

An Analysis of Technology Tools Used in Online Courses and Their Relationship to
Students' Learning Styles

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ABSTRACT

The purpose of the study is to see if the students' learning styles are being met while taking the course online. Students have different learning styles when it comes to learning the curriculum that is taught by instructors. The study included a comprehensive review of literature including understanding learning styles, different technology tools, and the importance of using technology tools to engage student learning in an online course that could incorporate the different learning styles.

In this study the students enrolled in the Spring 2008 Written Communications online course, were surveyed. Majority of the students who completed the survey, felt that the use of technology that the instructor used in the course helps meet their needs based on the type of learner that they are.

Recommendations were made that the instructor survey students in at least two different semesters to see how others like using the technology tools and to see if they are effective for them in learning based on their learning style; that the instructor continues to use the different technology tools available for the course; that the instructor tries a different technology tool the next time the course is taught online; and that the instructor share this information and the results with the dean of the department.

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Chapter I: Introduction

Introduction and Background to the Problem

Students learn in many different ways and no one has a better learning style than anyone else. Learners have different learning styles or a combination of styles and online instructors should try to design activities that address their modes of learning. If this is done, the instructor can provide significant experiences for each class participant (Illinois Online Network, 2007).

Online instructors must organize situations that address the various ways of learning in order to provide significant experiences for each class participant because two students may participate in the same class who have different learning experiences (Berge Collins Associates, 2006). When an instructor designs a course to go online, it is important to utilize multiple learning strategies and the instructor needs to change the activities so that it engages student learning.

When mismatches exist between learning styles of most students in a class and the teaching style of the professor, the students may become bored and inattentive in class, do poorly on tests, get discouraged about the courses, the curriculum, and themselves, and in some cases change to other curricula or drop out of school.

(Felder, n.d., p. 1)

Based on this, it is important to teach students using multiple technology tools so that all students are able to gain knowledge of what they are learning. Online instructors should try organizing situations that address the various ways of learning in order to provide significant experiences for each class participant.

Based on the VARK learning styles inventory (Fleming, 2007), when it comes to learning, students can be visual, aural, read/write, or kinesthetic learners. Students can be a combination of one or more of the learning styles which can help them when they take an online course. Visual learners learn best when information is presented visually. Students can benefit from course information that is well organized by having the essential points highlighted or outlined (Stewart, 2007). Aural learners learn the best when information is presented to them in oral language format. Learners are good listeners and benefit from information that is communicated through dialog and discussion and they can easily obtain information from audiotapes and group discussions (Stewart, 2007). Read/write learners learn best when the information is displayed as words and their preference is reading and writing in all its forms. Kinesthetic learners learn best when they are engaged in “hands-on” activities. Learners benefit from situations that provide objects and variables that can be manipulated (Stewart, 2007).

There are many different technology tools that are available for use in the online learning environment to help students learn the material based on their learning style. “In the past five years, the number of online technologies has exploded, with many of them being well-suited for teaching and learning” (McGee & Diaz, 2007, p. 32). Not all the technology tools have been developed specifically for online instruction, but can be successfully adapted for facilitating online learning. “Selecting technologies that will further teaching and learning should be a dynamic and interactive process for an institution, for departments that support teaching and learning, and for the individual faculty member” (McGee & Diaz, 2007, p. 40). Now let’s look at some of the ways in which technology has begun to change the

game and take a look at ways in which the technology tools can help all students so that they are able to gain knowledge of what they are learning.

There are a lot of different software and technology tools available to engage learning in an online course that could incorporate the different learning styles.

- Read/write learners
 - Blogs
 - Wikis
 - Google Docs/Spreadsheets
 - Google Page Creator
- Visual learners
 - PowerPoint presentations
 - Web conference
 - Blogs
 - Wikis
 - Vodcasts
 - Avatars
 - Videos
- Kinesthetic learners
 - Interactive learning objects
 - Web conference
 - Second Life

- Aural learners
 - Web conference
 - Podcasts
 - Vodcasts
 - Avatars
 - Videos

Interactivity plays an important role in an online course.

