A Review of the Literature on Technology in Second and Foreign Language Learning

Prepared by
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This literature and research review was conducted to provide information to those jurisdictions with language programming in the province of Alberta. Although direction was given to the researchers/writers to establish parameters for the task, the content of this document reflects the writers’ perspectives on topics and subjects reviewed and does not necessarily reflect the position of Alberta Education.

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A Review of the Literature on Technology in Second and Foreign Language Learning

Message from the LRC Research Team

The Language Research Centre was asked to summarize the most recent research in each of eleven areas of Computer-Assisted Language Learning (CALL). We have provided a brief overview of each area and have then provided a somewhat longer summary of research that may be of particular interest to teachers in the K–12 system in Alberta. We have consulted scholarly journals, theses, conference proceedings, technical reports and online resources. Because we have tried to be as succinct as possible, we have left out many details. Educators and administrators are encouraged to consult the references and resources listed after each section to access more detailed information on the topics included in the review.

We would like to thank Alberta Education for giving us the opportunity to write this literature review. Our thanks also go to Emily Gillen and Deanne Cobb-Zygadlo for their early work on the project.

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Executive Summary

I. Learning Management Systems
- The use of Learning Management Systems (LMS), Course Management Systems (CMS) and Virtual Learning Environments (VLE) allows instructors to organize and store the assignments they will be working on with their students in an online format, as well as to provide a virtual environment where those assignments can be accessed from within or outside the classroom.
- Some of the most well known learning management systems are Blackboard/WebCT, Desire2Learn (D2L) and Moodle. Only Moodle (Modular Object-Oriented Dynamic Learning Environment) offers free access.
- Most LMS have text chat and discussion boards that allow for the attachment of files.

**Advantages:**
- The ability to create, store and evaluate materials and tasks in one virtual location.
- Display of non-Roman scripts.
- Professional development opportunities.

**Limitations:**
- Without jurisdictional support and training, it may be difficult to implement an LMS.

II. WebQuests
- A WebQuest is an activity that provides a layer of instruction between the learner and the Internet, typically guiding the process by which the learner seeks information online.
- WebQuests typically include: an introduction, to present the topic of study, the task or tasks to be accomplished, and the process to be followed, including the roles for various group members; a resources section, with links to websites the learners can use to search for information and an evaluation; and a conclusion, which tells learners how their work will be evaluated.

**Advantages:**
- WebQuests allow learners to work together collaboratively to search for information on specific web pages and later use that information to create final products.
- Learners are guided through the target language and culture in a controlled fashion with an ultimate goal.

**Limitations:**
- Students may have trouble determining the kind of final product they should produce.
- They may also be overwhelmed by the need to synthesize information found on the various links included in the WebQuest (Verhoeven, Segers, Bronkhorst & Boves, 2006).
III. Web 2.0 Tools: Blogs and Wikis, Podcasts

• The Web 2.0 allows for interactivity, in which numerous users can make use of applications to add content to existing sites.
• Some of the services available on the Web 2.0 that have been used in language learning settings include Weblogs (blogs), wikis, audio and video broadcasting (known as podcasting) and other media sharing sites, as well as social network sites and massively multiplayer online games (MMOGs).

Blogs
• Blogs are chronologically ordered, Web-based publications, which can include text as well as pictures, videos and links.

Wikis
• A wiki is “a website where anyone can edit anything anytime they want” (Richardson, 2006, p. 59). These pages usually allow for the code behind a page to be edited.
• A wiki can be a collaborative creation among a variety of individuals.

Podcasts
• Podcasting or videoblogging is audio and video broadcasting.
• Instructors can create podcasts to share with students, or they can direct their students to specific podcasts in the target language or to language learning podcasts.

Social network sites
• Social networking sites, such as Facebook, allow users to upload photos and videos and to send each other public or private messages, as well as offering internal chat functions.
• Some social networking sites have been designed specifically for educational settings.

Massively multiplayer online games (MMOGs)
• MMOGs allow users in distant locations to collaborate by sharing resources as well as participating in forums centered around the game itself.
• MMOGs have also been used to allow adolescent students to experiment with identity formation and socialization.

Advantages:
• The potential to connect language learners to the target languages and cultures.
• Collaborative working potential to create materials for sharing.
• Platform on which to publish individual work.
• Increased student motivation and interest when they know that their work will be published online.

Limitations:
• Teachers must guarantee safety and institutional control, handle plagiarism or “cut-and-paste” research, decide how to assess collaborative work, and teach child and young adult learners to critically evaluate the information found in Web sources.
• Students have been shown to have difficulty performing keyword searches, and they may struggle with synthesizing the information found across different websites. They are generally unlikely to question the authority of the information they find on the Web.
IV. Integrating Technology for Speech and Pronunciation

• Language instructors report that they rarely focus on pronunciation in their classrooms.
• Computer Assisted Pronunciation Training (CAPT), especially that which makes use of Automatic Speech Recognition (ASR) technology and/or visualization techniques, can be a useful tool for language instructors.

**Advantages:**
• Individualized attention.
• Learner autonomy.
• The option to repeat exercises.
• A wider variety of native speaking models.

**Limitations:**
• ASR technologies have not been successful at interpreting spontaneous, natural foreign accented speech.
• Not all CAPT programs provide explicit or helpful feedback about pronunciation.

V. Integrating Technology for Listening

• The Internet provides a wealth of access to authentic, culturally relevant listening materials in most languages.
• Internet and computer technologies can support language learning by allowing learners to interact individually with the listening activities.
• Instructors can add captions to video files.
• Learners can interact with and manipulate audio files by editing the speed of the recording.

**Advantages:**
• Technology can lead to increased vocabulary learning and listening comprehension.
• Language learners are able to acquire new vocabulary and improve their listening comprehension and motivation when interacting with oral texts that include captions.
• When manipulating audio and video files on their own computers, learners can replay the file as many times as they wish, thus working in a more self-directed fashion.
• Audio and video files available on the Internet often include optional access to captions, subtitles and transcriptions.
• When students can edit the speed of an audio file, their comprehension improves.

**Limitations:**
• Lower level students may make use of optional help less often and may comprehend less than more advanced students.
• The use of captions, subtitles and slowed down speech does not necessarily prepare students for authentic listening interactions outside of the classroom.
• The inclusion of captions, subtitles and slowed down speech will not make accessible for the learner material that is entirely out of the range of his or her ability level.
VI. Integrating Technology for Reading

- Research has focused on the use of CALL tutorials, multimedia annotations of online texts and access to electronic dictionaries for vocabulary learning.
- There are three basic types of CALL lessons that focus on reading (Brandl, 2002).
  - *Teacher-determined lessons*: the text has been modified by the instructor and may also include glosses, images and hyperlinks. They are accompanied by text-specific tasks.
  - *Teacher-facilitated lessons*: the instructor pre-selects authentic materials in online environments and provides learning tasks that allow the learners to explore those materials in a guided way.
  - *Learner-determined lessons*: the learners themselves determine the topics and then organize their own search for online reading materials.

**Advantages:**
- CALL technologies focusing on reading can have a positive impact on vocabulary retention, especially for L2 learners at an intermediate language level.
- Access to online dictionaries and multimedia annotations within texts may increase reading comprehension.
- The Internet can be used to encourage an increased rate of reading in L2 learners.
- Learners are more autonomous, and the teachers serve as an accessible support.

**Limitations:**
- Students who read in a hypermedia environment require additional skills (beyond reading) to cope with the environment.
- Students may have a more difficult time comprehending what they read on a computer screen.

VII. Integrating Technology for Writing

- Some online tools are available for basic style and grammar correction.
- Language software programs provide writing corrections for language learners at the individual word and sentence levels.
- There is little research data on foreign language software that can provide writing feedback on paragraph-length texts and longer written works.
- Computer-generated feedback on foreign language learners’ writing is still not generally accessible. Other computer tools (e.g., CMC, email and texting and Web 2.0 tools, and wikis and Google Docs) may be used to improve students’ writing.

**Advantages:**
- Some programs that are capable of correcting common grammar and spelling errors have been used with language learners with positive outcomes.
- Some higher level writing software that can provide feedback at the sentence and discourse level has been developed for writing in English. This may benefit EL learners.

**Limitations:**
- Computers are still not able to recognize and correct grammatically incorrect sentences, such as those that might be produced by language learners.
- Commercial programs to evaluate L2 writing are quite expensive.
VIII. Computer-Mediated Communication Technology and Distance Learning

• Computer Mediated Communication (CMC) has been defined as both direct (synchronous) and time-delayed (asynchronous) person-to-person communication made possible through the use of computers, and especially via a network or the Internet.
• CMC technologies can be used to set up both intracultural and intercultural interactions, as well as providing support for distance education.
• Given that language instructors capable of teaching certain languages are often difficult to find, particularly in rural areas, foreign language classes remain an ideal candidate for online instruction.
• Learning management systems, such as WebCT and Moodle, allow for the asynchronous presentation of coursework, while tools such as Elluminate, Google Phone and Skype are often used for synchronous contact.

Advantages:
• Projects involving CMC technologies may facilitate exploration of authentic language use, encourage dialogue among individuals and partner classes across the globe, and enable learners to make meaningful use of language through social interaction.
• CMC technologies facilitate intracultural contact within otherwise face-to-face classroom settings. Researchers have highlighted the cognitive, affective and sociocultural benefits of these exchanges.
• Language learners who have engaged in text chatting as well as email exchanges with their classmates and instructors typically produce more language with a higher level of complexity as compared to what they produce in oral discussions within the classroom.
• CMC can lead to increased negotiation for meaning.
• Students experience less language learning anxiety when interacting through written CMC, and the level of participation is more evenly distributed across all students, as compared to the traditional classroom setting.
• Voice-chat session allow for more focus on and repairs of pronunciation.

Limitations:
• Studies investigating distance language learning among K–12 learners have shown that online language courses often result in less student success as compared to face-to-face classes. This may be due to a lack of social interaction when students work individually without making use of the CMC tools available to them.
• Little peer-to-peer interaction and little to no collaborative work appears to be taking place in the majority of distance courses, despite the increasing ease of access to tools, such as Skype, Google phone and wikis, that could allow for increased contact between students.
IX. Computer-based Language Assessment

- Assessment often means looking at some sort of standardized score as indicative of students’ abilities in any of the language skills: listening, reading, writing, speaking.
- Alternative forms of assessment are also available in CALL, especially formative means that track the development of students’ skills.
- Computer-adaptive testing (CAT) makes use of computer algorithms to determine the difficulty level of questions, as required to gain an accurate measurement of students’ proficiency levels.

Advantages:
- Contextualization cues (e.g., images, audio, animation, video) can be provided.
- Research has shown that there is little difference in performance on pencil-and-paper tests and computer-based tests.
- CATs have been touted as being both more efficient and more precise than tests in which all students are asked the same set of questions. In addition, they can be scored immediately, and learners may complete them at a pace that is comfortable to them.
- Web-based tests allow for online testing. They are easily scored. Students anywhere in the world can be tested at times that are convenient for them.
- E-portfolios allow students to add a wide array of media types to their portfolios (e.g., videos, pictures, audio files).
  - Assessment of e-portfolios can be more interactive, allowing for teachers to provide comments (e.g., audio) inside of various folders in the portfolio.
  - Students who produce e-portfolios receive feedback about their strengths and weaknesses, and students report that these comments may be more helpful than a test score (Baturay & Dologlu, 2010, p. 425).

Limitations:
- Computers are unable to assess the content of free responses provided by learners in written and spoken assessments.
- The only option for completely computerized evaluation of spoken language comes from a set list of potential responses (i.e., multiple-choice or fill-in-the-blank questions). The options are similar for writing: the evaluation follows a formula.
- Ultimately, this may mean that students in communicative language courses are stifled from communicating creatively because they know that this could have a negative effect on their scores.
X. Other Hardware
The hardware reviewed in this section includes interactive whiteboards (SmartBoards) as well as mobile devices including cellular phones, MP3 players (e.g., iPods), tablet computers (e.g., iPads), and digital dictionaries.

Interactive whiteboards
- The SmartBoard is an interactive whiteboard.
- Research focuses primarily on teacher and student perceptions of the technology.

Advantages:
- Students may be more engaged and curious and may participate more.
- Whole class teaching with a visually engaging tool is possible.
- The technology is interactive (i.e., students can manipulate applications).
- Learners’ presentations can be showcased, and support can be provided for various learning styles (visual, auditory and kinesthetic learners).
- Graphics may allow for visualization of otherwise difficult-to-comprehend concepts.

Limitations:
- Teachers may spend a great deal of time creating materials for use on whiteboards.
- Much teaching done with whiteboards is teacher-centered and behaviouristic in nature.

Mobile learning
- Mobile learning is the term used to describe the use of wireless, handheld devices for learning. When applied to language learning, it is referred to as mobile-assisted language learning (MALL).
- Mobile devices have been tested and shown to be especially effective for podcasting, vocabulary building, creation of blogs and wikis and communication.

Podcasting
- Podcasts have been used for student audio or video presentations, to enable individualized aural feedback from teachers or other students, for paired interviews, for guest lectures or reviews of lectures.

Vocabulary building and review
- Mobile phones can be used to build and review vocabulary and can be used like clickers to determine students’ levels of vocabulary retention.

Blogs and wikis
- Students creating blogs and wikis may make use of content in their immediate environment, share photos and comments and individualize their learning.

Teacher and student communication
- SMS (short message service) technology that sends messages directly to cell phones can be used for updates, reminders, and providing students with websites and resources.

Advantages:
- Portability, and flexible interaction and delivery format that is socially acceptable and aligned with students’ lifestyles
- Lower cost when compared to desktop and laptop computers.
- Personalized, situated, authentic, spontaneous and informal activities.

Limitations:
- Small screen size of many technologies.
- Some students see this as an interference into their personal lives.
XI. Technology and Professional Development

- The intersection of technology and professional development involves diverse areas:
  - research regarding the kind of support and training teachers need in order to bring technology into their classrooms
  - an investigation of how technology can be used to carry out teacher education and professional development in face-to-face, blended learning and online settings.
- Educators are often reluctant to use technology for the following reasons: lack of familiarity with the technology, inadequate training and technical support, a lack of support from administration, and confusion over how to incorporate the technology into the established curriculum.
- Technological Pedagogical Content Knowledge (TPCK) is a theoretical model that has been used to describe this interplay between technology, pedagogy and content.
  - It builds on the notion that to successfully integrate technology, teachers must take into account the interplay between the content they are teaching (a foreign language and culture), their pedagogical goals (for example: fostering collaboration or intercultural communication) and how the application of a particular technological tool will impact on each of these components.
- Some blended learning and online programs, which often make use of Learning Management Systems (LMS) such as WebCT and Moodle, have been used as platforms for pre-service and in-service teacher education programs.

*Advantages:*
- Research has shown that teachers are more likely to implement technologies within the classroom after first making use of them for their own learning. Since professional development often takes place via LMS, teachers will practice using it.

*Limitations:*
- Mere access to technology is not sufficient to bring about any real change in classroom teaching practices. Teachers must be required to use it and trained to use it properly.
Terms of Reference

The Language Research Centre (LRC) at the University of Calgary is housed in the Faculty of Arts. One of the main goals of the LRC is to undertake and disseminate research into language learning and teaching.

The LRC has been asked to provide an overview of the research on the use of technology in second and foreign language teaching, for distribution within the Alberta Education school jurisdictions. Therefore, this document will provide a summary and review of research in technology that has been carried out in language teaching settings. However, it is important to note that much of the research summarized will focus on university-level and adult learners, as little research has been carried out at the K–12 level (Arnold & Ducate, 2011; Zhao, 2003).

After the brief introduction, this report provides an overview of the current literature relating to the role of technology in the following areas:

1) Learning Management Systems, such as Desire2Learn
2) WebQuests
3) Web 2.0
4) spoken language and pronunciation
5) listening
6) reading
7) writing
8) computer-mediated communication and distance learning
9) assessment
10) other hardware
11) professional development

Each section begins with an overview of the relevant literature. The pros and cons of each of the technologies are discussed. The sections then offer summaries of some of the most relevant research for K–12 academic settings. Each section also includes a list of resources related to the topic as well as a bibliography.

References

Introduction

What is technology?
Before providing a summary of the research in technology for second and foreign language teaching, it is important to define how the term technology will be used within this publication. In this review we will be working with a narrow definition of technology. However, the term technology, broadly defined, can refer to a wide variety of tools and artifacts that human beings use to mediate their environments, from pencils to calculators and cassette tapes (Wertsch, 1997; Zhao, 2003). Indeed, items such as phonographs and audio and videotape cassettes were once viewed as cutting edge technologies that could revolutionize teaching and learning in the language classroom (Salaberry, 2001). Many of these technologies have since either become obsolete or have been so well incorporated into the classroom environment that they are no longer viewed as optional or revolutionary, but rather as part of the normal learning process. Some researchers hypothesize that in the future the use of computers in learning situations will eventually become so standard as to cease to constitute a separate discipline or area of research (Kern, 2006).

At the present time the use of computers and Internet-technologies within the language classroom is still in development, as indeed the technologies themselves are constantly emerging. While few language instructors would argue against the use of audio or video cassette recordings as useful tools for second or foreign language teaching or feel uncomfortable making use of them in their classrooms, the adoption of computer technologies is less ubiquitous across classroom settings, especially at the K–12 level (Garrett, 2009). Therefore the present review will limit itself primarily to research that focuses on computer technologies, usually housed on or making use of the World Wide Web, and their implementations within second and foreign language teaching settings.

Although the term “technology” can be used synonymously with “tool,” this literature review will focus primarily on computer technologies.

How has computer technology been used over time?
Upon briefly examining the history of the field, it becomes clear that the use of computer technology within second and foreign language teaching contexts has been in constant development since the mid-1960s (see Chapelle, 2001; Salaberry, 2001). It has operated under a number of terms such as CALI (computer-assisted language instruction), CASLA (computer applications in second language acquisition) and CALL (computer assisted language learning) (Chapelle, 2001; Shrum & Glisan, 2009). Early CALL applications often made use of expensive main-frame computers to create drill-like exercises for language laboratories, as supplements to regular classroom instruction. In more recent decades, the development of microcomputers that feature increasingly sophisticated audio and graphic capabilities have allowed computers to become accessible to virtually all learners and teachers (Chapelle, 2001). Furthermore, the introduction of the Internet in the mid-1990s has provided access to materials in almost every language (Shrum & Glisan, 2009). Additionally, through CMC (computer-mediated communication) technology it is increasingly possible to communicate with speakers of
languages around the world (Chapelle, 2001). CMC technologies will be discussed in section VIII of this literature review. Finally, with the updated version of the World Wide Web known as the Web 2.0, Internet users can now make use of collaborative applications, such as wikis, blogs and social networking pages, which allow all users, and not only experts, to modify and update Web pages (Arnold & Ducate, 2011). The use of these technologies will be discussed in further detail in section III of this review.

Computer technology and the field of computer-assisted language learning (CALL) have been developing rapidly since the 1960s. The technology has made materials more readily accessible, and recently much of the focus has been on collaboration.

