Relationship Between Age, Experience, and Student Preference for Types of Learning Activities in Online Courses

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Abstract

In this study, two researchers explored student learning preferences in online courses. They used the scholarship of teaching and learning process as a research model, and embedded a web-based survey and online focus groups in the online courses they were teaching. After collecting data, the researchers conducted multiple logistic regression analyses to test their hypothesis that a relationship existed between some student factors and student preferences for types of online learning activities. The results of the data analysis revealed a statistically significant relationship between student age and student preference for certain types of online learning activities. Older students in the study indicated a much stronger preference for videos of the professor lecturing, while younger students tended to prefer more interactive learning strategies. Focus group comments from the older students provide insights into some of the reasons why they found watching video lectures to be helpful for their learning, and comments from younger students illustrate how they learn best in online courses. The researchers offer suggestions for online instructors based on the findings of this study, and they explain why online instructors may find the scholarship of teaching and learning research process especially helpful for both teaching and research efforts.

Keywords: Effective Online Teaching and Learning Strategies, Relationship between Age and Preference for Online Learning Activities, Scholarship of Teaching and Learning

INTRODUCTION

The best university instructors engage in an iterative process of honing their teaching strategies (Bain, 2004; Darden, 2003; Matchett & Main, 2010; Palmer, 1998). Are my students really

learning the material? Is there a better way I could teach this material? What are my students really thinking about the questions I am posing in this course? Questions like these run through the minds of university instructors and fill the air in faculty offices and conference rooms as professors search for the very best ways to help their students learn.

The two researchers who conducted this study had similar questions about student experiences in online courses they were teaching at a university in the United States. So they began talking to one another about their experiences of teaching online courses. As they continued the conversation and refined their questions, they realized they needed to know more about students' experiences in their online courses to improve their teaching. In order to learn more about their students' experiences, the researchers decided to conduct this study.

LITERATURE REVIEW

The researchers conducted a literature review to survey what other scholars had discovered about the relationship between age, experience with online learning, and student preference for types of online learning activities. The researchers searched for articles using electronic databases such as JSTOR and EBSCO, which were available to them through their university library. Several articles were also discovered by using the Scholar.Google.com search engine. The results of the literature review are presented in the following paragraphs followed by a summary of the findings of the literature review.

Chyung (2007) studied graduate students completing an online university course. Chyung found that older students (ages 40-57) posted more often on a discussion board than younger students (ages 22-39). But while the older students in this study were more active in the asynchronous web-based discussion board, the younger students felt more confident about their ability to learn

in the online environment by the end of the course. Both groups of students performed equally well, on average, on the final exam.

DiBiase and Kidwai (2010) conducted a mixed methods study of adult professionals (ages 22-65) and undergraduate students (ages 19-30) taking an online geography course. The researchers found that the adult professionals spent more time communicating online and spent more time logged onto the learning management system than the relatively younger undergraduate students. The adult professionals, on average, scored much higher on quizzes than the undergraduate students.

Other researchers have noted that older students devote more time to the learning experience (Raidal & Volet, 2009; Vermunt & Vermetten, 2004). According to these researchers, older students are more likely to go beyond what is required for a grade to explore new materials and ideas that have occurred to them as a result of their experiences in a university course.

Koh and Lim (2012) studied the impact on academic performance when an online tool for collaborative work was used in a university computer science course. Students in the class ranged in age from 18 to 26 years old, and the average age of the students in the course was 21.18. The researchers found that as the age of the student increased, the student's grade on the final project also increased. This study lends support to the thesis that older students score higher than younger students on measures of academic performance when web-based tools are utilized in a course.

Koh and Lim (2012) also studied the relationship between age, academic performance, and the level of social interaction afforded by different web-based collaborative tools. As the age of the student decreased, the student's preference for tools that allowed for more online means of

communication increased. Younger students scored better on the assignment when they could chat online, post pictures, share biographical information, and share comments.