Online discussion can be the most powerful part of a course. The peer-peer and student-teacher interactions in a discussion forum or chat offer the online learner the ability to learn from the materials and the instructor and also from every single person taking the class (Lehman, 2004, p. 19).

With web conferencing ideas are generated through shared applications, such as polling and virtual whiteboards, and the web conferences usually include real-time VoIP (voice over IP) to accompany presentations with audio. Web conferencing also includes the ability to display and interpret PowerPoint slides and documents, send text messages, and it can record a meeting session offline as well as online (Osborn, 2005, p. 1).

Web conferencing can be very beneficial for both the instructor and students in an online course.

“Blogs are suitable for presenting points of view, reporting, and offering peer critique but are less useful for practicing or performing” (McGee & Diaz, 2007, p. 38). Instructors can use blogs and wikis to have the students post their work and then have them critique each others’ work. Instructors can also use blogs and wikis for group work.

Together, Google Docs & Spreadsheets is a powerful program. But even when taken separately from its brother, Google Docs is a useful document-creation and editing program that's entirely digital – meaning you can access it on the Web, from any Internet connection in the World. And it offers some powerful tools to help you quickly create, edit, share, and publish documents with a minimum of time and effort. (Ledford, 2007, p. 17)

Instructors and students can use Google Docs to collaborate documents, notes, reports, or other assignments. “That’s because Google Docs offers more possibilities than just creating new documents” (Ledford, 2007, p. 45).

“Done well, podcasting can reveal to students, faculty, staff, communities—even the world—the essential humanity at the heart of higher education” (Campbell, 2005, p. 42). Podcasting in online courses can be very beneficial to students because they can replay the instructor’s lectures over and over again. Technology has played and will continue to play an important role in improvement and growth of online education (Kim & Bonk, 2006).

Lakeshore Technical College (LTC) is a two year technical college that is located in Cleveland, Wisconsin. The college offers 32 associate degree programs, 26 technical diploma programs, and 44 certificate programs. Currently LTC has one fully online program available, but in the near future there will be another program available fully online. The college offers over 100 different online courses throughout the school year.

One of the online courses that is offered every semester is Written Communications and the course is required in every associate degree program at LTC. The instructor for the online Written Communications class at Lakeshore Technical College has been adding in

different technology tools and altering the curriculum to help aid the students' understanding of Written Communications.

Statement of the Problem

The Written Communications course at Lakeshore Technical College has recently been offered online since 2000. There has been limited analysis done to see if students' learning styles are being met through online delivery. To keep up with students' needs while taking online courses, it is important to have the students learn effectively by creating a course that meets the needs of students who have different learning styles.

Purpose of the Study

The purpose of the study is to see if the students' learning styles are being met while taking the course online. It is a documented fact that students have different learning styles when it comes to learning the curriculum. That leaves us asking the question, "When students take online courses, are their learning styles being met in a way that they can comprehend what they are learning?" This project will look into the different technology tools that can be used in an online course to engage students' learning who have different learning styles. An online survey will be sent to the students in the online Written Communications course who were enrolled in the spring 2008 course. The data will be collected when the online course is finished.

Research Questions

The study will address the following questions.

1. What is the effect that the technology tools have on students' learning in the online Written Communications course?

2. How are the technology tools being implemented in the online Written Communication course to reach all learning styles?
3. Is there a difference in students' perceptions in the use of online tools and their learning style in Written Communications based on their age?
4. Is there a difference in students' perceptions in the use of online tools and their learning style in Written Communications based on their gender?

Importance of Topic

There are several reasons why this is an important topic to investigate.

1. One of the fundamental questions is, whether the students are actually learning the fundamentals of writing by taking the course online. It is important to find out if the students are grasping the concepts of writing by taking the course online.
2. Another reason is to see if the instructor is utilizing multiple learning strategies in the activities to engage student learning. It is important to see if the online Written Communications course does provide all students the opportunity to understand what is being taught based on their learning style.
3. It is also important to keep up with the changes in technology and incorporate technology into online courses to help students learn. By using technology in an online course, it keeps the instructor and students up to date with technology.
4. It is also important to see if the instructor is meeting the needs of the students. If the instructor is not meeting the needs, there will be some recommendations to help meet those needs. Based on this, the results will be analyzed by the instructor and Dean to see if the course is meeting the needs of the students.

