The New Digital Divide: Peer Collaboration as a Bridge

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Regional campuses have embraced on-line courses as a way to provide non-traditional students lower-cost access to higher education and helped students gain valuable skills in virtual collaboration. Yet a digital divide has contributed to large differences in the ability and propensity of students to effectively collaborate online. Some students come into their coursework already having virtual collaboration skills that allow them to take advantage of the flexibility of online learning while others do not. More experimentation and research is needed to establish best practices for helping students learn the skills to successfully collaborate on-line. The use of peer mentors in small-group collaborations within online courses may be one way to provide the support needed for nontraditional students to successfully learn virtual collaboration skills. The experiment discussed in this paper may provide a roadmap for future research into the success of peer mentoring efforts in a virtual environment.

Introduction

Many institutions that serve non-traditional students have turned to online coursework to fulfill a goal of increased access to higher education. Non-traditional students often have work and family obligations that make the commitment to a fixed class-time difficult (Levy, 2013). The flexibility of online learning may eliminate the time and space constraints many students face enabling them to successfully complete coursework leading to a degree. Technology has significantly relaxed that constraint, allowing students to participate in higher education while caring for others, or juggling an unpredictable work schedule.

The flexibility of on-line courses provides access to coursework by all types of students, allowing the non-traditional, time constrained student the same opportunity as a student enrolled full-time at a residential

campus. This could increase the success rate of non-traditional students who were struggling in traditional classrooms. In practice online education may be increasing inequalities on other margins. The divide is no longer between those who have a schedule that is conducive to attending class and those who do not. Another divide, between those that have the skills necessary to succeed in a virtual environment and those who do not, has become apparent (Parker, 1999). If the enrolled students are ill prepared to succeed in an on-line environment eliminating the time and space constraint does little to improve access.

Students who are able to attend face-to-face courses may choose online education to help navigate increasingly time-consuming extra-curricular activities, internships, or study-abroad programs - further increasing their human capital. An experiment connecting students possessing high levels of computer self-efficacy in groups with other students in a mentoring relationship provides insights into a potential remedy to this problem of unequal virtual collaboration skills. The experience may suggest avenues for research to determine the effectiveness of peer mentoring in an on-line environment.

Peer to peer relationships may be an effective way for students to learn virtual collaboration skills in an online environment and thus increase their success in on-line coursework. The existence of a wide range of skills and abilities to use technology and collaborate virtually can thus be turned into a learning opportunities rather than a barrier to participation.

Importance of Computer Self-Efficacy

Many studies have attempted to describe student characteristics associated with success in an online learning environment. Xenos (2004) found that dropouts were older and employed more hours per week than successful completers. Other studies (Parker, 1999) found demographic characteristics not to be associated with dropout rates, rather locus of control was the main predictor. Levy (2013) found that student satisfaction with the course was predictive of persistence in e-learning courses but did

not define what components of an online course contributed to student satisfaction.

The locus of control is the perception of a student as to their ability to effect an outcome. In the case of distance learning it is the perception of the student as to their own ability to do the work required for the class. Paraskeva et al (2009) use the language of academic self-efficacy to describe characteristics of learners associated with successful completion of coursework. Students who perceive themselves capable of successfully using technology to accomplish course goals have high levels of self-efficacy, and are more willing to engage the work in an online class even when it requires the use of unfamiliar technology. This same perception contributes to student satisfaction with a course.

The possession of self-efficacy in computer use is not only beneficial to students completing an online class. It has been shown by Smith (2002) that students with low self-efficacy were less likely to acquire IT competencies in the future, constraining their opportunities.

Digital-Divide in Computer Self-Efficacy

The term digital divide first referred to individuals that did not have access to the Internet. While this may still be an important issue for segments of the population, students enrolled in universities generally have access to Internet resources on campus. Often students who enroll in online courses often have access both at home and at their places of employment. The digital divide can now be characterized by lack of skills and experience with technology and online collaboration.

Many in the current generation of traditional-age students have grown up using the Internet, and thus are often referred to as “digital natives”. Although this generation may have always had access to the Internet Barzilai-Nahon (2006) notes large differences in use. Hargittai (2008) documented inequalities with respect to autonomy of use, experience, skill, and social support.

Howard, Rainie, and Jones (2001) refer to Internet use as "capital enhancing" or recreational. The work of online learning is clearly capital enhancing use. Hargittai (2008) finds that socio-economic background is associated with type of computer use. Those with already privileged backgrounds were more likely to use the Internet in capital enhancing ways, further increasing existing inequalities.

It is not a surprise that individuals with higher levels of prior experience with computers report higher levels of computer self-efficacy (Karsten and Roth 1998). It is also not surprising that differing levels of prior experience with computers exist within the undergraduate population. A digital divide that exists within a population prior to enrolling in an online course thus affects the likelihood of success within that course, even when the technological requirements seem small.