Dobbs, Waid, and del Carmen (2009) conducted a survey study of criminal justice students at a university in the United States. The researchers found that students who had taken online courses thought they learned more in online courses, had more interactions with their peers in online courses, and thought the quality of online courses was very good compared to traditional on-campus courses. Students who had not taken any online courses thought they would learn more in on-campus courses, doubted they would have many interactions with their peers online, and opined that the quality of online courses was not very good.

The findings of Dobbs, Waid, and del Carmen (2009) were amplified by studies conducted at Columbia University. The relationship between level of experience with online learning and preference for types of learning activities was explored by researchers at the Community College Research Center (CCRC) housed at Columbia University (CCRC, 2013a, 2013b). The researchers interviewed community college students who were just beginning to take online courses and discovered that they preferred the structure and interaction of on-campus courses and found online courses to be very challenging.

Now looking back at the literature reviewed in this article, two key conclusions can be made. First, the studies reviewed point out differences in learning style according to student age (Chyung, 2007; DiBiase & Kidwai, 2010; Koh & Lim, 2012; Raidal & Volet, 2009; Vermunt & Vermetten, 2004). The literature indicates that older students spend more time on course related learning, spend more time using asynchronous learning tools, and report that they have very positive learning experiences in online courses. On the other hand, younger students devote less

time to course work, prefer more interactive learning tools, and initially find online courses challenging.

Second, the studies reviewed also indicate that there is a relationship between level of experience with online learning and facility with online learning strategies (CCRC, 2013a, 2013b; Dobbs, Waid, & del Carmen, 2009). More research is needed to better understand how maturity and digital experience are associated with success in online courses and the ways these two student factors may interact with one another.

METHOD

In order to further explore the best strategies for online teaching and learning, the researchers used the scholarship of teaching and learning research method (SoTL) as a model to develop this study (Darden, 2002, 2003; Hatch, 2006; Huber & Hutchings, 2005; Hutchings, 2002). In a SoTL study, an instructor explores important questions that have emerged from the practice of teaching. The research process is often conducted in collaboration with other instructors.

The two researchers who conducted this study had three years of experience teaching online, and both thought they needed to find a way to better understand their students' experiences in order to engage in an iterative process of developing better online teaching strategies. Using the SoTL research model, the researchers developed a web-based survey (Appendix A) in order to obtain information from their students. They also decided to use focus groups to add depth and texture to the survey findings (Creswell & Miller, 2000). This study was reviewed by the institutional review board for the protection of human subjects (IRB) at the university where the researchers were teaching, and the IRB approved this study.

Subsequent to IRB approval, the researchers asked 30 students in online courses they were teaching in spring, 2010, to complete the survey instrument. This was a pilot study used to enhance the validity of the survey instrument. After completing the survey, the graduate education students in these courses participated in online focus groups and provided the researchers with feedback about the survey instrument. Based on survey results and student input in focus groups, the researchers revised the survey instrument.

The researchers had initially set out to explore two research questions: What are the best ways for students to learn online? What are the best ways for students to learn values in online courses? But now, based on the pilot study, new variables emerged. The students in the pilot study suggested that there might be a relationship between student age, student level of experience with online learning, and student preference for particular types of online learning strategies.

So the researchers reviewed previous research on the relationship between age, digital experience, and learning strategies. The researchers also added a question to the survey instrument to collect data on student age. A question about level of digital experience had already been included on the survey to collect student demographics, but now this question would be used to collect information about an additional variable in the study as well. With the addition of these two new variables to the study, the researchers decided to report the findings of the study in two separate articles.

In the first article, Simonds and Brock (2013) used descriptive statistics and qualitative reporting strategies to detail what the students in their courses thought were the best ways to learn online. The first research article was based on data from questions four through seven on the survey instrument (Appendix A) and student comments in focus groups.

In this present article, the researchers have focused their presentation of the data on these two research questions: Is there a relationship between the number of online courses a student has taken and student preference for types of online learning activities? Is there a relationship between student age and student preference for types of online learning activities? The researchers sought answers to these two questions by reviewing data from survey questions one through four (Appendix A), and by analyzing focus group comments from students over three consecutive academic semesters (Table 1).

