Chapter 3

Video, Voice, and Virtual Collaboration: The 3V's of Asynchronous Education

John Girard, Lori Willoughby, and Kristi Berg

Introduction

Without a doubt, one of the greatest debates in online education is the *Asynchronous* versus *Synchronous* dispute. Invariably the discussions revolve around the perception that synchronous courses are dynamic and therefore provide higher fidelity learning than asynchronous courses, which are described as static but less time constraining. For reasons that are not entirely clear, the proponents of each style of online education seem to imply there is no grey area – you are either a supporter of one or the other.

A variety of very good definitions exist for both asynchronous and synchronous delivery methods; however, many are too broad for this chapter while others are too complex for our purposes. For this chapter it is important that the two concepts be clearly differentiated so that we understand what is being compared. For this chapter the following definitions seem appropriate:

- **Synchronous Online Education** – Internet based education where the instructor and students participate in learning activities at the same time.

- **Asynchronous Online Education** – Internet based education where the instructor and students participate in learning activities at different times.

Clearly, the two ideas share many characteristics. Both use the Internet as the host and although there may be similarities to other types of education (CD-ROM based courses, traditional correspondence

courses, blended courses) this chapter focuses on Internet based education. Both methods focus on education rather than training and although there are parallels between education and training, there are many differences.

Interaction is the Key

Both asynchronous and synchronous online education relies on the traditional instructor-student hierarchy, which implies that some interaction is essential. This implied interaction assumes that self-study courses or computer-based training will not be considered. The major difference is the timing of the learning activities – synchronous means the same time compared to asynchronous which means different times.

So why would an instructor or program opt for the synchronous format over the asynchronous format or vice versa? According to Dr. Robin Mason from the United Kingdom's Open University, there are four advantages to asynchronous delivery: flexible access to teaching materials, time to reflect rather than react, integrating ideas with the work environment, and cost effective technology. Conversely, she suggests that that the advantages of synchronous delivery include: motivation to continue studies, real-time interaction, quick feedback, and pacing (Mason, 1998).

The importance of this interaction must not be underestimated. A major meta-analysis research project comparing student satisfaction with distance education to tradition classrooms in higher education suggests interaction is paramount (M. Allen, Bourhis, Burrell, & Mabry, 2002). This finding was corroborated by an empirical study of students at the State University of New York that discovered a significant correlation between interaction and student satisfaction in online asynchronous courses. Not surprising the study also found a significant correlation between the quality of interaction and student satisfaction (Shea, Swan, Fredericksen, & Pickett, 2001).

It is also important to recognize that some distance learners choose the online format because of the lack of "required" interaction. Lally and Barrett remind us of the age-old challenge of individualism. They wrote "most distance learning has traditionally operated within the individualistic goal structure" and that "in such an 'individualistic' learning environment, there is usually little student interaction since each student seeks to achieve their own best outcome regardless of

whether or not other students achieve their goals" (Lally & Barrett, 1999, p. 153).

According to Karen Swan (2004b), one may increase learning effectiveness through interaction in four general ways, each of which will be considered throughout this chapter: Interaction with Content, Interaction with Instructors, Interaction with Classmates, and Interaction with Course Interface. Swan's multifaceted approach to interaction diminishes the impact of individualism articulated by Lally and Barrett. The focus of their definition of interaction is the instructor-student or student-student relationship, in other word the direct human interaction. Incorporating the additional tenets of Swan's notion of interaction (content and interface) permits an individual to achieve his or her goals independently.

Dynamic Asynchronous Online Education

The aim of this chapter is to consider the issue of *Dynamic Asynchronous Online Education*. Is it possible to deliver asynchronous courses with the advantages typically associated with synchronous courses? With a view to answering this question, a review of three proven techniques for enhancing the interaction within asynchronous online education follows.

The clear focus of this chapter is online education. This caveat is noteworthy as the principles and practices that follow may not enhance classroom-based classes. Although many of the issues may also be relevant to other styles of courses, it is important to realize that each mode of education demands different considerations.

