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Facilitating interaction, collaboration, community, and problem-solving capabilities in blended and fully online technical communication programs: An introduction to the special issue

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I first started teaching technical communication online over a decade ago. While teaching online was new to me, I had been teaching courses about instructional design and e-learning for a few years, so I learned—through preparing those courses—how best to teach online. In particular, I learned about the importance of clear objectives, structured content, information design, aligned assessment, and engaging activities. I learned about constructivism, connectivism, and the benefits of problem-based learning to encourage deeper learning. I also learned how important it is to use technology the right way (no ‘bells and whistles’) and how pedagogy should drive technology choices, not the other way around (Boettcher & Conrad, 2016).

This special issue came about through numerous conversations I had with Kirk St.Amant about my desire to highlight what other technical communication teachers were doing in blended and fully online environments. Coincidentally, and unfortunately, as I write this article, the COVID-19 pandemic is impacting us globally, not only in terms of the massive health, social, and economic implications, but also in terms of how we teach. In many institutions worldwide, teachers who previously only taught face-to-face were asked—with about one week’s notice—to pivot their classes online and, in many cases, devise alternative online assessments to replace end-of-semester examinations. To make matters more complex, teachers now have to work from home and—in some cases—they also have to home school their children and/ or care for relatives. In many institutions (including my own), the workload of Educational Technologists and Instructional Designers has increased exponentially—many of them are

now offering support to *every* academic program, rather than a handful of online programs. These are extremely challenging times.

As I write this article, I have mixed feelings about the sudden pivot online. While I am thrilled that so many teachers have been exposed to technologies they might never otherwise have tried, I am concerned that most of them had little time to investigate best practice, before deciding on their online teaching strategies. Those of us who were teaching online before COVID-19 know that it can take years to develop effective online programs; we also know how that development is typically informed by small, incremental revisions along the way. However, in recent weeks, teachers have had to make several significant decisions all at once. My hope is that this special issue will provide readers with insight into how well-established online teachers create opportunities for interaction, collaboration, and problem-solving in blended and fully online environments.

Community in online programs

The Community of Inquiry (COI) framework, as developed by Garrison et al. (2000), emphasizes the need for teaching, cognitive, and social presence. Community is created where these three elements of presence overlap. Garrison et al. suggest a number of indicators that teachers can look for, when attempting to evaluate the level and quality of community in their online programs. For example, teaching presence indicators include setting the curriculum and teaching methods, sharing personal meaning, focusing class discussions, and engaging in direct instruction. Heidi Skurat Harris and Michael Greer talk also about the importance of teaching presence in online technical writing courses. Their purposeful pedagogy-driven design (PPDD) framework highlights how the teacher can use multimedia to *purposefully* make connections between learning outcomes (at the center), activities and assignments, readings and materials, and writing and feedback.

Typical indicators of cognitive presence among learners include a sense of puzzlement at a triggering event, information exploration and exchange, integration of ideas, application of ideas, and resolution. While we might initially assume that teaching presence and cognitive presence are the most important ingredients for creating community, Garrison et al. say that a community of inquiry will *not* develop without adequate social presence. Social presence indicators are evident when learners feel free to engage in risk-free expression, are actively collaborating with one another, and are encouraging others to do the same (Garrison et al., 2000). Yvonne Cleary, in her article about fostering communities of inquiry and connectivism, talks about her half-day academic socialization workshop, which was designed for both on-campus and online students. During the workshop, students get an overview of the program and receive support from the Faculty Librarian. Students also familiarize themselves with the learning management system (LMS) communication tools and lunch with teachers and peers. These cumulative activities instill a sense of community in the class from day one.

Technology and online assignments

Before discussing assignments for online learners, I would like to address the issue of technology. While it is useful to talk to colleagues about which technologies work for them, pedagogical best practice should always drive our technology choices (Boettcher & Conrad, 2016; Pappas, 2014). We need to be clear about the intended learning outcomes and *then* select technologies that will help students achieve those outcomes, bearing in mind that, in some cases, technology might not offer a viable solution at all. We also need to think about the level of interaction required, whether we need all (or any) sessions to be synchronous, the level of computer literacy required, the infrastructure required, and how we will provide feedback to learners (Pappas, 2014).

