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## About Us

*Currents in Teaching and Learning* is a peer-reviewed electronic journal that fosters exchanges among reflective teacher-scholars across the disciplines. Published twice a year, Currents seeks to improve teaching and learning in higher education with short reports on classroom practices as well as longer research, theoretical, or conceptual articles and explorations of issues and challenges facing teachers today. Non-specialist and jargon-free, Currents is addressed to both faculty and graduate students in higher education, teaching in all academic disciplines.

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## EDITORIAL

# Introduction to the Themed Issue on Digital Pedagogies

—Benjamin D. Jee

Dear readers of *Currents in Teaching and Learning*,

I hope you and your loved ones are well during these challenging times. We knew that the fall 2020 semester would be like no other in memory. Besides the pandemic, those of us in the United States have been immersed in a presidential election in which starkly different views of the country and its future were on offer. At the time of this writing, a new administration is taking up the mantle of national leadership, and promising vaccines are beginning to make their way to a beleaguered population. As we enter the spring semester, we do so with a cautious optimism for a return to normalcy in the months ahead.

These trying times will no doubt take time to fully process. Professional and personal lives have been disrupted, and for many, the boundaries between work and home life have been obliterated. Having taught remotely since the beginning of the pandemic in March 2020, I truly miss seeing my students and colleagues in person. I miss the energy of a roomful of people engaging in an intellectual discussion. I miss bantering and sharing a laugh. Remote teaching has its benefits, of course. I have gained a deeper appreciation for the tenacity and persistence of my students. I have been forced to reflect on my pedagogy, including my use of synchronous class time and out-of-class assignments. I have found inspiration in my colleagues' adaptiveness and ingenuity in the face of difficult and unpredictable circumstances. There are surely lessons to take with us beyond this period of imposed social distancing and remote learning.

Fittingly, the current issue of *Currents* is a collection of articles related to the theme of *digital pedagogies*. Digital technology has an enormous role in education at all levels, now more than ever. As new hardware and software continually emerge, we must ask ourselves whether and how it serves our pedagogical goals—

whether it improves our effectiveness as instructors, and accommodates the needs of our students. In the article, “The LEAPS Framework for Selecting Digital Technologies in Online, Hybrid, and Face-to-Face Course Design,” Laura Lohman presents instructors with a thoughtful, practical framework for selecting digital technologies for courses across a number of instructional formats. The acronym, LEAPS, arises from five key considerations—learner analysis, engagement, accessibility, purpose of instruction, and sustainability—that contribute to the effective implementation of educational technology. In “Using OER to Promote Inclusion in Higher Education Institutions,” Lauren Hays and Melissa N. Mallon address the critical issue of inclusivity when adopting technology for instruction. They discuss how open educational resources (OER) can be used to engage students in knowledge construction as well as consumption. Together, these two articles contribute original and insightful ideas about the use of technology to meet the needs of both faculty and students.

Other papers in this issue describe how specific digital tools—both new and old—can be used to enhance students' learning. In the article, “The Virtual Mystery Web-tool: An Online Hybridized Problem-based Learning Teaching Tool Created by Students for Students,” Sherry Fukuzawa, Sarah Ranlett, and Emma Yasui describe how an online tool can enable students in large or small classes to engage in domain-relevant problem solving. The “mystery” element of their problem-based activities helps to motivate and engage students, while the automated release of new clues, questions, and comments minimizes demands on the instructor's time. In “PechaKucha as an Alternative to Traditional Student Presentations,” Kelly A. Warmuth shows how a widely-used digital tool—PowerPoint—can be used to enhance student presentations. This article describes how students' use of the PechaKucha format, in which students present 20 slides for 20 seconds each, was

## Digital Pedagogies *continued*

linked to higher creativity, enjoyment, and efficiency of presentations. In “Social Media in Practice: Assignments, Perceptions, Possibilities,” Jessica Kester and Stephanie Vie consider how to create effective writing assignments using the digital tools that students are drawn to outside of the classroom—i.e., social media platforms such as Facebook. The authors emphasize the *critical* use of social media in order to improve students’ written communication, as opposed to simply repackaging old assignments as social media products. Collectively, these works demonstrate the importance of pedagogical goals in the development and use of digital tools.

As we consider the role of technology in teaching and learning, we must be mindful of the “digital divide” which separates students who have access to the latest information and communication technologies from those who do not. In their article, “Increasing Accessibility and Diversity by Using a UDL Framework in an Infographics Assignment,” Patti Dyjur, Carla Ferreira, and Tracey Clancy explore how principles of Universal Design for Learning (UDL) can be used to enhance inclusivity and accessibility in higher education courses. The authors describe assignments that enabled students to create course-related infographics using open educational resources—an approach that aligns well with the advice from Hays and Mallon’s essay in the current issue. In “Who’s missing? A Program Report of One Online Academic Success Course,” Carmine Perrotti and Jennifer P. Steiner describe their process of designing and running an online version of a popular face-to-face course about skills for college success. The authors describe how the online course attracted a diverse range of students, and fostered personal connections to course material, collaboration with classmates, and the acquisition of key knowledge and skills. As Chiu-Yin (Cathy) Wong, Antonio G. Estudillo, and Stephen J. Chapman,

report in their article, “Blended Learning in Graduate Teacher Education Programs: Understanding Teacher Candidates’ Perceptions and Experiences,” students may be attracted to the flexibility of online classes, but feel that opportunities for collaborative and applied learning—elements that were central to the Perrotti and Steiner’s purposeful approach to online instruction—are often lacking.

Altogether, the articles in the current issue address a range of fascinating issues related to digital pedagogies. I thank all of the authors for their contributions. I am also grateful to the reviewers and copyeditors who devoted their time and energy to the present issue, especially in light of the considerable challenges over these past several months. Their names appear in the Contributors section. I also appreciate my colleagues on the Currents advisory board, who continue to support the journal through their valuable advice and feedback. Dr. Linda Larrivee, in particular, has played a central role in navigating the journal through these challenging times. Her dedication, hard work, and encouragement are truly appreciated.

The team at Currents is already working on assembling our next issue, to be released in fall 2021. I look forward to sharing more new and exciting work on teaching and learning with you then.

Until next time,

Benjamin D. Jee

## ESSAYS

# The LEAPS Framework for Selecting Digital Technologies in Online, Hybrid, and Face-to-Face Course Design

—Laura Lohman

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### Abstract

Drawing on action research, this article offers faculty a practical framework for selecting digital technologies when designing, developing, and delivering courses in online, hybrid, and face-to-face modalities. The article synthesizes findings from faculty interviews at a teaching-intensive university, the author's experience as a faculty member and faculty developer, and relevant literature to build a practical framework for selecting technology that is responsive to common faculty and institutional perspectives. The framework has already proven to be a valuable asset, helping faculty prepare courses across modalities during fluid conditions created by the COVID-19 pandemic. To assist faculty in weighing numerous considerations when selecting instructional technology, the LEAPS framework encompasses considerations that are frequently used and frequently overlooked by faculty. Consistent with instructional design principles and online course quality assurance tools, the framework directs attention in technology selection to the analysis of learners, the purpose of instruction, student engagement, accessibility, and sustainable practices.

### Keywords:

Instructional technology, accessibility, instructional design, sustainability, student engagement

### The LEAPS Framework for Selecting Digital Technologies in Online, Hybrid, and Face-to-Face Course Design

As digital technologies proliferate and their cycles of emergence and obsolescence accelerate, faculty need to consider carefully their adoption of technologies and the impact of their choices on the efficacy and sustainability of teaching and learning practices. Digital technologies are relevant not only to online and hybrid courses, but also to face-to-face courses as students value mobile devices as essential to daily activities (Attenborough & Abbott, 2018; Learning Network, 2020). As digital technologies pervade workplaces, incorporating them in learning processes can better prepare students for work (Andert & Alexakis, 2015; National Education Association, 2013). Digital technologies can sustain learning even when the instructor or student(s) cannot be physically present, such as during temporary campus closures or physical distancing measures enacted during the COVID-19 pandemic. Yet the specific technologies chosen can have significant consequences for learning, accessibility, diversity, and inclusion.