Limitations of the Study

This research has the following limitations:

1. The study was restricted to only the online Written Communication students in the spring 2008 semester. The survey did not include students who were previously in the course and dropped after it started.
2. The survey results are limited to the answers given by the students in the course and there were a few students who did not complete the survey. Therefore, the results did not adequately represent the opinions of all the students in the course.
3. The research utilized a survey that was developed by the researcher.
4. No measure of validity and reliability was conducted on the survey instrument.

Definition of Terms

The following terms are defined for clarity of understanding:

Avatar – Among people working on virtual reality and cyberspace interfaces, an avatar is an icon or representation of a user in a shared virtual reality (Learnthat, 2004).

Blogs – A blog, or weblog, is a web page that serves as a personal journal for an individual (Dawley, 2007).

Google Docs/Spreadsheets – Free web-based word processor and spreadsheet, which allows you to share and collaborate online (Google, 2008b).

Google Page Creator – Google Page Creator is a free online tool that makes it easy for anyone to create and publish useful, attractive web pages in just minutes (Google, 2006b).

Interactive learning objects – Modular digital resources, uniquely identified and metatagged, that can be used to support learning and/or any digital resource that can be reused to support learning (Beck, 2007).

Learning style – Is a certain specified pattern of behavior and/or performance according to which the individual approaches a learning experience, a way in which the individual takes in new information and develops new skills, and the process by which the individual retains new information or new skills (Sarasin, 1998).

Podcast - Is an audio or video program formatted to be played on the iPod and made available for free or for purchase over the Internet (Costello, 2008).

Second Life – Is a 3-D virtual world entirely created by its residents (Linden Research, Inc., 2008).

VARK – Is a questionnaire that provides users with a profile of their learning preferences. These preferences are about the ways that they want to take-in and give-out information (Fleming, 2007).

Vodcast - Video podcast (sometimes shortened to vidcast or vodcast) is a term used for the online delivery of video on demand video clip content via Atom or RSS enclosures (Farlex, Inc., 2008)

Web conference – A web conference is a synchronous and interactive form of communication that occurs when two or more people engage in face-to-face audio and visual exchanges (Dawley, 2007).

Wikis – Is a web site that allows users to add and update content on the site using their own web browser. This is made possible by wiki software that runs on the web server (TechTerms.com, 2008).

Chapter II: Review of Literature

Introduction

This chapter will include a discussion of understanding learning styles. In addition, the chapter will discuss the technology tools that can be used in an online course to engage learning that could incorporate the different learning styles. Some of the technology tools that will be discussed are blogs, wikis, chat room, podcasting, web conferencing, and different Google tools. The chapter will conclude with why it is important to use different technology tools to engage learning in an online course that could incorporate the different learning styles.

Understanding Learning Styles

There are four basic kinds of learning styles: visual, aural, kinesthetic, and read/write. Visual learners often remember visual details, prefer to see what they are learning, and like to write down instructions (Canadian Child Care Federation, 2000). Aural learners often enjoy oral discussion, remember by talking out loud, need to have things explained orally, and have trouble with written instructions (Canadian Child Care Federation, 2000). Kinesthetic learners often prefer activities, want to actually do whatever is being talked about or learned, and remember things by recalling who did what rather than who said what (Canadian Child Care Federation, 2000). Read/write learners often learn through reading and writing. They also learn best by reading and re-reading the textbook and their notes, writing and rewriting their notes, and in general, organizing items into lists (Central Texas College, 2008).

Visual learners make up 65% of the population. They have keen powers of observation and pay close attention to details. They rely primarily on their sight to

take in information, understand it, and remember it. They are note-takers and list makers. To an extent, information does not exist for them unless it has been written down. Auditory learners make up 30% of the population. Auditory learners would rather listen to a lecture than take notes. They remember what is read to them and what they have read aloud. They retain new information by repeating.