What is the relationship to theory?
The continuous development in available computer technologies, together with changes in theories of language and learning over the previous decade, have also led to varying instructional designs and classroom implementations of technology. Early uses of the computer for CALI emphasized drill-like exercises and programmed instruction that fit within a behaviourist model of language learning (Januszewski & Molenda, 2008; Blake, 2008). That is, learners were presented with a certain stimulus and were expected to respond. Later research and pedagogical implementations shifted to more cognitive and interactionist views of language, focusing on how learners interacted with the computer or with others via CMC to receive modified input or negotiate meaning (Chapelle, 2001). Finally, researchers who subscribe to more sociocultural, constructivist and collaborative views of learning are now examining the social aspects of languages and learning. They focus on issues such as how language is used as a tool to interact with the environment, and the ways in which individual and group perceptions have an impact on the construction of knowledge. These researchers examine, among other topics, the ways in which technology can aid instructors in offering opportunities for problem-based, inquiry-based and collaborative learning (Arnold & Ducate, 2011; Robinson, Molenda & Rezabek, 2008).

In summarizing the trends in the field of educational technology towards more learner-centered and constructivist views, Januszewski and Molenda (2008) explain that: “cognitive and constructivist learning theories have changed the emphasis in the field from teaching to learning… from a field driven by the design of instruction to be ‘delivered’… to a field which seeks to create learning environments in which learners can explore... in order to arrive at meaningful understanding” (p. 2). Therefore, it is not only the technologies that continue to develop, but also the theoretical orientations present within the field, which often define the kinds of research being undertaken and the ways in which the technologies are used.

The field of CALL has developed over time from being one that focuses on teaching and delivery to learning and exploration.
Which technology is the right one?

The fact that technologies for language learning can be viewed through various theoretical lenses and used for distinct pedagogical purposes leads to another important consideration for pedagogical decision-making. That is, technologies are not neutral learning tools, but rather they have particular characteristics that may make them more or less relevant for a particular learning purpose or pedagogical task (Arnold & Ducate, 2011; Blake, 2008). It is thus crucial for instructors to consider their specific goals, contexts, learners’ needs and the pedagogical tasks they need to accomplish when deciding whether or not to make use of a particular technology (Arnold & Ducate, 2011; Blake, 2008; Salaberry, 2001; Zhao, 2003).

In the present literature review we will attempt to discuss the forms of technology that have been shown to be most effective for language teaching and learning. However, as many researchers have explained, the effects of any technology on learning outcomes may depend on how it is used and whether it has been implemented properly in a given situation (Salaberry, 2001; Zhao, 2003). As instructors make decisions about the technologies they wish to utilize in their classrooms, they should embed those technologies within well-designed pedagogical tasks. These tasks should stem from their own views on language learning and the outcomes they would like their students to achieve.

When deciding on how to use technology in their classrooms, teachers are reminded to consider the pedagogical goals, contexts and tasks as well as learners’ needs. The success of a particular task depends not on the technology, but on its implementation.

The use of computer technologies has proven useful in the language classroom by aiding teachers and learners in:

1) enhancing student motivation and improving classroom climates;
2) allowing for increased input through the development and use of input-rich and multimedia materials;
3) facilitating vocabulary development and acquisition, especially through the use of multimedia materials;
4) aiding teachers in providing correction and feedback via computer-mediated feedback on, for example, writing and pronunciation;
5) enhancing listening comprehension and retention through exposure to authentic materials and access to tools such as speed modification and captions;
6) facilitating increased writing through the use of writing software, email and chat rooms;
7) encouraging dialogue between classmates and partner classes and the use of authentic language as well as increasing sociocultural awareness through the use of CMC (Chun, 2011; Elola & Oskoz, 2011; Robin, 2011; Shrum & Glisan, 2009).
References
I. Learning Management Systems

- The use of Learning Management Systems (LMS), Course Management Systems (CMS) and Virtual Learning Environments (VLE) allows instructors to organize and store the assignments they will be working on with their students in an online format, as well as to provide a virtual environment where those assignments can be accessed from within or outside the classroom.
- Some of the most well known learning management systems are Blackboard/WebCT, Desire2Learn (D2L) and Moodle. Only Moodle (Modular Object-Oriented Dynamic Learning Environment) offers free access.
  - Moodle is open-source, which means that its code can be freely modified and re-written by the programmers who use it (Brandl, 2005; Han, 2011).
  - Moodle has the potential to be used outside of the classroom, to be used for hybrid courses (that involve in-class and online delivery) or to be used as a stand alone platform (Brandl, 2005, p. 16).
- D2L is currently available to instructors within the Calgary Board of Education (Chioreanu, 2005).
- The seven French School Boards of Alberta make use of Moodle (SLIC, 2010).
- Most LMS have discussion boards that allow for the attachment of media files and text chat. Third-party platforms available as plug-ins that can offer additional functionalities:
  - Language lab is a platform that can be added to Moodle. It allows for recording, submission and storage of voice recordings (Thibadeau, 2011).
  - Hot Potatoes, a self-authoring tool, offers a set of templates for creating multiple choice and other quiz-like exercises (Godwin-Jones, 2007).
  - Voice chat and synchronous voice conferencing are also possible with the use of third-party applications such as Elluminate Live.

Advantages:
- LMS provide the ability to create, store and evaluate materials and tasks in one virtual location (Blake, 2008).
- Given proper guidance and support, students may be able to escape from the “walled garden” of the LMS (Martin & Noakes, 2012).
- Most LMS offer support packs that allow non-Roman scripts (Moodle, 2011).
- Professional development opportunities, with virtual locations where instructors can collaborate, communicate and share and store materials for use with their students (Alberta Education Stakeholder Technology Branch, 2008).

Limitations:
- Without jurisdictional support and training, it may be difficult for teachers to implement an LMS.
- The static, controlled nature of pre-built LMS may not stimulate students who are used to stimulation and engagement online (Godwin-Jones, 2012).
This report describes the results of various efforts carried out as part of an emerging technologies project funded by Alberta Education. One of these projects, at the Peace Wapiti School Division, involved the intended creation of an online educational portal software that would allow students, teachers, administrators and parents to collaborate and share educational information and tools. However, after delays with the development of the commercial software, the Moodle course management system was installed instead. Less than a year after the system was launched, Peace Wapiti School Division reported that as many as 282 members of their professional community were using the site to share documents, discuss ideas, co-create materials and develop e-portfolios. The site was also being used as a learning management system, with Biology 20, Chemistry 20 and Physics 20 courses all being offered completely online through Moodle, along with the hosting of other digital resources, including materials for four blended learning courses.


This project was carried out with 131 undergraduate ESL students in South Africa. At the start of the semester, all of the students were measured on their use of reading strategies and reading comprehension, and they also took the TOEFL. They were then divided into two groups of either successful or at-risk readers of English. These two groups were further divided into experimental and control groups. The control group of both successful and at-risk students participated in an English for Professional Purposes course that also emphasized the use of reading strategies, including a printed study guide and in-class exercises. The students in the experimental group took the same course, but also had access to online study and practice materials through an LMS designed by technology specialists at their local university. Through this online system, they had access to an electronic study guide, an announcement section with a calendar and list of assignments, an assignment and resource section with assignments to be completed and links to websites they could use to complete the assignments, and an assessment section with additional practice in the use of reading strategies. An analysis of the post-test data for both groups demonstrated that both the successful and at-risk students in the experimental group showed significant improvement in their scores on all three tests when compared to the control group. These findings suggest that the students benefited from the additional strategic reading

### Recommendations:

- Institutional support is recommended to successfully use these systems, as course pages must be hosted on a stable server (Mott, 2010).
- It is advisable for the jurisdiction as a whole to choose to invest in an LMS and to offer training and support so that instructors will feel comfortable working with the systems.
instruction and resources that they were able to access through the LMS, leading to improvement in the use of reading strategies and reading comprehension for both successful and at-risk readers.


The case study described here looked at the use of a commercially available learning management system (LMS), to combine face-to-face classroom learning and online learning (in the computer lab and for homework) within a university-level ESL listening and speaking course. In addition to the classroom and textbook activities, the 19 students in the course used laboratory and personal computers to complete machine and teacher-evaluated grammar, vocabulary, listening, speaking and pronunciation activities within the LMS. Survey results showed that both the students and the instructor found that online speaking and pronunciation activities were useful and added value to the course. The teacher felt that the online work allowed him to give more individualized instruction than he could provide in the classroom, especially when students worked under his supervision in the computer lab. The teacher also believed that working with the online materials helped less attentive students manage their own learning better than in the classroom.


This study proposed to explore whether Moodle e-learning was feasible for elementary school students in Taiwan studying the social sciences. The learning outcomes of a control group of 32 Grade 5 students taught by the traditional method, and an experimental group of 30 taught through e-learning, were compared using pre- and post-tests. The experimental group also completed an attitude questionnaire. Results showed that the students in the experimental group performed significantly better on the post-test and that 94.8% of the students felt that the Moodle e-learning was a fun experience. Unfortunately, the authors did not describe how the Moodle platform was used with the students, nor the ways in which the students were able to access it. However, the results do suggest that Moodle has successfully been used with a group of students at the elementary school level.


After taking a pre-test, 26 students enrolled in Basic French 1 at two Malaysian universities were randomly assigned to either 1) a control group that received a two-hour traditional face-to-face French lesson including grammar and vocabulary; or 2) an experimental group that was allowed to work freely for two hours on text-based activities in a Moodle site presenting the same grammar and vocabulary items. On the post-test, both groups of students improved, with no significant difference between the two groups. The results suggest that the students who worked independently were just as successful as the control group at learning the new material. The
students in the experimental group reported that they were satisfied with the Moodle session and would like to use the online exercises as a source of additional practice within a traditional face-to-face course.


This study evaluated a variety of online features for language learning integrated within a Moodle environment at the online Open University. The authors carried out an intensive German online course (CyberDeutsch) with a pilot group of 20 intermediate-level university students of German. Within the Moodle course website, the students had access to the course calendar with instructions, and they also participated in discussion forums, blogs, wikis, weekly online quizzes and externally linked videoconferencing software for weekly synchronous conferences. The researchers analyzed the activity logs automatically created by Moodle to evaluate the users’ access to the site and their editing and commenting within it, as well as the students’ self-reports of their use of and reaction to the various activities through pre- and post-course questionnaires. It was found that overall the students rated positively and participated most frequently in the blog, forum and videoconferencing activities, but for the most part did not make use of the wikis for collaborative projects. The researchers suggest that learners may need more support in learning how to use wikis to work collaboratively online. (Wikis will be discussed further in Section III of this review). The two learners whose responses were analyzed in greater detail both stated that the Moodle environment offered an effective and motivating format for online language learning.

**Resources**

- [http://www.desire2learn.com/](http://www.desire2learn.com/): Desire2Learn LMS.
- [https://d2l.cbe.ab.ca/](https://d2l.cbe.ab.ca/): Desire2Learn access site for the Calgary Board of Education.
- [http://moodle.org/](http://moodle.org/): General website for the Moodle LMS. See the “downloads” section to download a Moodle Package.
- [http://moodle.org/plugins/](http://moodle.org/plugins/): List of plug-ins that can be used with Moodle.
- [http://hotpot.uvic.ca/:](http://hotpot.uvic.ca/): *Hot Potatoes*, a free authoring program that allows for the creation of quizzes and other activities for use in an LMS.
- [http://loro.open.ac.uk/](http://loro.open.ac.uk/): Languages Open Resources Online, a website with free resources for use in LMS.
References
II. WebQuests

• Although there is a wealth of information on the Internet, young learners are not always skilled at navigating between web pages and deciding whether the information they come across is reliable (Kuiper, Volman, & Terwel, 2005).
• A WebQuest is an activity that provides a layer of instruction between the learner and the Internet, typically guiding the process by which the learner seeks information online (Segers & Verhoeven, 2009).
• WebQuests were first proposed as a learning activity that would allow learners to work together collaboratively to search for information on specific web pages and later use that information to create specific final products (Dodge, 1995).
• WebQuests typically include: introduction, to present the topic of study, the task or tasks to be accomplished, the process to be followed, including the roles for various group members; a resources section, with links to websites the learners can use to search for information; and an evaluation and conclusion section, which tells learners how their work will be evaluated and reiterates the goals of the WebQuest (Godwin-Jones, 2004; Kurt, 2009).
• A WebQuest can be presented to students online, for example through a Learning Management System, or even via a text document that includes hyperlinks.

Advantages:
• WebQuests allow learners to work together collaboratively to search for information on specific web pages and later use that information to create specific final products.
• Learners are guided through the target language and culture in a controlled fashion with an ultimate goal.

Limitations:
• Children may have trouble determining the kind of final product they should produce.
• They may also be overwhelmed by the need to synthesize information found on the various links included in the WebQuest (Verhoeven, Segers, Bronkhorst & Boves, 2006).

Recommendations:
• It is important for teachers, especially those at the primary level, to take into account the ability levels of their students when designing WebQuest projects (Kuiper et al, 2005).
• Students may need to learn how to successfully read or skim a web page and extract specific information, as well as scaffolding with regard to the kinds of final products they are expected to produce through the WebQuest activities (Dodge, 2001).
• WebQuest design is crucial, and students should be given clear guidelines and goals for the completion of their tasks (Dodge, 1995, 2001; Maddux & Cummings, 2007).
• Instructors should ensure that the tasks they design or work with are developmentally appropriate (Maddux & Cummings, 2007) and motivating for their students (Luke, 2006) as well as promoting higher-level thinking (Dodge, 2001) and facilitating work in organized cooperative groups (Alstaedter & Jones, 2009).

This article describes a research project carried out with 14 novice-level university students of Spanish. As one component of their elementary Spanish course, the students worked in groups to complete a WebQuest, through which they visited a variety of websites to gather information about Argentina and later prepared a travel brochure and a concept map comparing and contrasting U.S. and Argentinean cultures, as well as writing personal essays. Although the students had two weeks to complete the WebQuest outside of class, some class time was taken to clarify the instructions. In end-of-semester questionnaires, all 14 students reported that they had enjoyed completing the WebQuest and that it had allowed them to learn more about and to value Spanish-speaking cultures more highly, as well as leading them to improve their perception of their own abilities with the Spanish language. In their final essays in the course, all of the students were able to make comparisons between the U.S. and Argentinean cultures, 13 of the 14 students wrote about Argentinean cultural products and half of the students described a variety of Argentinean cultural practices, suggesting that the Webquest had allowed them to meet the target curricular goals for culture learning.


This article details the creation of a WebQuest designed to be accessible to students of Spanish and Spanish literature at several high schools in both Spain and the United States, available on the WebCT learning management system of the Universidad Complutense of Madrid. The Webquest was designed to supplement Spanish language and literature courses offered in both countries in which students were reading the Spanish text *Don Quijote*. By following the instructions and links posted online, students work in groups to visit the suggested websites, gaining contextual information about the novel, its author, and the time and place in which it was written. They are then instructed to create a PowerPoint presentation summarizing the information they have learned. The WebQuest activity is described in great detail. However, at the time this article was published the WebQuest had not yet been piloted with student participants, and so no results were available regarding its level of success. Nevertheless, it provides insight into the ways in which a WebQuest could be used to supplement a reading comprehension activity within a language or literature course.


This study was carried out with six groups of sixth grade students in China. Three classes of students served as a control group, participating in a WebQuest designed according to the traditional format, while three classes in the experimental condition worked with additional tools
incorporated in the WebQuest format. These included goal-setting and evaluatory worksheets to complete, and the use of a blog to communicate with other students and their instructor and receive ongoing feedback. These tools were designed to aid the students in self-regulation, including self-evaluation, goal setting and planning, and implementation and outcome monitoring. After five weeks of work with the WebQuest, the students in the experimental condition improved significantly more than the control group on a post-test related to the topic of the WebQuest, as compared to the pretest. In fact, in the experimental group, students who had been identified on another test as both high and low self-regulators performed equally well on the post-test, while in the control condition, the high self-regulating students outperformed the those who self-regulated less successfully. These results suggest that supplementary WebQuest activities that encourage students to set and monitor goals, monitor their own outcomes, and receive ongoing support and feedback from their instructors and peers, can have a positive impact on learning outcomes. This supplementary assistance is especially beneficial for students who have a tendency not to self-regulate their own learning goals and outcomes.


The author of the study used cognitive load theory to highlight important factors in WebQuest design. Researchers examining cognitive load have studied learning situations and found that as tasks require more processing, less information will be passed from working memory to long term memory. Therefore, appropriate instructional design of tasks such as WebQuests is crucial, to reduce the effects of split attention and redundancy and take proper advantage of modality and interactivity. To reduce the split-attention effect, task designers should not place contradictory information in close proximity, but should instead integrate only related text, images and sound. The use of any irrelevant words, sounds, music and videos will negatively increase cognitive load. Regarding redundancy, the author suggested that no information should be unnecessarily repeated. Dual-model presentation, such as the combination of verbal and pictorial representations of information can aid learners, allowing them to use two independent channels to build their knowledge. However, it is still crucial to avoid unnecessary redundancy. Finally, to increase interactivity, which is fundamental for learning, the author recommended that teachers make use of Web. 2.0 content management systems (CMS), such as blogs and wikis, to create WebQuests. These systems facilitate the integration of interactive features such as polls, video, picture galleries and discussion boards that allow students to interact with the WebQuest. The author recommended the use of CMS such as Wordpress (www.wordpress.com), Drupal (www.drupal.org) and blogger (www.blogger.com).


The researcher of this article described the implementation of an inquiry-based model through WebQuest projects that involved a less restricted and more learner-designed approach. As a major component of their fourth semester Spanish course, 17 novice-high and intermediate level university students of Spanish were given class time and access to a computer lab and were instructed to design their own research questions related to the Spanish language or cultures, to
use the Internet to search for information, and to create a final product reporting what they had learned. They were expected to work both inside and outside the classroom and had unlimited access to a website designed by the instructor with information about how to do research in Spanish. The researcher and research assistant conducted anonymous surveys, interviews, and questionnaires throughout the semester and made in-class observations of the students’ reactions to the assignment format. The majority of the students reported that the course was at the appropriate level for them and that they appreciated the opportunity to take control of their own learning. However, other students found the open nature of the assignments challenging and stated they were used to more teacher-directed formats and textbook assignments. The results suggest that instructors will initially need to support learners in adjusting to more constructivist and autonomous learning formats.


This research project addressed whether closed WebQuests, in which the website links that students should visit had already been selected, or more free-searches using Google, provided higher learning gains for 229 grade six students in The Netherlands. Students in both conditions completed a WebQuest in which they researched the lifestyle in Ancient Rome, including homes and architecture, heads of state, clothing, education, daily life and leisure time, gods and religion, eating and drinking, streets and roads, and inventions. In the controlled condition the students worked with a more traditional format, in which the websites had already been chosen, whereas the students in the open condition were allowed to use Google to search for appropriate websites. These students also received additional information on the use of Google to search the Web and were instructed on the use of keywords and how to combine search terms. The Internet use of the students was not monitored during the intervention. As a final project, the students had to write a travel brochure in which they described a trip to ancient Rome. Through an analysis of the learning gains for each group, when compared to their pre-test knowledge, it was found that the boys benefited from working in the closed condition, while the girls showed equivalent learning gains in the closed-search and free-search condition. The researchers also found a difference in the quality of the writing for the two conditions, with the language quality being higher in the free-search condition.


