

# **Distance Education Trends: Integrating new technologies to foster student interaction and collaboration**

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Current trends in the field of distance education indicate a shift in pedagogical perspectives and theoretical frameworks, with student interaction at the heart of learner-centered constructivist environments. The purpose of this article is to explore the benefits of using emerging technology tools such as wikis, blogs, and podcasts to foster student interaction in online learning. It also reviews social software applications such as Writeboard™, InstaColl™, and Imeem™. Although emerging technologies offer a vast range of opportunities for promoting collaboration in both synchronous and asynchronous learning environments, distance education programs around the globe face challenges that may limit or deter implementation of these technologies. This article probes the influence of technology on theory and the possible implications this influence affords.

## **Introduction**

Distance education emerged in response to the need of providing access to those who would otherwise not be able to participate in face-to-face courses. It encompasses those programs that allow the learner and instructor to be physically apart during the learning process and maintain communication in a variety of ways (Keegan, 1986). It has evolved from correspondence schools to delivery mechanisms such as independent study, computer-based instruction, computer-assisted instruction, video courses, videoconferencing, Web-based instruction, and online learning. Technology has played a key role in changing the dynamics of each delivery option over the years, as well as the pedagogy behind distance education. Technology is responsible for distorting the concept of distance between learner and instructor, and enabling learners to access education at any time and from any place. Emerging

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technologies also facilitate the establishment of synchronous and asynchronous learning networks using the Internet.

The rapid growth of online distance education worldwide has prompted the need to revise delivery structures and re-think pedagogical practices that were once appropriate. As new technologies emerge, instructional designers and educators have unique opportunities to foster interaction and collaboration among learners, thus creating a true learning community. The existence of distance education relies on the creation of learning communities, according to Palloff and Pratt (1999). Through technology, interaction and collaboration are now attainable in either asynchronous or synchronous learning networks. The emergence of social software, software that enables a group of individuals to collaborate via the Internet, has added a new dimension to online learning. The versatility of social software and other collaboration tools available today support constructivist environments that seek to motivate, cultivate, and meet the needs of the 21st-century learner.

This article explores the functions and benefits of using emerging social software in distance education. Current trends in the field of distance learning indicate a radical shift in both instructional design and pedagogy. There is some urgency in being able to provide flexible learning opportunities without compromising the quality of instruction. As technology evolves, so will the tools be available to make it happen.

### **Emerging Technologies**

Distance education practitioners and researchers have always been concerned with how much interactivity a distance course could provide for students, since interaction is considered a necessary ingredient for a successful learning experience (McIsaac & Gunawardena, 1996; Moore, 1989). McIsaac and Gunawardena reported that new technology tools would modify how learners gather data and collaborate. Similarly, recent research confirms the relationship between technology and interaction (Dabbagh & Bannan-Ritland, 2005).

Emerging technologies provide opportunities for instructor–student as well as student–student real-time and/or time-delayed collaboration. Software companies are creating user-friendly applications that are an asset to business and educational settings alike. The first-generation Web tools, as many have called them, included email, chat rooms, and discussion boards, among others (Godwin-Jones, 2003). Nevertheless, it is second-generation Web tools that promise to take interactivity to the next level. *Blogs* (*Weblogs*), *wikis*, and *podcasts* (also called *vlogs* if they use video, or *audioblogs* if only audio is used) can be implemented alone or in conjunction with applications such as Imeem™, Writeboard™, and InstaColl™ to create engaging learning environments.

A collection of writings, blogs are easily published and accessed via the Internet. Blogs lend themselves to exploratory topics or enhancing writing skills, since they provide students with an audience (Kennedy, 2003). Others suggest that blogs or Weblogs are best used as student portfolios that keep record of an individual's progress, accomplishments, as well as reflections (Weller, Pegler, & Mason, 2005).

Teachers, as well as students, currently use blogs to boost the learning experience; some blogs are student-controlled while others are instructor-managed. An exciting example of an instructor-managed blog is Ulises Mejias' Social Software Affordances course, based at Columbia University's Teachers College (USA) (Mejias, 2006). Mejias' course blog offers updates, information, and serves as a portal to student-created blogs. Each student blog is a reflective piece, documenting the student's personal and intellectual growth throughout the course. Tim Roberts, from Central Queensland University, Australia, publishes a blog titled *Online Collaborative Learning in Higher Education*. Aimed at distance educators, the blog is a repository of professional resources and information related to online collaborative learning (Roberts, 2006).