Table 1

Graduate Education Courses in which Study Was Conducted and Number of Students Participating in each Course

Semester	Courses	# of Students
Fall 2010	Leadership in Catholic Schools I	10/14
	Supervision of Learning	05/05
Spring 2011	Field Experience in School Administration	06/08
	Research Methods in Education	17/17
Fall 2011	Leadership in Catholic Schools II	17/18
	Supervision of Learning	11/11
Total (n)		66/73

The survey was administered using Surveymonkey.com, a web-based survey provider. Students received an invitation to participate in the survey by email, and were free to participate in the survey or complete an alternative course assignment that was not part of this research study. Students were given one week to complete the survey. After the deadline, the researchers developed a summary of the survey findings and sent this summary to the students who had completed the survey. Along with the summary of the survey findings, the researchers sent students some focus group questions, for example; What surprised you about the survey results?

(Explain/expand on why you were surprised.). Students responded to these questions by posting responses on an asynchronous discussion board.

The findings of this study are representative of the students in these courses (survey response rate = 90%; 66/73) (Creswell, 2005). Because random selection of participants was not used in this study, the findings cannot be generalized (Creswell, 2005). This research study does provide a model for online instructors to use as they seek to enhance their effectiveness, and this study also advances the body of research on the relationship between student factors and student preferences for online learning strategies.

FINDINGS

Multiple logistic regression analyses were performed on data obtained from student responses to survey questions two, three, and four (Appendix A). These analyses were conducted to determine if two factors; number of online courses taken and age of the student, were associated with student responses to questions about learning activities.

To begin the survey, students entered their name. Since completion of the survey instrument was one option to complete a course requirement, student names were needed so that the teacher-researchers could assign points to students. Those students who did not wish to complete the survey instrument, were given another way to complete the course requirement, for example; by responding to a question about course readings on the asynchronous discussion board.

To answer the second question on the survey instrument, students typed in the number of online courses they had taken at their own university and elsewhere. This question served as a way to gauge students' level of experience with online learning. The researchers collapsed the data from question two into one number for each student; the total number of online courses each student

had taken. Students in this study had taken an average of five online courses (range = 1-31). The term online course was defined for students in question two on the survey instrument (Appendix A).

For question three on the survey, students selected an age category by clicking an option box on the survey (Appendix A). The youngest students were between the ages of twenty-one and thirty (38%; n = 25). A middle group of students were between the ages of thirty-one and forty (23%; n = 15). The researchers collapsed the final three age groups into one group of older students who were between the ages of forty-one and seventy (39%; n = 26).

In question four on the survey, students were asked to click a box next to different types of learning activities that they thought had been most beneficial for their learning in previous online courses (Appendix A). This data was coded as a binary response (0 = box not clicked-no; 1 = box clicked-yes). No student selected the final option in question four (number 4.18), so analysis of question four from the web-based survey was conducted on the seventeen items to which one or more students responded positively.

While no statistically significant relationship was discovered between number of online courses taken and preference for particular learning activities, the relationship between age and preference for learning activities was found to be statistically significant in questions 4.4 and 4.10 (4.4 p value = 0.0348; 4.10 p value = 0.0120). In question 4.4, the estimated odds ratio (age group 1 versus 3) was 0.191 (95% confidence limits = 0.054, 0.680). This finding indicates that the odds of a positive response from an older student were 5.24 (1/0.191) times greater than for a younger student. In question 4.10, the estimated odds ratio (age group 1 versus 3) was 0.057 (95% confidence limits = 0.008, 0.398). This indicates that the odds of a positive response from an older student were 17.54 (1/0.057) times greater than for a younger student. In other words,

students in the older age group were significantly more likely to have found watching pre-recorded video lectures helpful for their learning.

In question 4.4, the older students indicated a stronger preference for watching archived lectures asynchronously. These lectures were conducted with some students in a live web-based setting and saved for viewing later by other students. Similarly, the older students also indicated a stronger preference in question 4.10 for viewing pre-recorded video lectures. These lectures were prepared in advance by the professors and uploaded to a learning management system for asynchronous viewing by students.