The chapter focuses, very intentionally, on the practical application of what works and what does not. Wherever possible the ideas are supported by the literature, personal experience, or anecdotal evidence often in the form of student comments. Presented are the ideas that worked for us, notwithstanding what the literature may suggest. All too often, we academics focus on what should work, in theory, and not what really works, in practice.

Our experience suggests that the three *Vs* of online education are Video, Voice, and Virtual Team Collaboration. Together these vTools change the dynamics of asynchronous courses. The trio provides an unprecedented level of interaction in courses that have often been

characterized as stagnant at best but more likely monotonous, mind numbing or boring.

Possibly the most significant characteristic of the vTools is that they offer enhanced interaction without the constraints typically associated with synchronous education. This important point should not be undervalued, as many online students are working adults with many competing interests such as families, work, or community involvement (Reisetter & Boris, 2004). Add to this, the results of a recent survey in which 64% of respondents agreed with the statement "Students need more discipline to succeed in an online course than in a face-to-face course" (I. Allen & Seaman, 2005, p. 12). The outcome is a very busy group of students who must be very disciplined. This is further compounded by the challenges of students in different time zones and it quickly becomes apparent that the demands of synchronous online courses simply do not work for many.

Video Lessons

One of the best ways to emulate the interaction of face-to-face teaching and synchronous online education is to add videos to online courses. Video support enhances asynchronous online education by engaging and exciting students – once students are engaged and excited about online education it is less likely they will become distracted or even worse drop the course. The Nanyang Technological University (NTU) in Singapore witnessed this phenomenon as the expanded their e-learning presence. According to researchers at NTU, "if the student is able to "see" and "hear" the instructor, he or she would be more engaged to learn, as the complementary audio-video elements make learning more engaging and sustainable" (Lee, Tan, & Goh, 2004, p. 8).

Most students enjoy this time-tested technique as they feel they are able connect with their instructor. That said, there are a few issues to consider before you grab your camera and begin producing your award-winning documentary. The three key elements that must be considered are quality, accessibility, and technology.

Quality

Remember the old cliché *it is more important to look good than to be good.* To some degree, this applies to the videos produced for your courses. That is not to suggest that the content is not important. Of course, the con-

tent is essential; it must be designed to meet course or program objectives; it must be developed with assessment in mind. The assumption of this chapter is that the instructor is an expert in the field and knows the course material inside and out. This chapter is dedicated to enhancing your asynchronous online delivery.

Many teachers venture into the video arena by taking their webcam into their traditional classrooms to *tape* their lectures. After the class, they eagerly take their new *movie* back to their office and upload into online learning system. Unfortunately, the 45 minute unedited video does not garner the results they desired. In despair, they abandon their efforts and return to their traditional methods.

The real trick is to learn from the best. Start by watching some music videos – the target market is probably the same, so there is no need to reinvent the wheel. Remember the aim is to excite and engage students and we must agree that music videos achieve that aim.

Most music videos have four common traits. First, they are relatively short, somewhere between 3 and 13 minutes (Michael Jackson's infamous *Thriller* was one of the longest at 13 minutes). That is a good guide for instructional videos; keep them short, informative, and interesting. Second, the videos include a banner including the song name and artist. To achieve this standard you will require some special editing software; however, it is worth the investment. Third, they are rehearsed and scripted; few music videos are adlibbed – even those that appear to be impromptu, have probably been rehearsed many times. Fourth, both the picture and sound are high quality.

Each of the four traits is described in more detail below; however, examples of videos incorporating these characteristics are also available online (Girard, 2006). The sample videos also support the thesis of this chapter. This chapter is much like a typical asynchronous course in that the main mode of knowledge transfer is reading. Watching the videos may provide a "connection" with the authors. It is entirely possible that you will learn more about the characteristics of the vTools through watching the videos than by reading about them.

