Teaching Methods to Overcome Challenges in Online Graduate-Level Courses

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Abstract

Graduate students face challenges adapting to the demands of their programs and learning appropriate academic discourse. Faculty running online graduate education programs will have to use innovative teaching methods to overcome the drawbacks of distance learning while still reaching all the goals of their programs. This article seeks to review research on innovative teaching methods that may be applied to graduate-level distance learning.

Keywords: online doctoral education, innovative teaching methods, teaching tips

Postgraduate education is complex and distinct from undergraduate coursework in intensity and quality. Graduate students are expected to interact with primary source material in ways that undergraduates are not. Coursework frequently involves interpreting, critiquing, and integrating research findings with classmates along with a great deal of high-level writing. Graduate students also need to interact with professors and peers in ways that are different from undergraduate students. Education statistics indicate that 40% to 70% of matriculated graduate students do not complete their degrees (Nettles & Millett, 2006). Adjusting to the demands of graduate school is clearly a difficult process and may be even harder for graduate students from minority backgrounds because departments can be hostile to minority groups (Gardner, 2008), or because some seem to view personal characteristics and academic achievement as incompatible (Oyserman, Bybee, & Terry, 2003). Carr (2000) claims the attrition rates for distance learning courses are 10% to 20% higher than their in-person counterparts, so graduate students taking classes online will likely face greater challenges than other graduate students. Rockinson-Szapkiw's (2012) review of the research reveals distance learners and graduate students have high rates of attrition for related reasons: dissatisfaction, lack of community and engagement, and miscommunication. Strategies to encourage persistence in graduate school and distance learning courses may therefore overlap.

In some ways, it is easy to understand why dropout rates are greater for distance learning. Developing a strong social support network of peers can be difficult without face-to-face

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meetings and social support is crucial for persistence (Angelino, Williams, & Natvig, 2007). Also, there is a learning curve for knowing appropriate ways of discussing course texts, disagreeing with peers, and supporting opinions during class discussions. During in-person courses, faculty model and encourage appropriate discourse in real time or address issues the moment they arise. Online doctoral courses will need alternate ways of approaching the socialization of students into professional-level behavior and thinking while also increasing engagement and a sense of community among students (Rockinson-Szapkiw, 2012).

Online doctoral education will need to use innovative teaching methods in order to ensure all students are supported and prepared to meet their goals and complete their education. The purpose of this paper is to review and suggest innovative teaching methods that could be used in high-quality online graduate level coursework in many domains in order to overcome these challenges. This paper will review research on increasing connectedness among distance learning students, supporting diversity, structuring high-quality discussion board assignments, using group work and competition, and using social media for online learning. Some of the work included here was conducted at the undergraduate level, but as undergraduate instructors and graduate instructors share many of the same goals for their students (e.g., learn a new skill or information), the techniques in research using undergraduate students can pertain to graduate education. When applied appropriately, these techniques could increase satisfaction with online graduate-level courses by increasing the connectedness among students and faculty, and can lead to higher-quality academic discussions, learning, and persistence.

Connectedness

Connectedness among students not only decreases feelings of loneliness, but also makes students more willing to interact with each other on course topics (Slagter van Tryon, & Bishop, 2012). A simple introduction activity at the beginning of the semester allows students to get to know each other on a personal level. This increases interpersonality among students and leads to interaction on discussion boards instead of a series of individual responses to a prompt (Beuchot & Bullen, 2005). Any activity that allows course members to perceive each other as "real" people has the potential to increase each person's social presence online, therefore increasing interpersonality and learning (Garrison, Anderson, & Archer, 2000). Beckett, Amaro-Jiménez, and Beckett (2010) found that forming personal relationships with one another helped graduate students learn to use appropriate academic discourse.

Promoting connectedness among distance learning graduate students can be accomplished by straightforward techniques. For example, the instructor could ask everyone to introduce themselves in a special discussion board during the first week of class and to share some likes and dislikes or their reasons for pursing a graduate degree (Ko & Rossen, 2010). This discussion board could be left up for the entire semester as a virtual "student lounge." Students could also be encouraged to post photos of themselves, but this should be entirely optional. While more labor-intensive for faculty, low-stakes competition

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among groups of students (discussed below) may also promote connectedness among students (Fleck & Hussey, 2009).

