs as self-directed learning students "Understanding Your Learning Style"). Students should also consider answering the following questions:

- What are my needs re: instructional methods?
- Who was my favourite teacher? Why?
- What did they do that was different from other teachers?

Students should reflect on these questions throughout their program and substitute "teacher" with "advising faculty member"

Students also need to understand their approach to studying:

Deep approach involves transforming – to understand ideas for yourself; be able to apply knowledge to new situations and use novel examples to explain a concept; learn more than is

required for unit completion – most ideal for self-directed learning. Surface approach involves reproducing – to cope with unit requirements; learn only what is required to complete unit in good standing; tend to regurgitate examples and explanations used in readings. Strategic approach involves organizing – to achieve the highest possible grades; learn what is required to pass exams; memorize facts as given in lecture; spend much time practicing from past exams; most concerned with whether material will appear on exam.

Earlier academic work may have encouraged a surface or strategic approach to studying. These approaches will not be sufficient (or even appropriate) for successful independent study. Independent study requires a deep approach to studying, in which students must understand ideas and be able to apply knowledge to new situations. Students need to generate their own connections and be their own motivators.

Evaluating learning

Students must be able to engage in self-reflection and self-evaluation of learning goals and progress in a unit of study. Students should regularly consult with the advising faculty member. Students should be able to engage in self-validation of achievements, but should have the motivation to seek feedback on progress and ideas from the advising faculty member or other available resources.

Self-evaluation involves asking:

- How do I know I've learned?
- Am I flexible in adapting and applying knowledge?
- Do I have confidence in explaining material?
- When do I know I've learned enough?
- When is it time for self-reflection and when is it time for consultation with the advising faculty member?

Responsibilities in the four-step process

Successful independent study requires certain responsibilities or roles of both students and advising faculty members. The following is a brief list of the more important roles. It is useful

for both students and advising faculty members to periodically review this list and communicate as to whether each feels the other is fulfilling their share of the responsibility.

Students' roles

- Do self-assessment of readiness to learn
- Define learning goals and develop learning contract
- Do self-assessment and monitoring of learning process
- Take initiative for all stages of learning process – need to motivate selves
- Re-evaluate and alter goals as required during unit of study
- Consult with advising faculty member as required

Advising faculty members' roles

- Build a co-operative learning environment
- Help to motivate and direct the students' learning experience
- Facilitate students' initiatives for learning
- Be available for consultations as appropriate during learning process
- Serve as an advisor rather than formal instructor