For faculty, the proliferation of instructional technologies may generate conflicting feelings and forces. On the one hand, new possibilities afforded by technology can engender excitement, motivation, and empowerment. These types of feelings likely fueled responses to a survey of 524 U.S. faculty at two- and four-year post-secondary institutions in which 88% and 84% of respondents reported that technology positively impacted teaching effectiveness and student learning, respectively (Schaffhauser & Kelly, 2016). On the other hand, faculty may be frustrated to find—often only

## LEAPS Framework *continued*

after investing significant time in mastering and using one or more technologies—that their efforts resulted in inaccessible materials, critical feedback from students, or disappointing evidence of learning. Some faculty may become overwhelmed or frustrated and abandon new technologies to support teaching and learning. Others may be so enthusiastic that they share their efforts with peers without considering various challenges remaining to be addressed or new challenges being created, such as inaccessible materials or unsustainable additions to faculty workload. Therefore, it is imperative that faculty consider critically the selection and incorporation of digital technologies into teaching and learning practices.

Numerous options and limited assistance with selection may leave faculty unsure how to choose digital technologies effectively (Hojeij & Hurley, 2017; Li et al., 2015). In my experience working with faculty, faculty members may choose a familiar tool or adopt a tool based on a colleague's suggestion but without thinking through many consequences of their selection. Ever growing and changing options can be found within presentation software, screencast software, studio recording setups, lecture capture, mobile recording setups, web conferencing tools, web and mobile apps, and digital variations on traditional textbooks, including interactive features and adaptive learning courseware. Selections among these options have many significant consequences, of which investment of faculty time, student learning, and accessibility are just a few.

Previous literature has yet to provide practical guidance to help faculty navigate these issues and choices. Relevant scholarship of teaching and learning has often focused on narrow questions pertaining to specific technology, at times rooted in one discipline or type of course (Hudak et al., 2019; Zapf & Garcia, 2011). Doctoral research has often explored broader issues, such as faculty perception of technology (King, 2010; Moseley, 2010), faculty motivation to use technology (Fleagle, 2012), faculty preferences, beliefs, and attitudes towards the adoption of technology (Faulkner, 2015; Moukali, 2012; Salas, 2014); support for faculty using technology (Hunter, 2016), and how technology shapes faculty motivation itself (Schaeffer, 2010). Institutions' online help may provide an overview of types of technology but often no or minimal framework for selection (University of Central Florida Faculty Center for Teaching and

Learning, n.d.; University of Washington Center for Teaching and Learning, n.d.). Existing selection frameworks may be outdated, geared more towards the needs of non-faculty stakeholders, or adopt an expansive institutional scope beyond what an individual faculty member can realistically use (Bates & Poole, 2003; Dabbagh & Fake, 2017; Educause Learning Initiative, 2006; Fells, 2012; Holden et al., 2010).

To address this gap in the literature and common issues faced by faculty, this article focuses on a critical question: What considerations should inform faculty members' selection and use of digital technologies in online, hybrid, and face-to-face course design? To answer this question, I interpret interviews with faculty members and relevant scholarly literature through a multidimensional lens gained through extended work as a faculty member and faculty developer experienced in instructional design. The resulting LEAPS framework for faculty selection of technology—referring to Learner analysis, Engagement, Accessibility, Purpose of instruction, and Sustainability—draws on fundamental principles of instructional design used in widely varying learning contexts and can be used when selecting digital technologies for online, hybrid, and face-to-face courses across disciplines and course levels.

### Methods

The LEAPS framework was developed through action research. Action research is an especially powerful tool for exploring complex problems with significant ramifications on individual employees or teams in the workplace. Action research fosters both research and learning through an ongoing process of reflection and problem solving (Gibbs et al., 2017; Riel, 2019; Sagor, 2000). The action research process was sparked by my faculty development role. While working at multiple institutions, I heard faculty eagerly share how they used technology but noted that key considerations were often left out of pivotal conversations. Personal experience had taught me how devastating it could be to learn that hours invested in creating high quality and innovative instruction with digital technologies had resulted in inaccessible materials, countering administrative expectations and contributing to an institution's risk of litigation (LaGrow, 2019). While sensing an important opportunity to heighten awareness and support faculty



## LEAPS Framework *continued*

in making informed selections, I questioned whether the conversations I heard were representative of faculty working across disciplines.

To determine this, I initiated an action research study focusing on faculty as reflective practitioners whose insights can improve practice through systematic inquiry. Using interviews with faculty at a small teaching-intensive university, the first phase of action research sought to clarify what considerations faculty use to select technology tools, identify considerations that they commonly overlook, and determine which resources faculty use to make these decisions. The university chosen was ideal for exploring faculty technology selection as relatively few technological tools were integrated with the learning management system or made available through university-wide site licenses. This encouraged faculty members' selection of additional technology to meet their needs. Reflecting on observations in working with faculty, staff, and administrators through four years as a faculty developer and over a decade as a faculty member, I compiled a list of considerations that could impact faculty technology selection and solicited additions from colleagues at other institutions. I used purposeful quota sampling and interviewed seven full-time and part-time faculty members with varied experience using digital instructional technologies. They held either a master's or doctoral degree as the highest degree in their discipline and had between six and 25 years of university-level teaching experience. Their technology experience ranged from moderate use to a graduate degree in instructional technology. Their disciplines spanned natural sciences, health sciences, education, communication, and business.

Semi-structured interviews were conducted in-person or through video conferencing software and were recorded, transcribed, and shared with interviewees to provide opportunity for correction or clarification. Interview questions guided faculty to identify a specific occasion when they had used technology to create recorded instructional materials and elaborate on how they chose the technological tool(s), their purpose, the outcomes, and whether they would alter their selection process in the future (see Appendix). Faculty were prompted to focus on one instance in which they created recorded instructional materials as this is a common scenario across course modalities and was likely to generate

robust examples from all faculty interviewed. Questions prompted them to elaborate the initial example they selected; their discussion of this focal example provided the data discussed in the Results section. Interviews were typically extended through follow-up questions, and faculty commonly incorporated into their explanations additional examples of their instructional technology uses to clarify the points they wished to make about their initial, focal example. Participants completed a short questionnaire providing information about their teaching and technology experience, education, and selected demographic information.

### Results

The findings presented here were developed through descriptive qualitative coding. The descriptive codes included a priori codes corresponding to the considerations listed under question 4 and emergent descriptive codes. The latter corresponded to various resources that faculty used to select technology (e.g., internet research, faculty member, instructional designer), their relationship to those resources (e.g., colleague, client), their roles (e.g., designer, evaluator), instructional purpose, and intent to change their technology selection process in the future.

Three key findings emerged from faculty interviews. These include considerations commonly used by faculty when selecting technology, commonly overlooked considerations, and the process through which faculty selected technology. In addition, faculty members clarified the varied roles they play in course creation and implementation when they select technology.

Many of the considerations (a-q) in the interview protocol were part of faculty members' process of selecting technology (see Table 1). All of the faculty that were interviewed considered cost, the learning curve for faculty, time needed to create the materials, convenience (i.e., ease of access), faculty comfort with the technology, instructional purpose(s), and student ease of use/access to support. Nearly all (86%) reported considering the personal or staged feel of the resulting materials. Additionally, most (71%) reported considering the pedagogical and technological longevity of the tool or the materials and the technology's capacity for creating multilayered audiovisual content.