Supporting Diversity

Gardner (2008) reports attrition rates in graduate school are especially high for women, students of color, students with families, part-time students, and older students. Gardner's qualitative study revealed that issues of personal identity (e.g., race, age, sexuality, sex) are salient to students as they progress through doctoral education. In a qualitative study of 40 chemistry and history students, 30 students spontaneously brought up themes of personal identity (e.g., race, age, etc.) in connection with their graduate school experiences (Gardner, 2008). Socialization is important for helping students feel that they belong in graduate school and are fulfilling obligations appropriately, and thus may be crucial for persistence in one's program. Socialization is the "process through which an individual learns to adopt the values, skills, attitudes, norms, and knowledge needed for membership in a given society, group, or organization" (Gardner, 2008, p. 126). However, if a field is predominantly oriented toward one social group, such as the way many sciences are male-dominated (Trower & Chait, 2002; National Science Foundation, 2013), the socialization process will also be oriented toward that group and may alienate others. The socialization process experienced by the students in Gardner's study was quite challenging and accentuated their personal identities because they were not normative in their fields. Failures of socialization were linked to the students considering leaving the program. Therefore, effective graduate programs and courses need to be cognizant of the personal characteristics of their students and should support them through course characteristics.

Supporting minority students seems to be especially important when the department does not have minority groups represented in the faculty or easily visible, as in the case of online education. Intentional inclusion of diverse role models can help minority students by showing them it is possible to be both a chemist and African-American, for example. (For further discussion of the importance of socially relevant possible selves on academic performance, see Oyserman, Bybee, & Terry, 2006; Oyserman & Saltz, 1993). If individuals from minority groups are invited to be guest lecturers, the instructor may include photographs of the guests or link to the professionals' websites.

Faculty and more experienced graduate students can also be intentionally instructive in their interactions with new and minority students to ease and elucidate the socialization process, but simply forming some level of personal relationship with one's student colleagues also seems to be a benefit. In a 2-year longitudinal study, Beckett, Amaro-Jiménez, and Beckett (2010) traced the socialization process of an ethnically and culturally diverse group of teachers of English as a second language (TESL) graduate students. Analysis of discussion board conversations across several courses found that student experience in appropriate academic discourse was obtained from higher-level students and faculty through "engaging in joint OAD [online asynchronous discussion] activities, sharing resources, learning from each other, and building relationships through shared practice" (Beckett, et

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al., 2010, p. 330). In other words, ethnically and culturally diverse graduate students were socialized into academic life online by the formation of interpersonal relationships with classmates.

Course content should also reflect the diversity of the real world. Many textbooks primarily cover majority or privileged social groups with only small portions of the text devoted to diverse groups (Hussey, Fleck, & Warner, 2010). Even individual scientists included in the textbook are primarily members of those privileged social groups. This underprepares students to thrive in a global community (Fluck, Clouse, & Shooshtair, 2007) and may send the message that only privileged social groups can become professionals in these fields (Oyserman, Bybee & Terry, 2003). Hussey and colleagues (2010) investigated the impact of intentional inclusion of diversity topics through writing assignments, choices of textbook and additional readings, outside of class assignments, course content, in-class activities, guest speakers, and a capstone project. The control course section used traditional materials, which included only minimal coverage of diversity-related topics and materials. Results suggest infusing diversity content into the course had a positive influence in reducing a number of negative attitudes toward minority groups without a cost to core content knowledge.

However, not all minority graduate students experience great difficulties in socialization. As Gardner points out (2008), an individual student's experience is heavily dependent on context. An environment supportive to minority or underrepresented groups can make a great difference in the socialization of students. In interviews, students in a science department chaired by a female faculty member did not mention any issues of sexism while students in a male-chaired science department frequently mentioned sexist attitudes and gender discrimination experienced in their department.

Asynchronous Conferencing Tools

Asynchronous conferencing tools (ACT) such as discussion boards are a large part of online instruction (Darabi & Jin, 2013). Asynchronous discussion presents some challenges (e.g., students may delay posting, which inhibits conversation), but also can be an excellent tool for online education. Online discussion boards can be used for a wide variety of course tasks and educational goals (e.g., relationship formation and socialization, discussions of readings, collaboration on writing, mentoring relationships with faculty, and small group formation for course projects or task discussions). However, asynchronous conferencing tools should be used thoughtfully and intentionally. Much of the research on ACT has focused on how to structure assignments in order to promote advanced level discussion and cognition. In addition, theory-based approaches have revealed some empirically supported techniques for implementing ACT in your course.