The broadcasting of audio or video files over a *podcast* requires that subscribers as well as publishers have a news aggregator installed; the news aggregator processes the RSS feeds and accesses the broadcasts. RSS feeds, which are defined as either *Really Simple Syndication* or *Rich Site Summary*, use XML (extensible mark-up language) to deliver audio files or keep track of Weblogs. Audioblogging, the earlier term for podcasting, coincided with the advent of the iPod™, using MP3 audio files. Podcasting does not require the use of an iPod™, it allows users to sign up for their favorite feeds and receive notification when a new one is available. Receiving an RSS feed requires a free download of a news aggregator. Depending on the type chosen, a news aggregator can send the feeds to the person's email account, or be accessed via a Web-based application. Current trends in podcasting take advantage of RSS technology to provide video content on demand, thus the term podcasting now includes those RSS feeds that include audio and/or video. The video is a freestanding link on a Weblog page instead of a video download or video-streaming. Podcasts using video are particularly easy to create with a digital video camera. A myriad of free hosting sites enable anyone to create a podcast.

The versatility of podcasting may impact the way distance educators deliver instruction as well as the manner in which students are engaged in learning. New models of teaching may take advantage of RSS technology to deliver up-to-the-minute expert commentaries, for example, or to have students broadcast their analysis of topics studied. This is a drastic departure from past practices in the field.

There are a variety of RSS feeds readily available to educators. From professional topics such as those found in *The Chronicle of Higher Education* (2006) to the US Department of Education (2006) and major international newspapers, distance educators can easily integrate these resources into the virtual or face-to-face classroom. The Education Network of Australia (EdNA Online, 2006), keeps an up-to-date listing of educational RSS feeds to help educators get connected. Other feeds offer expert advice from practitioners around the world and are aimed at helping educators start their podcasts, wikis, and blogs (French, 2005).

Although podcasting is not a synchronous activity, it provides students with information that will help them feel connected to the learning community. It may even be pedagogically appropriate in some courses to allow students to create their own podcasts for the rest of the class members. Some educators allow their students to

suggest topics based on the course content and dynamics. Students then work in teams to research the topic, select information, write the script, and record their show (Warlick, 2005).

In a study conducted to see the viability of using RSS feeds in a work setting, Ola and Niclas (2005) concluded that the main benefit for using RSS feeds is that it allows the information to be “pushed” to the receiver, instead of the receiver having to seek the information. As educators become more aware of the power of podcasting, not only can they create their own feeds, but they can also tap into the many educational podcasts already available. “Pushing” information to the learner can be beneficial when the instructor wants to provide course updates, communicate group feedback, or introduce the discussion topic for the week. While RSS feeds are powerful tools for sharing information and building a sense of community, collaboration tools may hold even more power in distance education.

Educators are quickly embracing the wiki phenomenon, stimulating many educators to set up wikis of their own to teach other educators how to implement this technology tool (Moxley, 2006). A wiki is a collection of Web pages that are linked to each other, and reflect the collaborative works of many authors. Unlike blogs that are chronologically organized, wiki pages are loosely structured but are linked in different ways. Wiki pages have embedded Internet resources and are highly collaborative. Edits are recorded and logged as students collaborate on a project, and changes are finalized when the other participant approves. Wikis are thought to be more permanent and serious than blogs and may serve as repositories of knowledge (Godwin-Jones, 2003). Different wiki providers offer unique features and structures that must be considered when creating wikis for educational purposes. Schwartz, Clark, Cossarin, and Rudolph (2004) suggest having a set criteria for evaluating each option, that would include looking into the cost, complexity, control offered, clarity, common technical framework used, and desired features.

Wikis, like blogs, can be instructor-managed or student-managed. Students at Bowdoin College (USA) initiated their own collaborative wiki to share their love of romantic literature and poetry. The result was a highly organized wiki structure with an alphabetical listing of entries to help participants find their way to topics of interest (Hamilton & Phillip, 2005). Wikis can successfully promote collaboration among instructors, staff, and students, as reflected in the wiki project supported by the Auburn University School of Architecture (USA) (2006). Other institutions, such as Deakin University (Australia), have implemented wikis for building relationships among learners. Called the “collaborative icebreaker” Deakin University’s wiki was created to promote student interaction, its goal was to give the students a chance to socialize and get acquainted virtually (Augar, Raitman, & Zhou, 2004).

As distance educators acknowledge the need to foster social interaction for the purpose of knowledge construction, pedagogical approaches are adjusted and new teaching models emerge. Teaching models that integrate technologies such as blogs or wikis may afford more learner control, and thus may be more effective at delivering instructional strategies that support knowledge construction. Today’s learners demand more control of the learning experience when they need it; how they need it.

This puts added pressure on distance educators to change outdated practices that no longer serve the needs of highly mobile students.