Tactile/kinesthetic learners make up 5% of the population. Tactile/Kinesthetic learners are highly active and communicate with body language and gestures. They learn through imitation and practice. They may appear slow at times, but this may be because the material is not presented in a style they can readily understand.

(GoogoBits.com, 2005, p. 2).

“To teach more effectively, instructors need to know more about differences in learning and better appreciate the variety of learning styles” (Sarasin, 2006, p. 2). It is important for instructors to understand the different learning styles among students and should be willing to change their teaching strategies and technique (Sarasin, 2006).

According to Sarasin (2006) instructors should try to ensure that their methods, materials, and resources fit the ways in which their students learn and maximize the learning potential of each student. It is important for instructors to know how they learn before they try to understand and accommodate their students’ learning styles.

According to Sarasin (1998), the most appropriate teaching strategies for students who learn best through visual mode must, of course, include visual formats. Instructors should also consider using social cues, small groups, student presentations, and computer-aided instruction. The most appropriate teaching strategies for students who learn best through the auditory mode are oral. These strategies include lecture, discussion, independent

work, objective presentation and practice, and activities that involve memory. The most appropriate teaching strategies for kinesthetic learners are experiential learning activities, simulations, and demonstrations. For read/write learners appropriate teaching strategies would be to have handouts, PowerPoint presentations, and writing activities.

Technology Tools

There are many different technology tools that are available for use in the online learning environment to help students learn the material based on their learning style. The different tools that will be discussed are blogs, wikis, Google docs/spreadsheets, and Google page creator, web conferencing software, podcasting, and chat rooms.

Blogs and wikis. “Blogs and wikis are two recent Web-based tools gaining popularity with online educators” (Dawley, 2007, p. 205). Blog entries are dated and can either be public or private. According to Dawley (2007) blogs open up a student’s writing to the world, thus enabling the student as a global citizen.

Wikis have two writing modes, a document mode where contributors write collaborative documents using a third person voice, and a thread mode used by contributors carry out threaded, signed discussions. When users enter a wiki, its default state is in read, and looks like a normal web page. (Dawley, 2007, p. 207)

Instructors can use blogs and wikis to support the writing process, for reflection in learning, and to let the students become experts in their own learning process. Some strengths in using blogs and wikis is that they are easy to use, available anytime and anywhere, can be public or private, and students and instructors can easily provide feedback to each other. There are also some weaknesses in using blogs and wikis. They both require some typing skills, usually only the author can delete the information that was written, and

depending how they are set up, students work is open for the public to see. “Each tool promotes social and peer interaction and collaboration, increases positive student/teacher relationships, develops critical thinking ability, and improves flexibility in teaching and learning. Working with blogs and wikis gives students an authentic learning experience” (Dawley, 2007, p. 208).

Google docs/spreadsheets and Google page creator. Google docs/spreadsheets allow students to collaborate with each other. Google docs/spreadsheets allow students to work on the same document together, instead of sorting out changes in attachments, share documents securely with each other, access it all from any computer, and even from mobile phones, and invite others to join and share (Google, 2008a). Google docs/spreadsheets could be used for small group work. “Using collaboration capabilities, the students can add their notes. Then the teacher can review the notes and correct anything that might be incorrect or add thoughts that students seemed to have missed” (Ledford, 2007, p. 46).

Google page creator is a tool that lets students create web pages right in their browsers and publish them to the web with one click. There's no software to download and no web designer to hire (Google, 2006a). Google page creator can be used for students' e-portfolios and other students and the instructor can view the pages. Both of the Google tools are free and easy to use.

Web conferencing software. Web conferencing software contains features such as a whiteboard area, application sharing (showing your computer screen to others), file sharing, polling, and text messaging. When taking an online course, it may be hard for some students because some of them need to have lectures, but with web conferencing software, the instructor and students have the ability to have a live class lecture. Web conferencing can

enhance communication and instruction in an online course. Web conferencing software allows the instructor and students to incorporate web cameras with the software so that they can see each other. “Ability to see facial expressions of participants during conversation, allows for better interpretation of understanding through visual cues” (Dawley, 2007, p. 147).