One goal of graduate-level courses is students will be able to analyze and evaluate academic work of others and create academic products of their own. These abilities require higher-level learning processes. Students can think in complex ways, but they do not always produce high-quality work. To complete an assignment, students must devote their cognitive resources to processing and interpreting the assignment requirements,

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remembering relevant course material, and producing responses. If a person's working memory is taxed with too many items to process at once, that person will be unable to engage in complex thought processes. Cognitive load theory posits that there is limited space in working memory. Therefore, instructors can promote high levels of cognition in their students by structuring assignments in ways that reduce this cognitive load. Indeed, Darabi and Jin's (2013) experimental manipulation found that both providing students with examples of appropriate student responses and limiting the number of visible posts per webpage to no more than nine increased the cognitive complexity of students' discussion board postings.

To promote engagement in the course as well as deep processing of the material, instructors can assign students to lead online discussions in pairs. Murphy, Mahoney, Chen, Mendoza-Diaz, & Yang (2005) investigated the discussion board postings from a graduate course in which pairs of students were required to lead discussion on course readings during different weeks of the semester. The course paradigm was based on Vygotsky's social constructivist theory, which states that learning is a collaborative process performed through interaction with others (Vygotsky, 1978). As such, each pair of students was given access to a private discussion forum to prepare for their week with private access to TAs and professors for mentoring and coaching. The process was successful as students were able to effectively facilitate discussion. According to the social constructivist model, students learned actively and became facilitators of one another's learning through their interactions with their partner and through guidance from the TAs and professors of the course. This course design also has the benefit of reducing the load on online instructors through "creative management of their teaching responsibilities" (Murphy, et al., 2005, p. 343). A graduate seminar employing this method might involve discussions on reading assignments facilitated by the instructor during the first 3 or 4 weeks of class followed by student-lead discussions for the remainder of the term.

However, instructors need to structure assignments so that instructions and expectations are clear. Pawan and colleagues (2003) evaluated collaborative interaction in three online courses for teachers. These students were expected to discuss course readings with one another. The instructor expected true discussion on the course material, with students responding to and elaborating on each other's ideas and questions. What they actually produced most often can be described as "serial monologues" (Pawan, et al., 2003, p. 122) in which each student tended to produce individual reflections on the reading or the instructor's posts, not on each other's posts. Pawan and colleagues' findings support other research that concludes students are reluctant to disagree or call another's ideas wrong (Beuchot & Bullen, 2005; Orrill, 2002; Painter, Coffin, & Hewings, 2003). These results may stem from students' uncertainty of the type of interaction expected in online discussions. Bolliger and Shepherd's evaluation of a set of assignments that focused on graduate students' ePortfolios at one university revealed the vast majority of students (90%) agreed that "expectations and procedures were clearly stated" (2010, p. 305), which may be linked to the overall positive view of online

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assignments that students reported in this study. To aid in this process, instructors could create a separate section of the online course for students to ask questions about assignment requirements.

Another suggestion for ACT assignments is to post examples of excellent student work. Darabi and Jin's (2013) manipulation of cognitive load in an online discussion task showed that discussion quality was higher when students were provided with examples of high-quality posts. Beckett, Amaro-Jiménez, and Beckett's (2010) longitudinal investigation of online discussions also concluded that explicit grading instructions and good examples were important for students' development of appropriate academic discourse. In an online graduate-level course, the instructor should consider posting examples of the target type of response along with a brief description of how it meets the goals of the assignment. For example, if the goal of the discussion is to evaluate a journal article, the instructor might post a high-quality example of an evaluation of a previous reading from the course while pointing out that the example is more than a simple summary and identifying which components of the example make it an evaluation.

The provision of frequent feedback throughout the entire semester can advance writing ability and the discussion level. Instructors can point out student posts that meet expectations or model the target level of discussion themselves. Appropriate instructor feedback can advance writing ability and discussion level. Guasch, Espasa, Alvarez, and Kirschner (2013) studied the effects of different types of feedback on collaborative writing. Epistemic feedback (i.e., requests for explanations from the student) from the instructor alone or coupled with suggestive feedback (i.e., comments that invite exploration or improvement) were shown to produce the best written outcomes. Pawan and colleagues (2003) evaluated online discussions in several online courses for teaching. The highest-level discussion among students occurred when the instructor responded to students' posts while also referring back to the text under consideration and challenging students. This type of instructor feedback was responsive to students' comments while also modeling the expected type of student products. Pawan and colleagues concluded that instructor "teaching presence" in the form of obvious discussion facilitation and feedback is crucial in facilitating learning.