Emerging teaching models will undoubtedly integrate new technology tools, yet those tools that foster interaction must be deliberately integrated into the design process to ensure appropriate application. The possibilities are as varied as the tools themselves, the impact and implications of technology on new ways of learning and new models of teaching are far-reaching. Distance educators have more options than just wikis, blogs, or podcasts to enhance interaction. Open source technologies such as Imeem™, InstaColl™, and Writeboard™ can increase real-time collaboration between learners, especially in courses that are fully asynchronous.

The Imeem™ social networking software provides by-invitation-only access that claims to be completely encrypted and secure. Instructors can set up a private network and invite students in. A free download, this application allows members to create private and/or public blogs; photo albums; instant messaging; file sharing and discussion groups called “meems” (Imeem, 2006). Mainly aimed at PC users, the company has recently released a Beta 1.0 version to include Mac users as well.

InstaColl™ is a free application that allows collaboration using the most widely used Microsoft Office applications. Participants may edit documents or presentations or conduct live meetings or chats (InstaColl, 2006). Unlike Writeboard™, InstaColl™ must be downloaded to each computer. Editing documents with InstaColl™ is user-friendly; each student collaborating is assigned a color to identify individual edits.

Writeboard™ gives users the freedom to access their files from any computer with an Internet connection. It is part wiki/part blog, with the capability of archiving each revised version (Writeboard, 2006). Versioning becomes important when students are collaborating on a written product, allowing the instructor to see exactly who contributed what. Educators can take advantage of this free technology by simply logging in and creating an URL and password for their class. Students then follow the link without having to download any application. Implementation of either of these applications could prove easier than expected, adding the element of collaboration to any course.

Educators are just now beginning to realize the power of wikis, blogs, and podcasts, as well as emerging social software applications. As with all technologies, the emerging technology tools discussed here are not appropriate for every situation. It is the responsibility of instructional designers, administrators, and technology experts to investigate which tool offers the best solution for the task of providing interaction in synchronous and asynchronous online distance learning environments.

Emerging technologies have an impact on new models of teaching and new ways of learning in distance education. Instructional design frameworks must be adapted to purposely integrate student interaction using technology tools. This requires using flexible models that allow designers to begin at any given point in the process, anchoring the use of technology on collaborative instructional strategies that lead the student toward achieving the desired learning outcomes. Technology tools may also change the roles of learners as well as instructors. The added control and interaction

provided to learners using technology tools may help tap into a student's expertise, and promote collaboration through peer-to-peer mentoring, teamwork, and other strategies.

### *Proactive Implementation*

Proactive implementation of emerging technologies is dependent on comfort level, monetary resources, and visionary leadership. Educational institutions must reflect on how their distance education program currently utilizes technology and how new, cutting-edge computer-mediated communications (CMC) may enhance the learning experience for students. Distance education leaders are in a position to blaze new paths for online distance learning, especially by integrating synchronous technology tools into current courses that are totally asynchronous.

Chickering and Ehrmann (1996) provide seven principles for implementing new technologies in distance education programs. Online distance learning can integrate emerging technologies for either synchronous or asynchronous modes by applying these seven principles. Regardless of delivery method, technology should:

- (1) Encourage contact between students and faculty.
- (2) Develop reciprocity and cooperation among students.
- (3) Use active learning techniques.
- (4) Give prompt feedback.
- (5) Emphasize time on task.
- (6) Communicate high expectations.
- (7) Respect diverse talents and ways of learning.

The seven principles, along with the specific needs of the course, will help determine the purpose and rationale of integrating the particular technology, and how it benefits the learner. Designers and administrators must understand how the technology tool selected will aid interaction and which types of interaction it will promote.

New models of teaching can proactively use the seven principles when addressing the needs of the program to avoid pitfalls. Time is of the essence for both, learners and instructors, activities and content must be relevant and up to date. The 21st-century learner wants to stay connected to peers and receive prompt feedback from the instructor. The 21st-century learner is likely to prefer working in a group rather than in isolation. Collaboration in either asynchronous or synchronous learning environments allows learners to practice real-world skills that are applicable to the workplace. The integration of emerging technologies into new models of teaching must also take into consideration cultural differences and learning tendencies, respecting the individual.

When talking to K-12 and tertiary distance educators, the most commonly mentioned asynchronous interactions may be threaded discussions, bulletin boards, and email applications. Many instructors take advantage of the chat features of their delivery platform as well as the whiteboard for one-on-one or small group tutoring, yet these types of synchronous interaction do not offer the opportunity for full

student–student collaboration. Moore (1989) described student–student interaction as one of the three essential items needed to create effective instruction. Emerging technologies provide the flexibility of using some or all of their features to encourage active collaboration, both in real time or on separate schedules.