One complaint shared by many students participating in online courses is a lack of feeling connected to other students or the instructor, due to the inability to see the faces or hear the voices of other individuals. Missing visual cues can lead to misunderstandings or misinterpretations of text-based comments in an online class. (Dawley, 2007, p. 152)

Web conferencing can be a very powerful tool when it comes to taking online courses.

Podcasting. Podcasting is a great way for instructors to deliver their lectures to students taking their online courses. “Podcasting allows educators to take their students beyond traditional assignments by allowing them to include voice recordings, photos, movies, and sound effects to share their knowledge” (Apple Inc., 2008, p. 1). Instructors can create audio podcasts or video podcasts for their students. Students can also easily create podcasts. Podcasts can be used in many different ways for an online course: lectures, explaining a concept, pronunciation of vocabulary words, and student speeches. According to Walch and Lafferty (2006), the area of podcasting is really starting to take off, with more and more universities, colleges, high schools, and even elementary school classes producing podcasts.

Chat rooms. Chat rooms are very similar to web conferencing with the difference of video capabilities and application sharing. Right now most chat rooms don’t have video capability and applications sharing capability. “Chat and instant messaging provide teachers

and students with tools that offer the opposite of a discussion forum-that is synchronous (real time) communication” (Dawley, 2007, p. 121). In an online course, the instructor and students can hold a live chat with each other to discuss topics related to the course.

According to Dawley (2007), chat rooms enhance the social presence of instructors and students in the course, creating a greater sense of belonging for the student.

Chat rooms are good for group work because the students in the group are able to discuss their project in real time and not have to worry about waiting to hear back from each other in an email. “Meaningful interaction with students helps to produce two-way conversation, which is more engaging and memorable than asynchronous or total lecture class” (Dawley, 2007, p. 124). When using a chat room in an online course, the instructor and students may run into a few problems such as technical difficulties or getting bumped out during the chat.

Importance of using technology tools to engage student learning in an online course that could incorporate the different learning styles

Students learn in so many different ways and taking a course online can be challenging for some students based on their learning style. The different technology tools have the capability to address students’ learning needs based on their learning style. More students are likely to understand what is being taught in an online course by using different technology tools. Some students can take a print-based course online and do really well in it, but there are some students who need it to be beefed up in order to understand the concept that they are learning. Using different technology tools can enhance students learning.

According to Palloff and Pratt (1999), the keys to the learning process are the interactions among students themselves, the interactions between faculty and students, and

the collaboration in learning that results from these interactions. This can be achieved by incorporating different technology tools into online courses. “Current research in education suggests that teachers need to become aware that each of their students is unique. A very important aspect of the differences among students is learning styles” (Sarasin, 2006, p. 1). It is also very important that instructors understand the differences in learning and understand the variety of learning styles.

Summary

The information presented in this chapter will provide the foundation for the methodology. Chapter three will include information on the subject selection, the instrumentation, as well as procedures for data collection and data analysis.

Chapter III: Methodology

Introduction

The Written Communications course at Lakeshore Technical College has been offered online since 2000. There has been limited analysis done to see if students' learning styles are being met through online delivery. To keep up with students' needs while taking online courses, it is important to have the students learn effectively by creating a course that meets the needs of students who have different learning styles.

This chapter will include the following: subject selection and description and the instrument being used. In addition, data collection procedures and data analysis will be discussed. The chapter will conclude with the limitations and a summary.

Subject Selection and Description

The group of subjects for this study was the 11 students who were enrolled in the online Written Communications course at LTC in the spring semester of 2008. The spring semester course was offered in 16 weeks. The instructor has taught Written Communications online for 4 years and has taught Written Communications in a face-to-face setting for 18 years.

Instrumentation

The survey (Appendix A) that was used was created by the researcher specifically for this project. The survey consisted of ten questions and the questions consisted of multiple choice and yes/no. Some of the questions also asked for responses using a five point Likert scale with the following categories: very effective, effective, neutral, ineffective, and very ineffective. The questions that were asked pertained to demographics, learning styles, and technology tools.