Explaining this preference for watching videos of the professor lecturing, one of the older students made this comment in a focus group,

> I find it interesting, but not surprising, that so many of us learn from communications from the instructor and from watching pre-recorded videos. Instructor comments and videos help one to feel more connected when the face-to-face aspect is not present with this type of learning.

Two other older students shared the reasons why they preferred watching pre-recorded video lectures. "I feel I learn the most by watching and listening to the professor in the uninterrupted format of the lecture. I don't think that needs to be live, pre-recorded is great." "When it came to lectures, I found the recorded lectures more useful because I could take notes easier and listen to them more than once."

The younger students' comments in focus groups demonstrate that they think differently about the online learning experience. For example, one younger student stated, "Listening is great, but I think the comments and interactions that occur during a live chat are valuable. Simply listening to a lecture, live or pre-recorded, is not as worthwhile as the interactions that take place during a

chat." In a similar vein, another younger student shared that "A student may find pre-recorded video lectures slow, so he or she can multi-task with folding clothes, eating dinner, and so forth." An older student responded to this comment by the younger student by saying;

> I'm intrigued by your comment regarding multitasking during lectures, that someone might fold laundry during a lecture or something like that. I wonder if this very fact says something about values – perhaps the value of the educational process itself. How 'sacred' is the educational process?

So the focus group comments demonstrate that the younger and older students thought differently about the learning process in online courses. The younger students tended to prefer live interactive methods of teaching and learning, while older students preferred to set aside time and carefully listen and take notes while watching a video of the professor lecturing. A comment by a younger student clearly points out this difference; "With asynchronous activities, I feel that I only focus on what needs to be done for the class and get everything done as quick as possible." The older students approached asynchronous learning activities, such as watching pre-recorded video lectures, as special opportunities to learn directly from the professor, while the younger students tended to view pre-recorded video lectures and other non-interactive learning activities as boxes to be quickly checked off a task list.

CONCLUSIONS AND IMPLICATIONS

The results of the multiple logistic regression analyses demonstrate that different age groups respond differently to online learning methods. The older students in our study found asynchronous forms of learning such as pre-recorded video lectures to be useful learning activities. Younger students preferred interactive learning, such as; live chats and group projects. Koh and Lim (2012) reported a similar finding for younger students in their study.

Some researchers think that learning preferences are part of generational differences (Oblinger, Oblinger, & Lippincott, 2005; Skiba & Barton, 2006). These researchers state that younger students, sometimes referred to as the net generation (Tapscott, 1998) or digital natives (Prensky, 2001), were born into a world of technology. This net generation is portrayed as embracing the interactivity and immediacy of online communications. By contrast, older students are characterized as digital immigrants who consider technology innovative, transformational, and sometimes intimidating.

Students of different digital generations will likely be present in most online courses. Therefore, based on the results of our scholarship of teaching and learning (SoTL) study, online instructors would be wise to offer choices of asynchronous and synchronous learning activities. For example, generational learning preferences can be accommodated by giving students a choice in how to complete an assignment. A student could either participate in a live chat and then complete a group project, or a student could watch a pre-recorded lecture and respond to questions on an asynchronous discussion board.

A further consideration for online instructors to keep in mind is the influence of digital exposure on students' comfort level with technology. Although our study found no significant relationship between level of online experience and learning activity preference, the findings of Dobbs, Waid, and del Carmen (2009) and researchers at the Community College Research Center (CCRC, 2013a, 2013b), demonstrate that this is an important area of scholarly inquiry. Offering older students a blend of synchronous and asynchronous activities in a course will appeal to their comfort level while also exposing them to new ways of learning. Younger students will also benefit from this blended approach as they learn how to use digital tools for the purpose of academic learning. As these multi-generational students progress through courses that offer a

blend of both kinds of online learning, they may become more comfortable with a wider array of online learning activities.