Emerging social software such as Imeem™, integrates not only the feature of instant messaging but other capabilities that may also promote social interaction. Imeem’s™ file-sharing feature makes it ideal to foster collaboration in both asynchronous and synchronous environments. The learner may access the information in real time while actively collaborating, or delayed time at the learner’s convenience. Thus social software gives the learner control over the content, without the restrictions of time and place.

New models of teaching can accommodate the needs of the 21st-century learner by including activities that allow students to contribute to the learning process at any time, from anywhere. Students may take on the role of the instructor by sharing expertise, presenting sections of the course content, and using the file-sharing capabilities to share documents with the instructor or peers. Learning “on the go” is more commonplace than ever before. The ability to conveniently add one’s contribution to a collaborative project or connect with peers at any time facilitates access to education.

### *Seeking Solutions in K-12 and Adult Online Distance Learning*

Revising course design and delivery structures is a time-consuming and costly endeavor. However, time and money may not be the only factors that would inhibit the integration of emerging technologies. Visionary educators seeking to improve current practices face the conflict between the new freedoms afforded by emerging technologies and the administrative control enforced for legal reasons. Others are confined by lack of funds or support from government agencies.

Many educational institutions are looking for ways to improve their current practices in regard to technology integration and how it enhances student interaction. Florida Virtual School (FLVS) (2006), the largest public online high school in the USA, has identified student interaction as one of its design priorities. Like many other programs offering asynchronous distance learning, FLVS encourages instructors to integrate synchronous experiences through voice conferences, chats, IM, and whiteboards. Instructors are required to communicate with students and parents via phone calls and emails, providing personalized feedback. Although administrators have identified student–student interaction as a weak area, they consider many of the emerging technologies explored in this article to be “unsafe” practices and therefore do not authorize their use.

Very much like traditional schools, FLVS and K-12 virtual schools around the globe may be held accountable for the interaction of their under-age clients, prompting administrators to maintain records and keep all interactions within the course delivery platform. Monitoring the language used in the course ensures that students stay within the boundaries of the course content. While all this is meant to protect

the students, it limits the possibilities of student–student interaction to those tools built into the course delivery platforms such as WebCT™, Blackboard™, or Educator™. The problem is that the type and quality of the interactions will only be as good as the tools built into the delivery platform used.

While institutions such as FLVS are restricted by legal concerns and administrative control, other institutions around the globe face monetary or political constraints that may prevent them from integrating new technologies. Using open source software is a huge benefit of the emerging technologies discussed in this article. However, even with zero cost for the technology itself, distance programs incur the cost of design and implementation. For others it may be limited bandwidth issues or limited Internet access by learners. The African Virtual University system has made great advancements over the years but continues to face challenges posed by inadequate communication infrastructures and lack of political support among others (Darkwa & Mazibuko, 2000).

According to Darkwa and Mazibuko (2000), the main delivery method in the poorest African countries is still the radio, while others are able to rely on satellite transmissions supplemented by print and video material. Integration of emerging technologies is difficult for countries that lack the connectivity. Although the World Bank and other international organizations have aided virtual schools such as the African Virtual University, connectivity is still a problem for delivering Web-based courses. The African Virtual University has, since opening in 1997, created a virtual network with 53 institutions in 27 African countries and registered more than 3,000 students (African Virtual University, 2005). Visionary projects such as the Southern Africa–Western Africa (SAT3/WASC) and the South Africa–Far East (SAFE) submarine cables, along with a recent decline in communication costs, offer hope to African distance education (Naidoo & Schutte, 1999).

Lack of support from government is responsible for delaying the advancement of distance education in Brazil, forcing institutions to adopt a hybrid method of delivery only (Litto, 2002). Litto acknowledges that this is a frustrating problem for educators who recognize the need to revise the outdated educational system and see asynchronous delivery as part of the answer. The fifth largest country in the world, Brazil's politics and culture have lingering effects in the educational system; a system that discredits degrees earned from distance education programs. Brazil's potential remains untapped, despite the growing opportunities for asynchronous learning networks. In the meantime, it may be necessary to choose emerging technologies that extend face-to-face collaboration for those students participating in mixed-mode delivery.

Proactive leadership can minimize the limitations imposed by administrative control, lack of infrastructure, or lack government support. Distance educators must stay on course, examining how emerging technologies can enhance distance education programs, regardless of the delivery method. Solutions for existing challenges will be found as long as distance educators base their decisions on the best interests of the students. These may include flexible learning environments, apprenticeship, and role modifications. New models of learning may allow the instructor as well as



the learner to become involved in the course design as well as the decision-making process.