Length. There is great debate about the length of videos. Clearly, some educators favor videos that replicate the classroom; however, our experience suggests that online students prefer short focused videos. Feedback that we have received supports our thesis that videos should be short, certainly less than 15 minutes. Our observation is supported

by research that suggests we avoid "extraneous video and audio" (Swan, 2004a, p. 66).

Anecdotal evidence suggests that students tend not to watch the entire video if it is too long. Consider the following student comment:

> I am in complete agreement with XXXX on the video. I found it more distracting than helpful, even to the point of moving on to work on other homework, while still trying to listen to the video in my headphones. It just seemed to start out slow, and while throwing out terms to know in the XXXX field, just didn't seem to click with me on the purpose of the video. Maybe down the line as the course progresses, I will change my mind and see the purpose of the video. As for now, it was just too distracting.

Part of the problem with long videos is that it is difficult to index or bookmark the content, which in turn makes it difficult for students to search the content. There are new technologies that may alleviate this concern, for example, the advent of hypervideos will permit the indexing of videos (Bochicchio & Fiore, 2005). In the short-term, we recommend a series of short videos rather than one long one. This notion is supported by research of Mayer & Moreno (2003) who recommend creating "bite-size" segments to avoid cognitive overload.

Banners. All videos should include a title page and banners. The title page should include the course or subject name. In addition, we recommend using a banner that includes the speaker, much as we are accustomed to in television or music videos. The aim of the banner is two-fold. First, it ensures that the students get to *know* you – an essential element in online education. Second, banners go a long way in demonstrating the quality of the video, which is discussed further below. One student emphasized the former by writing:

> The introductory videos to each module were a nice way to begin. In an online environment, the element of face time is missing. Being able to put a face with the name and the comments written are an important element to learning. The videos set the tone and provided quick insight for the material to be covered during the module.

Rehearse. There is a carpenter's axiom that states you should *measure twice and cut once*. This is good advice and applicable to video production.

However, rather than measuring twice you will wish to rehearse your lecture at least twice before going live. You should begin by drafting a script and collecting the PowerPoint slides or other supplements that you plan to include. Once you are comfortable with the script, it is time to import the text into teleprompter. Many video recording packages include a teleprompter. Next, rehearse the lecture with the lights on and the camera running. This will help ensure that you are content with the script. Keep practicing until you are able to navigate the script without major problems. Finally, it is time to go live and record the final lecture.

Quality. Students are used to seeing high quality music and news videos and therefore they expect the same in online education. Many of our potential students have grown up in the *MTV* or *CNN* age and may have higher expectations than were commonplace a decade ago. Although one could argue the merit of the old cliché, *it is more important to look than to be good*, the reality is the students of the 21st Century do judge the book by its cover. Our task is not to judge their standards, but rather develop a style of education that excites and engages them so that they will be successful in their educational pursuits.

Accessibility

Perhaps the only issue that is more important than the quality of your videos is accessibility. There are several dimensions to this very important topic. Frankly, there is no sense wasting your time and other valuable resources to produce a high quality video if your students are unable to access the video.

A major *faux pas* in online education today is the assumption that all students have the same ability to access online courses. In fact, many students have challenges that prevent this ubiquitous access. Consider a student who is trying to download your very large video (remember the 45 minute video of a classroom lecture) using a very slow Internet connection. The result is a frustrated student who is unable to watch the video. Worse yet, imagine a hearing or visually impaired student who is trying to access your video. In both cases, the potential benefits of the video have been dramatically and irreparably damaged.

To ensure accessibility, videos in an online course should be included in three formats. The first format is designed for students who access the course using high-speed Internet access. The second video caters to

those accessing the site with low speed connections such as dial-up or cellular telephone. The final *video* format is not really a video but rather a written transcript of video. The transcript is essential for visual impaired students using *screen readers* to access the learning system. At first glance, this triple requirement seems like an unmanageable task. Fortunately, there is a relatively easy solution for each of these accessibility issues. Several software packages exist that assist in the production of the three formats.