LEAPS Framework *continued***Table 1. Considerations in the selection of digital technologies, categorized by frequency of faculty use.**

Frequency of Faculty Use	Consideration
Nearly all (86%) did not consider	Accessibility
Over half (57%) did not consider	Mobile-friendly Interactivity Explicit or implicit expectations for perfectionism
Over half (57%) considered	Time needed to update the materials Integration with the learning management system
Most (71%) considered	Tool's capacity for creating multilayered audiovisual content Pedagogical longevity of the materials Technological longevity of the materials or the tool
Nearly all (86%) considered	Personal or staged feel of the resulting materials
All considered	Cost Learning curve for faculty Time needed to create the materials Convenience Faculty comfort with the technology Instructional purpose(s) Student ease of use/access to support

Faculty often overlooked four considerations. Nearly all (86%) did not consider accessibility. Over half (57%) indicated that they did not consider interactivity, whether the technology or materials created with it were mobile friendly, or the time needed to update the materials.

All but one of the faculty interviewed learned about the technologies they selected from an individual colleague such as a faculty member or instructional designer. The selection processes they described often resembled what Tony Bates has dubbed “technological determinism”: selecting technology “because it’s new or because a colleague has had success with it” (Kelly, 2012). Yet when asked if they would change their selection process if they could get a do-over, faculty often did not identify any anticipated change, such as getting recommendations from multiple people or doing

research themselves. A recommendation will only be as good as a recommender’s knowledge and thoughtfulness and how much the consultative process allows for sharing information about various considerations. Therefore, it may help faculty to review a recommendation against a broad framework and use that framework to ask their recommender questions to understand the ramifications of a particular technology tool, including some that the recommender may not have considered or explicitly addressed.

Interviews confirmed that faculty select and implement digital technologies as they play varied and changing roles in designing, developing, and delivering courses (Curran, 2014; Halupa, 2019). Sometimes faculty serve simultaneously as independent course designers, subject matter experts, and course deliverers. In other cases, faculty collaborate with instructional designers in course design. Faculty are often peer learners and mentors and sometimes administrators and evaluators. In all these roles, the LEAPS framework supports faculty in considering a wide range of factors when reviewing digital technologies.

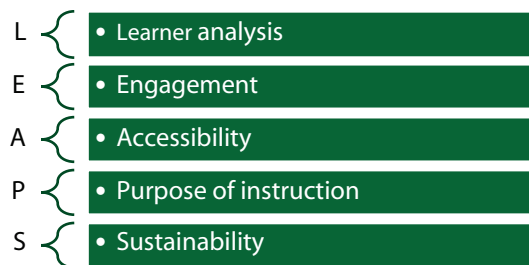
### The LEAPS Selection Framework

Based on these findings, I developed a simple framework to assist faculty in using a broader range of factors when selecting technology. The framework was shaped by reflections on extended experience working with faculty and secondary literature. More specifically, the framework was shaped by reflection on the relative attention often given to various considerations by faculty and by staff and administrators. Also informing the framework were the impact of instructional technology decisions on faculty workload, both synchronically and diachronically, and relevant principles in instructional design and pedagogy across online, hybrid, and face-to-face modalities. I grouped the many considerations discussed in interviews into categories, taking care to give ample weight to both considerations of common concern to faculty and considerations of common concern from institutional and pedagogical perspectives. Attending to these multiple perspectives elevated five major areas of concern; these were captured in the simple mnemonic LEAPS, which refers to Learner analysis, Engagement, Accessibility, Purpose of instruction, and Sustainability (see Figure 1). Each area of the framework is discussed below in terms of the specific considerations contained

LEAPS Framework *continued*

in Table 1, faculty interviews, and relevant literature supporting faculty and institutional perspectives.

**Figure 1. The LEAPS framework for technology selection, in simplified form.**



### Learner Analysis

Analysis of learners is often part of an initial step in a backwards instructional design process. This initial step includes what Dick et al. (2015) call “learner analysis” and “context analysis,” and results in the identification of what Fink (2013) calls “situational factors.” Broadly, these situational factors entail factors such as learner characteristics, course modality, and accreditation expectations (Cennamo & Kalk, 2019; Dick et al., 2015; Fink, 2013). More specifically, the learner analysis portion of this step can encompass observations about students’ knowledge, skills, and attitudes towards the subject; learning preferences; prior experiences; demographic characteristics; life and/or professional goals related to the course; and additional responsibilities, among other considerations. Thoughtful learner analysis generates observations about the diversity of learners and undergirds selection of digital technologies that can support inclusive learning environments. For example, noting learner preferences for multimodal communication might inform the selection among several digital technologies available for giving learners feedback or generating online discussion. The importance of learner analysis was supported by faculty reflections during interviews. When discussing instructional videos, for example, a business faculty member noted that the type of video that they would make for an undergraduate course would differ from one for a graduate course due to their need to relate to each group of learners differently.

The considerations in Table 1 that are most clearly

related to the analysis of learners include cost, student ease of use/access to support, and the mobile-friendly nature of technology. Of these, all faculty interviewed considered cost and student ease of use/access to support. Cost to students is a key consideration as tuition, textbook costs, student diversity, and debt increase (Chiwaya, 2019; Espinosa et al., 2019). Faculty consideration of student ease of use and access to support parallels scholarly emphasis on these factors (Hauptman, 2015). For example, a business faculty member regularly estimated the difficulty students would experience in using a technology and compared it with available support; the stated purpose was not simply to ensure that students were supported, but to control the time the instructor would need to allot to answer questions about the technology itself. In the case of a screencasting tool like Screencast-o-matic, approximately 95% of the students’ questions could be answered quickly and simply by sharing a link to an existing help video.

Of these three considerations, the one most often overlooked by faculty interviewed was the mobile-friendly nature of technology. Both student behavior on university campuses and recent literature confirm learners’ growing reliance on mobile devices, including phones, for learning. In 2015, Hauptman reported smartphone ownership at 90% of students but only 10% of his faculty research subjects “used or considered mobile technology when developing materials or activities for students” (p. 71). Subsequent surveys of university students in the United States have indicated even higher rates of smartphone ownership and confirm student interest in completing learning activities and entire courses with mobile devices, motivated by convenience and enjoyment (Attenborough & Abbott, 2018; Baldwin & Ching, 2020). Rather than taking a reactive approach to curtail the use of mobile devices based on their perception as distractions or unsuitable tools for learning (Weimer, 2018), faculty can proactively choose technology with this trend in mind, looking for technologies that are responsive to various screen sizes and are available as mobile apps (Hauptman, 2015). Faculty attention to this aspect of technology is particularly important given the current state of guidance on mobile-friendly design in online course design evaluation instruments (Baldwin & Ching, 2020).

## LEAPS Framework *continued*

### Engagement

In this framework, engagement encompasses interactivity with technology, student-to-student interaction, faculty-to-student interaction, and community building. While interaction was incorporated in some older selection frameworks (Bates & Poole, 2003; Holden et al., 2010), the broader concept of engagement offered here supports both active learning and student-centered learning (Bowen, 2012; Learning-centered rubric for classroom observations, n.d.) and contemporary standards in online course design. The latter often prioritize learner-learner interaction, learner-instructor interaction, and learner-content interaction. These prioritizations are reflected in online course quality assurance tools such as Quality Matters, and their incorporation into the detailed LEAPS framework facilitates the framework's application to multiple course modalities (Baldwin et al., 2018).

However, over half of faculty indicated that they did not consider “interactivity” when discussing focal examples of technology elicited at the beginning of each interview. Those who had considered interactivity mentioned both the opportunity for students to interact with materials, such as by rewinding, pausing, and revisiting materials as needed, and the chance for students to gain a better sense of the instructor by seeing and hearing them. The number of faculty who reported considering interactivity in these focal examples was likely shaped by the opening question's specific reference to recorded instructional materials and the longstanding influence of instructor-centered approaches that emphasize the instructor's role in delivering content over the facilitation of learning experiences.

Nevertheless, not considering interactivity in the focal examples elicited by the opening question did not necessarily mean that faculty did not use interactive technology. Faculty interviewed used and discussed technology that supports interactivity with media, students, and/or faculty, such as VoiceThread, web conferencing, and EdPuzzle. Some faculty interviewed also discussed their use of technology to foster social presence and to imbue their communications with immediacy and currency by tailoring them to each cohort of students, rather than reusing past materials. Prompts for considering engagement in the LEAPS

framework can not only support such practices but also encourage faculty to consider technologies that can increase interactivity when providing instructor-centered “content.”