### **When Technology Influences Theory: Changing online distance learning**

Emerging technologies are changing current practices in online distance learning and influencing theoretical frameworks. According to Snelbecker (1999), technology maintains a symbiotic relationship with instructional theories. Learning theories also evolve using research-based evidence to restructure theoretical perspectives. Instructional theories explain how to achieve the desired learning outcomes, while learning theories describe how learning actually occurs. Emerging technologies may facilitate merging the aspects of different theories to benefit learners.

Technology-based learning has influenced several learning theories such as anchored instruction and situated cognition (Bransford, Sherwood, Hosselbring, Kinzer, & Williams, 1990; Lave & Wenger, 1990). These learning theories recognize that technology impacts social interaction, which in turn, affects the learning process. Situated learning theory proposes that real-life problem solving should be a collaborative task, empowering learners to become part of a learning community. Anchored instruction seeks to build problem-solving skills by anchoring instruction around a situation or problem (Cognition and Technology Group at Vanderbilt, 1993). Students solve the problem presented in context by role-playing and interacting with both the content and their peers. Online distance education can integrate emerging technologies such as blogs, wikis, and podcasts to achieve the type of communication and interaction that would support either of these learning theories, among others.

Lessons learned from early instructional design theories show that the focus of design should be on customization, not standardization of content (Reigeluth, 1999). In doing so, the learner's needs become the center of attention. Cultural diversity, learning preference, and ability level are just a few of the many issues that validate the need for a learner-focused system (Reigeluth, 1999). Learner-focused systems would enable a person to not only work at his/her own pace, but to also work on authentic, real-world tasks. Real-world tasks would include those that require collaboration, the perfect opportunity to use social software, and other collaboration tools. Emerging technologies not only enable customization of content, but also customization of the level of interaction by allowing the learner to choose when and how to interact.

Technology may facilitate collaboration and interaction. Engagement theory ascertains that technology can achieve certain types of engagement and interactions that would otherwise not be possible (Kearsley & Shneiderman, 1999). The benefits of using both asynchronous and synchronous strategies have become evident as learners provide feedback about their learning experiences. Fulford and Zhang (1993) cautioned against modeling distance education courses after traditional lectures, but instead should include interaction as the foundation of effective distance education practices. Emerging technologies may accomplish the task of

providing various types of asynchronous and synchronous interactions for different purposes, especially those tied to instructional strategies.

According to engagement theory, collaborative efforts, project-based learning, and non-academic interactions, lead to engagement and authentic learning (Kearsley & Shneiderman, 1999). Snelbecker (1999) summons practitioners and researchers to identify how curriculum and instruction should be driving technology use, instead of the other way around. He also suggests revising instructional theories and practices as new technologies impact instruction.

### *Possible Implications*

The influence of technologies on theoretical frameworks may imply changes in how distance educators currently apply such theories, and how they view the relationship between the interaction provided by emerging technologies and social presence. Another possible implication is how these emerging technologies may change the role of the instructor.

Emerging technology tools facilitate the integration of student interaction in distance education and support the merger of different approaches. Meeting the needs of the 21st-century learner may require a multi-theory approach, integrating best practices from different theories. This paradigm shift frees distance educators to explore inquiry-based learning, apprenticeship, and other approaches to distance education.

Bandura's (1977) social learning theory places a high value on observation and modeling behaviors. It interprets human behavior as the product of a person's interaction with the cognitive, behavioral, and environmental influences that surround him. Today's fully asynchronous distance education courses have limited modeling. However, through synchronous communication tools, peers can rehearse presentations, provide instant feedback, clarify misunderstandings, and share knowledge. A broader knowledge base means that distance learners will reap the benefits of collaboration as they learn from each other and construct their own knowledge. Social constructivists argue that modeling expertise will enable others to become experts themselves; Learning takes place not by assimilation, but through the process of knowledge construction that the learning community supports (Bielaczyc & Collins, 1999).

Other researcher-practitioners such as Collis and Moonen (2005) believe that students should contribute to the content of the course by adding their projects and ideas to a collection of student work that is then used as a repository of knowledge by new students. This contribution-oriented pedagogy (Collis & Moonen, 2005) allows students to use and reuse what others have produced as part of their learning process. Students who collaborate in this type of learning community, according to Collis and Moonen, understand that their finished product will add to the knowledge base of the group, not just their own. Collaboration and contribution further prepare students to become part of a more expert community, a community of practice.

A related issue that needs exploration is that of social presence. As in any social group, individuals participating in distance education must feel like they belong.

This sense of belonging or “presence” enables students to interact comfortably with peers as well as instructors. Ubon and Kimble (2004) cite social presence as a prerequisite to establishing an online learning community where students can collaborate. Furthermore, the degree of social presence can mold the quality and quantity of interaction. It is not known if emerging technologies such as wikis, blogs, or podcasts inhibit or increase social presence.