Technology

To ensure that your product is acceptable you will wish to use good quality recording equipment. The camera you select should be at least home video quality – do not use a webcam! Choose a camera that has a high-speed digital out that is compatible with your computer, often this will be a Firewire (IEEE 1394) or USB2 connection. You should also attach a lapel microphone to the camera to ensure a high quality sound.

In addition to the camera and microphone, you should consider investing in a photo grade lighting system. An expensive set-up is not necessary but you should use an umbrella type lighting systems to ensure your videos are sufficiently bright and shadow free. Consult a local photography store to determine your exact needs.

The last piece of hardware that we recommend is a blue or green screen. These screens allow you to add a background after your video is complete. This postproduction staging is very easy to do and substantially increases the quality of the video. The background can be changed to meet your needs and reduces the challenges of lighting a typical office or classroom.

An investment in some video production software may be necessary to develop high quality videos. Although we will not recommend a specific package, you should consider several components as you shop for the software. The software program should permit video output in a variety of resolutions; include a teleprompter; support the use of blue/green screens; and include banner and titling. Many software packages offer trial versions that will allow you to experiment. By far the most important characteristic is usability; choose a package that is easy to use.

A detailed discussion of technical aspects of video formats and sizes is beyond the scope of this paper. The best advice is to strive for a balance of resolution (picture/sound quality) and download speed (file

size) that will meet the needs of your students. The higher the resolution of the videos the longer it takes students to download the files. If all of your students have high-speed Internet, connections you may tend toward the high resolution end of the continuum; alternatively if you have students who rely of dial-up telephone connections then you will wish to opt for lower resolution files that download quicker. The videos may be distributed on a DVD or CD-ROM, which will eliminate the download issue. Most video production software packages allow you to record at high resolution and then save the files in various combination to meet the needs of your students.

Voice Feedback

The need for quality and timely feedback in online education cannot be overstated. Upon completing an assignment all students yearn feedback; they want it now, and they want it to be personalized. Some online educators provide generic feedback to all students; they argue that the *textbook* solution to problem is the best way to provide feedback. Nothing could be less engaging than such cop-outs. This is what one student stated:

> I have taken many online courses in which when [sic] an assignment was submitted or a discussion post was put on, nothing was returned as far as feedback. This instructor topped the charts….as the best online teacher that I have ever had. Not only did he respond back to discussion questions but he also gave VOICE feedback for every single paper that I submitted. I thought this was incredible because he gave us the feedback and let us know the high points and low points of the paper. He gave us ways to improve on the next paper and allowed us to expand as students and cared about our grades.

Students deserve high-quality, personalized, and timely feedback on all assignments. Recent research supports this intuitive proposition and suggests that we may increase learning effectiveness by providing timely and supportive feedback (Swan, 2004b). This is certainly not unique to asynchronous online education; however, it may be more important in this domain. It is imperative that students know there is a real person at the end of the Ethernet. A trio of students wrote:

> Three areas were unique, and above and beyond, any online courses experienced by the members of this team. The .wav

file feedback from the professor was a welcome aspect of this course. It provided a personal feeling to a disconnected environment. The introductory videos and the power-point presentations with voice were also interesting and gave a face-to-face classroom effect to the course. Due to these features the learning environment was enhanced and surpassed expectations. This class was truly enjoyable, challenging, and rewarding.

This is what we call a *leap of faith* assertion. Until you try using voice feedback you may not believe us when we say there is a night and day difference between the reading and listening to such comments. David Snowden, the director of the Cynefin Centre for Organizational Complexity suggests, "we can always know more than we can tell, and we can always tell more than we can write down" (Snowden, 2002, p. 103). These words of wisdom explain why the voice feedback is so much more powerful than the written word. The ultimate proof is *hearing* the response from your students, for example:

In this virtual environment, the only interaction which brought the instructor and the student together was videos and audio feedback. This part was the most interesting and was unique to Knowledge Management. The video helps in knowledge transfer and created a atmosphere of virtual socialization. Audio feedback helped us improve ourselves and grow in virtual Ba.