### Accessibility

Accessibility was the least common consideration among faculty interviewed. This finding supports Epshteyn's (2019) identification of low faculty awareness of accessibility resources and processes as a key issue. Although consideration of accessibility was often not part of the focal examples that faculty elaborated on in interviews, many faculty quickly added after acknowledging this that they intended to consider accessibility in future projects due to recent campus awareness-raising efforts. Supporting faculty in choosing and implementing digital technologies to create accessible materials is important from diversity and inclusion, quality, risk, and legal perspectives. Accessible materials foster inclusive learning environments and support diverse groups of learners. They also support quality assurance practices often used in evaluating online course design (Baldwin et al., 2018).

Depending on institutional policy and practice, faculty may have significant leeway in selecting technologies that support varying levels of accessibility. For faculty to consider accessibility when selecting technology, they need to understand what accessibility means, know how to assess the accessibility of technology, determine whether or not they would need to provide materials in an alternate format, and, if necessary, select a different technology that handles accessibility issues better to make their own creation of an alternative format unnecessary. Faculty need high-quality information presented in terms that non-accessibility specialists can understand, including the difference between accommodations and accessibility, how to assess a technology tool's accessibility, how its implementation can still result in inaccessible materials, and how to avoid or correct such implementation (University of Iowa, 2019). Important are user-friendly tools that give feedback to faculty about the accessibility of their implementation of digital technology. An example is Office 365, which includes a prominent Accessibility Checker, concise feedback about issues, and clickable options for addressing those issues during content creation. Also essential is current

## LEAPS Framework *continued*

information about available institutional resources for supporting accessible faculty implementation of digital technologies. An example of an underutilized but widely available resource is the ability to autogenerate captions and interactive transcripts through artificial intelligence for videos uploaded to Stream in OneDrive for Business.

Even when digital technologies are made, periodically updated, and selected with accessibility in mind, faculty implementation can still result in inaccessible instructional materials. A noteworthy example is the graphic syllabus. For over a decade, faculty and writers concerned with teaching practices promoted more visually appealing syllabi. But too often, accessibility was omitted from this discussion and implementation of the concept through technology (Gooblar, 2017; Nilson, 2007). Because, as faculty interviews showed, peer networks can rapidly spread uses of technology, awareness of accessibility should be part of the knowledge and decision-making that is passed on (Lohman, 2019).

### **Purpose of Instruction**

Another important consideration that all faculty interviewees reported is the purpose of the instruction. The purpose may be captured in end-of-semester course learning outcomes, aligned assessments, and more specific, aligned learning objectives. Digital technologies should reinforce a previously identified instructional purpose, rather than shifting attention to technology-based activities or assessments loosely related to course learning outcomes. Such alignment between outcomes, assessments, and learning activities constitutes a basic instructional design principle relevant to all course modalities, and informs common criteria in national and statewide evaluation instruments for online course design (Baldwin et al., 2018).

To support rigorous learning, it is important to review specifically which skills were targeted for development in the course and to assess how well a technology supports learners in developing those skills. These skills may be captured in specific learning objectives, which can be reviewed and used when selecting technology (Holden et al., 2010). An example is the use of virtual simulation interviewing software in communication courses to develop students' interviewing skills (Hudak

et al., 2019). The faculty members who were interviewed highlighted selection of technologies that aligned with many additional research-based principles that support rigorous learning and skill development. Examples they shared included using screencast recording apps and Camtasia to support business majors in developing essential technical skills in Excel, and providing timely and specific feedback to learners in mathematics courses by using digital tools such as EdPuzzle (Bruff, 2019).

Digital technologies can further support the purpose of instruction as faculty review the larger context when designing the course. Layers of this larger context include program-level assessment, national accreditation, and the potential of learning to have lasting impacts on students' lives (Fink, 2013). Selecting technologies that truly support course learning outcomes and aligned assessments also fosters alignment with program-level assessment. As faculty use instructional purpose as a consideration when selecting technologies, they can further support standards of national accreditation or equip students with in-demand workplace skills.

### **Sustainability**

Faculty who were interviewed commonly considered several factors related to the sustainability of instructional technology practices. As Hauptman (2015) noted after conducting his own interviews with faculty focusing on mobile technology, "faculty repeatedly express distress over their already overwhelming time commitments. Faculty feel that their schedules are overloaded with teaching, research and service responsibilities and do not have time to research and implement a new, complicated technology into their courses" (pp. 69-70). Sustainable instructional technology practices are also important from a human resources perspective that considers the totality of faculty job responsibilities in relation to employee engagement, burnout, and turnover. In contrast to accessibility, engagement, and instructional purpose, sustainability of instructional practices is not addressed in Baldwin and colleagues' (2018) review of national and statewide instruments for evaluating online course design. Yet it is essential to consider sustainability to support faculty in meeting other criteria commonly used in such instruments.

## LEAPS Framework *continued*

Sustainability considerations addressed in the interviews encompassed cost, time, longevity, comfort, and other factors noted in recent literature (Faulkner, 2015; Hauptman, 2015). Like those in Hauptman's study, faculty interviewed for this project consistently stressed time. They conceptualized time holistically, considering instructional technology in relation to their entire workload, including service and research responsibilities. As a result of the totality of these responsibilities, some faculty admitted feeling "tired" or "overwhelmed" despite having a strong desire to innovate in teaching. All considered two other factors that impact time: the learning curve for faculty and the convenience, such as flexibility in when and where technologies can be used. While all considered the time needed to create materials, an important factor overlooked by nearly half the faculty interviewed was the time needed to update the materials.

Most faculty interviewed considered the pedagogical longevity and technological longevity of the tools they selected. However, some also stressed the value of creating fresh materials rather than reusing materials created with digital technologies in a previous semester or year. One faculty member considered their materials "disposable" and invested time recreating them for each course iteration. In some cases, this creation of fresh materials was shaped by course rotations and instructor assignments that led to gaps of two or more years before an instructor would reteach a course in a discipline prone to changing content. Another instructor's reason for creating fresh material was to avoid becoming disconnected from students and course concepts. As faculty navigate these trade-offs of time and currency when selecting technologies, the context shapes the relative importance of sustainability considerations, particularly as frequency of course repetition is impacted by an institution's size, curriculum, and traditions or policies surrounding the assignment of instructors to class sections.

### Using the LEAPS Framework

The five major areas of learner analysis, engagement, accessibility, purpose of instruction, and sustainability provide a focus that was absent from the list of considerations presented to the interviewees. However, the considerations themselves quickly proved useful

in helping faculty members develop more thorough processes for selecting technology. When asked if they would change the process that they used to select technology in the future, one business faculty member quickly identified accessibility, pedagogical longevity, multilayered audiovisual content, and expectations for perfectionism as considerations that they would incorporate. To support such decision making, the detailed considerations were explicitly delineated in user-friendly groupings in the five major areas of the LEAPS framework.

Presenting the LEAPS framework with these detailed considerations as a job aid can assist faculty in contemplating a broader range of factors when selecting technology (see Figure 2). Job aids assist employees in carrying out work and commonly include text, graphics, or both. In the framework of human performance technology or performance improvement, job aids are typically an intervention that documents or codifies information to make it available to employees (Hale, 2006). Despite a common emphasis on training and in-person professional development in literature on supporting faculty in using technology, key informational interventions such as job aids can efficiently assist in raising faculty members' awareness of important issues. As Fells (2012) has noted, the constantly shifting landscape of technology precludes the creation of one definitive selection framework or model. However, a framework presented as a job aid can assist decision making, particularly for a specific group of stakeholders, by offering guidance that draws on a combination of theory and practical experience.