The Experiment: Group Work with Mentors in an Online Environment

Large differences in students' abilities to succeed in an online environment were noticeable when an online course was offered to a population that included students from a regional commuter campus and a main residential campus. Students were asked to collaborate virtually in a freshman level economics class. Groups were established at the beginning of the term, and asked to produce a group product eight times during the semester, giving ample time for groups to learn to work together. Low-levels of computer self-efficacy seemed to be causing some students to not engage with the task.

The pilot project used honors students enrolled in the course who were selected to be mentors within a group as a part of an additional assignment they were required to complete for the honors credit. The course was run with mentors in some of the groups, and none in others. Mentors were selected on the basis of their ability and willingness to provide leadership and technical assistance within their group. The mentors discussed effective group collaboration with each other during the course and took the lead within the groups to facilitate collaboration and assist with technological difficulties because as students differ in their computer

self-efficacy, they also differ in their self-regulation abilities. In an online environment, self-regulation is necessary to substitute for the motivation that may come from a scheduled class time, peers, and regular required interaction with a faculty member.

The challenges of differing abilities are not unique to the online environment. Proponents of peer-to-peer support in face-to-face classes recognize both the challenge and opportunity afforded by having a diverse group of students in a classroom. Peer-to-peer learning in an online class can provide a structure through which students with a high level of comfort and/or experience with online collaboration can help those with little experience or efficacy to gain confidence with the technology, thereby increasing student satisfaction and ultimately success in the course.

Student Perceptions of Mentorship

Groups without mentors frequently complained about undependable classmates and time constraints. “I felt like Sarah and I were the only ones that were dependable; I'd never know whether Scott or Steven would meet online with us or not . . .” Some students were particularly unhappy that group work was required in an online class. “It was actually hard to find time each week to meet with a group; my schedule is incredibly full which is why I took an online class.” Another student commented, “I think it's too hard to have groups meet with an online class because schedules are so different and like my group some people just don't care.” Groups without a mentor even had trouble beginning: “Well, when the semester first started off my group didn't even try to talk to each other. So we missed a lot of work.” What is common to many of the complaints is the lack of initiative students take to solve problems. It is consistent with a lack of self-efficacy that some students accepted lower grades rather than take initiative to connect with their classmates.

Groups with mentors reported a different experience. A mentor explains the meaning of the group work: “The group assignments were truly a new process to me overall, I've never taken an online class where we are required to communicate frequently through the web and conduct

assignments together. My role was that of a leader, I found myself organizing and leading most processes, however all of us were active participants despite numerous occasions where we found ourselves at odds with our own schedules. I think this was a good experience overall since once you hit the business world most meetings are done through the web or through a phone call, making it essential to be able to communicate in this style." Another mentor explains her role as organizer "My role in the group for the most part was getting everyone together and making sure that conversations were started once we were able to meet." A mentor described his role as teaching technology to the students: "The role in which I played in our group was the group coordinator. I was able to create and deliver all the resources we needed in order to access and complete the projects together as a group. The strength I brought was knowledge in using Google Docs. My group members, or most of them that I know of, had little to no experience with using Google Docs to share the projects with each other. I was able to teach my group and show them how to utilize Google Docs."

The students in groups with mentors reported a positive experience. One student reported that the group helped her overcome difficulties with the technology: "The connection with my group did, in fact, help me prepare for exams and figure out my technological struggles." The groups had the potential to serve a social function as well. Well-functioning groups provided support throughout the course. "Having a group was definitely beneficial, because we constantly had a group text going, and all three of us would send out a message whenever we were stuck on homework or needed a clarification with something. This was the best overall contribution to my learning, having two other people who were always ready to help me, and I to help them." Another student made the connection between the support and increased understanding: "Participating in the group work did make me feel like I was more connected to the class and helped me in understanding concepts that may have been a little harder for me to grasp. It is because we were able to talk face to face

with people that made the concepts stick in my brain a little more and be able to be taken back out into the real world."

Conclusion and Suggestions for Further Research

Removing the time and space barrier to course completion for non-traditional students may expose a different barrier to access. Students without strong computer self-efficacy and low virtual collaboration skills may struggle to succeed in on-line classes. Using mentors in an on-line environment may help bridge this new digital divide. The student responses to mentoring within small groups in an online class were positive. They suggest that the mentor may be able to overcome issues with computer self-efficacy to make the group function in ways to enhance student learning. A larger sample is needed to establish if these results correlate to increase success in the class, and, more intriguingly, an increase in self-efficacy. A follow up study is needed to determine if the mentored students become more willing and able to collaborate virtually in other settings.

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