A number of traditional assignments have been found to transfer well to the online environment, including essays, reports, and reflective journals (Garrison & Anderson, 2017; Sheffield

Hallam University, 2014). Students can easily upload written assignments via the LMS, their submissions can be automatically checked by online plagiarism detectors, and teachers can provide feedback via the LMS.

In her article, Yvonne Cleary talks about how she uses forum-based peer review to engage a large cohort of on-campus and online students taking the same research methods course on a technical communication program. Cleary provides students with online communication guidelines and topics they might wish to address in their reviews. As Cleary notes, interaction is critical in online programs and peer review offers students opportunities to learn from one another. In addition, peer review enables the teacher to assume more of a facilitation role at appropriate times (Garrison & Anderson, 2017).

Discussion forums also work well for e-tivities, which can replace many face-to-face class activities. E-tivities are structured forum-based activities that clearly state the purpose, task, and collaboration requirements (Salmon, 2013). It is important to note that e-tivities do not only have to relate to tasks that can typically be undertaken *on a forum* (e.g. debates or discussions). For example, in my content development course, I use e-tivities to help online students form teams and propose topics for a new e-learning course, to identify team roles and propose sources of content, to draft team style guides, and to propose interface designs. E-tivities can also be scaffolded to help learners progress through the different stages of online learning i.e. from access and motivation, to online socialization, to information exchange, to knowledge construction, and finally to development (Salmon, 2011). Readers can find more examples of technical communication and content development e-tivities on my website (see Slattery, 2020a).

Social media tools can also be used to facilitate coursework. For example, my students use Twitter to stay abreast of industry trends and articles and blogging tools in place of traditional reflective learning journals. Taking this a step further, I also ask students to incorporate their blog entries into other assignments, such as their e-portfolio and Twitter assignments.

E-portfolios are valuable assessment instruments for technical communication students, as they require students to carefully select samples of their best work and showcase them in a visually appealing and user-friendly way. As mentioned earlier, e-portfolios can also include reflective pieces (outlining what students learned while developing the work sample) as well as industry-tailored resumé. I incorporate e-portfolios into the final semester of our MA program, so students are prepared for graduate employment, when they finish the program.

Problem-based learning (PBL) assignments are also extremely valuable in online environments, especially if students are working in virtual teams to solve those problems. On our MA program, online and on-campus students from three institutions (University of Limerick, University of Central Florida, and Université Paris-Diderot) collaborate on English instructional documents that are then translated into French (see Cleary et al., 2018). Fortunately, built-in LMS tools such as discussion forums, online chat, and shared resource areas, can facilitate virtual teamwork; cloud-based tools such as Google Hangouts, Microsoft Teams, Slack, and Basecamp can also be used for this purpose. As recommended by Boettcher and Conrad (2016), we let our students choose the development and collaboration tools for these assignments (see also Slattery, 2020b for a selection of relevant tools).

Continuing the theme of PBL and virtual collaboration, Jennifer Goode teaches multimedia skills to on-campus undergraduate students, and project management skills to online graduate students, using her collaborative project model. The model aligns the assignments to be submitted, the approvals that will be required, and the submission timelines, for both cohorts of students. After receiving instruction on best practice for virtual teamwork and project management, her graduate students remotely manage the undergraduate students as they develop a multimedia product for a real-world client.

As we all know, multimedia skills are essential for the 21st century technical writer. Fortunately, students can now use any number of free and subscription-based tools to design and present artwork,

brochures, e-books, games, and videos, to name but a few. In Goode's multimedia projects, students collaborate to produce project proposals, problem descriptions, concept documents, full functional specifications, project plans, and evaluation metrics, before delivering the final multimedia product. Follow-on deliverables include product and process review reports, project presentations, final project reports, and team evaluations, thereby capturing the entire multimedia development cycle.