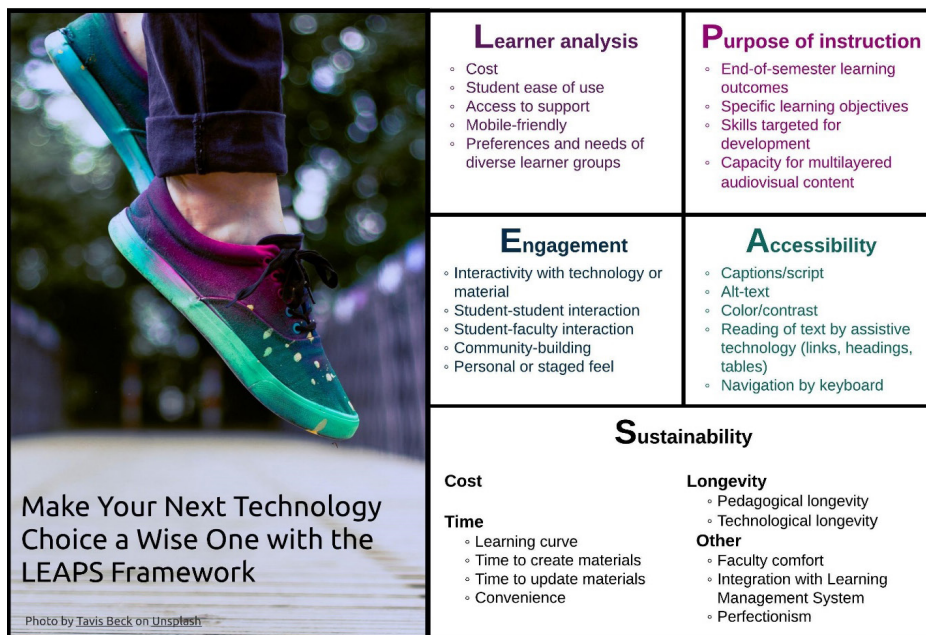
The LEAPS framework presented as a job aid in Figure 2 provides further details on each major area to assist faculty in making informed selections that support both rigorous learning and inclusive learning environments. Details about the purpose of instruction guide faculty to consider technology that can support rigorous learning based on principles of instructional design applicable to all course modalities. Areas such as accessibility and learner analysis are expanded with clarifying prompts to assist faculty in recognizing and choosing technologies that can support diverse learners. While capturing common faculty considerations of sustainability and learners' needs, the job aid incorporates commonly overlooked considerations such as the mobile-friendly

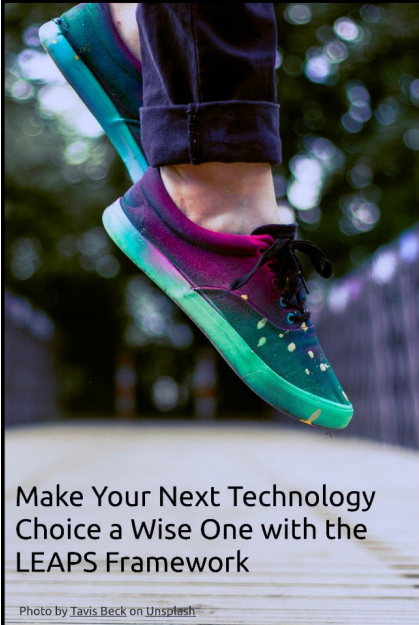


LEAPS Framework *continued*

nature of technology. The detailed framework further complements common faculty considerations by highlighting the importance of both engagement and accessibility during the selection process, rather than after technology has been acquired and implemented.

**Figure 2. Job aid containing the elaborated LEAPS framework for technology selection**



 <p><b>Make Your Next Technology Choice a Wise One with the LEAPS Framework</b></p> <p><small>Photo by Tavis Beck on Unsplash</small></p>	<p><b>Learner analysis</b></p> <ul style="list-style-type: none"> <li>◦ Cost</li> <li>◦ Student ease of use</li> <li>◦ Access to support</li> <li>◦ Mobile-friendly</li> <li>◦ Preferences and needs of diverse learner groups</li> </ul>	<p><b>Purpose of instruction</b></p> <ul style="list-style-type: none"> <li>◦ End-of-semester learning outcomes</li> <li>◦ Specific learning objectives</li> <li>◦ Skills targeted for development</li> <li>◦ Capacity for multilayered audiovisual content</li> </ul>
	<p><b>Engagement</b></p> <ul style="list-style-type: none"> <li>◦ Interactivity with technology or material</li> <li>◦ Student-student interaction</li> <li>◦ Student-faculty interaction</li> <li>◦ Community-building</li> <li>◦ Personal or staged feel</li> </ul>	<p><b>Accessibility</b></p> <ul style="list-style-type: none"> <li>◦ Captions/script</li> <li>◦ Alt-text</li> <li>◦ Color/contrast</li> <li>◦ Reading of text by assistive technology (links, headings, tables)</li> <li>◦ Navigation by keyboard</li> </ul>
	<p><b>Sustainability</b></p>	
	<p><b>Cost</b></p>	<p><b>Time</b></p> <ul style="list-style-type: none"> <li>◦ Learning curve</li> <li>◦ Time to create materials</li> <li>◦ Time to update materials</li> <li>◦ Convenience</li> </ul>

In practice, the five primary areas of consideration in the LEAPS framework are best addressed in a different order than the acronym itself. The more logical order is found in the job aid, which should be read from left to right. This order is informed by backwards instructional design and enables evaluation of how one consideration impacts another. Backwards instructional design processes are supported by first considering the learners and the purpose of the instruction in which technology will be incorporated (Cennamo & Kalk, 2019; Dick et al., 2015; Fink, 2013; Wiggins & McTighe, 2005). Often multiple technologies will be available to serve both learners' needs and the learning objectives; of those choices, technology that better supports engagement would be preferable. Instructional purpose should be considered before sustainability because for faculty to "feel that the results of technology integration are worth the investment of time and resources to implement," the

technology must be well-aligned with the purpose of the instruction, particularly in relation to end-of-semester learning outcomes and more specific learning objectives (Hauptman, 2015, p. 33). To ensure a worthy investment of time, accessibility must also be considered before sustainability because a technology's built-in capacities to create accessible materials will impact the faculty time required to implement the technology accessibly. By considering accessibility early, faculty can avoid having

to engage in duplicative work, such as creating both an inaccessible formatted graphic syllabus and an accessible text-only syllabus (Sauer & Calimeris, 2015). Using the LEAPS framework in this sequence allows faculty to make informed decisions about technology consistent with Bates' guidance to replace, rather than add to, existing work processes (Kelly, 2012).

Both the simple LEAPS framework and this more detailed job aid were created through the initial

phase of a multiphase action-research project. Rooted in iterative cycles of planning, action, collecting and analyzing data, and reflecting, action research may be conducted by individual researchers, collaborative research teams, or teams of researchers and learners who contribute to both research and, ultimately, organizational change (Gibbs et al., 2017; Riel, 2019; Sagor, 2000). Following the initial research in fall 2019 and the creation of the framework, faculty researchers were identified in spring 2020 and invited to plan the next phase of research. While this phase was interrupted by the rapid shift to online instruction in spring 2020 due to the COVID-19 pandemic, it will focus on faculty use of the framework to select technologies for specific classes. This phase will include the development of individual and collaborative scholarship of teaching and learning projects to clarify the framework's utility for faculty across disciplines.



## LEAPS Framework *continued*

Meanwhile, the LEAPS framework has already been useful when supporting faculty in making technology selections. Using the framework when consulting with faculty has refocused attention on an instructor's goals in a specific instructional context and highlighted how certain technologies can foster student engagement. Moreover, the framework has highlighted the benefits afforded by certain technologies in providing accessible materials without requiring extensive instructor time. The framework has also proven useful when developing workflows for using multiple digital technologies in succession to achieve a specific goal in a teaching and learning situation.