The *ba* to which the student refers "can be thought of as a shared space for emerging relationships. This space can be physical (e.g., office, dispersed business space), virtual (e.g., e-mail, teleconference), mental (e.g., shared experiences, ideas, ideals), or any combination of them. What differentiates *ba* from ordinary human interaction is the concept of knowledge creation" (Nonaka & Konno, 1998, p. 40). Surely, this trusted environment of knowledge creation is a near utopian state of education that eludes many online educators.

The technology needed to complete this task is much less demanding than for the video lectures. There are a number of programs to record your voice and either upload or email the resulting file to your students. We recommend the use of a program that compresses the voice file to reduce the size – there are many programs from which to choose.

Unlike the production of videos, providing voice feedback does not require rehearsing the text, rather we recommend that you have a con-

versation with the student. Pretend you are meeting a student during your office hours to discuss an assignment. Of course, there is some preparation required, just as there would be for an office call. We recommend that you start by reviewing the tasks of the assignment. Next, move from the general to the specific by describing the strengths and weaknesses of the assignment. Often it is a good idea to have your marking rubric handy so that you remember to touch on each of the elements.

Finally, remember to personalize the comments. Use the student's name and refer to very specific examples from his or her assignment. Make an effort to comment on areas that have improved from previous assignments and note areas that need attention for future work. Students appreciate honest, timely, and focused feedback. One student stated:

> The instructor provided audio feedback to the research papers instead of typed comments. This was the first time an instructor had done audio feedback and I liked receiving the feedback. It made me have a better understanding of what I had done wrong/right with the assignments instead of guessing on what was being said in the typed comments. Typed comments individuals can interpret a totally different meaning than what was meant.

If you have unlimited time then you may wish to consider video feedback; however, most of us must balance a variety of tasks competing for the limited amount of time available. The reality is that the video lectures are reusable but assignment feedback is a one-time event. Given this reality, we recommend that you dedicate your extra time to improving the quality of the reusable commodity (the videos) rather than the one of voice feedback.

During our discussion of videos, we stressed the importance of catering to students with access challenges. Before delivering your first voice feedback file, you should check with students to ensure they will be able to access the file. Some students may be hearing impaired while others may prefer the written word. One way to make sure students are prepared for and able to access voice files is to send out a voice file, with a text introduction, during the first week of the course. We recommend offering students the ability to opt for written feedback in lieu of the voice files.

A word of warning is in order. Students are very demanding and will always want more. Incorporating voice feedback and video lectures into asynchronous courses is a double-edged sword. Once you expose your students to the interactive features, they will crave even more. One student wrote:

> I really enjoyed use of both audio and video and how you incorporated them into the class. I believe that this form of virtual collaboration is an effective strategy and could have been used more throughout the course. For example, it could have been done to introduce each section at the beginning of each week which would have added a little more sustenance to the content and provide more personal interaction between instructor and student. Overall, this is an excellent course well managed, organized, and delivered.

Virtual Team Collaboration

The final way to improve the dynamic impact of an asynchronous online class is through virtual team collaboration. Collaboration in the traditional classroom-based course happens seamlessly through instructor led discussions, side discussions by students, or casually outside of the classroom. Unbeknown to the students they are creating learning communities that enhance their learning, motivate them to complete the course, and learn independent of the professor. This collaboration creates a bond between the students and the professor. Once that bond is created, a shared understanding of the course expectations begins to develop. The challenge of any online professor is to develop that same depth of collaboration into the asynchronous environment.

Virtual team collaboration is a subset of the larger and more mature subject of online collaboration. The literature is rich in areas such as asynchronous discussion interfaces (Swan, 2004a), building collaboration and community (Chapman, Ramondt, & Smiley, 2005), virtual team projects (Starke-Meyerring & Andrews, 2006), strategies for online collaboration (Hasler-Waters & Napier, 2002) and more. However, there is a void in the area of practical implementation of team collaboration spaces. In order to avoid duplication, this section will focus on the missing area of team collaboration spaces.