Data Collection Procedures

The survey was an online survey where a link was placed under the learning plan for the students to access it. SelectSurvey was used to create the survey and it is an online application that allows a researcher to create and administer surveys, gather results, and view statistics (University of Wisconsin-Stout, 2008). In the instructions, the students were informed what the survey was about and that it was completely voluntary and the results are confidential. Participants were asked to complete the survey prior to the course ending on May 9, 2008. Data was collected using the website where the survey was created. Of the 11 participants, 8 of them responded to the survey within the designated time.

Data Analysis

All appropriate descriptive statistics were run on the data to address the research questions by the research technician at the University of Wisconsin-Stout. The data from each of the survey questions were analyzed. Additionally the data was analyzed to answer the research questions.

Limitations

The limitations of the methodology and survey include:

1. The survey was only completed by the current students in spring 2008 Written Communications online course.
2. The survey was placed in a learning plan the week before the course ended, so if students were behind, they may not complete the survey in time and the students who dropped the course were not part of the survey.
3. Because there is such a small sample size, the results of the survey may not be as precise as if there were a larger sample size.

4. The survey was designed specifically for the course, so there are no measures of validity and reliability.

Summary

All the results and information from this chapter will be presented in chapter four to determine if the technology tools being used in the online Written Communications course are engaging student learning based on their learning styles.

Chapter IV: Results

Introduction

This chapter will provide the demographic information regarding the participants who completed the survey, an analysis of all the items that were in the survey, and will conclude with answering the research questions based on the data that was collected.

Demographic Information

Of the 11 participants, 8 completed the 10 question survey. This represents a 72.7% return rate.

Of the 8 participants, 7 (88%) were female and 1 (12%) was male. Of those who completed the survey, 2 (25%) were between the ages of 18 and 25; 2 (25%) were between the ages of 26 and 35; 3 (38%) were between the ages of 36 and 45; and 1 (12%) was between the ages of 46 and 55. Of those who completed the survey, 4 (50%) are enrolled as part-time students and 4 (50%) are enrolled as full-time students. All 8 (100%) of the participants currently have or own a computer at their homes. Of the 8 participants, 1 (12%) uses dial up for an internet connection at their home and 7 (88%) use DSL/cable for an internet connection at their homes. Of those who completed the survey, 2 (25%) prefer to take fully online courses; 0 (0%) prefer to take face-to-face courses; and 6 (75%) prefer to take blended courses. In regards to learning styles, 4 (50%) are visual learners; 2 (25%) are auditory learners; 0 (0%) are read/write learners; and 6 (75%) are kinesthetic learners. Based on that data, 1 (12%) has three different learning styles; 2 (25%) have two different learning styles; and 5 (63%) have only one main learning style. 7 (88%) of the participants believe that the use of technology that the instructor uses in the course helps meet their needs based on the type of learner that they are and 1 (12%) does not.

Item Analysis

The following item analysis will be based off question number 9 from the survey.

Item number one on the survey stated, “Avatars.” The results were as follows: 25% (n=2) indicated that the tool was very effective, 62% (n=5) indicated that the tool was effective, 12% (n=1) was neutral, 0% (n=0) indicated that the tool was ineffective, and 0% (n=0) indicated that the tool was very ineffective. Item number two on the survey stated, “Learning objects.” The results were as follows: 25% (n=2) indicated that the tool was very effective, 75% (n=6) indicated that the tool was effective, 0% (n=0) was neutral, 0% (n=0) indicated that the tool was ineffective, and 0% (n=0) indicated that the tool was very ineffective. Item number three on the survey stated, “PowerPoint presentations.” The results were as follows: 12% (n=1) indicated that the tool was very effective, 50% (n=4) indicated that the tool was effective, 25% (n=2) were neutral, 12% (n=1) indicated that the tool was ineffective, and 0% (n=0) indicated that the tool was very ineffective. Item number four on the survey stated, “Web Conference.” The results were as follows: 38% (n=3) indicated that the tool was very effective, 50% (n=4) indicated that the tool was effective, 12% (n=1) was neutral, 0% (n=0) indicated that the tool was ineffective, and 0% (n=0) indicated that the tool was very ineffective. Item number five on the survey stated, “Google Docs.” The results were as follows: 38% (n=3) indicated that the tool was very effective, 62% (n=5) indicated that the tool was effective, 0% (n=0) was neutral, 0% (n=0) indicated that the tool was ineffective, and 0% (n=0) indicated that the tool was very ineffective.