The term social presence, coined by Short, Williams, and Christie (1976), refers to the degree to which individuals perceive intimacy, immediacy, and their particular role in a relationship. Current trends indicate that social presence differs from interaction, yet one nurtures the other. Implications of these two intertwined terms go beyond learning communities, according to Picciano (2002), and they may independently affect student performance. Picciano proposes that although interaction may display presence, learners can interact without ever feeling the sense of belonging to the group. Social presence should be included in future research regarding interactive technologies; insight gained will aid the revision of current practices in distance education as well as theoretical frameworks used. Understanding how emerging technologies affect social presence is necessary in order to make appropriate selection of technology tools.

Emerging technologies that foster different forms of interaction may also affect the role of the instructor. Evolving theoretical frameworks and paradigm shifts may no longer support the role of facilitator. Formerly a deliverer of knowledge, the instructor’s role changed over the years as technology advancements presented different kinds of responsibilities and new theoretical perspectives emerged. Collaborative technologies such as wikis, blogs, and podcasts, as well as social software will likely impact the role of today’s facilitator.

Emerging technologies afford new opportunities as well as responsibilities. Besides being a resource manager, the future instructor may have to be more of a “partner in learning” than a facilitator. The instructor must view the students as contributors of knowledge, and thus allow them to participate in the creation of content. This radical change in view is supported by the contribution-oriented pedagogy used by Collis and Moonen (2005).

According to Kearsley and Shneiderman (1999), it is the responsibility of the instructor to maximize student interaction. As emerging technologies are implemented to support interaction, the instructor’s role will include not just monitoring and facilitating the interactions, but also actively participating in the exchange of knowledge and reflection. As a partner in learning, both learner and instructor will benefit from the reciprocal learning process.

Emerging technologies are changing online distance learning because they offer new solutions, add flexibility to integrate student interaction, and evoke real-life collaboration opportunities. The relationship between theory and technology warrants further exploration. Researching the possibility of merging different theoretical approaches will bring understanding to be applied in distance education. Revising current theories may help meet the needs of the 21st-century learner who is technology-savvy, highly mobile, and who must learn the skills of collaboration required in

the workplace. The integration of emerging technologies into online distance learning brings possible implications in regard to social presence and the changing role of the instructor to that of a partner in learning. It is not known how technologies such as wikis, blogs, podcasts, or social software impact social presence. It can be assumed however, that future research will validate their use.

New teaching models will benefit from the purposeful and deliberate integration of technology tools that will enhance student interaction. Changing theoretical frameworks are swinging the pendulum toward the creation of new teaching models that afford more learner control. Yet as the pendulum swings, a balance must be struck between what learners need and what distance education programs can afford to implement. Nonetheless, quality of instruction must never be compromised. The instructor's role is that of a partner in learning, one that probes and challenges students to become reflective, critical thinkers. New teaching models will promote new ways of learning that are reciprocal between students and peers, and students and the instructor.

## **Conclusion**

Today's workplace requires that individuals create and collaborate within the constraints of time and place. These needs have given way to technological advancements that allow for real-time communication among peers and co-workers who stay connected over the Internet. It is no coincidence that these same advancements bring a fresh promise to distance education. New tools promise to create a stronger learning community where members can build expertise and develop problem-solving skills.

As distance educators seek to improve the quality of online courses, they face the challenge of meeting the needs of a diverse population that is more mobile and technology-savvy than any previous generation. The 21st-century learner requires educational opportunities not bound by time or place, yet allow interaction with the instructor and peers. Voice and videoconferencing, whiteboards, live presentation tools, application sharing, chats, and emails are just a few of the many tools available for interaction and collaboration. Blogs, wikis, and podcasts, as well as social software are emerging technologies that foster the sense of connectedness between the members of a group.

Research on the educational uses of these emerging technologies is limited, yet the information available demonstrates their versatility. Wikis are flexible enough to serve different purposes and be adapted in different courses, such as those teaching writing or even biology (University of Maryland Baltimore County, 2006). Researchers and practitioners are recognizing emerging technologies as powerful tools for building social interaction in constructivist learning environments (Bruns & Humphreys, 2005).

The demand for distance education will only continue to grow. The ever-evolving nature of technology will continue to push distance educators to use new tools to create learning environments that will indeed prepare students to be life-long learners, who can problem solve through collaboration with global partners.