Team Collaboration Spaces

The final *v* in our collection of *vTools* is virtual team collaboration spaces, which facilitate work on team tasks at the convenience of the members. The workspace should be a branch from the class site and should provide the ability to store documents in a common space, receive notification when a task or document has been added or modified, and a secure area from other teams.

You will note our repeated and very conscious use of the collective noun *team* instead of *group*. This is much more than semantics and we encourage you to use the term team. Teams are a unique type of group in that they establish a common goal. This unites the individual members to achieve the collective objective. Alternatively, groups are simply a gaggle of individuals that lack the common purpose. Snowden reminds us that "knowledge can only be volunteered; it cannot be conscripted" (Snowden, 2002, p. 103). We promote a collective environment of trust, an environment in which team members feel a need to contribute and share knowledge.

Despite our best efforts to create this atmosphere of trust, sharing, and learning, we recognize that occasionally students will seek a free ride by becoming a social loafer. Piezon and Donaldson (2005) recommend a number of tools and techniques to reduce the likelihood of social loafing, including the use of peer evaluations, reducing the team sizes, emphasizing the importance of teamwork, and the use the meaningful and immediate feedback.

Providing a separate storage area for each team is critical in forming the confidence to collaborate virtually on documents. It is important that you provide instructions on how to name the document, check out the document for editing, saving back to the common space, checking the document back in, and creating a version history. We have also found it important to include instruction on how to use the collaboration tools specific to each application tool. It is also important to track the process of the document development from draft to ready for review to final. This document property will provide a sense of movement through the team project and provide a sense of completion for each phase of the project.

We have found that online students are not unlike the on-ground students in that they want a sense of security when sharing their documents with members of the class not in their team. Both groups of

students want to develop their ideas without the fear of being copied. The collaborative space you choose must provide this type of security. Most collaborative workspaces can provide broad access to the course site while allowing select access to other areas.

Most collaborative spaces also provide the team the ability to store contact information for each member, create surveys, and search for specific documents. We have found that the use of these features depends on the dynamics of the team and the detail required in successfully completing the team project.

Virtual collaboration provides the students the ability to meet the course and individual team goals, create class and team learning communities, collaborate on document development, and successfully complete the team project. One student recalled:

> The SharePoint Portal server was made available to students by XXXX during this course. Dr. XXXX allowed and encouraged students to volunteer to get a SharePoint site for their team to use. The results were outstanding, a XXXX course site was set-up and five team sites were linked to the course site as subsites.

Conclusion

The aim of this chapter is to answer the question *Is it possible to deliver asynchronous courses with the advantages typically associated with synchronous courses?* With a view to answering this question, we reviewed three techniques that may be utilized within asynchronous online education: Video, Voice, and Virtual Team Collaboration. Each of the three tools reviewed increase the students' interaction with content, instructors, classmates and course interfaces. Together this interaction leads to higher levels of learning effectiveness.

A properly produced video motivates students and focuses their energy through engagement and excitement. Students respond very well to high quality videos because it helps them understand difficult material. They have the opportunity to replay the video several times to ensure they have mastered a particular concept. Arguably, this is better than a synchronous video stream as students may pause, fast forward and rewind as they wish.

Videos are an excellent vehicle to create a sense of interaction. Specifically the videos support virtual interaction and permit the instructor to connect with their students. One could argue that this presence is even more dominant than synchronous streams as we are able to ensure the quality. Often streaming video is degraded by poor network connections, which causes annoying and disruptive buffering. Nothing eliminates the value of presence more than *dead air*.

Our experience is that voice feedback is particularly useful in satisfying two characteristics typically associated with synchronous delivery traits. First, voice feedback is an excellent method to provide timely feedback. In addition, properly constructed voice feedback appears to be much more motivating than uninspiring written responses.

Finally, it is our belief that virtual team collaboration effectively emulates many synchronous delivery traits, such as motivating students to continue their studies, interaction, peer feedback, and pacing. Virtual team collaboration provides students the ability to meet the course and individual team goals, create class and team learning communities, collaborate on document development, and successfully complete team projects.