This M.A. thesis describes an online professional development module designed to help K–6 instructors in the U.S. explore ways to integrate the Internet into their classrooms, including information about WebQuests. After exploring the information presented on the website, the four elementary school instructors who participated in the pilot session reported that they believed the use of WebQuests would be easily implementable and useful in elementary school classrooms.
Resources

- [http://webquest.org/](http://webquest.org/): Search engine to find WebQuests. This Web page is overseen by Dr. Bernie Dodge, who first popularized the concept of WebQuests. It also includes information about how to create and share WebQuests.
- [http://zunal.com](http://zunal.com): Free, Web-based software for creating WebQuests. It also includes an index of available WebQuests divided by content and grade level.
- [www.merlot.org](http://www.merlot.org): Online database in which you can search for “WebQuest” and find a long list of results.

References


III. Web 2.0 Tools: Blogs and Wikis, Podcasts

• While the World Wide Web (Web 1.0) was composed mainly of static Web pages that a limited number of experts could update periodically, the Web 2.0 allows for a much greater level of interactivity, in which numerous users can make use of applications to add content to existing sites (Han, 2011; Richardson, 2006).

• The Web 2.0 also allows for quick sharing of content, such as audio, video and image files, as well as social interaction and online collaboration through online tools.

• Some of the services available on the Web 2.0 that have been used in language learning settings include Weblogs (blogs), wikis, audio and video broadcasting (known as podcasting) and other media sharing sites, as well as social network sites, and 3-D virtual worlds, such as Second Life and MMOGS, or massively multiplayer online games (Bryant, 2006; Crook et al., 2008a; Han, 2011; Kurt, 2009; Wang & Vasquez, 2012).

Blogs

• Blogs are Web-based publications ordered chronologically, which can include text as well as pictures, videos and links.

• While there are software services that allow for the creation of blogs, such as Manilla or Wordpress, these may require some effort to create and to host online (e.g., Kurt, 2009).

• A simpler option is to use a blogging website, such as blogger.com, in which all content is created online and which generally include free hosting (Richardson, 2006).

Wikis

• A wiki is “a website where anyone can edit anything anytime they want” (Richardson, 2006, p. 59). These pages usually allow for the code behind a page to be edited.

• A wiki can be a collaborative creation among a variety of individuals. While this may make it difficult to assess individual contributions, most wikis also store a page history through which all edits can be observed in chronological order. Some wikis also offer a password and login system that can limit the access to or ability to edit the page (Kurt, 2009; Richardson, 2006).

Podcasts

• Podcasting or videoblogging is audio and video broadcasting, and this is increasingly possible with the use of the World Wide Web.

• Software programs such as Windows Live Movie Maker or iMovie, as well as Audacity, allow non-expert users to create video and audio files on their computers.

• On the Web 2.0, users can easily upload their recordings to blog and wiki sites or personal websites. Users who regularly create audio and video broadcasts can register themselves in podcast directories, such as those available on iTunes and Podcast.net, so that their podcasts are available through RSS feeds, which allow users to subscribe and receive automatic delivery of new files (e.g., Abdous, Facer & Yen, C.J, 2012; Lu, 2009).

• Instructors can also create podcasts to share with students, or they can direct their students to specific podcasts in the target language or to language learning podcasts (McQuillan, 2006). Media sharing sites, such as Flickr, allow users to upload photos and other media files for other users to view.

• Other popular media or file sharing networks are sites such as YouTube, where amateur videos can be uploaded, shared and commented on (Han, 2011).
Social networking sites

- Social networking sites, such as Facebook and Twitter, are “web-based services that allow individuals to (1) construct a public or semi-public profile… (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (Boyd & Ellison, 2008, p. 211).
- Many of these sites allow users to upload photos and videos and to send each other public or private messages, as well as offering internal chat functions.
- Some educators have focused on the use of Twitter and Facebook in classroom settings (Blattner & Fiori, 2011; McCrea, 2011).
- There are also social network sites that have been designed specifically for educational settings, such as ePals and Edmodo (see resource section), although no major research has focused on the use of these sites for language learning.

Massively multiplayer online games (MMOGs) and 3-D Virtual Worlds

- MMOGs allow users in distant locations to collaborate by sharing resources as well as participating in forums centered around the game itself and generally involve virtual worlds, which may be 3-D (Sykes & Holden, 2011).
- Some MMOGs also allow users to create virtual selves, called avatars.
- Instructors have made use of MMOGs such as World of Warcraft, a fantasy game played by users in a variety of countries in their native languages, for language learning in the university classroom (Bryant, 2006).
- MMOGs have also been used to allow adolescent students to experiment with identity formation and socialization (Lee & Hoadley, 2007).
- Other 3-D virtual worlds, such as Second Life, offer immersive environments online not built around one specific game or objective. For example, users of Second Life can create avatars and use visual, text and audio modes to interact in situations or contexts not specifically designated by the rules of a particular game (Deutschmann, Panichi & Molla-Danielsen, 2009)

Advantages:

- The potential to connect language learners to the target languages and cultures.
- Collaborative working potential to create materials for sharing.
- Platform on which to publish individual work (Richardson, 2006; Shrum & Glisan, 2009).
- Research has shown that elementary school children are more motivated and invest more time in their work when they know that it will be published on the Internet (Karchmer, 2008).

Limitations:

- Teachers who make use of the Web 2.0 must find a balance between authentic and free use of the Web with the need for safety and institutional control, handling plagiarism or “cut-and-paste” research, deciding how to assess collaborative work such as wiki projects, as well as teaching child and young adult learners to critically evaluate the information found in Web sources (Crook et al., 2008a, p. 5).
- Research has shown that K–12 students in general, and especially elementary school students, tend to feel comfortable browsing the web but have difficulty performing keyword searches for specific information, struggle with synthesizing the information found across different websites, and are generally unlikely to question the authority of the information they find on the Web (Kuiper & Volman, 2008).

This study examined the academic benefits of two uses of podcasts in academic second language learning settings, either 1) integrated into the curriculum or 2) as a supplemental instructional material, with the goal of assessing whether podcasts are generally more academically beneficial when integrated into the curriculum, or when made available to students as supplementary materials they can use to review outside of class. The research was carried out at a U.S. university as part of a federal grant that aided faculty members in developing podcasts and using them for a variety of purposes in their language courses. The integrated podcasts included recordings students had made in class projects, as well as recorded in-class discussions and student interviews with instructor feedback. The supplementary podcasts included instructor’s recordings of lectures and guest lectures by external faculty. Data were collected in the form of surveys and final grades for the courses. 337 students enrolled in language courses ranging from the beginner to the advanced level responded to surveys regarding the effects of the podcasts on their study habits and time spent on assignments. When the final grades for the various courses were submitted to the university registrar, correlations were drawn between type of podcasting offered and final grades. The results of the survey showed that students enrolled in classes in which podcasts were integrated into the course material reported spending more time working with the podcast materials than those enrolled in classes in which podcasts were included as supplementary/revision materials. However, a comparison of the final grades showed that students enrolled in courses in which podcasts were used as supplementary materials received higher grades over all than those in which podcasts were integrated into the course material. While the results suggest that podcasts may be useful review tools for students, the study does not provide clear evidence as to the ways in which they might best be incorporated into

**Recommendations:**

- Educators who make use of the Web 2.0 with their students should consider the limitations of Web 2.0 technologies as they decide how best to provide supportive pedagogy for their students.
- We make the following recommendations, based on the work of Crook et al. (2008b). The most successful incorporation of Web 2.0 into teaching practices happened in programs with the following characteristics:
  1) reliable computer infrastructure, with access for teachers and students and effective technical support;
  2) support and vision from management, with effective staff development covering technical and pedagogical skills;
  3) models of learning that embed Web 2.0 use within the curriculum, with support for student learning at home and at school; and
  4) management that recognizes the benefits of using Web 2.0 and that enacts e-safety policies to educate learners about responsible behaviour on the Internet, while providing protection.
classroom activities. A qualitative study examining specific ways in which podcasts were integrated by professors and the reactions of the students might have been more productive as a research model, rather than the comparison of final grades as carried out in this study, which compared grades across a wide variety of courses and levels, taught by different instructors.


In this study, a professor created a closed academic group on Facebook for the 13 members of an intermediate level university Spanish language course. After a brief training session on the uses of Facebook, the students were instructed to search for authentic Facebook group pages in Spanish on topics related to Spanish-speaking cultures. They placed the links on their own group page accompanied by descriptive posts, so that all class members could access them. Later, they each chose one of the group pages and completed an assignment analyzing aspects of language and culture they observed, which they handed in to their instructors. Many of the students focused in their reports on sociopragmatic features, such as norms for greetings and good-byes present in the discussions, as well as highlighting new and interesting vocabulary they had come across in specific cultural contexts. The researchers suggest that Facebook and other social network sites can aid learners in developing not only linguistic but also sociopragmatic competence, as they observe language in specific social and cultural contexts.


This project was carried out with two intermediate-level French & German university classes over the course of two semesters. During the first semester, the students were allowed to choose among several suggested blogs published by native speakers of French and German. They then visited those blogs over the course of the semester to learn more about the writers and used worksheets to prepare summaries of the topics discussed. At the end of the first semester, they further researched a cultural issue that had been mentioned in the blog and presented it to the class. During the second semester, the same students were instructed to publish their own blogs, writing each week on assigned themes related to the topics covered in the course. They were also required to read and comment on each other’s blogs. The teachers graded the blog writings and offered feedback, but as the focus was on fluency and not form, the students were not required to re-write the blogs or correct their mistakes. The instructors’ observations as well as the students’ comments in questionnaires and interviews suggested that the students enjoyed the project and felt that it helped them expand their reading, writing, vocabulary, and cultural knowledge. They seemed to feel more comfortable expressing themselves in the blogs than in class, possibly because they had more to time to think about how to compose their messages in the blogs. The difficulties associated with such projects include finding appropriate native speaker blogs that are frequently updated. The authors suggested finding a partner group in another country and allowing the two groups to read and comment on each other’s blogs.
This research was carried out in a second grade classroom at an elementary school in a poor New England community, in which the majority of students did not have access to computers at home. The majority of the students in the class spoke Spanish at home and so had varying levels of English literacy. The study evaluated the participation of 19 grade two students in a class blog set up by their instructor, aided by a technology specialist and co-researcher. The classroom was equipped with four laptops for students to use, while both parents and students were provided with computer workshops and access to the blog at a local public library. The blog was designed to be both a pedagogical and social activity, as the students were instructed to practice writing five genres of texts (letters, recounts, informational reports, arguments and explanations in response to literature), which they were studying as part of their classroom curriculum. They were instructed to read and comment on each other’s texts and also received comments and feedback from their instructor. Through an analysis of students’ writing in the blogs, it was found that their writing became increasingly complex over the course of the semester, and that they used the comment feature on the blog to correct and comment on each other’s work and to carry out linguistic tasks such as giving praise, thanking, joking, apologizing, requesting and giving information, agreeing and disagreeing, defending opinions and giving evidence. Parents also participated in the blog by reading and commenting on their children’s work. One particular student whose work was analyzed in detail by the researchers showed great improvement in her reading test scores over the course of the semester. While this student had difficulty writing by hand and showed low motivation on pen-and-paper tasks, she quickly learned to type with two hands and became one of the fastest typists and most active participators in the class blog. These results suggest that blogs can be adapted for use in the elementary school classroom, especially if the proper technical support is provided for instructors, students and parents.

In this research project, 35 university students enrolled in a first-year Spanish course used Wikispaces, a free wiki technology, in groups to prepare and revise three written assignments, as a substitute for the traditional classroom writing tasks. They were encouraged to comment on each other’s work and make corrections, as well as to add multimedia materials to their written work on the wiki site. Prior to interacting with the wiki, they were given a brief training and worked as a class on a practice wiki. Data were collected in the form of end-of-semester surveys as well as through an analysis of the content of the wikis, along with the revision history, which was automatically stored. It was found that the peer collaboration through the wiki encouraged focus on form, as the groups were frequently able to notice problems with their writing. However, for the most part the students did not feel comfortable editing each other’s work. Therefore, it was important for the instructor to monitor the activity in the wiki pages and offer strategies and tips for the best way to engage in collaborative revision. For example, the instructor taught the students to offer feedback by using the comment function to suggest a correction, rather than directly editing another student’s work.
This project was carried out with 14 high school students as part of an IT and technology enrichment summer camp in the United States. The students participated in a massively multiplayer online game (MMOG) called *There*, as well as the virtual environment *Second Life*, both of which focus primarily on the exploration of identities and interactions with other users. The students were given a pre-test survey on cross-cultural diversity. They were then instructed to create avatars with differing genders and physical characteristics and observe the differences in the kind of interactions they had as well as the reactions of other players in the MMOG and virtual environment. In their post-test surveys, the students showed significantly more sensitivity to diversity than in the pre-test. In end-of-semester interviews, the students were able to articulate nuanced definitions of diversity. They also rated the use of the MMOGs positively as a fun and educational tool that had allowed them to explore issues of cultural diversity.


Four university students enrolled in an academic listening strategies-based EFL course, all of whom were intermediate-level speakers of English, participated in this study. Over the course of the semester, the students focused on cognitive and metacognitive listening strategies in class and had access to 14 podcast assignments online. These included audio files of lectures and news broadcasts. They were encouraged to listen repeatedly to these files for homework, while making use of the listening strategies they were focusing on in class. At the close of the semester, they were observed completing a listening task while verbalizing their thoughts out loud. They also completed questionnaires and interviews designed to assess their listening strategies and to evaluate how listening repeatedly to oral texts influenced their strategies. Although there were few subjects in the study, the results suggested that by listening repeatedly to the podcasts, the students were able to make use of listening strategies to create more detailed and coherent summaries through each repetition. The researchers highlight that computer-based listening activities, such as podcasts, easily allow for repeated listening to an oral text, a feature that instructors can take advantage of by creating listening activities that students can complete individually, outside of the classroom.
This project was carried out with eleven intermediate-level university learners of English at a U.S. university as part of a Reading-Writing-Speaking course. Within the framework of a bridging-activities model, which suggests that students can learn to take advantage of everyday activities and practices and adapt them for L2 learning purposes, the instructor-researchers attempted to encourage their students to make use of online social network sites for L2 socialization. The students first completed surveys to reflect on how and when they used the L2 and whether or not they made use of the L2 in their online social networking. Later, the students participated in a Facebook training session in the computer lab to create a Facebook account, if they did not already have one, and to add the instructor as a friend. They were encouraged but not required to add their classmates as friends and comment on each other’s posts as well as to chat in English. In post-activity surveys, many of the students reported that they were able to recognize the value of Facebook and other social network sites for language learning and socialization. However, others felt that the training session was boring or useless, as they were already skilled users of social network sites. An activity similar to this one, which attempts to guide learners in adapting their use of technology so that it can aid their L2 learning, could potentially be carried out with high school learners, many or most of whom may already have online social network accounts.

Resources

- [www.cooltoolsforschool.wikispaces.com](http://www.cooltoolsforschool.wikispaces.com): Extensive list of Web 2.0 tools that can be used in the K–12 classroom.
- [http://enterzon.com/](http://enterzon.com/): Zon, a multiplayer, online learning environment designed to teach Chinese language and culture through game play.
- [http://www03.edu.fi/oppimateriaalit/franceaventures/](http://www03.edu.fi/oppimateriaalit/franceaventures/): Not a multi-player game, but it does offer a multi-media adventure in French, which could be played in small groups to increase collaboration.
- [www.blogger.com](http://www.blogger.com): Any user can create a free online blog, which can be linked to a gmail account.
- [www.edublogs.com](http://www.edublogs.com): Blogging website created for K–12 educational purposes.
- [www.twiducate.com](http://www.twiducate.com): Modeled on Twitter, this is a social networking tool for teachers to use with their students.
- [www.edmodo.com](http://www.edmodo.com): This is a social learning platform for teachers, students, and parents, similar to Facebook, but for educational settings.
- [http://tesl-ej.org/jej42/m2.html](http://tesl-ej.org/jej42/m2.html): This website offers an explanation of Flickr and some suggestions for use in the K–12 classroom.
- [www.voki.com](http://www.voki.com): Here users can create an avatar and record a voice message to accompany it. The “voki” can then be posted to a blog or other website.
- [www.podcastalley.com](http://www.podcastalley.com): This site offers a searchable directory of podcasts, divided by topic.
- [http://audacity.sourceforge.net/download](http://audacity.sourceforge.net/download): This is a free, open-source software that can be used to record and edit sounds; it is used by many podcasters.
- [www.podomatic.com](http://www.podomatic.com): A free hosting service for podcasts.
References


IV. Integrating Technology for Speech and Pronunciation

- Because communicative approaches toward language learning emphasize the authentic use of language as opposed to practice with discrete linguistics units, teachers often struggle with providing pronunciation training in their classrooms (Hincks, 2003; O’Brien, 2011).
- Teachers may feel unsure as to whether explicit training can improve pronunciation, or feel that they lack the knowledge necessary to give explicit feedback (Hincks, 2003).
- Language instructors report that they rarely focus on pronunciation in their classrooms, primarily because of time limits and because they do not want to interfere with their students’ communication (Engwall & Bäälter, 2007).
- Research has shown that language learners, both children and adults, do benefit from and appreciate explicit pronunciation training and feedback, at both the segmental (individual sound) and suprasegmental (prosodic) levels, which include aspects of stress, rhythm and intonation (Hardison, 2004; Lord, 2005; Neri, Mich, Gerosa, & Guiliani, 2008; Knoerr & Weinberg, 2005).
- Computer Assisted Pronunciation Training (CAPT), especially that which makes use of Automatic Speech Recognition (ASR) technology and/or visualization techniques, can be a useful tool for language instructors.
- CAPT programs, which may be commercial or designed by computer programmers in conjunction with educators and researchers for specific purposes, often incorporate visual sound mappings and can offer learners individualized feedback on their pronunciation errors (Godwin-Jones, 2009).
- New CAPT technologies that make use of acoustic signals along with video recordings of the articulation may allow for more targeted training for L2 learners (Engwall, 2012).
- Recording technologies such as podcasts enable students to post recordings online, which instructors later respond to by offering targeted feedback (Ducate & Lomicka, 2009). These technologies may be easier to create and implement in the classroom.

Advantages:
- Individualized attention through the layered feedback CAPT can provide.
- Learners may proceed at their own pace and focus on specific areas.
- The option to repeat exercises as many times as they would like.
- Variety of native speaking models for learners to access (Engwall & Bäälter, 2007; Godwin-Jones, 2009; O’Brien, 2011).