## Notes on Contributor

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## References

- African Virtual University. (2005). *History*. Retrieved January 30, 2005, from <http://www.avu.org/history.asp>
- Auburn University School of Architecture. (2006). *Seedwiki: WikiFish*. Retrieved January 22, 2006, from <http://www.seedwiki.com/page.cfm?doc=WikiFish&wikiid=1231>
- Augar, N., Raitman, R., & Zhou, W. (2004). Teaching and learning online with wikis. *ASCILITE Proceedings*. Retrieved January 24, 2006, from <http://www.ascilite.org.au/conferences/perth04/procs/augar.html>
- Bandura, A. (1977). *Social learning theory*. New York: General Learning Press.
- Bielaczyc, K., & Collins, A. (1999). Learning communities in classrooms: A reconceptualization of educational practice. In C. M. Reigeluth (Ed.), *Instructional-design theories and models, a new paradigm of instructional theory (Vol. 2, pp. 269–292)* Mahwah, NJ: Lawrence Erlbaum Associates.
- Bransford, J. D., Sherwood, R. D., Hosselbring, T. S., Kinzer, C. K., & Williams, S. M. (1990). Anchored instruction: Why we need it and how technology can help. In D. Nix & R. Spiro (Eds.), *Cognition, education and multimedia: Exploring ideas in high technology*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Bruns, A., & Humphreys, S. (2005). Wikis in teaching and assessment: The *M/Cyclopedia* project. *Proceedings of the 2005 International Symposium on Wikis*, San Diego, CA (pp. 25–32). New York: ACM Press [Electronic version]. Retrieved January 23, 2006, from <http://portal.acm.org/citation.cfm?id=1104973.1104976#abstract>
- Chickering, A., & Ehrmann, S. E. (1996, October). Implementing the seven principles: Technology as lever [Electronic version]. *American Association for Higher Education*, 3–6. Retrieved January 24, 2006, from <http://www.tltgroup.org/programs/seven.html>
- Cognition and Technology Group at Vanderbilt. (1993). Anchored instruction and situated cognition revised. *Educational Technology*, 33, 52–70.
- Collis, B., & Moonen, J. (2005). Collaborative learning in a contribution-oriented pedagogy. In C. Howard, J. V. Boettecher, L. Justice, K. D. Schenk, P. L. Rogers, & G. A. Berg (Eds.), *Encyclopedia of distance learning (Vol. 1, pp. 277–283)*. Hershey, PA: Idea Group.
- Dabbagh, N., & Bannan-Ritland, B. (2005). *Online learning: Concepts, strategies and application*. Upper Saddle River, NJ: Pearson Education.
- Darkwa, O., & Mazibuko, F. (2000, May). Creating virtual learning communities in Africa: Challenges and prospects. *First Monday*, 5. Retrieved January 28, 2006, from [http://firstmonday.org/issues/issue5\\_5/darkwa/index.html](http://firstmonday.org/issues/issue5_5/darkwa/index.html)
- EdNA Online (Education Network Australia). (2006). *RSS feeds to get you started*. Retrieved January 31, 2006, from <http://www.edna.edu.au/edna/go/pid/3153>
- Florida Virtual School. (2006). *Home page*. Retrieved January 12, 2006, from <http://www.flvs.net/>
- French, R. (2005, September). *Global PR Blog Week 2.0. Group interviews with PR educators, podcast*. Retrieved January 30, 2006, from <http://www.globalprblogweek.com/2005/09/22/french-pr-educators-interview/>
- Fulford, C. P., & Zhang, S. (1993). Perceptions of interaction: The critical predictor in distance education. *American Journal of Distance Education*, 7, 8–21.
- Godwin-Jones, R. (2003, May). Emerging technologies, blogs, and wikis: Environments for online collaboration. *Language Learning & Technology*, 7, 12–16. Retrieved October 15, 2005, from <http://llt.msu.edu/vol7num2/pdf/emerging.pdf>
- Hamilton, D., & Phillip, M. (2005). *Romantic audience project, wiki*. Bowdoin College. Retrieved January 31, 2006, from <http://ssad.bowdoin.edu:8668/space/snipsnap-index>