References

Allen, I., & Seaman, J. (2005). Growing by Degrees: Online Education in the United States, 2005: The Sloan Consortium.

Allen, M., Bourhis, J., Burrell, N., & Mabry, E. (2002). Comparing Student Satisfaction with Distance Education to Traditional Classrooms in Higher Education: A Meta-Analysis. American Journal of Distance Education, 16(2), 83.

Bochicchio, M., A., & Fiore, N. (2005). Teacher-Centered Production of Hypervideo for Distance Learning. International Journal of Distance Education Technologies, 3(4), 19.

Chapman, C., Ramondt, L., & Smiley, G. (2005). Strong community, deep learning: exploring the link. Innovations in Education & Teaching International, 42(3), 217-230.

Girard, J. P. (2006). vTools.   Retrieved September 15, 2006, from www.johngirard.net/vTools/

Hasler-Waters, L., & Napier, W. (2002). Building and supporting student team collaboration in the virtual classroom. Quarterly Review of Distance Education, 3(3), 345.

Lally, V., & Barrett, E. (1999). Building a learning community on-line: towards socio-academic interaction. Research Papers in Education, 14(2), 147.

Lee, C. S., Tan, D. T. H., & Goh, W. S. (2004). The Next Generation of E-Learning: Strategies for Media Rich Online Teaching and Engaged Learning. International Journal of Distance Education Technologies, 2(4), 1.

Mason, R. (1998). Globalising education : Trends and applications. London ; New York: Routledge.

Mayer, R. E., & Moreno, R. (2003). Nine Ways to Reduce Cognitive Load in Multimedia Learning. Educational Psychologist, 38(1), 43-52.

Nonaka, I., & Konno, N. (1998). The Concept of `Ba': Building a Foundation for Knowledge Creation. California Management Review, 40(3), 40-54.

Piezon, S. L., & Donaldson, R. L. (2005). Online groups and social loafing: Understanding student-group interactions. Online Journal of Distance Learning Administration 8(4).

Reisetter, M., & Boris, G. (2004). What Works: Student perceptions of effective elemenets in online learning. Quarterly Review of Distance Education, 5(4), 277-291.

Shea, P., Swan, K., Fredericksen, E., & Pickett, A. (2001). Student Satisfaction and Reported Learning in the SUNY Learning Network: Interaction and Beyond - Social Presence in Asynchronous Learning Networks State University of New York.

Snowden, D. (2002). Complex acts of knowing: Paradox and descriptive self-awareness. Journal of Knowledge Management, 6(2), 100.

Starke-Meyerring, D., & Andrews, D. (2006). Building a Shared Virtual Learning Culture. Business Communication Quarterly, 69(1), 25-49.

Swan, K. (2004a). Learning online: current research on issues of interface, teaching presence and learner characteristics. In J. Bourne & J. C. Moore (Eds.), Elements of Quality Online Education, Into the Mainstream (pp. 63-79). Needham, MA: Sloan Center for Online Education.

Swan, K. (2004b). Relationships between interactions and learning in online environments: The Sloan Consortium.

Authors

John Girard is an Associate Professor of Business Administration and Business Information Technology at Minot State University. John is lead professor for knowledge management and director of a graduate executive program. John teaches graduate courses and is actively researching the relationships that exist between information anxiety, organizational memory loss, and contemporary knowledge management theories.

Lori Willoughby is Professor of Business Information Technology at Minot State University. Lori is the director of the Master of Science in Information Systems and Master of Education–Business programs. Lori teaches undergraduate and graduate courses and is actively researching best practices for the use of virtual collaboration tools. Email: lori.willoughby@minotstateu.edu

Kristi Berg is an Assistant Professor of Business Information Technology at Minot State University. Kristi teaches undergraduate and graduate courses and is actively pursuing a PhD in Organizational Management with a concentration in Information Systems. Email:

kristi.berg@minotstateu.edu