Limitations:
- ASR technologies have not been successful at interpreting spontaneous, natural foreign accented speech (e.g., Kamper et al., 2012). CAPT exercises are limited in that they must include pre-defined language.
- Speech produced by language learners is not always easily identified by the software programs, which may lead to incorrect feedback (Engwall & Bäälter, 2007).
- Not all CAPT programs provide explicit feedback regarding the user’s pronunciation; some programs simply offer an acceptable or unacceptable rating, or allow learners to record their own voice and compare it to a native-speaking model without offering any specific feedback, while others provide visual graphs of speech but offer no instructions as to how to interpret these visuals (Chun, 1998).
Recommendations:

- Instructors making use of these kinds of programs should offer the learners support in interpreting the feedback appropriately.
- Perceptual training that makes use of a variety of speakers may be especially helpful (e.g., Thomson, 2011).
- Engwall & Bäälder (2007) concluded that the most effective online tutoring programs should provide feedback
  1) after a student has finished speaking;
  2) related to relevant features of an exercise or lesson;
  3) on errors that would have a communicative or social impact;
  4) errors that statistically are most common or important;
  5) of various kinds adapted to the specific learner and exercise;
  6) identifying specific errors and offering suggestions for improvement, with animation of articulation; and
  7) that is initially limited, with the option for the user to click to receive more details.

While no CAPT programs currently available for wide-spread use meet all of these criteria, a program or combination of pedagogical activities that met as many of these criteria as possible should prove to be especially beneficial for language learners.


The author discusses a variety of computer software, some free and others available for a fee, that can provide visual analyses of important issues of pronunciation such as segmentation, tone, stress and intonation. These software programs allow students to view visual images of the utterances of native speakers, as well as record their own utterances and make comparisons. Among the free software tools, the author refers to PRAAT and Emu, which are freely downloadable on Windows and Mac computers, as well as Wavesurfer (see resources below).


This study involved intermediate-level university learners of German and French who were native speakers of English. As a component of their coursework, the students recorded a scripted podcast at the start and close of the semester. They first listened to the text read by a native speaker and then recorded themselves. They also prepared three unscripted podcasts based on assignments they were given, such as the task of researching a French or German city and preparing a podcast convincing their classmates to visit the city. The podcasts were uploaded to the personal blogs students were keeping as a component of the course. In terms of feedback, a native speaker listened to each scripted podcast and offered feedback through comments on the blogs, as well as through direct written feedback for each student. The professor evaluated each of the unscripted podcasts using a rubric that took into account features such as organization,
coherence and creativity, as well as pronunciation accuracy. To analyze the impact of the course on students’ pronunciation, the students’ podcasts were rated by native and non-native speakers of the language in terms of comprehensibility and accent. Overall, the students’ ratings for accent and comprehensibility did not significantly change over the course of the semester. The authors speculate that the lack of significant results may be due to the short time frame of the study. However, in their comments on a post-semester survey, 60% of the students reported that the scripted podcast activities were enjoyable and useful, and that they appreciated hearing a native speaking model before recording. The majority of the students also stated that they would like to participate in similar projects in the future.


The researchers involved in this study carried out a literature review on feedback strategies for pronunciation, as well as observing three language classrooms and carrying out interviews and focus groups with language students of varying ability levels. Their goal was to investigate the feedback strategies that human language teachers generally use to help students correct phoneme errors and to assess how they could best be implemented by a virtual tutor. Based on their results, they offered a variety of suggestions for the kinds of feedback that Computer Assisted Pronunciation Tutoring should include. A limited pilot study of a program with these characteristics, (ARTUR-a virtual speech tutor), developed for Swedish as a foreign language and tested on a small number of adult speakers of English, demonstrated that the learners responded positively to those features within a CAPT program.


While the researchers stated that Computer Assisted Pronunciation Training (CAPT) is often limited in the kind of feedback it can offer students, they noted potential for these systems to provide complex visual feedback regarding subtle phonetic distinctions. Additionally, they stated that CAPT can offer students increased pronunciation practice, especially outside the classroom. In the present study, they tested a prototype of a Virtual Speech tutor (ARTUR, as in the previous study), which uses three-dimensional animations of the face and internal parts of the mouth (tongue, palate, jaw, etc.) to give feedback on the difference between the user’s pronunciation errors and a correct pronunciation. The CAPT was led by an animated tutor who gave the users specific instructions about how to proceed. The pilot was tested with three students between the ages of 9 and 14 who had experience using computers for pronunciation training. Although the training session with the pilot was too short to measure its actual impact on the students’ pronunciation, in post-test interviews the students rated the software positively, especially regarding the specific feedback on how to improve their pronunciation.
The researcher carried out two experiments with English-speaking undergraduate students enrolled in a second-year French course to evaluate the effectiveness of computer-assisted prosody training. Prosody was defined as “variations in pitch, tempo, and rhythm” within speech (p. 35). The 16 participants in the experimental group took a pre-test in which they read a variety of phrases in French. Later, they underwent a three-week training session in which they were able to view computerized visual displays of pitch contours as produced by three native speakers of French. They could see specific comparisons of their own recordings with the native speaking recordings. All of the recordings were done using commercial software called Kay Elemetrics Computerized Speech Lab (CSL). Once the training session was complete, the experimental group members re-recorded the same sentences on a post-test. Students from a control group also recorded the various sets of sentences, but were given no prosodic training. All of the recordings were evaluated by trained raters for native- or non-native-likeness with regards to prosody and segmental accurateness. The students from the experimental group were rated as significantly more native-like on the post-test than on the pre-test, while those in the control condition showed no change. The students also took another test in which they heard the sentences with filters so that individual words were not identifiable, although pitch, tempo and rhythm remained intact. They were then asked to recall the correct wording of the sentences. While the students from the control group were not able to identify any of the filtered sentences, those from the experimental group were able to recall the exact lexical content of approximately 80% of the sentences. These results suggest that computer assisted prosody training can not only aid language learners in achieving more native-like pitch, tempo and rhythm, but that these features may be stored together in their memory of lexical items, thus aiding in memory.


The authors report on a study that makes use of *SpeechRater*, a system that uses speech recognition technology to automatically score learners’ utterances. Unlike other systems, the one described in this study allows for the scoring of spontaneous utterances. The ratings are given on the basis of fluency, pronunciation, diversity of vocabulary and grammar. The researchers sought to determine the extent to which the *SpeechRater* could estimate human scoring, and they found that the scores were not only similar, but that scores assigned by the *SpeechRater* system were less variable than those assigned by human raters. While the researchers do not propose making use of the system in high stakes (e.g., TOEFL) testing situations, they do recommend that this may be a good solution for practice, in which it is helpful for students to receive immediate feedback on their speech.

Undergraduate students of Spanish enrolled in a phonetics course received explicit instruction in differences in pronunciation between English and Spanish. They also had access to voice analysis software during hands-on, in-class sessions, in which they could see visual images of certain pronunciation features of native speakers, as well as recording and analyzing their own voices. The results of the experiment suggested that by the end of the semester the participants’ pronunciation had become significantly more native-like on the majority of the features addressed, when compared to the pre-test scores.


In this research project, a Computer Assisted Pronunciation Training (CAPT) program was tested on ten 13-year-old EFL students in Italy. The experimental group was compared with a control group of 15 students who attended a class with an instructor but did not have access to the CAPT program. The program, PARLING, was created by the researchers, but was modeled after the *Tell Me More Kids* commercial software. It included a series of well-known children’s stories, with hyperlinks on words that are typically difficult to pronounce. The users could click on the words to hear them pronounced and later record the words. The automated speech recognition technology analyzed the recording and responded with a message indicating if the word was pronounced correctly or requiring that the child record the word again in the case of error. The students completed the exercises during four sessions in the computer lab with no direct instruction (outside of the written instructions included in the computer program). The students in the control condition spent the same amount of time with their instructor, reading the stories together and receiving oral feedback from their instructor on any pronunciation difficulties. Both groups of students recorded a set of words from the stories on both pre- and post-tests, which were evaluated by native speakers of English for accuracy. The results showed that both groups improved significantly between the pre- and post-test and that there were no significant differences between the groups on either test. The findings suggest that the CAPT software was as effective as the instructor at aiding the students in improving their pronunciation.

**Resources**

- [http://www.tellmemore.com/secondary_education](http://www.tellmemore.com/secondary_education): This commercial software, Tell Me More, is targeted to secondary schools and includes pronunciation exercises involving speech recognition.
- [http://www.fon.hum.uva.nl/praat/](http://www.fon.hum.uva.nl/praat/): Praat is a free, open-source tool for speech analysis.
• **www.speech.kth.se/wavesurfer**: WaveSurfer is another open source tool for sound visualization and manipulation.

• **www.voki.com**: Here users can create an avatar and record a voice message to accompany it. The “voki” can then be posted to a blog or other website.

• **http://audacity.sourceforge.net/download**: This is a free, open-source software, used by many podcasters, that can be used to record and edit sounds.

• **www.podomatic.com**: A free hosting service for podcasts.

References


V. Integrating Technology for Listening

- Studies have demonstrated that the use of technology can lead to increased vocabulary learning and listening comprehension.
- Narrow listening, or repeated listening to an oral text, can improve comprehension and lead to greater use of cognitive strategies with each repetition (Dupuy, 1999; Liu, 1995).
- Language learners are able to acquire new vocabulary and improve their listening comprehension and motivation when interacting with oral texts that include captions (e.g., Baltova, 1999; Garza, 1991; Grgurović & Hegelheimer, 2007).
- The Internet provides a wealth of access to authentic, culturally relevant listening materials in most languages (Shrum & Glisan, 2009).
- Internet and computer technologies can support language learning by allowing language learners to interact individually with the listening activities, rather than working in class as a large group.
- Instructors can also add captions to video files using programs such as Windows Live Movie Maker, YouTube and other video editing software (see resources below).
- Learners can interact with and manipulate audio files by editing the speed of reproduction (Robin, 2011).
  - Audio modification tools specific for language learning, such as 123LISTEN and Dit-CALL, are being tested and have shown promising results. Neither of these technologies is currently readily available to language instructors (Hulstijn, 2003; Meinardi, 2009).
  - Instructors who would like to experiment with basic audio manipulation, or assist their students in learning to do so, can make use of downloadable programs such as Audacity and Free Audio Editor (Robin, 2011).

**Advantages:**
- When manipulating audio and video files on their own computers, learners can replay the file as many times as they wish, thus working in a more self-directed fashion (Gruba, 2010).
- Audio and video files available on the Internet often include optional access to captions, subtitles and transcriptions.
- When students are given the option to edit the speed of an audio file, they show improved comprehension (Zhao, 1999).

**Limitations:**
- Lower level students may access less optional help than more advanced students, while still showing lower levels of comprehension (Grgurović & Hegelheimer, 2007).
- The use of captions, subtitles and slowed down speech does not necessarily prepare students for authentic listening interactions outside of the classroom (Vandergrift, 2004).
- The inclusion of captions, subtitles and slowed down speech will not make accessible for the learner material that is entirely out of the range of his or her ability level (Guillory, 1998).

This study evaluated the feasibility of exposing non-advanced learners of French to an authentic video, with and without accompanying L2 captions. Ninety-three Grade 11 second language learners of French in Ontario participated in the study. The students all watched a short, seven-minute edited segment from a scientific documentary in French, shown three times consecutively during the same class period. In the bimodal condition, the students watched the video twice with L2 audio and L2 captions, which provided text for approximately 50% of the audio track from the video, at approximately 65–100 words per minute of reading. During the third showing, they saw the video without accompanying captions. In the ‘reversed’ condition, the students saw the video first with English audio and French subtitles, a second time with French audio and French captions, and finally with French audio and no captions or subtitles. In the ‘traditional’ condition, the students saw the video three times with French audio and no captions or subtitles. The post-tests included comprehension and content questions in French and a c-cloze text to assess vocabulary learning, with items from the video, administered immediately following the video session and again two weeks later. The results showed that the students in both the bimodal and the reversed condition scored significantly higher on the comprehension/content test than did the students in the traditional condition, but that there was no significant difference between participants’ results in the bimodal and reversed conditions. However, the students in the bimodal condition scored higher than both groups on the c-cloze test. These results suggest that L2 captions accompanying an L2 video promote increased comprehension as well as leading to greater levels of L2 vocabulary learning.

Recommendations:

- When attempting to integrate specific tools, instructors should always keep in mind the long-term goals they have for their students as well as their knowledge of pedagogy.
- Students will need guidance from their instructors as to how to best make use of all of these features.
- Students should be encouraged first to listen to an oral text from start to finish at a normal speed. If they have difficulty understanding, they can then listen repeatedly to specific portions of the oral text, only clicking on captions or subtitles to confirm their own interpretation as a third and final step (Hulstijn, 2003).
- Same-language captioning could be useful during in-class listening activities with easier-to-understand materials, while native language subtitles would be recommended for more complex oral texts, such as films and news broadcasts, especially when assigned for independent viewing outside the classroom (Danan, 2004, p. 71).
- Instructors should take into account the ability level of their students when choosing oral texts and should design pedagogical tasks that include pre- and post-listening activities, as well as supporting their students in developing a variety of listening strategies (Gascoigne Lally, 2000; Robin, 2011).

Second language learners tend to neglect or ignore help options when engaging in online listening tasks, despite the potential benefits they provide. In this study, the researcher examined beginner, intermediate and high level adult L2 learners and why they failed to make use of help options, such as audio control buttons, listening tips, glossed words, translations, transcripts, cultural notes, a dictionary, and feedback. After engaging in listening exercises, 15 participants took part in an interview and a stimulated recall to explain why they had or had not used the help options. Findings suggested that listeners were only able to use the help options to gain a better understanding of texts that were within their proficiency range, but not for texts well beyond their proficiency level. Furthermore, they only made use of aids that were easily accessible, and which did not require them to leave the main screen to access them. Learners took into account the relevance of the help options, generally only accessing the help options they believed would directly aid them in completing comprehension activities, such as the translation and transcription options, rather than the dictionary that was located on another screen. These included the rewind and pause features that allowed them to pace their understanding. After analyzing the results and later designing and testing further help options, the researcher concluded with the following suggestions for the optimal design of online listening aids: 1) strive for simple and intuitive design, such as the use of help toolbars that can be accessed with one click; 2) provide different routes for interaction, such as providing transcriptions, translations and glossed words as separate help tools that are separate but equally easy to access; 3) provide less, rather than more, help options, especially for beginning level learners; and 4) minimize potential distractions, by offering one-step help options that do not require learners to visit other pages in order to access them.


The authors of this study raise the question as to whether standardized online language tests, such as IELTS, are actually a reflection of authentic listening scenarios. While those who take the IELTS test are only allowed to hear an audio file once, at normal speed, and with no visual context, this may not be an accurate reflection of real-world listening contexts. They divided L2 learners with the same proficiency levels into four groups: 1) one in which an audio was heard at normal speed; 2) at a tempo reduced by 15%; 3) at a tempo reduced by 22.5%; and 4) at a tempo reduced by 30%. The learners in the 3 modified conditions scored significantly higher on the comprehension task and perceived the test to be less difficult. The researchers argued that using freely available programs, such as Audacity, to slow down the rate of speech of audio files as learners practice and prepare for tests has positive benefits and can provide the scaffolding learners need when preparing for high stakes listening tests.

The researchers wished to determine whether students could learn L2 vocabulary from watching subtitled television programs in English. Two hundred forty-six students in Grades 4 and 6 in the Netherlands were placed into either a control group (who watched a program in Dutch), a subtitle condition in which they watched a 15-minute American nature documentary with English audio and Dutch subtitles, and a third condition in which the students watched the same video in English with no subtitles. The Grade 6 students had begun to take English classes, while the Grade 4 students were receiving no English instruction in school. Each video was shown twice successively. Before and after watching the documentary, the students completed an English vocabulary test, and the students who had watched the documentary completed an oral word recognition test. Results showed that the students who had watched the subtitled video were able to recognize more words on the post-test than students who had watched the video without subtitles, while overall the Grade 6 students performed better than the Grade 4 students. These results suggest that students in Grades 4 and 6 are able to read and process L1 subtitles while listening to an L2 video, and that they are able to acquire L2 vocabulary while doing so.


In this study, 53 university students, enrolled in a second semester French course, watched eight videos that accompanied their textbook. In some conditions, they watched the videos all together with the instructor, who guided them through the activity. In other conditions, they each worked individually on computers in the laboratory, with no explicit instructions other than to watch the video as many times as needed. Both groups of students completed a post-viewing comprehension test with factual and analytical questions. After watching six of the eight videos, all students completed questionnaires designed to evaluate their feelings of language self-efficacy and engagement in the independent and teacher-led conditions. The results of the comprehension test showed that there was no significant difference between the independent and teacher-led conditions, suggesting that students were able to comprehend the video equally well when working independently as when given teacher guidance. However, the students in the teacher-led condition reported significantly higher self-efficacy, suggesting that the students felt more confident when watching the videos with the guidance of the instructor. Furthermore, while engagement was NOT a significant indicator of performance on the comprehension task in the teacher-controlled condition, it did have a significant impact in the independent condition. Students who reported higher levels of engagement performed significantly better on the final comprehension task. These results suggest that learners are capable of working independently with computer-based videos (which are integrated with their coursework and level appropriate), but that they may need to be guided towards working independently, so as to ensure appropriate levels of self-efficacy and engagement.

Four students enrolled in an academic listening strategies-based EFL course, all of whom were intermediate-level speakers of English, participated in this study. Over the course of the semester, the students focused on cognitive and meta-cognitive listening strategies in class, and had access to 14 podcast assignments for homework, which included audio files of lectures and news broadcasts. They were encouraged to listen repeatedly to these files for homework, while making use of the listening strategies they were focusing on in class. At the close of the semester, they were observed completing a listening task while verbalizing their thoughts out loud. They also completed questionnaires and interviews designed to assess their listening strategies and to evaluate how listening repeatedly to oral texts influenced their strategies. Although there were few subjects in the study, the results suggest that by listening repeatedly to the oral texts, the students were able to make use of listening strategies to create more detailed and coherent summaries through each repetition. The researchers highlight that computer-based listening activities, such as podcasts, easily allow for repeated listening to an oral text, a feature that instructors can take advantage of by creating listening activities that students can complete individually, outside of the classroom.


In this experiment, 15 non-native speakers of English from six different countries, all either undergraduate students or graduate students enrolled in a U.S. university, listened to different audio passages and then answered comprehension questions. In some conditions, they were allowed to control the speed of the file, by clicking on “faster” or “slower” as they listened to the passage. They were also allowed to repeat the passage as desired at the fast, normal or slow speed. Other listeners were allowed to listen repeatedly to the passage, but could not control the speed. The results showed that when students were allowed to control the speed of the audio passage, they performed significantly better on the comprehension tests. Furthermore, their overall tendency was to slow down the speech rate when given the option to do so.

**Resources**

- [http://audacity.sourceforge.net/](http://audacity.sourceforge.net/): *Audacity* is a freely downloadable program that can be used for audio manipulation, such as slowing down speech.
- [http://explore.live.com/windows-live-movie-maker](http://explore.live.com/windows-live-movie-maker): Windows Live Movie Maker is a freely downloadable program that can be used to create and edit videos and add subtitles and captions. (Macintosh computers offer a similar program called iMovie. Available at: [http://download.cnet.com/Apple-iMovie/3000-2170_4-7469.html](http://download.cnet.com/Apple-iMovie/3000-2170_4-7469.html).)
- [http://neubrandenburg.mmlc.northwestern.edu/](http://neubrandenburg.mmlc.northwestern.edu/): This website includes two documentaries filmed in the former East Germany, with authentic interviews specifically designed for language learners. The documentaries can be viewed in German with or without
accompanying English subtitles or German captions. There are also optional listening exercises and a discussion forum.