According to Heidi Skurat Harris and Michael Greer, other reasons for incorporating multimedia into online technical writing courses include the pervasive nature of mobile technology in students' everyday lives, the need for accessible multimedia, and the need for students to connect faces and voices to names. Skurat Harris and Greer also elaborate on a number of ways that teachers can use multimedia to connect elements of the online course, for example through synchronous video meetings to facilitate writing processes and assignments and using screencast video to connect readings and materials with class activities.

In their article, Rudy McDaniel and Peter Telep talk about how they teach video game theory and design online—prior to the arrival of COVID-19, they taught this course in a mixed-mode, partially online format. In their course, students learn how video games comprise layers of interconnected multimodal texts that can be very engaging and immersive but can also serve as rhetorical devices. Their students collaborate in teams to produce a game design document that will become a blueprint for a video game that could, theoretically, be delivered to a real-world client. Students are also required to engage in team pitch presentations. According to McDaniel and Telep, assignments like these facilitate skills that are very useful for technical writers, including creative thinking, team-based writing, and iterative prototyping and playtesting.

Student and program evaluation

A discussion about teaching online cannot exclude evaluation. A variety of rubrics are available to assist in the grading of online activities (see Slattery, 2020c for some examples). Some readers might be surprised to learn that most learning management systems (LMSs) provides a wealth of data analytics that can be used to evaluate students' online engagement. For example, most LMSs can provide quantitative data such as how many times a student logged on, how many postings they made, how many words they wrote, and so on. Qualitatively, teachers can use the LMS to view students' forum postings in context and/ or look for evidence of cognitive and social presence, as I outlined earlier (Garrison & Cleveland-Innes, 2005; Garrison et al., 2000). For more technically minded readers, cluster analysis and decision tree classification can be used to analyze students' online engagement (Lowes et al., 2015). Ideally, I would recommend a mixture of quantitative and qualitative techniques.

In addition to evaluating students, we need to evaluate the effectiveness of the online program as a whole. In the US, commonly used metrics include the Quality Matters course design rubric and the Online Learning Consortium/ Open SUNY OSCQR rubric. Typically, rubrics recommend the evaluation of the following aspects/ components: the course overview and information, the achievement of learning outcomes, instructional design, interaction design, information design, assessment instruments, technology use, learner support, and universal design for learning (Online Learning Consortium, 2020; Quality Matters, 2020; Sims et al., 2001). The data analytics I alluded to earlier can also be used to evaluate the quality of the program itself.

Concluding remarks

While the articles in this special issue present different approaches to teaching technical communication online, recurring themes have emerged. We have seen how the authors *purposefully* use technology to

encourage interaction, collaboration, community, and problem-solving capabilities among their online students.

As readers reflect on their existing online courses and consider the development of others, they should consider the following questions:

- Do you (or your colleagues) offer an online orientation before the program starts, which introduces students to teachers, peers, and the technology they will have to use?
- Which technologies are you using, and why? Are you using tried and trusted technologies that will enable students to reach the desired learning outcomes? Do all students have access to those technologies and are they sufficiently computer literate to be able to use them effectively? Have you considered how you might use multimedia to elaborate on content (e.g. through screencast videos) or to provide feedback (e.g. through synchronous video meetings)?
- What kinds of activities and assignments are you asking your students to undertake? Do you purposefully foster social and cognitive presence among your students e.g. through collaborative authoring, problem-based, and/ or peer review activities? What are your strategies for helping students move from the information exchange stage to knowledge construction? Do students have opportunities to collaborate in virtual teams, but also to reflect privately on their learning (e.g. through reflective blogs)? How do students showcase their writing and multimedia skills (e.g. through online presentations, game development, and/ or portfolios)?
- How do you evaluate the quality of your online courses? Have you investigated the data analytics that are available to you via your LMS and how they might inform ongoing course development? Have you considered using a course quality design rubric?

As we can see from the articles in this special issue, it takes a great deal of effort and time to develop good online courses but if teachers understand the affordances of technology from a pedagogical standpoint, they are much more likely to make informed decisions. Teachers have made

significant advances in the recent emergency pivot online, but they will need ongoing professional development in the months and years to come to ensure best practice.

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