Notably, the framework has been a valuable asset helping faculty prepare for fall 2020 courses during fluid conditions created by the COVID-19 pandemic. The framework has provided a clear rationale for considering certain technologies among overwhelming choices and has directed attention to mobile-friendly technologies to support a diverse student body when regular access to computers cannot be assumed. More specifically, the framework has enhanced faculty capacity to assess technologies. When incorporated in a Course Design Institute modified for COVID-19 conditions, the framework prompted one respondent to a post-survey not simply to comment on their increased familiarity and comfort in using technology tools, but also to add, "I have more tools for *assessing* appropriate tools" (emphasis added). As the framework was incorporated in subsequent workshops for faculty, faculty members increasingly asked whether specific technologies were mobile-friendly and accessible. Such questions demonstrated fulfillment of one of the main intentions of the framework—enabling faculty to articulate specific questions regarding aspects and capabilities of a technology from multiple dimensions. Therefore, while it may be easier for faculty to simply follow a colleague's recommendation, the ability to assess the relative merits and drawbacks of tools is both valued and used by faculty when responding to novel and complex situations.

Discussing technology selection with faculty also generated valuable insights for other stakeholders. In particular, faculty concern with convenience is important for any administrator who is considering acquiring technology at the program, department, college, or institutional level. Whether this technology takes the

form of physical equipment or licensed software or apps, broad stakeholder input is critical to fostering subsequent adoption. Faculty emphasis on convenience serves as a caution to administrators: sequestering technology on campus may not be the best choice if a similarly capable tool offers faculty more convenience in time, space, and access.

### Conclusion

Conceptualized to assist faculty in weighing numerous considerations when selecting technology, the LEAPS framework is a practical and broadly applicable framework for selecting digital technologies when designing, developing, and delivering courses in online, hybrid, and face-to-face modalities. In the case of online courses, the framework supports key elements in quality assurance tools, such as Quality Matters. In the case of face-to-face and hybrid courses, the framework has proven particularly useful in helping faculty plan for instruction during the ongoing COVID-19 pandemic, when instructors must be prepared to use digital technologies to support diverse learners who will be engaging with course content, the instructor, and fellow students in varied and variable conditions due to social distancing and serious health concerns. The next phase of action research involving faculty will provide further insight into the value of the LEAPS framework once the technologies selected with it have been incorporated in specific courses. Meanwhile, as faculty rise to the challenges presented by the COVID-19 pandemic, the LEAPS framework can help them recognize the importance of selecting inclusive, mobile-friendly technologies that support student-to-student interaction and enable timely and time-efficient feedback. The pandemic has provided initial signs of the framework's value, as faculty choices of technology will likely be critical to successful instruction and community building with students who are striving to learn in wide-ranging, changing, and stressful conditions.

LEAPS Framework *continued***Appendix****Protocol for Semi-Structured Interview with Faculty Participants**

1. Think of a time that you needed to create some instructional materials that you would record and share with students online. What was the situation?
  - Follow-up if not addressed above: What was your purpose or goal in recording these materials?
2. Which technology tools did you use to create and record the instructional materials?
3. How did you decide to use those particular tools?
  - Follow-up if not addressed above: Did you gather information from any other sources to decide which tools to use?
  - Follow-up if not addressed above: What factors or criteria had the most impact in your selection of those tools?
4. If you take a look at this list of considerations, which did you **not** consider at the time?
  - a. Instructional purpose(s)
  - b. Cost
  - c. Learning curve for faculty
  - d. Time needed to create the materials
  - e. Time needed to update the materials
  - f. Pedagogical longevity of the materials
  - g. Convenience
  - h. Faculty comfort with the technology
  - i. Integration with the LMS
  - j. Student ease of use/access to support
  - k. Personal or staged feel of the resulting materials
  - l. Explicit or implicit expectations for perfectionism
5. How would you describe the outcome after you finished creating the materials and shared them with your students?
6. If you could get a do-over for this particular project, would you approach the selection of technology differently?
7. The next time you need to create recorded instructional materials for a specific course, would you make any change in the process that you use to select the technology?
  - m. Tool's capacity for creating multilayered audiovisual content
  - n. Accessibility
  - o. Interactivity
  - p. Mobile-friendly
  - q. Technological longevity of the materials or the tool

LEAPS Framework *continued*

## References

- Andert, D., & Alexakis, G. (2015). Virtual teaming and digital learning strategies: Preparing students for a global workplace. *MERLOT Journal of Online Learning and Teaching*, 11(1), 146–172.
- Attenborough, J., & Abbott, S. (2018). Leave them to their own devices: Healthcare students' experiences of using a range of mobile devices for learning. *International Journal for the Scholarship of Teaching and Learning*, 12(2). <https://doi.org/10.20429/ijstol.2018.120216>
- Baldwin, S. J., & Ching, Y. H. (2020). Guidelines for designing online courses for mobile devices. *TechTrends* 64(3), 413–422. <https://doi.org/10.1007/s11528-019-00463-6>
- Baldwin, S., Ching, Y. H., & Hsu, Y. C. (2018). Online course design in higher education: A review of national and statewide evaluation instruments. *TechTrends*, 62(1), 46–57. <https://doi.org/10.1007/s11528-017-0215-z>
- Bates, A., & Poole, G. (2003). *Effective teaching with technology in higher education*. San Francisco: Jossey-Bass.
- Bowen, J. A. (2012). *Teaching naked: How moving technology out of your college classroom will improve student learning*. San Francisco: Wiley.
- Bruff, D. (2019). *Intentional tech: Principles to guide the use of educational technology in college teaching*. Morgantown: West Virginia University Press.
- Cennamo, K., & Kalk, D. (2019). *Real world instructional design: An iterative approach to designing learning experiences*. (2nd ed.). New York: Routledge.
- Chiwaya, N. (2019, April 24). These five charts show how bad the student loan debt situation is. <https://www.nbcnews.com/news/us-news/student-loan-statistics-2019-n997836>
- Curran, T. (2014, November 12). The changing role of faculty: From traditional ed to competency-based. <https://www.pearsoned.com/the-changing-role-of-faculty-from-traditional-ed-to-competency-based/>
- Dabbagh, N., & Fake, H. (2017). Tech select decision aide: A mobile application to facilitate just-in-time decision support for instructional designers. *TechTrends*, 61(4), 393–403. <https://doi.org/10.1007/s11528-016-0152-2>
- Dick, W., Carey, L., & Carey, J. O. (2015). *The systematic design of instruction* (8th ed.). New York: Pearson.
- Educause Learning Initiative (2006). ELI discovery tool: Applying technology to teaching and learning. <https://library.educause.edu/resources/2006/1/eli-discovery-tool-applying-technology-to-teaching-and-learning>
- Epshteyn, E. (2019). *From policy to compliance: US higher education faculty concerns over institutional digital content accessibility policies* [Doctoral dissertation, Northeastern University].
- Espinosa, L. L., Turk, J. M., Taylor, M., & Chessman, H. M. (2019). *Race and ethnicity in higher education: A status report*. Washington, DC: American Council on Education.
- Faulkner, C. G. (2015). *Exploring the relationships between faculty beliefs and technology preferences* [Doctoral dissertation, University of North Texas]. <http://search.proquest.com/pqdtglobal/docview/1774578180/abstract/7709150AE2A64F1CPQ/1>
- Fells, S. (2012). *Instructional designers' media selection practices for distributed problem-based learning environments* [Doctoral dissertation, Capella University]. <http://search.proquest.com/pqdtglobal/docview/1282651718/abstract/23643B0568EA449DPQ/1>
- Fink, L. D. (2013). *Creating significant learning experiences: An integrated approach to designing college courses*. New York: John Wiley & Sons.
- Fleagle, C. L. (2012). *Identifying faculty motivations to increase technology use in pedagogy at a midwestern university* [Doctoral dissertation, Iowa State University, Digital Repository]. <https://doi.org/10.31274/etd-180810-305>