- **http://larc.sdsu.edu/voces/**: This website collects interviews carried out with women in four Spanish-speaking countries, with accompanying glossaries and exercises.

- **http://www.laits.utexas.edu/spe/siteindex.php**: This website presents a series of videos (available as podcasts) in which native Spanish speakers perform beginning, intermediate and advanced speaking tasks. Users can access optional transcripts and accompanying grammar and vocabulary exercises.

- **http://www.6milliardsdautres.org**: This website includes 5,000 interviews filmed in 75 countries in a variety of languages. The videos include optional subtitles, and a search function allows users to search for video by topic, language or country. Users can also film their own testimonies and upload them to the website.

- **http://www.nflrc.hawaii.edu/searchsite_pub.cfm?keyword=lgtmt&display_order=alphabetical**: This website provides links to a variety of language learning resources, including some videos in languages such as Chinese.

- **http://oli.web.cmu.edu/openlearning/forstudents/freecourses/french**: This open-source learning website offers two free French courses with a variety of videos and listening activities. Highly recommended for learners of French.

**References**


VI. Integrating Technology for Reading

- Given that an important component of successful reading is vocabulary knowledge, much of the research has focused on the use of CALL tutorials, multimedia annotations of online texts and access to electronic dictionaries for vocabulary learning (Grabe, 2004; Nation, 2006).
- Preparing students for digital literacy is a goal that is increasingly cited in educational curricula in North America (Arnold & Ducate, 2011).
- Various provinces within Canada plan to evaluate the comprehension of online materials in future provincial literacy assessments (Asselin, Early & Filipenko, 2005).
- Brandl (2002) describes three types of CALL lessons that focus on reading.
  - *Teacher-determined lessons*: the text has been modified by the instructor and may also include, for example, glosses, images and hyperlinks. They are accompanied by text-specific tasks. These kinds of tasks may be better suited for beginning-level students, especially when vocabulary learning is an important goal.
  - *Teacher-facilitated lessons*: the instructor pre-selects authentic materials in online environments, but provides learning tasks that will allow the learners to explore those materials in a guided way. Teachers also need to help students to navigate multimedia Internet environments, which are often non-linear and contain potentially distracting items such as hyperlinks to other websites.
  - *Learner-determined lessons*: the learners themselves determine the topics and then organize their own search for online reading materials. These may be more appropriate for intermediate and advanced learners.

*Advantages:*
- A variety of CALL technologies, such as lexical training programs, multimedia annotations within texts and access to electronic dictionaries and internal glossaries while reading can have a positive impact on vocabulary retention, especially for L2 learners at an intermediate language level (Chun, 2011).
- Some studies have suggested that access to online dictionaries and multimedia annotations within texts increases reading comprehension (Chun, 2011).
- The Internet can be used to encourage an increased rate of reading in L2 learners (Arnold, 2009; Pino-Silva, 2006).
- Learners are more autonomous, and the teachers serve as an accessible support.

*Limitations:*
- Students who read in a hypermedia environment require additional skills (beyond reading) to cope with the environment. This may mean that students have a more difficult time comprehending what they read on a computer screen (Ercetin, 2003, p. 262).
- When reading digital texts, L2 learners need to make decisions about when to access a definition or multimedia annotation, as well as interpreting a great variety of images, videos and text. This requires them to navigate through complex and nonlinear systems of information.

This paper describes an online extensive reading program for advanced university students of German. Students received a list of suggested websites they could visit to select their own reading materials. They read in the computer lab and filled out a report after each session, answering questions about the selection process, summarizing what they had read and providing information about the difficulty level thereof. They printed out the texts they had read and stored them in their portfolios, and they also wrote two reflections over the course of the semester. These data, along with a background reading questionnaire administered at the start and close of the semester, were collected and analyzed to evaluate the learners’ experiences with the online reading. It was found that the students enjoyed selecting their own texts to read online and were easily able to use the list of suggested websites to find texts to read in German. Although they were given no direct reading strategy training, the students reported that over the course of the semester they developed their own strategies regarding, for example, appropriate use of online dictionaries. The author suggested that with less advanced students it might be preferred for instructors to pre-select texts at the appropriate difficulty level and to offer more explicit reading strategy guidelines.


The researchers developed a multimedia application that provided text, graphic and video annotations for words in German texts. One hundred sixty second-year university students of German could use those annotations to look up vocabulary items while reading short stories. The available types of annotations were text, text + picture and text + video. Students were then tested for incidental vocabulary learning and reading comprehension. Results demonstrated that students showed significantly higher recall for words they had seen annotated with text + picture annotations than with text + video or text alone. Furthermore, students tended to access more than one media type if it was available for a word, for example text + picture, rather than only text or only picture. The researchers suggested that this freedom to access multiple annotations might explain why the incidental vocabulary learning was higher in their study than in some

**Recommendations:**

- The fact that the use of multimedia materials does not always lead directly to improved reading comprehension indicates a need to support L2 learners in becoming proficient readers of digital texts.
- When navigating these multimedia materials, learners may need continued guidance from their instructors, including training regarding how to extract relevant information from visually complex resources, as well as assistance when engaging in top-down, higher-level and critical analyses of the meaning of texts (Ercetin, 2003).
- Learners may need pre-guidance on how best to find online reading materials in the language of study, for example, how to make use of the language selection option within search engines, or how to find search engines for languages besides English (Brandl, 2002).
previous studies. However, there was no significant correlation between the total amount of annotations accessed by students and their performance on the vocabulary test, suggesting that accessing the annotations alone did not lead directly to greater vocabulary learning. This may be explained by fact that students who started out with a large vocabulary would tend to look up fewer words but still perform well on the vocabulary test. One interesting finding was that, in an extension to the present study, when a group of students was tested on vocabulary through recognition rather than a production task using multimedia stimuli, including pictures and videos, their accuracy went up significantly. These findings suggest that testing students using stimuli similar to those that were initially presented could lead to improved performance, perhaps better capturing their actual learning.


This article reported the findings of a qualitative study carried out in a Grade 7 classroom at a public school in Australia. The researcher observed in the classroom as the teacher led the students through a variety of face-to-face and online activities to improve their English literacy, in a unit designed to offer a multimodal reading circle. During class time, the teacher read picture books, short stories and extracts from novels out loud to the students. At the same time, she instructed them in strategies for effective reading, including a range of techniques from code breaking, or understanding the relationship between spoken sounds and graphic symbols, to deeper analyses, involving a critical look at the cultural and ideological bases of texts. In addition to face-to-face small group guided discussions of the texts, the students helped to design and later had access to a class reading Web page, accessible from home and from within the school library. The computer program *Inspiration* was used to develop the reading website. Within this website, the students could access reading tasks and tips or send messages to a class discussion board. The researcher carried out a close case study of one student enrolled in the course who had been classified as learning disabled and with a low level of literacy. By interacting with the various forms of scaffolding involved in the multimedia reading circle, including accessing the reading Web page outside of class hours, this student was successfully able to engage with and analyze a challenging students’ novel over the course of the school year.


This study examined the ways in which 84 university-level students studying English for academic purposes interacted with online readings that included accompanying multimedia glosses, or annotations. The researcher used Macromedia Director, a commercial software, to create textual and contextual annotations including text, visual images, video and audio features. The students could access any of the glosses while reading and later took a reading comprehension test. Finally, they participated in interviews about their experiences with the multimedia material. The majority of the students reported enjoying interacting with the online text, as they were able to choose which features to click on to get further information and enhance their comprehension. The intermediate learners who participated accessed the annotations significantly more frequently than the advanced students. Both groups of learners
expressed a preference for word definitions rather than images or audio-visual cues to decode the text. On the other hand, audio-visual information was preferred as a way to get background information about the topic. The researchers concluded that the use of hypermedia annotations offers learners the possibility of engaging with authentic tests while providing them with tools for comprehending those texts.


In this extensive reading project, the instructor created a website with suggested articles for Venezuelan university students of EFL to read. They could either read online or print out the articles before reading. The course took place online from outside the classroom, but students had optional access to a computer lab. After reading each article, the students explained the main idea in Spanish on a worksheet and uploaded it to a free online reading group that had been created for the course. Students who had uploaded at least 12 of these summaries were asked to fill out a questionnaire about the course. While most of the students felt that their reading skills improved as a result of the extensive reading, some mentioned problems gaining access to the Internet from home, while others complained that the recommended articles were not interesting. The researcher suggested that to avoid this lack of interest in assigned materials, students could be given the option to search for their own reading material freely on the Web.


This study examined the use of narrative in a multimedia setting and the effects on vocabulary learning and retention. 48 students of psychology at a French university who were also studying English participated in the test. In one condition, subjects read sentences on a computer screen introducing new vocabulary, but each sentence was unrelated. The second condition was similar, except that each sentence was related in telling a story about a character living in Japan. The sentences in each condition presented the same vocabulary items and were comparative in terms of length and complexity. Students in both groups also saw pictures to accompany each sentence to aid them in understanding and interpreting the meaning of the vocabulary words. The students were not aware that they would be tested on vocabulary following the exercise, so any learning was incidental. In an initial post-test, students from the story condition recalled significantly more vocabulary and performed better on a task in which they were asked to translate the vocabulary items. However, on a second recall task, the students in the story condition, while still outperforming the other group, had tended to forget words, while those in the non-narrative condition recalled slightly more words in the second recall task as opposed to the first. Although this may suggest that the higher recall in the narrative condition was due to the presence of an episodic memory trace, the fact that the students in the narrative condition performed better in a third and final task, the translations, suggests that the narrative format had, indeed, led to increased vocabulary learning. Thus, it appears that when using picture glossing for vocabulary learning online, the presence of a narrative context is beneficial, leading to potentially greater understanding of word meaning and improved recall.

This study was carried out with middle schools students of EFL in Iran. After asking a pilot group of students to underline unknown vocabulary words in an English text, the researchers used PowerPoint to annotate the text with textual and pictorial glosses of the unknown vocabulary and later placed the text online. A group of 60 intermediate-level middle school students read the text online and had access to either the text with no glosses (control group), pictorial glosses, textual glosses or pictorial + textual (multimedia) glosses. In the post-tests, it was found that students exposed to any kind of glosses significantly outperformed the control group in both reading comprehension and vocabulary production. The students in the multimedia condition also performed significantly better on the vocabulary production task than the students who had access to only text or only picture glosses.


The author carried out a meta-study of research comparing the effect sizes for reading comprehension in situations in which L2 students read with or without access to L1 glosses. They also compared situations in which CALL glossing was present as opposed to traditional, paper-based glossing. Overall, it was found that approximately 74% of L2 readers who had access to CALL glosses performed better in reading comprehension than their peers who had not had access to glosses. Furthermore, the meta-analysis showed that L1 CALL glosses had a stronger effect on reading comprehension than traditional paper glosses; 90% of learners provided with CALL glosses outperformed those without glosses, while 66% of students provided with paper glosses outperformed those who were not presented with glosses. The authors of the study posit that CALL glossing is more effective in promoting reading comprehension than traditional paper glossing because the glosses may be accessed as needed by the learner through the click of a mouse; thus, they do not tend to distract the learner and may only be clicked if the learner is truly in need of assistance.
Resources

- [http://bookbuilder.cast.org/](http://bookbuilder.cast.org/): Use this free site to create, share, publish, and read digital books with embedded sound and links and an internal glossary.
- [http://joechip.net/extensivereading/2011/06/15/extensive-reading-material-online/](http://joechip.net/extensivereading/2011/06/15/extensive-reading-material-online/): A list of online readings for students of Japanese, including beginning level texts.
- [http://extensivereading.net/](http://extensivereading.net/): A website with information and tips for developing extensive reading programs for foreign language learners.
- [http://onlinebooks.library.upenn.edu/archives.html#foreign](http://onlinebooks.library.upenn.edu/archives.html#foreign): An archive of online books in a variety of languages.

References


VII. Integrating Technology for Writing

- Research on the applications of technology for foreign language writing has mainly focused on the use of technology for automatic feedback of writing.
- Some online tools are available for basic style and grammar correction.
- Language software programs (e.g., Tell Me More, Rosetta Stone) provide writing corrections for language learners at the word and sentence levels (Lafford, 2004).
- Commercial self-authoring programs allow learners to interact with written texts inputted by the instructor through activities such as fill-in-the-blanks, text prediction, word unscrambling, and sentence ordering, which may be appropriate as warm-up activities before writing (Camsoft, 2011; Harbusch, Itsova, Koch, & Kuhner, 2008).
- There is little research data on foreign language software that can provide writing feedback on paragraph-length texts and longer written works.
- Assessment and correction software adapted for other languages do not tend to appear in the research literature, except as the development of prototypes that are still not commercially available (Harbusch et al., 2008).
- Although computer-generated feedback on foreign language learners’ writing is still not generally accessible, other computer tools may be used to improve students’ writing. These include Computer Mediated Communication (CMC), such as the use of email and texting (discussed in Section VIII of this report) Web 2.0 tools, and wikis and Google Docs, which allow multiple users to edit a document stored and shared online (Godwin Jones, 2008). A further line of research investigates the use of corpus technology, or searchable collections of authentic texts that have been categorized in some way, in the classroom, as a means of giving students access to models and introducing them to different genres of writing in the language of study (e.g., Cotos, 2011).
- As with the field of CALL as a whole, some recent researchers into writing have claimed that the question of whether computer technology can produce better writers is irrelevant; the important question instead becomes “how technology can (and should) effect changes in writing practices and the teaching of writing” (Hegelheimer & Lee, 2012).

Advantages:

- Some programs that are capable of correcting common grammar and spelling errors, such as the spell and grammar checking software for a variety of languages found in Microsoft Word, have been used with language learners with positive outcomes (Rimrott & Heift, 2008; Shrum & Glisan, 2009).
- Some higher level writing software that can provide feedback at the sentence and discourse level has been developed for writing in English. This may benefit EFL learners (El Ebyary, 2010; Fang, 2010).
**Limitations:**
- There are difficulties associated with programming computers to recognize and correct grammatically incorrect sentences, such as those that might be produced by language learners (Chi Yang & Akahori, 1998).
- Programs that do provide writing prompts (e.g., *Tell Me More*) do not evaluate students’ writing. Learners are instead instructed to save and submit their texts to instructors for feedback (Lafford, 2004).
- Although some scoring systems that offer evaluation and feedback (e.g., *Intellimetric™*) exist, no research is currently available on the use of this software with foreign language learners (Elliot, 2003).
- Commercial programs to evaluate L2 writing will probably not be financially feasible for most institutions for some time to come (Carr, 2011).

**Recommendations:**
- Because few studies have been carried out, it is difficult to make concrete recommendations based on the results of previous research.
- Some research that has been carried out, for example with GoogleDocs and Etherpad, two free collaborative writing tools available online, suggest that the tools in and of themselves will not automatically lead to collaboration (Brodahl, Hadjjerouit & Hansen, 2011). Learners will need assistance as to how to work collaboratively and should be guided as they learn to use new tools to engage in writing.


This article describes the use of networked computers to allow intermediate-level university learners of French to engage in text chat with fellow students about assigned literary texts prior to writing compositions. Logs of their conversations were stored and the students were later given feedback on common errors. Students later used the chat logs when preparing their own compositions. Once they had written a rough draft of their compositions, they used the network to share them with other students and get feedback. Finally, they prepared a final draft on the basis of the comments they had received. Teachers who guided their students in participating in this process stated that it resulted in better expression and higher quality writing overall. Other reported benefits of this and similar tasks included 1) affective benefits, such as the fact that typically shy students tended to participate more through chat; 2) linguistic benefits, such as a reduction in code-switching when compared to classroom interactions and; 3) cognitive benefits: CMC allowed learners to reflect before producing the language, leading to higher quality utterances.

This study explored the implementation of *My Access!*, an automatic writing evaluation (AWE) program, in three EFL college writing classes in Taiwan and how students rated its effectiveness in improving writing. Data were collected in the form of end-of-course questionnaires completed by the students, focus group interviews with students, individual interviews with instructors, and analyses of the students’ writing samples together with the feedback and scores generated by *My Access!*. The findings showed that, in general, the use of AWE was not positively evaluated by the learners or instructors, especially regarding the automatic scoring. However, it was rated more positively when used for feedback during the early drafting and revising stages of essay writing, coupled with feedback from the instructor and peers at later stages in the writing process. The results also showed that attempts to use the AWE autonomously as an out-of-class, unsupervised writing coach resulted in high levels of frustration for the students.


The author of this study drew on the notion of genre when designing an L2 writing course for EFL graduate students that included the use of an Intelligent Academic Discourse Evaluator (IADDE). This Web-based Automatic Writing Evaluation program analyzes the introduction section to research articles and generates immediate, individualized, and discipline-specific feedback regarding the use of vocabulary and rhetorical moves. In addition to the feedback program, the students were given access to a database of thousands of research articles from their respective disciplines, through which they could independently read and analyze writing from these genres. They also studied the use of rhetorical moves, as defined by Swales (2004) during in-class lessons. Cotos’s results showed that the students were able to revise their written work using the automatic feedback, creating subsequent drafts of their essays that were given higher ratings by independent observers.


This project was carried out with two intermediate-level French and German university classes over the course of two semesters. During the first semester, the students were allowed to choose between several suggested blogs published by native speakers of French and German. They then visited those blogs over the course of the semester to learn more about the writers and used worksheets to prepare summaries of the topics discussed. At the end of the first semester, they further researched a cultural issue that had been mentioned in the blog and presented it to the class. During the second semester, the same students were instructed to publish their own blogs, writing each week on assigned themes related to the topics covered in the course. They were also required to read and comment on each other’s blogs. The teachers graded the blog writings and offered feedback, but as the focus was on fluency and not form, the students were not required to
rewrite the blogs or correct their mistakes. The instructors’ observations as well as the students’ own comments in questionnaires and interviews suggested that the students enjoyed the project and felt that it helped them expand their reading, writing, vocabulary, and cultural knowledge. They seemed to feel more comfortable expressing themselves in the blogs than in class, possibly because they had more to time to think about how to compose their messages in the blogs. The difficulties associated with such projects include finding appropriate native speaker blogs that are frequently updated. The authors suggested finding a partner group in another country and allowing the two groups to read and comment on each other’s blogs.


The researchers described a project carried out in a Toronto elementary school in which Grade 4 students with a variety of home languages worked in pairs to write dual language identity texts, exploring their own multicultural identities as well as issues that mattered to them, such as bullying. The final versions of these identity texts were then digitalized, uploaded and published on a website called The Multiliteracy Project, developed as part of a research project involving a variety of K–12 educational jurisdictions in Canada (see http://www.multiliteracies.ca/index.php/folio/viewProject/38). In end-of-course interviews, the students commented positively on the feeling of being actual authors who could publish their work on the World Wide Web. They noted that this was unlike typical classroom writing activities, which tended to stay within the walls of the classroom.