Based on the question “Are there any other technology tools that you feel the instructor should be using in the course as well,” 2 (25%) thought the instructor should use blogs; 0 (0%) thought the instructor should use wikis; 2 (25%) thought the instructor should

use podcasts (audio recordings); 3 (38%) thought the instructor should use vodcasts (video recordings); 0 (0%) thought the instructor should use Google page creator for e-portfolios; 6 (75%) thought what was used in the course was good; 1 (12%) thought that web cameras should be used in the course.

Research Questions

Research Question #1 - What is the effect that the technology tools have on students' learning in the online Written Communications course? Survey question number 8 addressed this question. The results for survey number 8 indicated that 88% of the participants felt that the use of technology that the instructor used in the course helped meet their needs based on the type of learner that they are, and 12% of the participants felt that the tools used did not help meet their needs.

Research Question #2 – How are the technology tools being implemented in the online Written Communication course to reach all learning styles? Survey question number 9 addressed this question. The results for survey number 9 indicated that 25% felt that the use of the avatars was very effective, 62% felt that the use of the avatars was effective and 12% were neutral. 25% felt that the use of learning objects was very effective and 75% felt that the use of learning objects was effective. 12% felt that the use of PowerPoint presentations in the course was very effective, 50% found them to be effective, 25% were neutral, and 12% found the use of PowerPoint presentations to be ineffective. 38% found that having a web conference in the course was very effective, 50% found the web conference to be effective, and 12% were neutral. 38% found that the using Google docs in the course was very effective and 62% found that using Google docs was effective.

Research Question #3 – Is there a difference in students’ perceptions in the use of online tools and their learning style in Written Communications based on their age? Survey questions number 2, 7, and 9 addressed this question. There was one participant who is a visual learner in the age range of 26-35, there were four participants who are kinesthetic learners in the age range of 18-45, there was one participant who is both a visual and auditory learner in the age range of 36-45, there was one participant who is both a visual and kinesthetic learner in the age range 36-45, and there was one participant who is a visual, auditory, and kinesthetic learner in the age range of 46-55. Out of the participants that are visual learners, they thought that all the online tools used were either very effective or effective. Out of the participants who are auditory learners, they thought that all the online tools used in the course were effective. The age range for the six participants that are kinesthetic learners is 18-45. In regards to the avatar, two participants found it very effective, three participants found it to be effective, and one participant was neutral. In regards to the learning objects used, one participant found them to be very effective and five participants found them to be effective. In regards to using Google docs in the course, two participants found it very effective and four participants found it effective. In regards to having a web conference, two participants found it to be very effective, three participants found it to be effective, and one participant was neutral. In regards to having PowerPoints in the course, three participants found them to be effective, two participants were neutral, and one participant found them to be ineffective.

Research Question #4 – Is there a difference in students’ perceptions in the use of online tools and their learning style in Written Communications based on their gender? Out

of the eight participants who completed the survey only one of them was male so analysis cannot be done.

Summary

Even though there were not that many participants who completed the survey, based on the results it does help to use different technology tools in an online course. In summary, chapter five will conclude with the limitations, conclusions, and recommendations for this study.

Chapter V: Discussion

Introduction

The purpose of the study was to see if the students' learning styles are being met while taking the course online. This chapter will include the limitations of the study, provide conclusions based on the results, and finish with recommendations.

Limitations

This research had the following limitations:

1. The study was restricted to only the online Written Communication students in the spring 2008 semester. The survey did not include students who were previously in the course and dropped after it started.
2. The survey results are limited to the answers given by the students in the course and there were a few students who did not complete the survey. Therefore, the results did not adequately represent the opinions of all the students in the course.
3. The research utilized a survey that was developed by the researcher.
4. No measure of validity and reliability was conducted on the survey instrument.