- Imeem. (2006). *Home page*. Retrieved January 11, 2006, from <http://www.imeem.com>
- InstaColl. (2006). *Home page*. Retrieved January 15, 2006, from <http://www.instacoll.com/Index.htm>
- Kearsley, G., & Shneiderman, B. (1999). *Engagement theory: A framework for technology-based teaching and learning*. Retrieved January 23, 2006, from <http://home.sprynet.com/~gkearsley/engage.htm>
- Keegan, D. (1986). *Foundations of distance education* (2nd ed.). New York: Routledge.
- Kennedy, K. (2003, February 15). Writing with Web logs. *Technology and Learning Newsletter*. Retrieved October 15, 2005, from [http://www.techlearning.com/db\\_area/archives/TL/2003/02/blogs.html](http://www.techlearning.com/db_area/archives/TL/2003/02/blogs.html)
- Lave, J., & Wenger, E. (1990). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Litto, F. M. (2002, January). The hybridization of distance learning in Brazil: An approach imposed by culture. *International Review of Research in Open and Distance Learning*. Retrieved January 30, 2006, from <http://www.irrodl.org/content/v2.2/litto.html>
- McIsaac, M. S., & Gunawardena, C. N. (1996). Distance education [Electronic version]. In D. H. Jonassen (Ed.), *Handbook of research for educational communications and technology: A project of the Association for Educational Communications and Technology* (pp. 403–437). New York: Simon & Schuster Macmillan. Retrieved October 14, 2005, from <http://seamon-key.ed.asu.edu/~mcisaac/dechapter>
- Mejias, U. (2006). *Social software affordances, course blog*. Columbia University. Retrieved January 31, 2006, from <http://ssa05.blogspot.com>
- Moore, M. G. (1989). Three types of interaction. *American Journal of Distance Education*, 3, 1–7.
- Moxley, J. (2006). *Teaching wiki*. University of South Florida. Retrieved January 31, 2006, from <http://teachingwiki.org>
- Naidoo, V., & Schutte, C. (1999). *Virtual institutions on the African continent* (pp. 89–124) [Electronic version]. Retrieved January 30, 2006, from <http://www.col.org/virtualed/chapter7.pdf>
- Ola, A., & Niclas, L. (2005, May). RSS: *The future of internal communication?* Report from the School of Mathematics and Systems Engineering, Väjäo University, Sweden. Retrieved October 15, 2005, from <http://www.vxu.se/msi/forsk/exarb/2005/05054.pdf>
- Palloff, R. M., & Pratt, K. (1999). *Building learning communities in cyberspace: Effective strategies for the online classroom*. San Francisco: Jossey-Bass.
- Picciano, A. G. (2002, July). Beyond student perceptions: Issues of interaction, presence, and performance in an online course. *Journal of Asynchronous Learning Networks*, 6. Retrieved October 13, 2005, from [http://www.sloan-c.org/publications/jaln/v6n1/pdf/v6n1\\_picciano.pdf](http://www.sloan-c.org/publications/jaln/v6n1/pdf/v6n1_picciano.pdf)
- Reigeluth, C. M. (1999). What is instructional design theory? In C. M. Reigeluth (Ed.), *Instructional design theories and models: A new paradigm of instructional theory* (Vol. 2, pp. 5–29). Mahwah, NJ: Lawrence Erlbaum Associates.
- Roberts, T. (2006). *Online collaborative learning in higher education, blog*. Central Queensland University. Retrieved January 31, 2006, from <http://clp.cqu.edu.au>
- Schwartz, L., Clark, S., Cossarin, M., & Rudolph, J. (2004, April). Educational wikis: Features and selection criteria. *International Review of Research in Open and Distance Learning*. Retrieved January 21, 2006, from [http://www.irrodl.org/content/v5.1/technote\\_xxvii.html](http://www.irrodl.org/content/v5.1/technote_xxvii.html)
- Short, J., Williams, E., & Christie, B. (1976). *The social psychology of telecommunications*. London: John Wiley.
- Snelbecker, G. E. (1999). Current progress, historical perspective, and some tasks for the future of instructional theory. In C. M. Reigeluth (Ed.), *Instructional-design theories and models, a new paradigm of instructional theory* (Vol. 2, pp. 653–674). Mahwah, NJ: Lawrence Erlbaum Associates.
- The Chronicle of Higher Education*. (2006). Retrieved January 31, 2006, from <http://chronicle.com/help/rss.htm>
- Ubon, N. A., & Kimble, C. (2004, July). Exploring social presence in asynchronous text-based online learning communities (OLCS). *Proceedings of the 5th International Conference on Information*

- Communication Technologies in Education*, Greece. Retrieved January 14, 2006, from <http://www.users.cs.york.ac.uk/~kimble/research/icitte.pdf>
- University of Maryland Baltimore County. (2006). *Biology wiki*. Retrieved January 31, 2006, from <http://www.umbc.edu/bioclass/biol414/wiki/index.php?page=Home>
- US Department of Education. (2006). *ED.gov RSS news feed*. Retrieved January 31, 2006, from <http://www.ed.gov/news/newsletters/rssnewsfeed.html>
- Warlick, D. (2005, September). Podcasting. *Technology and Learning*, 26, 70.
- Weller, M., Pegler, C., & Mason, R. (2005). Use of innovative technologies on an e-learning course. *The Internet and Higher Education*, 8, 61–71. Retrieved October 15, 2005, from <http://rulbii.leidenuniv.nl/MT/BB/archives/sdarticle.pdf>
- Writeboard. (2006). *Write, share, revise, compare*. Retrieved January 15, 2006, from <http://www.writeboard.com>

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