This study examined the way in which adult L2 learners participated in collaborative writing using Web-based word processing tools, specifically collaborative texts produced in Google Docs. As a voluntary part of a university course in English for Academic Purposes, university EFL learners formed their own groups of three students each, according to academic interest. They were given guidelines regarding topics and were given class lectures on finding a topic, research methods, data collection and analysis, organization, clarity in sentence structure, advanced grammar, using sources and citation styles. The students also receiving training in the use of Google Docs and later used it to write and edit a collaborative paper. The revision habits of the students were analyzed by the researchers, and were found to include both language related contributions, including form and meaning, as the most common kind of contribution and non-language related contributions, such as formatting. It was found that in each group, all group members contributed, although they tended not to participate equally, with average ratios of 46% of contributions coming from one team member, 37% coming from a second team member and 17% coming from the third member. The researchers found instances in which the students, working from remote computers, engaged in simultaneous editing of a section of the text, suggesting a variety of changes and eventually settling on a definitive version. The students corrected and made changes to each other’s spelling and punctuation, but only occasionally made changes in verb tense. Overall, the changes that the students made in others’ work in the collaborative documents tended to be correct. The researchers conclude that Web-based word
processing tools can allow students to collaborate fluidly on the writing of documents and to correct others’ work with high levels of accuracy.


In this research project, 35 university students enrolled in a first-year Spanish course used Wikispaces, a free wiki technology, in groups to prepare and revise three written assignments, as a substitute for the traditional classroom writing tasks. They were encouraged to comment on each other’s work and make corrections, as well as to add multimedia materials to their written work on the wiki site. Prior to interacting with the wiki, they were given a brief training and worked as a class on a practice wiki. Data were collected in the form of end-of-semester surveys as well as through an analysis of the actual content of thewikis, along with the revision history, which was automatically stored. It was found that the peer collaboration through the wiki encouraged focus on form, as the groups were frequently able to notice problems with their writing. However, for the most part the students did not feel comfortable editing each other’s work. Therefore, it was important for the instructor to monitor the activity in the wiki pages and offer strategies and tips for the best way to engage in collaborative revision. For example, the instructor taught the students to offer feedback by using the comment function to suggest a correction, rather than directly editing another student’s work.


This research project, developed as part of a European project called ITCOLE, examined the collaborative writing of fairy tales across two Grade 5 classrooms, one in Italy and another in Greece. After a unit on fairy tales in the classroom, the students in each country were instructed to work in small groups to write the first half of a fairy tale dealing with the issue of diversity. They worked together to make decisions and edit the fairy tale, and later posted it online for the students in the other country, who downloaded it, read it and then wrote the second half of the fairy tale. They also uploaded drawings to accompany the text. Each of the two groups wrote their fairy tales in English, their second language. This project thus involved collaborative writing not only within one class, but at a distance with students from another country. Each of the writing sessions was filmed and analyzed, along with the drafts and final products of the writing. The researchers focused particularly on the development of intersubjectivity at a distance. They concluded that the two groups of students, despite never meeting or interacting live, took into account the perceived presence of the other group and the cues present in their texts and were thus successful at collaborating to create cohesive stories. The researchers in this study made use of Synergeia, a shared workspace system developed as part of the ITCOLE project.
Resources

- **www.wikispaces.com**: This site allows for the creation of wiki spaces. Administrators can control who has access to and who can edit the pages.
- **https://docs.google.com**: This site allows you to upload and store files online and invite other users to view and/or edit them.
- **http://titanpad.com/**: Allows for the creation of public, shared writing spaces, which can be saved and stored online.
- **http://cooltoolsforschools.wikispaces.com/Writing+Tools**: A list of a variety of Web 2.0 tools for writing that can be used in the K–12 classroom.
- **http://www.languagetool.org/**: An open-source style and grammar proofreading software for a variety of languages.

References


VIII. Computer Mediated Communication Technology and Distance Learning

- Computer Mediated Communication (CMC) has been defined as both direct (synchronous) and time-delayed (asynchronous) person-to-person communication made possible through the use of computers, and especially via a network or the Internet.
- CMC technologies can be used to set up both intracultural and intercultural interactions, as well as providing support for distance education (Blake, 2008; Cavanaugh, 1999).
- CMC technologies have the potential to support K–12 language learners (Cavanaugh, 1999; Shrum & Glisan, 2009).
- There are three important types of CMC projects:
  - Exchanges called *telecollaborations* involve closely controlled designs, in which entire partner classes work together over the course of a semester or school year, making use of parallel course material that students can discuss through partner or small group contact (Thorne, 2008). One such model of telecollaboration is *Cultura* (Suarez-Garcia & Crapotta, 2007).
  - Intercultural CMC exchanges may involve *teletandem exchanges*, in which two individuals interested in each other’s languages have regular contact online, with sessions focusing on each language (Vasallo & Telles, 2006).
  - *E-twinning* projects are collaborative partnerships between school systems that have been carried out within the European Union (Domínguez Miguela, 2007).
- LMS, such as WebCT and Moodle, allow for asynchronous presentation, and Elluminate, Google Phone and Skype are often used for synchronous contact.

**Advantages:**
- Projects involving CMC technologies may facilitate authentic language use, encourage dialogue among individuals and partner classes across the globe and enable learners to make meaningful use of language through social interaction (Shrum & Glisan, 2009).
- Given that language instructors are often difficult to find, foreign language classes remain an ideal candidate for online instruction (Lewis, 2011).
- CMC technologies have been found to facilitate intracultural contact within otherwise face-to-face classroom settings.
- University language learners who have engaged in text chatting and email exchanges typically produce more language with a higher level of complexity compared to what they produce in oral discussions within the classroom (Kern, 1995; Warschauer, 1996).
- CMC can lead to increased negotiation for meaning (Pelletieri, 2000; Smith, 2003).
- There is evidence that students experience less language learning anxiety when interacting through written CMC (Meunier, 1998; Warschauer, 1996).
- Voice-chat session allow for more focus on and repairs of pronunciation (Jepson, 2005).
- Murray (2005) has concluded that the use of online communication, whether inside or outside the classroom, benefits L2 learners in that it gives them the opportunity to form their identities through hybrid uses of language.
Limitations:

• Studies investigating distance language learning among K–12 learners have shown that online language courses often result in less student success as compared to face-to-face classes. This may be due to a lack of social interaction when students work individually without making use of the CMC tools (Lewis, 2011; Oliver, Kellogg, & Patel, 2012).

Recommendations:

• Students will need guidance as to how they are expected to use the technologies and should be given clear tasks that have been designed with the specific technologies in mind (Lamy & Hampel, 2007).

• Educators involved in distance language learning should consider ways of incorporating pedagogical activities that could make use of CMC tools to encourage online collaboration (Blake, 2007; Lewis, 2011).

• Research has shown the importance at the K–12 level of hiring full-time facilitators or mediating teachers within local schools. These facilitators should supervise students in their distance courses and ensure they are completing their tasks and routinely interacting with their online instructors (Barbour & Mulcahy, 2004; Lewis, 2011).

• Blake (2008) has explained, “[t]he potential benefits of collaborative exchanges, whether set in the classroom or managed online, depend more on sound pedagogical design of the tasks the participants are asked to accomplish than on the actual locus of the learning event” (p. 70).

• Intercultural CMC exchanges should ideally involve both synchronous and asynchronous forms of communication, with task sequencing that progresses through initial phases of socialization and familiarization, followed by comparison and analysis and finally culminating in collaborative tasks shared across the groups (Guth & Helm, 2011).

• Research projects focusing on intercultural exchanges have highlighted instances of miscommunication or communication breakdowns, which can be expected as a component of these kinds of exchanges.
  o If learners are properly supported and are encouraged to reflect more deeply on the kinds of miscommunications encountered, these instances, rather than constituting a negative component of the exchange, can be seen as important learning experiences that may lead to increased intercultural competence (Kramsch & Thorne, 2002; Thorne, 2008; Ware, 2005).

• Other factors to consider when organizing online exchanges are
  1) establishing appropriate etiquette, such as the importance of responding to the content of previous messages, or the rules of turn-taking;
  2) ensuring the safety of the students, by discussing the kinds of content they can and should share online and with whom;
  3) integrating CMC activities within a pedagogical frameworks, with clear instructions and goals for the learners (Lamy & Hampel, 2007; Richardson, 2006).

This article describes the use of networked computers to allow intermediate-level university learners of French to engage in text chat with fellow students about assigned literary texts before writing compositions. A log of their conversation is stored and the students are later given feedback on common errors. Students can use the chat logs when preparing their own compositions. Once they have written a rough draft of their compositions, they use the network to share them with other students and get feedback. Finally, they prepare a final draft on the basis of the comments they have received. Teachers who guided their students in participating in this process stated that it resulted in better expression and higher quality writing overall. Other reported benefits of this and similar tasks include 1) affective benefits, such as the fact that typically shy students tend to participate more through chat; 2) linguistic benefits, such as a reduction in code-switching when compared to classroom interactions; and 3) cognitive benefits: CMC allows learners to reflect before producing the language, leading to higher quality utterances.


This project was carried out with two intermediate-level French & German university classes over the course of two semesters. During the first semester, the students were allowed to choose between several suggested blogs published by native speakers of French and German. They then visited those blogs over the course of the semester to learn more about the writers and used a worksheet to write summaries of the topics discussed. At the end of the first semester, they further researched a cultural issue that had been mentioned in the blog and presented it to the class. During the second semester, the same students were instructed to publish their own blogs, writing each week on assigned themes related to the topics covered in the course. They were also required to read and comment on each other’s blogs. The teachers graded the blog writings and offered feedback, but as the focus was on fluency and not form, the students were not required to re-write the blogs or correct their mistakes. The instructors’ observations as well as the students’ comments in questionnaires and interviews suggested that the students enjoyed the project and felt that it helped them expand their reading, writing, vocabulary, and cultural knowledge. They seemed to feel more comfortable expressing themselves in the blogs than in class, possibly because they had more time to think about how to compose their messages in the blogs. The difficulties associated with such projects include finding appropriate native speaker blogs that are frequently updated. The authors suggested finding a partner group in another country and allowing the two groups to read and comment on each other’s blogs.

This study involved an exchange carried out between high school speakers of English and French in a variety of countries, including England, Canada, Senegal and France. It is an ongoing project that at the time of publication had been carried out continuously since 2001. The students who participated had access to an online discussion forum that they could log into from home or at school and were divided into small groups based on their interests. On one of the discussion boards, they were asked to introduce themselves and get to know the other members of the group by asking questions. On another discussion board, the research coordinator frequently posted topics that the group members should respond to, some in French and others in English. Topics included a discussion of the war in Iraq and other current events, as well as topics that could incite discussion, such as vegetarianism and testing on animals. When analyzing the interactions between the students, and post-exchange interviews, the researcher found evidence of peer scaffolding, such as when one member offered specific corrections on another’s linguistic errors. Some learners also reported learning new vocabulary by looking at a native speaker’s messages and using some of their structures as models. However, the researcher found that learners did not always focus on the linguistic content of the messages they received and suggested that local teachers take specific excerpts from the discussions for use in the classroom. Finally, the discussion logs as well as the interviews with participants demonstrated that many of the learners were able to engage in cross-cultural interaction and that they enjoyed meeting and interacting with high school students from other countries.


This article describes a telecollaborative exchange that has been carried out with K–12 students since 1995. The activity, titled Monster Exchange, was designed to allow school-age children to use the Internet for communication purposes through e-mail contact and the use of a shared website, [http://www.monsterexchange.org](http://www.monsterexchange.org). Two groups of students imagine, draw and then write descriptions of monsters, which they email to each other. The second group reads the description and then draws the monster, scanning their pictures in to email back to the first group. Finally, the descriptions and both sets of pictures are posted on the website. In the study described in the article, the same activity was adapted for use with preschool students. It was hypothesized that the activity would allow them to practice using vocabulary related especially to shapes and colors. Instead of writing descriptions of the monsters, the students first drew monsters and then recorded a verbal description, which was sent to the partner group to listen to. Since the students often had difficulty drawing certain shapes, students were also allowed to use drawing software to create their monsters. The results showed that the preschool students were able to complete all parts of the exchange successfully. They also showed a significant decrease in errors over the course of the semester when selecting shapes for the drawings. Their drawings generally included more geometrically accurate figures when they made use of the drawing software.

This report compiled survey results and case notes describing eTwinning projects that had been carried out as of 2009 at the elementary, middle and high school level at various institutions across Europe. Based on these results, the components of an eTwinning exchange that most determined its success were 1) personal and professional commitment to the project; 2) school culture; 3) previous project experience on the part of the project coordinators; 4) availability of training and support; and 5) teaching release and planning time, as well as the nature of the eTwinning activity. Many projects are briefly described in the report, but two that are relevant to foreign language learning include 1) Myths, legends and fairy tales; and 2) Where are our smiles from? In the first project, high school students in Romania, Greece, France and Poland shared traditional myths, legends and fairy tales from their countries. After taking brief language courses to learn each other’s languages, they worked together to translate the tales into French and then put on plays in their respective locations, filming DVDs of their work. Finally, they placed their work on a shared website (See also: http://www.vasilesav-comenius.ro/index.html). In the latter project, students between the ages of 7 and 12 at schools from six different European countries interacted through email and videoconferencing. They shared information about themselves and described the things that made them happy, in words, picture and video, which were all shared on a common blog (See also: http://oursmiles-etwinning.blogspot.com/2008/03/etwinning-project.html).


This article describes a telecollaborative exchange similar to that carried out by Fesakis, Sofroniou and Mavroudi (2011), but which was carried out between groups of students in Grade 3 to 8 classrooms in over 20 different schools in Canada, France and the Basque region. The students communicated by email and through a shared website to share and create descriptions and drawings of monsters in French and English.


This research project involved a meta-study of 255 middle and high schools in the U.S. and Canada, as well as in several other countries, that had students enrolled in German Online courses offered by Oklahoma State University. The course included video, animation and sound, as well as self-checking computer exercises on a website, in addition to written worksheets to be filled out by hand. Students were expected to contact their German online tutors for weekly sessions, by phone, Skype or Google phone. Overall student achievement across the schools, in the form of final grades, was examined alongside other variables as reported by administrators and local facilitators at the various schools. It was found that the grades were not normally
distributed, but rather included high percentages of As and Fs with little in between. Failing grades were due primarily to failure to complete assignments. There also tended to be either high-scoring or low-scoring schools. A comparison of these groups showed that high-scoring schools tended to have full-time local facilitators who had been trained, had frequent contact with the virtual German instructors and other facilitators and reported no problems with technology. The low-scoring schools tended to have part-time facilitators with little or no training, little or no contact with virtual instructors and with other facilitators and who reported problems with technology. It also appeared that the online synchronous tutoring sessions were important, as the facilitators of high-scoring groups tended to actually connect the call for their students and were present during the tutoring sessions. However, it was suggested that future research was needed to examine the impact of live synchronous tutoring sessions on student achievement in distance language courses.


This book discusses the results of a multi-site, longitudinal study examining how learners establish and maintain relationships in which they use an L2 online in their daily lives, how they draw on CMC as a resource, and how CMC provides opportunities for L2 use and acquisition. The researcher met with and interviewed 12 students of Japanese at an Australian university as well as virtually contacting 100 of their Japanese online contacts. She asked the learners to describe their online daily use of Japanese, and then visited the same sites to get a sense of the technologies. The learners and their Japanese contacts supplied her with documents, such as saved conversations of their online interactions, and also engaged in further online contact which they saved and submitted to her. Four of the twelve students later went to Japan to study abroad, so the researcher followed those students to observe how their use of Japanese online might change across the study abroad experience. After detailed analysis and discussion of results, the researcher comes to a variety of conclusions about naturalized use of L2 in online contexts and the relationship to language use and acquisition. She states, for example, being part of a ‘virtual community’ and accessing an authentic audience online was the most important source of motivation for language production identified by the participants in the study. It was found that certain events, such as participation in local groups or clubs, as well as study abroad experiences, tended to lead to a dramatic increase in the use of the L2 and contact with native speakers online. Her research points to the importance of online interaction using the L2, both inside and outside the classroom, as a support for L2 acquisition and use.


The researchers analyzed the exit surveys of 126 students enrolled for the first time in virtual Canadian high school courses within the Great Canadian School Division. The majority of the students were taking one or two online courses in addition to other face-to-face classes within their school district, although 5% were foreign students living in other countries or rural students taking courses from home. The course was provided through WebCT, but also included email, bulletin board and live chat technology. When rating these technologies, the majority of the
students rated email as a valuable tool they could use to contact their instructors directly and ask specific questions about the course, as well as a useful way to contact other students in the course. They also rated the bulletin board highly as a social tool they had used to get to know other students, help each other with problems, and discuss the topics placed on the board by their instructors. While most of the students saw chat as a potentially valuable tool, many of them were not actually able to use it during their course, given that when they logged in they did not generally find other students available. This suggests that the mere presence of a chat tool is not sufficient to elicit discussion; students may need guidance and explicitly designed tasks that will allow them to successfully engage in synchronous discussion.


This article takes a closer look at the concept of the “good language learner” from the perspective of distance learning, specifically focusing on the affective factors that lead some individuals to be more successful distance language learners. The study involved second and third year undergraduate students of English at a Chinese open university. Those students who, across their English coursework, were in the top 15% were classified as successful language learners while those in the bottom 15% percent were classified as unsuccessful. A total of ten successful and ten unsuccessful students agreed to be interviewed; the interviews took place online using Tencent QQ: an online messaging tool, and through follow-up email exchanges. It was found that successful distance language learners had specific reasons for choosing English, could identify perceived benefits of learning English, and reported high levels of motivation. On the other hand, the unsuccessful students often could not articulate any perceived benefits to the learning of English, and the two least successful students were unable to state any reasons why they were studying English in the distance program. Only two of the ten successful students claimed to have high levels of motivation. The successful students did claim that it was difficult at times to maintain their motivation in the distance format; however, they all were able to explain measures they used to deal with decreases in motivation, including seeking help, engaging in self-encouragement, reviewing the progress made, and taking a break in course materials to enjoy other activities. The authors also related the students’ success in the distance course to individual learner beliefs: the successful students generally expressed the belief that they were successful learners of English who were self-disciplined and goal-oriented. On the other hand, unsuccessful students tended to look for external factors to explain their lack of progress with the distance course, such as the need for the presence of a teacher, or the distractions of a home environment when studying. In the conclusion, the author suggests integrating metacognitive training, such as training regarding setting goals and sustaining motivation, within distance learning courses.

In this study, the researchers analyzed occurrences of negotiation of meaning and comprehension in either audio chat, video-conferencing or face-to-face L2 interactions. The subjects were 15 pairs of Spanish L2 learners enrolled in third semester Spanish at a university in Southern California. They were randomly assigned to one of three conditions and received corresponding instructions. In the audio and video chat conditions, both of which involved the use of Skype (with or without video), the students were seated at computers on opposite sides of the room and used headphones to communicate. In the face-to-face condition, the students sat in chairs facing each other. They all completed a jigsaw task in which they had to share information to make a decision about what items to take on a trip to South America. The items were deliberately chosen so that the students would probably not be familiar with them and would have to negotiate for meaning to complete the task, for example by asking specifically “What is that?” or “Do you know what that is?” All interactions between students were recorded and later analyzed. Results showed that, while all groups engaged in negotiation for meaning, the percentage of negotiated turn-taking was highest for the audio chat condition, while video chat and face-to-face showed lower levels. On the other hand, in the audio condition pairs were more likely to reach only partial agreement of the exact meaning of the target word. In the face-to-face and video chat conditions, visual cues were often used to reach full understanding. Further research is needed to determine whether it is beneficial for language learning to engage in more negotiation for meaning even if that results in less understanding. However, the results of the study suggest that both audio chat and video conferencing are useful CMC tools that learners can engage with for oral practice, especially when given specially designed tasks that elicit negotiation of meaning and high levels of interaction.