Conclusions

Even though there was a small amount of participants in the course, the results indicated that 88% of the participants thought the use of technology tools that the instructor used in the online Written Communication course helped meet their needs based on the type of learner that they are. Also based on their learning styles the participants thought the different technology tools used in the course were either very effective or effective in helping them learn, only four of the participants were neutral on three of the tools, and one participant thought one of tools used was ineffective for them.

The results also indicated that the technology tools helped with student learning regardless of their age. The participant ages ranged from 18-55 and based on the results it didn't seem to matter what age they were, because the participants pretty much felt that the technology tools were either very effective or effective in helping them learn based on the type of learner that they are. Although the results of this study were limiting because of the small sample size, the participants of the study felt overall that the tools used were effective.

Recommendations

The researcher recommends that the instructor continue to use the different technology tools to help students learn in different ways. There are many different technology tools that are available for use in the online learning environment to help students learn the material based on their learning style. It is important to focus on incorporating different technology tools to reach the students with different learning styles. Taking a course online can be difficult because students learn in different ways, but when an instructor incorporates different technology tools students feel that the tools are effective in their ways of learning.

The researcher also recommends trying to incorporate a couple of different technology tools into the course. Six participants in the course stated that the tools that were used in the course was good, but from the survey two students selected the option that the instructor should also use blogs and podcasts and three students selected the option that the instructor should use vodcasts in the course. One participant also stated that the instructor should try to use web cameras one time.

The researcher also recommends that the instructor also use the same type of survey for at least two semesters to compare the results to see how other students feel about the use

of the different technology tools that are used in the course. By doing this the instructor will be able to monitor different students thoughts and see if there are other tools that could be used in the course to help students understand what is being taught based on their learning style. The instructor can also monitor student success by providing them with a better learning environment.

Lastly, the researcher recommends that the instructor share this information and the results with the dean of the department and with other instructors at the college who teach online courses. By sharing this information with other instructors, the instructors may be able to help students become more successful, enjoy taking online courses, and learn the new technology tools that are available.

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Appendix A: Web Survey

Technology Tools and Learning Styles

Page 1 of 1

I (Heather Pokorsky - Online Learning Specialist) am completing my Masters degree through the University of Wisconsin Stout and my thesis is on "An Analysis of Tools Used in Online Courses and Their Relationship to Students' Learning Styles". I have chosen to survey you, the students, in the online Written Communications course. This ten question survey should only take a few minutes to complete.

This project has been reviewed by the UW-Stout IRB as required by the Code of Federal Regulations Title 45 Part 46.

1. What is your gender?

Male Female

2. What is your age group?

18-25 26-35 36-45 46-55 55 and over

3. What is your enrollment status?

Part-time Full-time

4. Do you currently have or own a computer at your home?

5. What type of internet connection do you have at your residence?

Dial up DSL/cable No internet connection

6. I prefer taking courses

Online Face-to-Face Blended

7. Based on the VARK learning styles questionnaire, what type or types of a learner are you?

Visual
 Auditory
 Read/Write
 Kinesthetic

8. The use of technology that the instructor uses in the course helps meet my needs based on the type of learner that I am.

9. Based on the different technology tools that the instructor is using in the course please select how effective the tools are in helping you learn based on the type of learner you are.

	Very Effective (5)	Effective (4)	Neutral (3)	Ineffective (2)	Very Ineffective (1)
Avatars	<input type="radio"/>				
Learning objects	<input type="radio"/>				
PowerPoint presentations	<input type="radio"/>				
Web Conference	<input type="radio"/>				
Google Docs	<input type="radio"/>				

10. Are there any other technology tools that you feel the instructor should be using in the course as well?

- Blogs
- Wikis
- Podcasts (Audio Recordings)
- Vodcasts (Video Recordings)
- Google Page Creator for e-portfolios
- What was used in the course was good.
- None of the above.
- Other, please specify