LEAPS Framework *continued*

- Gibbs, P., Cartney, P., Wilkinson, K., Parkinson, J., Cunningham, S., James-Reynolds, C., Zoubir, T., Brown, V., Barter, P., Sumner, P., MacDonald, A., Dayananda, A., & Pitt, A. (2017). Literature review on the use of action research in higher education. *Educational Action Research*, 25(1), 3–22. <https://doi.org/10.1080/09650792.2015.1124046>
- Gooblar, D. (2017). Your syllabus doesn't have to look like a contract. <https://chroniclevitae.com/news/1864-your-syllabus-doesn-t-have-to-look-like-a-contract>
- Hale, J. (2006). *The performance consultant's fieldbook: Tools and techniques for improving organizations and people*. San Francisco: John Wiley & Sons.
- Halupa, C. (2019). Differentiation of roles: Instructional designers and faculty in the creation of online courses. *International Journal of Higher Education*, 8(1), 55–68. <https://doi.org/10.5430/ijhe.v8n1p55>
- Hauptman, P. H. (2015). *Mobile technology in college instruction: Faculty perceptions and barriers to adoption* [Doctoral dissertation, The University of Nebraska - Lincoln]. <http://search.proquest.com/pqdtglobal/docview/1705540547/abstract/9F95C05F397949E1PQ/1>
- Hojeij, Z., & Hurley, Z. (2017). The triple flip: Using technology for peer and self-editing of writing. *International Journal for the Scholarship of Teaching and Learning*, 11(1). <https://doi.org/10.20429/ijstol.2017.110104>
- Holden, J. T., Westfall, J. L., Gamor, K. I. (2010). *An instructional media selection guide for distance learning* (2nd ed.). [https://usdla.org/wp-content/uploads/2015/05/AIMSGDL\\_2nd\\_Ed\\_styled\\_010311.pdf](https://usdla.org/wp-content/uploads/2015/05/AIMSGDL_2nd_Ed_styled_010311.pdf)
- Hudak, K., Kile, A., Grodziak, E., & Keptner, E. (2019). Advancing student interview skills: Incorporating virtual interview technology into the basic communication course. *International Journal for the Scholarship of Teaching and Learning*, 13(1). <https://doi.org/10.20429/ijstol.2019.130103>
- Hunter, M. A. (2016). *Innovative approaches to faculty development for technology integration: Evaluation of a three-tiered model* [Doctoral dissertation, Fielding Graduate University]. <http://search.proquest.com/pqdtglobal/docview/1758807175/abstract/59A01E6B295045D5PQ/5>
- Kelly, R. (2012, July 31). Selecting online learning technologies: An interview with Tony Bates. *Faculty Focus*. <https://www.facultyfocus.com/articles/online-education/selecting-online-learning-technologies-an-interview-with-tony-bates/>
- King, D. L. (2010). *Adjunct faculty perspectives regarding the use of technology in the traditional classroom* [Doctoral dissertation, The University of Arizona]. <http://search.proquest.com/pqdtglobal/docview/821710546/abstract/571CFB4AB8D44101PQ/1>
- LaGrow, M. (2019, November 25). Accessibility at a crossroads: Balancing legal requirements, frivolous lawsuits, and legitimate needs. *Educause Review*. <https://er.educause.edu/articles/2019/11/accessibility-at-a-crossroads-balancing-legal-requirements-frivolous-lawsuits-and-legitimate-needs>
- Learning-centered rubric for classroom observations* (n.d.) Center for Excellence in Teaching and Learning, Kennesaw State University. <https://cetl.kennesaw.edu/sites/default/files/resources/Learner%20Centered%20Rubric%20for%20Classroom%20Observations.pdf>
- Learning Network, The. (2020, Feb. 6). What students are saying about how much they use their phones, and whether we should be worried. *New York Times*. <https://www.nytimes.com/2020/02/06/learning/what-students-are-saying-about-how-much-they-use-their-phones-and-whether-we-should-be-worried.html>
- Li, L., Worch, E., Zhou, Y., & Aguiton, R. (2015). How and why digital generation teachers use technology in the classroom: An explanatory sequential mixed methods study. *International Journal for the Scholarship of Teaching and Learning*, 9(2). <https://doi.org/10.20429/ijstol.2015.090209>

LEAPS Framework *continued*

- Lohman, L. (2019). Providing accessible materials. <https://my.queens.edu/cafes/Best%20Practices%20Documents/Providing%20Accessible%20Materials.pdf>
- Moseley, W. L. (2010). Student and faculty perceptions of technology's usefulness in community college general education courses [Doctoral dissertation, The University of Nebraska – Lincoln]. <https://digitalcommons.unl.edu/cehdiss/74/>
- Moukali, K. H. (2012). Factors that affect faculty attitudes toward adoption of technology-rich blended learning [Doctoral dissertation, University of Kansas]. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.821.59&rep=rep1&type=pdf>
- National Education Association (2013). NEA policy statement on digital learning. <http://www.nea.org/home/55434.htm>
- Nilson, L. B. (2007). The graphic syllabus and the outcomes map: Communicating your course. San Francisco: Jossey-Bass.
- Riel, M. (2019). Understanding collaborative action research. Center for Collaborative Action Research, Pepperdine University. <http://cadres.pepperdine.edu/ccar/define.html>
- Sagor, R. (2000). Guiding school improvement with action research. Alexandria, VA: Association for Supervision and Curriculum Development.
- Salas, A. (2014). Examining faculty perceived usefulness about the power of Voice Thread in classroom dynamics [Doctoral dissertation, Walden University]. <http://search.proquest.com/pqdtglobal/docview/1554689744/abstract/1ED1131817EF4CF4PQ/1>
- Sauer, K. M., & Calimeris, L. (2015). The syllabus evolved: Extended graphic syllabi for economics courses. *Journal of Economics and Economic Education Research* 16,(1), 135-148. <https://doi.org/10.2139/ssrn.2120151>
- Schaeffer, S. J. (2010). An exploration of the influence of instructional technologies on faculty motivation and teaching innovation on a research campus [Doctoral dissertation, The University of Memphis]. <http://search.proquest.com/pqdtglobal/docview/756392716/abstract/C3E08C09DC04EEAPQ/1>
- Schaffhauser, D. & Kelly, R. (2016, September 21). Most faculty believe tech has positive impact on education. <https://campustechnology.com/articles/2016/09/21/81-percent-of-faculty-believe-tech-has-positive-impact-on-education.aspx>
- University of Central Florida Faculty Center for Teaching and Learning. (n.d.). Teaching online: Deciding which course tools to use. Retrieved May 1, 2019, from <http://www.fctl.ucf.edu/TeachingAndLearningResources/LearningEnvironments/TeachingOnline/tools.php>.
- University of Iowa (2019). Accessibility 101. <https://uiowa.instructure.com/courses/40>
- University of Washington Center for Teaching and Learning. (n.d.). Teaching with technology. <http://www.washington.edu/teaching/teaching-resources/engaging-students-in-learning/teaching-with-technology-2/>
- Weimer, M. (2018, March 6). Cell phone policies: A review of where faculty stand. *Faculty Focus*. <https://www.facultyfocus.com/articles/effective-classroom-management/cell-phone-policies-review-faculty-stand/>
- Wiggins, G., & McTighe, J. (2005). Understanding by design. Alexandria: Association for Supervision & Curriculum Development.
- Zapf, J., & Garcia, A. (2011). The influence of tech-savviness and clicker use on student learning. *International Journal for the Scholarship of Teaching and Learning*, 5(1). <https://doi.org/10.20429/ijsotl.2011.050112>



## ESSAYS

# Using OER to Promote Inclusion in Higher Education Institutions

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### Abstract

Open educational resources (OER) are gaining in popularity in many higher education institutions, due in part to their contribution to creating more affordable course materials. However, OER's benefits extend beyond just affordability, and can be used to enhance inclusion in North American classrooms. This article discusses how OER can be used to further efforts in creating more inclusive learning environments by encouraging faculty to adopt reusable and repurposable course materials. Additionally, we discuss how incorporating OER using an inclusive pedagogical framework can not only foster the development of students' sense of agency, but also provide opportunities for them to contribute new knowledge and digital scholarship in a variety of disciplines.