Resources

- http://www.adlc.ca/content/view/33/98/: The Web page for Alberta Distance Learning.
- http://shop.skype.com/apps/?intcmp=ch3-appDirectory-main: A list of applications that can be used with Skype, including virtual whiteboards and call recording software.
- https://accounts.google.com/: The website for Google. Google account users have free access to email, chat and video chat services.
- http://cooltoolsforschools.wikispaces.com/Collaborative+Tools: A list of Web 2.0 tools for use in the classroom, including virtual meeting and chat rooms.
References


IX. Computer-based Language Assessment

- *Assessment* often means looking at some sort of standardized score as indicative of students’ abilities in any of the language skills: listening, reading, writing or speaking.
- CALL offers alternative forms of assessment, especially formative (i.e., e-portfolios).
- There may be little difference in performance on pencil-and-paper tests compared to computer-based tests (Breland, Lee & Muraki, 2004; Wolfe & Manalo, 2005).
- Computer-adaptive testing (CAT) makes use of algorithms to determine the difficulty of questions, which are required to gain an accurate measurement of students’ proficiency.
- *Listening* assessment: Of the language skills assessed via computers, Ockey (2009) points out that listening may be the most controversial. Buck (2001) argues that many cues (e.g., video) should be used to make the task more like real-world listening.
- *Reading* assessment often involves multiple-choice, short-answer and matching questions (Alderson, 2000; Carr, 2011).
- *Speaking* assessment has involved the assessment of pronunciation via automatic speech recognition (ASR) (e.g., Arias, Yoma & Vivanco, 2010; Charalabopoulou et al. 2011).
  - ASR technology may provide accurate assessment of foreign accented pronunciation in some cases (e.g., Engwall, Wik, Beskow & Granström, 2004).
  - Spoken language may be assessed through computer-mediated oral proficiency testing (e.g., Fall, Adair-Hauck & Glisan, 2007; Malone & Montee, 2010).
- *Writing* assessment is often carried out via automatic writing evaluation. AWE is one type of assessment that is used in high-stakes environments.
  - Computers are still unable to “read” texts or evaluate the content of writing samples because they cannot take advantage of meaning like human readers do (Chen & Cheng, 2008, p. 95; Godwin-Jones, 2008).
  - AWE can appraise surface features and formulaic patterns, evaluating text as “code” (Warschauer & Ware, 2006).
  - Scoring algorithms assign high scores to low-frequency vocabulary items as well as to texts that demonstrate lexical diversity, both of which are correlated with advanced language proficiency (Crossley, Salsbury & McNamara, 2012).
  - AWE may be effective in a formative capacity, facilitating early drafting and revision (Chen & Cheng, 2008, p. 11).
- E-portfolios encourage students to “collect, sort, select, describe, analyze and evaluate evidence” to demonstrate how they have met a goal and provide a “picture of the student’s growth and development” (Cummins & Davesne, 2009, p. 848).
  - Unlike summative assessments, those that are formative point to areas in which students may improve (Chen & Cheng, 2008, p. 97).
  - E-portfolios offer a viable alternative to standardized testing and combine learning and assessment (Hung, 2012, p. 23).
  - Making use of e-portfolios in teacher preparation programs may generate positive washback effects and promote critical thinking (Hung, 2012).
  - Apple and Shimo (2004) mention three types of portfolios: a) documentation /collection (all of the work from a particular course); b) assessment (students select works according to criteria); and c) showcase (students’ best work).
Advantages:
• Contextualization cues (e.g., images, audio, animation, video) can be provided (Douglas & Hegelheimer, 2007). It is possible to create more visually attractive tests.
• Learners report a sense of engagement.
• Computer-delivered tests are easily delivered, efficient and include culturally authentic materials.
• Kinesthetic learners may also benefit from features such as pull-down menus and radio buttons (Carr, 2011, p. 339).
• Content can be culturally appropriate.
• Multiple-choice CATs may be
  o more efficient and more precise than tests in which all students are asked the same set of questions (Carr, 2011; Ockey, 2009).
  o scored immediately, and learners may complete them at a comfortable pace.
• Web-based tests allow for online testing.
  o They are easily scored.
  o Students anywhere in the world can be tested at convenient times.
• E-portfolios allow students to add a wide array of media types to their portfolios (e.g., videos, pictures, audio files).
  o Assessment of e-portfolios can be more interactive, allowing for teachers to provide comments (e.g., audio) inside of various folders in the portfolio.
  o Students who produced e-portfolios receive feedback about their strengths and weaknesses, and students report that these comments may be more helpful than a test score (Baturay & Dologlu, 2010, p. 425).

Limitations:
• Computers are unable to assess the content of free responses provided by learners in written and spoken assessments (Carr, 2011; Douglas & Hegelheimer, 2007).
• The only option for completely computerized evaluation of spoken and written language comes from a set list of potential responses (i.e., multiple-choice or fill-in-the-blank questions).
• Students in our communicative language courses may be stifled from communicating creatively because they know that this could potentially have a negative effect on the scores they receive (Chapelle & Douglas, 2006).
• Visually appealing assessments (e.g., eye-catching fonts, graphics) could negatively affect the learners’ ability to perform well on them (Carr, 2011). Much of the assessment carried out on computers is still similar to pencil-and-paper assessments, and types of exercises employed often include those in which there is one correct answer such as multiple-choice or fill-in-the-blank exercises (Jamieson, 2005).
• In spite of apparent similarities to pencil-and-paper assessments, it is still unknown whether computer-mediated tests tap into the same knowledge, skills or cognitive processing (Stoynoff, 2012, p. 242).
• Students with less experience with computerized tests may experience more anxiety (Carr, 2011), and this may mean that they perform differently on computerized tests than on pencil-and-paper tests (Chapelle & Douglas, 2006).
• The cost of development of computerized assessment may be quite high.
• Security may be an issue, both in terms of identifying examinees, and, in the case of web-delivered examinations, and the downloading of test content.

Cummins and Davesne present the European Language Portfolio (ELP) and the American adaptations LinguaFolio and the Global Language Portfolio. The authors investigate the unique features available in electronic portfolios. They highlight that qualitative assessments of portfolios allow for a focus on L2 communication skills and cultural competence. Important in the authors’ discussion of portfolios is that they concentrate on collection, selection and reflection. Moreover, they differentiate e-portfolios from paper portfolios in that they are more engaging because a wide variety of media files (audio, video, photos) can be stored in one location and organized according to theme, timeline or a particular purpose. They focus on the importance of teacher feedback of the e-portfolio to increase student motivation. The European Language Portfolio’s three parts (a language passport, a language biography and a dossier) enable students to highlight official test results and international experiences, self-assessment of L2 skills and cultural competence with a link to plans for improvement, and evidence of progress in the development of L2 skills and cultural competence (p. 852). The authors highlight the fact that learners can provide evidence of what they can do without the pressure of a test situation. E-portfolio creation also allows for the integration of skills. Through the sharing of e-portfolios in the classroom, students are able to collaborate and enhance their social skills.


de Wet and colleagues carried out a large-scale study making use of automatic assessment of oral language proficiency and listening comprehension. This was in response to the common situation that exists in the assessment of students’ entrance level language skills. That is, reading and writing are often evaluated, but listening and speaking are not. This is in spite of the fact that studies have shown a disconnect between results on written tests and on oral tests (Sundh, 2003). The authors operationalize oral language proficiency as rate of speech, goodness of pronunciation and repeat accuracy. Data were analyzed via automatic speech recognition and human scoring. The results of the study indicate that there were correlations between human and machine scores and that speech rate may provide an indication of oral proficiency. Nonetheless, the software is still in developmental stages and will not be ready for implementation for some time.

The authors report on a project to make oral language testing available to language students in the Pittsburgh Public School district in response to a goal of the local school board: that all students in the district achieve the intermediate-low level of oral proficiency on the ACTFL scale. This level corresponds to the A2 CEFR level. The online oral testing software allows the school district to test large numbers of students and to track their oral proficiency over time. Based on the Oral Proficiency Interview, the test requires students to complete ten tasks online. The speech samples are rated holistically by trained teacher raters, meaning that a rater listens to all ten responses before assigning a score. Each teacher rates speech samples from at least 20 students, and teachers are allocated five paid hours to perform the ratings. The results presented in the paper are from over 6,500 students between 2003 and 2006, and they show that students’ proficiency levels increase over time. Just as importantly, though, the school board has shown that it is possible to reliably assess the oral proficiency of all of its language learners, thereby providing the students and the school board with important information about students’ performance. Teachers play an integral role in the assessment process, thereby empowering them.


Ockey provides an overview of the L2 computer-based testing (CBT) literature. He defines CBT as “the use of computers to deliver, score, select items, and report scores of assessments” (p. 836). He begins by noting that some of the positives include the authenticity of the tests and reliable and instantaneous scoring. Nonetheless, he points out that CBT has not yet realized its potential. For example, security issues (e.g., determining the identity of test takers, securing scores, item banking) are still a problem. He presents a number of resources that are currently being used to assess the four language skills: listening, speaking, reading and writing. The author also provides a clear overview of the field of computer-adaptive testing (CAT). CAT relies on an algorithm to deliver questions to a test taker based on responses to previous questions. Ockey notes that this method of testing is more efficient than nonadaptive systems, since test takers have to answer fewer questions for an accurate assessment. Opponents of CAT note, however, that language tests are different from other sorts of tests and that the underlying assumptions of the technology are not met. In spite of the negatives, Ockey believes that the CBT will continue to expand, both in terms of high stakes, large-scale testing (e.g., TOEFL) and low stakes, small-scale assessments (e.g., classroom quizzes).

**Resources**

**Portfolios**

Assessment resources

- [http://www.lancs.ac.uk/researchenterprise/dialang/about](http://www.lancs.ac.uk/researchenterprise/dialang/about): DIALANG.

References


X. Other Hardware

The hardware reviewed in this section includes interactive whiteboards (SmartBoards) as well as mobile devices including personal digital assistants (PDAs), cellular phones, MP3 players (e.g., iPods), tablet computers (e.g., iPads), or digital dictionaries.

Interactive whiteboards

- The SmartBoard is an interactive whiteboard, defined by Cutrim Schmid (2006) as a “touch-sensitive electronic presentation device” (p. 48).
- Research into the use of interactive whiteboards focuses primarily on teacher and student perceptions of the technology.

Advantages:

- Student engagement and greater curiosity and participation on the part of learners (Sharma & Barrett, 2007).
- The “wow” factor commonly associated with the use of new technology.
- Whole class teaching with a visually engaging tool.
- Interactivity (i.e., the manipulation of applications and information on the screen).
- Showcasing learners’ presentations.
- Variety of text types and support for various learning styles (visual, auditory and kinesthetic learners).
- Graphics allowing for visualization of otherwise difficult-to-comprehend concepts.
- Ability to print off material created on the board (Orr, 2008).
- Ability to control the input (Gray, Hagger-Vaughan, Pilkinson & Tomkins, 2007).
- Group error correction, which may encourage students to “get an eye for the language” (Gerad, Greene & Widener, 1999, p. 5).

Limitations:

- Teachers have little choice about the introduction of the technology into their classroom, and they also report spending a great deal (“inordinate amounts”) of time creating materials for use on the whiteboards (Gray et al., 2007).
- Much of the teaching being done with interactive whiteboards is teacher-centered (Cutrim Schmid, 2010; Cutrim Schmid & Whyte, 2012) and behaviouristic in nature (Cutrim Schmid, 2006, 2010).
- Negative feedback on interactive whiteboard technology focuses mainly on teacher perceptions and researcher observations of the use of the technology in the classroom. Much of the research points to the need for pedagogical training and reflection on the part of teachers who make use of the technology (e.g., Cutrim Schmid, 2011; Gray et al., 2007).

Mobile learning

- Mobile learning, or m-learning, is the term used to describe the use of wireless, handheld devices for the purposes of learning. When applied to the language learning situation, it is commonly referred to as mobile-assisted language learning (MALL).
- Mobile devices have been tested and shown to be effective for podcasting, vocabulary building and review, creation of blogs and wikis and communication.
• **Podcasting**
  - Podcasts have been used for student audio or video presentations (e.g., Kukulska-Hulme, 2005), to enable individualized aural feedback from teachers or other students (e.g., Lord, 2008), for paired interviews, lectures or reviews of lectures.
  - Material can be authentic content from native speakers of the target language or created for or by the language learners themselves (Rosell-Aguilar, 2007).
  - Students who create their own podcasts have positive attitudes (Lord, 2008).
  - Students may make use of video technology to engage in storytelling, which has a link to students’ real lives and may therefore encourage more student investment (Godwin-Jones, 2012).

**MALL technology**

- The first has to do with device ownership, “since a tool that has only been borrowed may not be used in the same way as one that is owned and very familiar” (Kukulska-Hulme, 2009, p. 159). Next, she notes that learners with more than one device at their disposal will probably behave differently from those who only have one, due to issues of battery life and reliability.
- Not all students have experience with the technologies (Hoven and Palalas, 2011; Liaw, Hatala, & Huang, 2010), so training should be provided to all students.
- Students should be guided through the use of the resources, given the potentially overwhelming amounts of information that are available to them (Hoven & Palalas, 2011).
- Colpaert (2004) reminds us that it is essential to determine the goals of using the technology, while placing the learner and learner goals before the technology. Chinnery (2006) remarks that mobile devices should be viewed as instructional tools, to be used with a specific goal in mind. The field of MALL is still in its infancy, and there are very few studies on the use of mobile devices by children in the K–12 system.

**Advantages:**
- Portability and flexible interaction and delivery format that is socially acceptable and aligned with students’ lifestyles.
- Lower cost when compared to desktop and laptop computers.
- Personalized, situated, authentic, spontaneous and informal activities.
- Potential for enhanced learner control and engagement (Billings & Mathison, 2012).
- Potential for increased learner motivation and student perception of improvement through the use of MALL technology (e.g., Hsu, 2012; Kondo et al., 2012).

**Limitations:**
- Small screen size of many technologies.
- Some students see this as an interference into their personal lives.

The authors investigated the ways in which podcasting was used and the instructional benefits thereof in eight foreign language classes at Old Dominion University during the Fall 2007 semester. Course instructors could choose how to make use of podcasting, and the authors distinguished between podcasts that were used to provide students with supplemental material (i.e., material for review) and those that were integrated into the curriculum (e.g., critiques of projects and exams, student video presentations, student interviews, lectures, dictations, roundtable discussions and guest lectures). The results of analyses of student and teacher questionnaires indicate that students enrolled in the classes in which the podcasts were integrated into the instruction were more likely to use them and that the podcasts made it easier for them to complete their assignments. In general, students who made use of the podcasts reported that the podcasts helped them improve their language skills, especially their aural and oral skills as well as their vocabulary knowledge.

**Recommendations:**

- Mobile devices should be viewed as instructional *tools*, to be used with a specific goal in mind (Chinnery, 2006).
- Before making use of MALL technology, instructors should consider the extent to which students can be mobile when they use it (Ballance, 2013).
- Instructors should be willing to provide ongoing support to students, even after they have prepared highly effective MALL study materials (e.g., Kondo et al., 2012).
- Some important issues that should be considered (Kukulska-Hulne, 2009):
  - Device ownership: “a tool that has only been borrowed may not be used in the same way as one that is owned and very familiar” (p. 159).
  - Learners with more than one device at their disposal will probably behave differently from those who only have one, due to battery life and reliability.
- Teachers are reminded to consider students’ comfort levels and the use of technology.
  - Not all students have experience with technologies (Hoven and Palalas, 2011; Liaw, Hatala, & Huang, 2010), so training should be provided to all students.
  - Students should be guided through the use of the resources, given the potentially overwhelming amounts of information (Hoven & Palalas, 2011).
  - Students’ attitudes toward MALL technology may vary according to cultural backgrounds (Hsu, 2012).


Cutrim Schmid investigated the use of and reactions to interactive whiteboard technology by seven teachers of Grade 6–9 English in Southern Germany. Although the study focused on self-reflection and evaluation as part of a professional development program for the teachers, the paper provides important insights into the use of the technology. Perhaps most importantly, the study supports findings of previous research indicating that teachers tend to revert to the use of more teacher-centered “show-and-tell” approaches in which the use of the technology dominates the lessons. Teachers noted that they forgot about pedagogical theories and “methodological appropriateness” of the activities because they were focused on using the whiteboard. One teacher who made use of the technology primarily to motivate students by encouraging them to interact with the board later changed her approach to the use of the board as more of a support for classroom (often student) presentations. She found student participation to be just as high, and she found evidence for more student-student interactions when the focus of the whiteboard activities moved from manipulation of the board to presentation of material. The study focuses on the value of examining one’s reasons for using the technology and the importance of training in its use.


The authors investigated the extent to which participants’ perceived playfulness, resistance to change and self-management affected their perceived learning outcomes in English using electronic dictionaries. Participants in the study were 167 undergraduate ESL learners in Taiwan, all of whom made use of an electronic dictionary. The authors note that some of the important functions of electronic dictionaries include pronunciation functions and allow learners to make use of supplementary websites. Those learners who reported the highest playfulness (i.e., “cognitive spontaneity and sense of pleasure in undertaking a task” (Spence & Usher, 2007, p. 269)) spent more time making use of the electronic dictionaries and also reported the best learning outcomes. Similarly, those students who reported high self-management skills also perceived that they had better mobile learning outcomes. On the other hand, resistance to change among participants was negatively correlated with perceived learning outcomes. Of all of the factors investigated, perceived playfulness had the greatest influence on students’ outcomes.


This study reports on the use of a mobile device-supported peer-assisted learning (MPAL) system designed to address the weaknesses observed in collaborative learning in traditional language courses. Most importantly, it has been found that medium-level students often suffer in collaborative situations, since the advanced-level students focus their energies on assisting low-level students. Participants in the study were a total of 52 students in a Grade 3 English as a
Foreign Language (EFL) course in Taiwan. Half of the students made use of tablet PCs, and they had access to assistance (via Skype) at precisely the times when they required it. The other half of the students made use of traditional (face-to-face) classroom collaboration. The authors found that students in the MPAL group received significantly more support and concentrated more on reading activities (i.e., they engaged in more on-task behaviour), and the MPAL use had positive effects on students’ confidence, motivation and anxiety levels.


Lu examined the use of short message service (SMS) in second language learning. Thirty high school (Grade 10) students studying English in Taiwan participated in the study. All of these students reported using a mobile phone regularly. They were divided into two groups, one of which received SMS messages with new vocabulary and the other of which learned the same words on paper. Although participants in both groups learned the vocabulary, the results indicate that students who received the vocabulary via SMS recognized more vocabulary on a post-test than students who had received the vocabulary on paper. The results of questionnaires indicate that students appreciated learning the vocabulary via SMS. Lu concludes that the portability, immediacy and novelty make SMS an ideal medium for the self-learning of second language vocabulary.