Group Work and Competition

Small group work is one classroom strategy that can help students build personal relationships and increase engagement while also supporting learning. Fleck and Hussey (2009) developed an innovative, semester-long group competition for an introduction to psychology course called Project Psychology. The authors were motivated by literature suggesting that safe competition, peer learning, and small group work could be beneficial for motivation and learning (Hartman, 1998, Schomberg, 1986, Light, 2001; McKeachie, 1994). In addition, the teaching method was a way to connect with "student subculture," which was marked by reality television, game shows, and competition at the time (Fleck & Hussey, 2009).

Project Psychology consisted of a series of small group challenges that were related to important course concepts. For each challenge,

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every group presented its work, students voted for a group winner, and students eliminated a group that underperformed. However, every group completed all challenges regardless of their competitive status in order to gain additional exposure to the material as well as to compete for reentry into the competition. By the end of the semester, the students voted one group the winner of the competition, but all groups learned throughout the process (Fleck & Hussey, 2009).

Students reported that the unique challenges improved their understanding of the course material, helped them apply the course content to real life, and allowed them to be creative and social. Compared to other sections of the same course, Project Psychology also improved attendance (Fleck & Hussey, 2009). The authors recommended the focus of small group competitions should be on student learning, not the "game" being played. This will help to create a safe learning environment where everyone feels comfortable to participate and learn.

Project Psychology was developed for use in an introductory psychology course with undergraduate students. This particular project may be perceived as sophomoric to doctoral students, but it does raise the question of how competitive learning in the classroom might be applied to the doctoral level. After all, engagement, understanding, and persistence are necessary at the doctoral level as well as the undergraduate level. A similar game could easily be developed among graduate students with the wealth of resources and technology available in online platforms. Not only could this be used as a means for learning, but also as a way of increasing sense of connectedness, which is a challenge in online education (Bolliger & Shepherd, 2010; Reinhart, 2010; Rockinson-Szapkiq, 2012).

One approach that may achieve the same ends in graduate courses is problem-based learning (PBL), a student-centered approach to course design. Small groups of students choose a real-world topic or a problem to solve and work on it together for the duration of the term (Lou, 2004). This approach to learning is ideal for higher-level courses because it requires more than just knowledge acquisition. Students must know facts about the course, but they must also be able to apply that knowledge and be cognitively flexible in order to solve a problem. PBL is effective at producing high-level cognitive products from students. For example, small groups could compete against each other in trying to find the best solution to the same problem as contractors do when making a bid for government work.

Keep in mind that interaction among, not just within, small student groups is also beneficial. If your course uses small groups, there is always the chance that some groups will work together quite well whereas others will struggle and face conflicts. One course with small group work required students to view, analyze, and comment on not just other groups' work products, but also their "behind the scenes" discussion boards mid-semester (Lou, 2004). This was a novel approach to small group learning, because it is typically only the end result that other groups are required or even allowed to view. In Lou's study, students in one group were able to see the creative ways that another group handled issues among its members and established their roles,in addition to their solution for the course assignment. The course under study assigned a very complex task for each

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small group to work on throughout the semester, so some level of conflict was present in all groups. Many students reported learning from other groups' ideas and how other groups handled any conflict that arose. Lou, supported by both qualitative and quantitative data, concluded that between-group collaboration has great potential to improve student learning in complex problem solving (2004).

Using Social Media

Another way faculty can promote participation, engagement, motivation, and learning is to incorporate social media (George & Dellasega, 2011; Lave, 1988; Marsick & Watkins, 1990, 2002). Social media (SM) includes popular web-based and mobile applications such as Facebook, Twitter, blogs, YouTube, and Wikispaces. Most US students are accepting of SM use in higher education (Fleck, Richmond, & Hussey, 2012). Students reported SM could be effective for communication and to help them understand course material, and many expressed excitement at the possibility of using SM in the classroom. Similar findings have been reported in other survey data studies (see Chu & Meuleman, 2008; Hewitt & Forte, 2006; Mazer, & Simonds, 2007; Roblyer, McDainiel, Webb, Herman, & Witty, 2010). Experimental findings also reveal that the use of Twitter and Facebook to deliver course material significantly increased retention of the material when compared to classes only exposed to course content through traditional lectures (Blessing, Blessing, & Fleck, 2012).

Social media can also be used as a community-building tool as well as a learning tool. Online students often feel isolated. However, as previously discussed, community building among students can lead to greater learning and persistence in doctoral education. Socialization among graduate students online can lead to greater willingness to engage in in-depth discussions on course topics. Previous research on online graduate education has investigated the use of blogs, wikis, Twitter, Facebook, and ePortfolios as educational and socialization tools. In the following paragraphs, we describe various forms of SM and how they have been employed effectively in distance learning education.