As the next generation of students enters graduate school, additional research will be needed to identify appropriate teaching strategies for a population that has never lived in a world without technology. As these students move from traditional undergraduate campus-based programs into graduate online programs, it will be important to determine if experiential learning, interactivity, and immediacy continue to be learning preferences for these students (Barnes, Marateo, & Ferris, 2007; Skiba & Barton, 2006). At the same time, it is also important not to assume that everyone in a digital generation will prefer the same type of digital tools (Bennett, 2012). Therefore, one important implication of our study is that the scholarship of teaching and learning (SoTL) research process can be an effective tool to help online instructors better understand their students' learning needs and make adjustments to instructional methods based on research data from their own courses.

For instructors seeking to improve online instruction, the SoTL method is a valuable form of teacher-research. A well-executed SoTL study can yield rich data on which to base instructional decisions and improve teaching (Darden, 2002, 2003; Hatch, 2006; Huber & Hutchings, 2005; Hutchings, 2002). Additionally, when a SoTL study is conducted as part of a course, students become active participants in improving their own instruction, thus engaging them more deeply in the learning process. On a wider scale, the collaborative nature of the SoTL research process promotes interdisciplinary projects that improve teaching and create new knowledge to share with the scholarly community. In short, the SoTL research process breaks down silos that can develop in higher education so that college instructors can work together to enhance teaching and advance research.

A second implication of our study is that mixed methods research approaches enhance the SoTL process. The student focus group comments in this study gave added depth and texture to the quantitative research findings. Without this qualitative data from the focus groups, our study would not have been as enlightening for either online instructors or for researchers interested in studying online learning.

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Appendix A
The Web-Based Survey

Discovering the Best Ways to Learn Online

1. Please type your name in the box below.
   ☐

2. In this survey, we are interested in discovering what you think are the best ways to learn in online courses. In an online course, students are not required to meet their instructor or other students in person. Students may see images of their instructor or other students online, speak with them on the phone, or communicate electronically, but no in person contact is required to complete the course. How many courses like this have you taken?
   (Please type in the number.)

   Number of online courses you have taken at Creighton
   ☐

   Number of online courses you have taken elsewhere
   ☐

3. Please share your age by clicking one of the choices below.
   ❑20 or younger
   ❑21-30
   ❑31-40
   ❑41-50
   ❑51-60
   ❑61-70
   ❑71 or older

4. Take a moment to reflect on all the online courses you have taken. What have been the best ways for you to learn in these online courses?
   (Please check *all* that apply.)

   ❑(1) Live chats led by the instructor (text only)
   ❑(2) Live chats led by students (text only)
   ❑(3) Live lectures/audio sessions (may include audio, video, text, and discussion)
   ❑(4) Watching archived lectures asynchronously
   ❑(5) Instructor comments in online discussion boards
   ❑(6) Student comments in online discussion boards
   ❑(7) Emails from the instructor
   ❑(8) Emails from students
   ❑(9) Exploring web links/online materials
   ❑(10) Viewing pre-recorded video lectures
   ❑(11) Listening to pre-recorded audio files

❑(12) Reading lecture notes
❑(13) Telephone conversations with the instructor
❑(14) Telephone conversations with students
❑(15) Participating in online small group projects
❑(16) Reading Power Points
❑(17) Reading course texts and articles
❑(18) I am not able to answer this question right now

Please type in any additional "best ways to learn online" in the box below.

5. Again considering all online courses you have taken, describe the best online course assignment you have completed.
(Please type your answer in the box below.)

6. What made this assignment the best?
(Please type your answer in the box below.)

7. Do you think students can learn values in an online course? For example: the value of caring for the body, mind and spirit; the value of caring for others (*cura personalis*); the value of striving for excellence (*magis*); the value of reaching out to and learning from others; the value of prayer and reflection.
(Check one box and type in your ideas if applicable.)

❑I do not think students can learn about values in an online course.

❑I think students can learn about values in an online course.
(Please type your ideas in the box below.)

(Please use the text box below to share your ideas on how you think students could learn values in an online course.)