This study investigates learner perceptions of interactive whiteboard technology (like SmartBoards) among adult second language learners of English from various countries. In general, the author found that there is not evidence of improved pedagogical practices or improved “attainment” on the part of students whose teachers use interactive whiteboards. The greatest proportion (30%) of students who responded to a questionnaire indicated that what they liked best about the technology was the use of “new technology in class, the high quality visuals, and the use of the internet.” Other popular responses included increased pace of the lesson (10%), improved understanding (9%) and improved cleanliness of the classroom, due to a lack of chalk dust (9%). More negative responses centered around the teachers’ lack of technological skills and dissatisfaction with technical problems. The author notes that involving students in the discussions of the potential uses of the technology may be a way to make the use of interactive whiteboards more meaningful.


The author reports on the use of the iPad and iPod for digital documentation (i.e., audio and video recording) of learning among Early French Immersion students in Alberta. The primary data for the study include classroom observation and interviews with the classroom teachers (four Grade 1 teachers, three Grade 2 teachers, one Grade 1/2 (multilevel) teacher, three Grade 3
teachers, two Grade 4 teachers and three resource teachers). The teachers made use of the technologies in different ways, depending on the grade level of the students involved. In Grades 1 and 2, teachers primarily made use of the devices to have students record their reading. Because the students used both video and audio recording, the teachers could determine the potential causes of the mistakes students were making. Students in Grades 3 and 4 also recorded their reading, but teachers made use of the recordings to gain evidence of students’ reading fluency. Teachers also reported that students made use of the devices to plan their writing. Teachers highlighted the effectiveness of the use of the technology in enabling formative self-assessment, as the students were able to document their learning over time.


The goal of this study was twofold. The first was to determine whether, when given the choice, students would choose to learn vocabulary on a mobile phone or on a personal computer. The second goal was to identify the effects of mobile phone use on vocabulary acquisition. Participants in the study were 175 learners of English in Tokyo. Vocabulary learning took place outside of the classroom. In general, the participants were more likely to make use of personal computers when learning vocabulary. Participants who made use of mobile phone technology to learn the vocabulary took longer to complete the activities, and the author attributes this to the likelihood that participants learning the vocabulary on their phones most likely did so in places in which environmental factors also competed for their attention (e.g., on trains, in the library or in a coffee shop). The scores received on vocabulary tests following the vocabulary learning treatment did not differ according to the platform on which students had learned the vocabulary (i.e., mobile phone or PC).


The researchers examined the effectiveness of using video podcasts (in English) that promote the development of academic listening skills for 75 primarily first year French immersion students at the University of Ottawa, where Anglophone students take academic courses in French. Effectiveness of the podcasts was determined through weekly questionnaires and a focus group discussion. In general, students reported appreciating the podcasts, but the authors suggest that podcasts should be more interesting than those that participants in the study viewed. Since running the study outlined in the paper, they have revised the podcasts to include questions and answers, and they are also available in French so that students can also learn this content in the target language.


The authors made use of smart phones to determine the extent to which thirty-four 11-year-old
children would use the phones to make sense of idioms in four activities. In the first activity, learners took pictures of everyday items to illustrate the new idioms they had learned. After that, they created and photographed contexts from their daily lives to illustrate the idioms. These photos were then uploaded to a class wiki site. In the next step, students commented on the work of their peers in illustrating the idioms. Finally, the entire class engaged in an activity that challenged learners’ linguistic knowledge about the idioms. The authors highlight the significance of the mobile task in raising students’ awareness of a) the fact that learning can take place in any location; and b) the important role that they play in creating course content.

Resources

*SmartBoard resources:*
  - [http://www.bobsedulinks.com/Smart_Board_Links.htm](http://www.bobsedulinks.com/Smart_Board_Links.htm): Bob’s Place of Educational Links.

*MALL resources*
  - [http://digitalstorytelling.coe.uh.edu/](http://digitalstorytelling.coe.uh.edu/): Educational uses of digital storytelling from the University of Houston.

This may be especially helpful when working with young children.

References


Kukulska-Hulme, A. (2005, May 12). The mobile language learner—now and in the future. Fran
Visiontill Praktik. Language Learning Symposium conducted at Umea University in Sweden.


XI. Technology and Professional Development

- The intersection of technology and professional development involves diverse areas:
  - research regarding the kind of support and training teachers need in order to bring technology into their own classrooms
  - an investigation of how technology can be used to carry out teacher education and professional development, in face-to-face, blended learning and online settings.
- Mere access to technology is not sufficient to bring about any real change in classroom teaching practices (Friesen & Jacobsen, 2011; Lam, 2000; Murgatroyd & Couture, 2010).
- Teachers are more likely to implement technologies within the classroom after first making use of them for their own learning (Grabe & Grabe, 2008; Van Olphen, 2007b).
- Educators are often reluctant to use technology for the following reasons: lack of familiarity with the technology, inadequate training and technical support, a lack of support from administration, and confusion over how to incorporate the technology into the established curriculum (Keengwe & Onchwari, 2009).
- Only between 40 and 50% of Alberta teachers felt comfortable integrating technology within their curriculum and teaching, citing barriers such as lack of access to professional development and little encouragement to be innovative with their teaching practices.
  - The same report stated that most uses of technology within Alberta involved implementation within existing policy and curriculum, often through top-down policy decisions rather than through any real support or recognition for innovation at the local level (Murgatroyd & Couture, 2010).
- In most classrooms in Alberta that they studied, Friesen and Jacobson (2011) “found little evidence of students completing authentic tasks or of rigorous and complex work being designed for and required of high school students.” Instead, they primarily observed students, “watching or listening to the teacher present material to the entire class.”
- Technological Pedagogical Content Knowledge (TPCK) is a theoretical model that has been used to describe the interplay between technology, pedagogy and content.
  - To successfully integrate technology, teachers must take into account the interplay between the content they are teaching (a foreign language and culture), their pedagogical goals (for example: fostering collaboration or intercultural communication) and how the application of a technological tool will impact on each of these components (Koehler & Mishra, 2005; Van Olphen, 2007a).
- Some blended learning and online programs, which often make use of Learning Management Systems such as WebCT and Moodle, have been used as platforms for pre-service and in-service teacher education programs (Keengwe & Onchwari, 2009; Kuptez & Ziegenmeyer, 2005; Van Olphen 2007b; Signer, 2008; Tran, 2006).
- FLTeach is a list-serve and social network for foreign language teachers. It is “a tool for discussing issues, raising concerns, and solving common problems that are germane to the FL community at regional, national, and international levels” (Leloup & Ponterio, 1995).
- Another website devoted to the collection and evaluation of technological-pedagogical units is MERLOT, the Multimedia Educational Repository for Learning and On-line Teaching (Cafolla, 2006).
**Recommendations**

- Pedagogy, not technology, should be driving curriculum reform, and through pedagogical reform educational programs should be moving towards constructivist, inquiry-based and collaborative models of pedagogy and learning (Elliot, 2009; Friesen & Jacobson, 2011; Keengwe & Onchwari, 2009; Murgatroyd & Couture, 2010).
- In order for teachers to feel comfortable making use of technology for this kind of learning in the classroom, they will need clear teaching and curriculum guidelines at the administrative level as well as ongoing local support (Haughey, 2002).
- Researchers have recommended that professional development for technology integration include:
  1) situated learning in which teachers decide how to implement technology in specific classroom situations, within their curricula;
  2) hands-on use of technology;
  3) collaborative participation with other teachers both locally and in networks that connect schools, school boards and provinces;
  4) adequate ongoing technical support at the local level;
  5) appropriate administrative support, guidelines and vision; and
  6) exposure to and knowledge of CALL research results (Elliot, 2009; Hanson, Dembovskaya & Lee, 2005; Keengwe & Onchwari, 2009; Koehler & Mishra, 2005; Kuptez & Ziegenmeyer, 2005).
- Possible uses of technology for teacher development could include:
  - a blended learning program including video from actual classroom settings for teachers to reflect on (Kuptez & Ziegenmeyer, 2005).
  - discussion forums and chat sessions so that teachers could continue to share and comment on each other’s teaching experiences after the completion of the in-class sessions (Van Olphen, 2007b).
  - e-portfolios with pre and in-service teachers, a digital tool that teachers can later use with their own students (Ledoux & McHenry, 2006).

**Advantages:**
- Research has shown that teachers are more likely to implement technologies within the classroom after first making use of them for their own learning. Since professional development often takes place via LMS, they will then practice using it.

**Limitations:**
- Mere access to technology is not sufficient to bring about any real change in classroom teaching practices. Teachers must be required to use it and be trained to do so properly.
This report describes the results of various efforts carried out as part of an Emerging Technologies project funded by Alberta Education. One of these projects, at the Peace Wapiti School Division, involved the intended creation of an online educational portal software that would allow students, teachers, administrators and parents to collaborate and share educational information and tools. However, after delays with the development of the commercial software, the Moodle course management system was installed instead. Less than a year after the system was launched, Peace Wapiti School Division reported that as many as 282 members of their professional community were using the site to share documents, discuss ideas, co-create materials and develop e-portfolios. The site was also being used as a learning management system, with Biology 20, Chemistry 20 and Physics 20 courses all being offered completely online through Moodle, along with the hosting of other digital resources, including materials for four blended learning courses.


The authors of this article proposed the creation of a website in which CALL researchers and K–12 educators could collaborate and share knowledge. The website would include short summaries of key research and publications within the field and their implications for educators. Teachers would be able to comment on the articles and use CMC technology such as email and discussion forums to discuss the implications for their own classroom settings. This would facilitate communication between teachers and researchers through a cost-effective Web format. Although much of the database as well as its interface have been programmed, the website has never been launched for public use due to lack of funding.


The researchers describe an eight-week summer program on technology integration offered at a U.S. university for 12 practicing elementary school teachers. In addition to working with traditional tools such as Microsoft Word, PowerPoint and Excel, the teachers experimented with free online rubric makers, sample lesson plans, graphic organizers and other adaptable templates for online lessons. They practiced downloading online resources and looked at CMC resources they could use to share projects and instructional tools with colleagues. For example, the instructors signed up for Google email accounts and examined the use of Google documents online for sharing and collaborating on electronic documents. They also looked at other digital publishing tools they could use to place their work online, and examined the concept of “netiquette,” or practices to ensure safe and enjoyable Internet use for young learners and adults. During the workshop, the teachers also practiced using programs for recording, editing and
mixing audio, and they used photo, image and video software to create multimedia texts to place online. They discussed the importance of copyright issues. While the teachers appreciated the hands-on component of the summer workshop, they stated that without further support they would continue to be uncomfortable integrating technology into the classroom practices. The researchers suggested that on-going local technical support could include the designation of technology coaches at each grade level. These coaches would be knowledgeable teachers willing to share their techniques and lesson plans with their peers who would be compensated for their work. The researchers also recommended the creation of online learning environments that would connect schools, as well as the need for local technology integration specialists.


The researchers of this article conducted a pilot study involving blended learning for teacher training with 35 students of education at a German university who were prospective teachers of English as a Foreign Language. The students met for weekly 90-minute sessions with a professor but also had access to multimedia materials in the Learning Management System for the course. These included transcribed video recordings from actual classroom settings, with accompanying materials for study related to the lesson they were viewing. The students also used technology in their course to participate in online discussion forums, write a learner diary and email it to their professor and set up and carry out an e-interview with an expert from the field of teaching. Three members of the class set up and moderated the interview, using a synchronous chat, in which all class members participated. Finally, the students worked in groups to prepare a “mini-practice” lesson for Grade 8 students. Three groups were then chosen to teach their lesson to students at a local school, which they recorded and later shared with their classmates. In their post-class interview, more than 75% of the students felt that the video recordings of the class sessions had supported their learning and 60% felt that the mini-practice had done so. While fewer students rated the e-interview as helpful, the researchers posited that it functioned successfully as a learning tool for the three students who had set up and moderated the interview.


This article details an electronic portfolio policy being instituted in the teacher education program at a U.S. university. In the future, all student teachers will be instructed to prepare electronic portfolios as a requirement for graduation. After being introduced to the electronic portfolios during a technology for education class, teacher candidates will submit artifacts such as specific teaching units or lesson plans to demonstrate their achievement of various educational standards. The researchers discuss the benefits of electronic portfolios, namely the flexibility that they offer in storing and reformatting material for use in different version of the portfolio, without the need to reorganize paper documents. Furthermore, working with an electronic portfolio during a training program, with clear goals and standards, aids teachers in acquiring a reflective use of technology, a skill they can later transfer to the classroom. However, the researchers also mention difficulties associated with institutional uses of electronic portfolios, such as the cost associated with either creating an electronic portfolio system or subscribing to a
commercial system. Furthermore, institutions must decide whether or not to continue to allow graduates to store and have access to their portfolios, and for how long after they have left the institution. While the current research project focused on the use of electronic portfolios by university institutions, the same issues would need to be dealt with by other educational institutions that wished to implement an electronic portfolio system for teachers and/or students to highlight and showcase their learning and development.


This article describes a ten-week video-based workshop that was carried out with elementary school science teachers in one district of Beijing, with the goal of encouraging teachers to include constructivist learning principles in their classroom practice. Twenty-three teachers were randomly assigned to a control group, who simply completed an entry and exit questionnaire on their beliefs about teaching and constructivist principles, while another 23 were placed in an experimental group. The members of the experimental group also took the entrance survey, and later attended ten two-hour sessions in which they discussed constructivist and teaching learning theories, watched video cases of mentor teachers, and gave comments and feedback on an online platform. Later, the teachers were asked to teach a lesson incorporating the constructivist principles, and to record those lessons to discuss with their mentors and classmates. Following the ten-week intervention, the participants completed the exit survey on their teaching beliefs. Finally, both control group and experimental group participants were filmed following the intervention, so as to examine their teaching practices. The teachers who had participated in the training reported more support for constructivist beliefs in their final interviews than those in the control group. Furthermore, the recordings of their classroom practice showed that they included more whole-class and independent practical work than the teachers in the control group. The researchers recommend that future inventions of this kind take place over longer periods of time, so as to more fully evaluate the influence of video-based training on teachers’ long-term classroom practice.


This article discusses an online professional development course for in-service teachers that made use of asynchronous discussions via discussion forum and email to create a learning community between teachers and professors. Each week, the teachers read an article about implementing reform-based activities, such as inquiry-based learning activities, in the classroom. They would then post reflections on the discussion forum for their classmates to see and respond to. They were then instructed to implement a lesson with their own students based on what they had read. Finally, they posted a second discussion forum post on each topic with further reflections and received comments and feedback from their instructor and other educators enrolled in the course. In their post-semester surveys, the in-service teachers reported that they appreciated helping to create and participate in a learning community and that their interactions on the online discussion board helped reinforce their learning of pedagogical reform. They also
stated that they had applied what they learned from other teachers and from the instructor within their own teaching settings.


This M.A. thesis describes an online professional development course designed to help K–6 instructors in the U.S. explore ways to integrate uses of the Internet into their classrooms. It included a focus on the Internet as a communication and collaboration tool, the use and design of Webquests and the promotion of inquiry-based, collaborative learning with technology. Each module of the course included strategies regarding various uses of technology, success stories, quizzes, and online practice in which participants were expected to engage in tasks using the Internet. The online course was designed using the program Macromedia Dreamweaver 8. After exploring the information presented on the website, the four elementary school instructors who participated in the pilot session attended a focus group. In that session, they reported that they believed that the use of WebQuests would be easy to implement and useful in elementary school classrooms. The teachers found the suggestions regarding the use of the Internet for collaborative and communicative work, such as having students work together to create Web pages or engage in email exchanges, interesting. However, they also stated that they would hesitate to implement such projects in the classroom, due especially to time constraints. The results of this project lend support to the notion that mere access to technological tools will not necessarily aid teachers in implementing technology if they are not given ongoing administrative support.


In this article, the researchers describe several tools they created to assess teacher innovation, and the factors that contribute to innovative teaching practices. Based on a literature review of the concept of innovation in teaching, the researchers identified four underlying core competencies that they believed would have an impact on innovation in teaching: 1) learning competency (or a willingness to learn about innovative teaching); 2) social competency (the ability to communicate with students from different backgrounds); 3) educational competency (awareness of innovative educational concepts); and 4) technological competency (awareness of how to integrate modern educational technologies into classroom practice). To test whether these four factors did have an impact on teaching practice, they asked 200 teachers from six secondary schools in Beijing to complete four self-report assessments: 1) Core Competencies for Innovative Teaching, a Likert scale to measure teachers’ perceptions of these competencies; 2) an Instrument of Innovative Teaching Performances, in which teachers rated themselves regarding their own practices 3) School Environmental Factors and 4) Teacher background. After calculating the correlations between the various assessment results, the researchers observed the following: 1) years of teaching and level of colleague support were significantly positively related to innovative teaching performance, suggesting that teachers who had more support from colleagues were better able to come up with and make use of innovative teaching methods 2) technological competence was significantly related to innovation in teaching strategies and teaching resources, suggesting that teachers who were technologically competent
were more capable of finding information on the Internet, integrating information coming from multiple sources, using the information effectively to solve problems and applying educational technology in their teaching practices. The research is limited in that the assessments need to be tested on larger populations in various locations, and the results should be correlated with observations of the teachers’ actual teaching practices, and not merely their own self-reports. However, the assessments are promising in that they draw attention to the variety of factors that may affect the ability of high school level teachers to appropriately access and make use of innovative teaching practices, including new educational technologies.

Resources

- [http://www.cortland.edu/flteach/](http://www.cortland.edu/flteach/): A Foreign Language Teaching Forum, that includes a list-serve, bulletin boards and a Twitter site. Membership is free.
- [http://www.camsoftpartners.co.uk/lspinset.htm](http://www.camsoftpartners.co.uk/lspinset.htm): This website was created by a retired Professor of Computer Assisted Language Learning as a basic training in the use of ICT for language teaching.
- [http://dots.ecml.at/](http://dots.ecml.at/): This training kit presents activities for ten popular tools for language professionals. The training units, which can be completed in around 30 minutes, present the uses and pedagogic benefits of online tools, with training as to how to integrate them into language classes.
- [www.merlot.org](http://www.merlot.org): Multimedia Educational Resource for Learning and Online Teaching, a searchable database for peer-reviewed, online learning materials. Also includes a Content Builder with templates for creating online units. Membership is free.
- [http://cooltoolsforschools.wikispaces.com/](http://cooltoolsforschools.wikispaces.com/): An extensive list of Web 2.0 tools that can be used in the K-12 classroom.
- [http://www.2learn.ca/](http://www.2learn.ca/): A joint initiative between the Government of Alberta, The Alberta Teachers’ Association, the Faculty of Education of the University of Alberta and CASS, with the goal of supporting educators in engaging in technology-enriched learning.
- [http://galileo.org/teachers.html](http://galileo.org/teachers.html): An Alberta-based initiative housed at the University of Calgary, designed to provide enhanced professional development and support for 21st century learning across Canada. See also “integrating technology” in the “Initiatives” section.

References