Blogs. Powell, Jacob, and Chapman (2012) suggest that blogs can be tools for academic scholarship and outreach. Blogs can support the goals of higher education and complement and contribute to traditional publications. Students can document their research processes, write about and troubleshoot issues, find collaborators, and receive feedback through comments on postings—even from interested parties beyond their own institutions. If instructors use blogs and social media as part of their courses, this may result in greater involvement from students. Some studies report increases in language competence after frequent blog-writing assignments with appropriate instructor feedback (Lee, 2010), so blogs can also be tools for advancing academic discourse and collaboration. Blogs should be approached with academic rigor and appropriate citations, of course. For example, faculty could make regular blog writing assignments a component of their course design, requiring students to provide links to their sources (paralleling citations in scholarly works). Blog assignments could focus on summarizing others' research, analyzing or critically evaluating other's research, synthesizing several reports, reflecting

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on the student's research progress, or explaining a topic to a hypothetical non-academic audience, depending on the instructor's goals.

Wikis. A wiki is "a simple Internet application that allows social networking and direct interaction by multiple users" (Beames, Klenowski, & Lloyd, 2010, p. 50). Wikis can have limited access with only a select group of users, which would be beneficial in an education setting. One difference between wikis and other Internet learning tools is that students make posts plus work together to edit them. For example, students could work together to write a monograph or book relevant to the course topic. Using the wiki's functionality, students could edit each other's work to make a final product that meets their field's standards. When students engage with each other through wiki creation and refinement, it could allow the creation of a community of practice while also advancing domain-specific writing skills.

ePortfolios. Portfolios of student work and academic development are not a new concept, but thanks to the ease of website development today, ePortfolios are becoming more popular. Some universities are now requiring portfolios to be created and maintained online. Google Sites is one free and easily customizable option for this process. Bolliger and Shepherd evaluated the ePortfolio experience of students in two graduate instructional technology courses (2010). The university at which Bolliger and Shepherd conducted their study not only used ePortfolios as a tool for student reflection, but also so students could collaborate and review each other's work. The researchers found that ePortfolios helped some students achieve beneficial communication with peers and instructors, and increased program connectedness and a sense of community. Most students in this study agreed that ePortfolios were of benefit to their learning and motivation in their graduate coursework. In this study, the ePortfolio was a semester-long assignment that included "several Web pages: an introduction, résumé or curriculum vitae, learning philosophy, program timeline, summary of goals and achievements, and evidence of goal attainment" (Bolliger & Shepherd, 2010, p 299). Students were required to give feedback to their peers at mid-semester and students also received feedback from their professors. The specific components of the ePortfolio can, of course, be tailored per institution and department.

When using SM, instructors are advised to keep their personal and professional lives separate online. Appropriate self-disclosure has been the topic of much research and is especially important when utilizing online technologies such as Facebook or Twitter in educational contexts. However, personal profiles should remain personal. Best practice dictates that a separate professional profile be created through which the professor can appropriately disclose information regarding the self (Fleck et al., 2012). Such disclosure, when done properly, can increase motivation and affect student learning (Mazer, Murphy & Simons, 2007). In fact, privacy issues are a concern for students as well as faculty (Fleck et al., 2012). Based on these concerns, instructors should employ SM in the classroom with the utmost care. Best practices include the creation of a professional account on all SM platforms to interact with students. If this is undesirable, instructors can set privacy settings to limit the

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information that students can see while visiting the instructor profile. Instructors should also refrain from visiting, browsing, and spending time on student profiles. In fact, all SM interactions between students and professors can occur through closed groups. On Facebook, a closed group can be used where members do not have to "friend" all individuals to participate. In Twitter, a special indicator called a hashtag can be used so the whole class can locate particular tweets. Finally, private messages with students should be avoided. All messaging can be done on the public forum or, if needed, via the official school email or learning platform.

Conclusion

Although some of the research reviewed was conducted with undergraduate students, applicability clearly exists for online doctoral education. Thoughtful, innovative, and creative pedagogy can help produce quality courses. Some suggestions include creating safe classroom competitions, infusing diverse perspectives, utilizing social media, and being mindful of how asynchronous conferencing tools are used. While utilizing these methods, instructors are urged to do so with care to socialize students with one another, the instructor, and appropriate academic discourse. In addition, instructors should be mindful of the type of feedback provided, clarity of instructions, and consider allowing students some autonomy over their work. In these ways, some of the challenges of online doctoral education course creation and implication can be overcome.

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