### Keywords:

OER, inclusion, open pedagogy, inclusive pedagogy, affordability, students as producers

### OER to Promote Inclusion in Higher Education Institutions

Inclusion in higher education encompasses a purposeful fostering of efforts to include students with disabilities, and students of different race, ethnic, and gender identities. Instructors who use inclusive pedagogy persistently develop ways to seamlessly involve and engage students from multiple identity groups (Milem et al., 2005; Salazar et al., 2010). Through inclusion efforts, students have increased access to course materials, additional opportunities for participation, and empowerment (Gidley et al., 2010). The use of open educational resources (OER) increases access to course materials and also incorporates diverse voices and perspectives into learning environments. Using the Inclusive Pedagogy Framework (Center for the Integration of Research, Teaching and Learning, 2017) that was built from the work of Salazar et al. (2010) and the Universal Design for Instruction (Scott et al., 2003), we align inclusive pedagogical methods with teaching opportunities created by using OER. For this paper, we focus on inclusion of students in a western, primarily North American context. Despite opportunities for a global discussion of inclusive pedagogy when using OER, an international look at inclusion is beyond the scope of this article. For a more expanded view of using OER for inclusion outside of a western context, readers should consult Hodgkinson-Williams and Trotter (2018), which applies a social justice framework for adopting OER in the Global South. Their findings related to economic, cultural, and political dimensions are easily transferable to other educational environments and contexts and provide an additional view of OER for promoting inclusion in higher education (Hodgkinson-Williams & Trotter, 2018).



## OER for Inclusion *continued*

### Background

Society has begun to question the value of higher education; many, in fact, do not believe a post-secondary degree is worth the investment (CNBC, 2018; Mitchell & Belkin, 2017). Reasons such as cost, the student loan burden, and the changing job market all underlie this critique of higher education. However, many also tout the value of post-secondary studies; there is a widely held belief that education is something that cannot be taken away and will open doors to opportunities that may not have been previously available. Regardless, higher education instructors must find ways to provide opportunities for learning that are tangible and immediate, and that are inclusive of all learners. Students must see the importance of what they are doing in the classroom and be able to connect it to personal and professional goals. Additionally, post-secondary instructors must demonstrate the value they provide without losing the focus on learning.

OER are often discussed as a tool to cut costs for students—a worthy goal, but not the exclusive benefit of OER, and perhaps not even the most important benefit. The use of OER is an ideal way for instructors to create a more inclusive learning environment; one which underscores the significance of higher education learning opportunities by providing all students with opportunities to learn and grow with equitable access to information that represents diverse perspectives and voices. By updating their pedagogy through the use of OER, instructors can create additional learning opportunities that help students develop skills necessary for the workforce, lifelong learning, participation in society, and personal growth (DeRosa & Robison, 2015). Despite the benefits of OER, the challenge for many faculty members is knowing how to leverage the open resources to create inclusive learning environments that support all students. We argue that using an inclusive pedagogical framework when considering whether or not to adopt open materials for their courses will help instructors weigh considerations related to fostering inclusive learning environments, factoring in students' diverse perspectives and experiences, and creating multiple ways for students to more deeply engage with course materials.

Inclusive pedagogy asks instructors to more critically consider selection of course materials, which is where

OER and open content come into play. The concept of open pedagogy “uses OER as a jumping-off point for remaking our courses so that they become not just repositories for content, but platforms for learning, collaboration, and engagement with the world outside the classroom” (DeRosa & Robison, 2015, para. 12). Similarly,

open education is an attitude, a practice, and a method of teaching that inspires inquiry, equal access to course materials, and sharing lessons and materials with the wider community. At the center of open education is the belief that education is strengthened when shared openly. Open education relies on open educational resources (OER) and open licensing. (Community College Consortium, n.d., para. 1)

Open pedagogy and open education include a variety of suggestions and models for faculty to use so they can leverage OER to create an inclusive learning environment. The focus both on equal access and the sharing of learning resources provides framing for course set-up and delivery. However, open pedagogy and open education are much broader than the use of OER in courses. For the purposes of this paper, we focus on specific pedagogical methods that use OER to advance inclusion efforts, realizing these methods fit within the broader concept of open pedagogy and open education. Educators can choose to incorporate additional open pedagogy teaching methods or start with inclusive pedagogical changes that are created as a result of the use of OER.

### Overview of OER

According to the William and Flora Hewlett Foundation (2019), open educational resources are materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions. (para. 7)

Specific examples of OER include: textbooks, supplemental reading materials, videos, simulations, and full courses. OER differs from other freely available content online in how it can be used. Much of the content online is freely available, but copyright still limits what

## OER for Inclusion *continued*

an instructor can do with the information. Often, with digitally accessed copyrighted information, instructors can point their students to the specific content, but do not have the legal rights to use the information in other ways. Content that is published with an open license, however, is available with five specific usage rights that allow educators to go beyond showing and referencing the information. These usage rights include the ability to:

- Retain - make, own, and control a copy of the resource (e.g., download and keep your own copy)
- Reuse - use your original, revised, or remixed copy of the resource publicly (e.g., on a website, in a presentation, in a class)
- Revise - edit, adapt, and modify your copy of the resource (e.g., translate into another language)
- Remix - combine your original or revised copy of the resource with other existing material to create something new (e.g., make a mashup)
- Redistribute - share copies of your original, revised, or remixed copy of the resource with others (e.g., post a copy online or give one to a friend). (Wiley, n.d., para. 2)

These five usage rights are included in Creative Commons licensing. Creators use licenses from Creative Commons to let others know what they can do with the content, and what rights the creator wants to keep.

In totality, the five usage rights give instructors the ability to use content in the way that works best for their teaching and their students' learning, which is a cornerstone of inclusive pedagogy, particularly when instructors select resources that pedagogically meet the diverse needs of their students. However, for new learning opportunities to occur, educators must leverage the usage rights in their teaching methods. It is not enough to select resources that are open without providing clear ways for students to use the resources in new ways, including exploring and engaging with disciplinary content. Instructors promote inclusion by developing pedagogy that asks students to retain, reuse, revise, remix, and redistribute content both for their own learning and to improve the learning environment for others.

### **Incorporating OER with Inclusive Pedagogical**

### **Practices**

OER factors into inclusion initiatives on college campuses; inclusion, in particular, is an important component of OER in teaching and learning. An understanding of inclusivity as a pedagogical method is an important exercise in order to successfully pair the framework of inclusive pedagogy with the use of OER. Without foundational knowledge of pedagogical methods that are used to support inclusion, opportunities for further advancement with OER may be missed.

According to the Georgetown University Teaching Commons (n.d.), “inclusive pedagogy is a method of teaching in which instructors and classmates work together to create a supportive environment that gives each student equal access to learning” (para. 1). One of the biggest benefits of inclusive pedagogy is that students feel a sense of belonging (Keyek-Franssen, 2018). Research has shown that when instructors use inclusive pedagogy, they are supporting learners with unique needs, while also addressing the needs of all learners (Florian, 2015). This is an important consideration for OER: OER benefits all individuals even if the benefits are more pronounced for some. Florian (2015) identifies different pedagogical approaches for inclusion including differentiation of teaching methods without assigning students to a group that would impact learning outcomes and providing choice to students. When differentiation is used in an inclusive pedagogical environment, the individual needs of students are supported, but the focus is not on the deficits. Instead, instructors determine ways all students can participate in the same lessons and learning activities. Providing students with choices for how to complete assigned work is a differentiation strategy within an inclusive pedagogical environment. A key factor with choice is to carefully align the options so the learning outcomes are still met (Florian & Black-Hawkins, 2011). With OER, educators can provide more choices for how students consume and create content by utilizing a variety of usage rights.

Educators know students often demonstrate their knowledge through actions. In other words, students show their knowledge through creation. This includes listening, writing, demonstrating, and the many other action verbs associated with Bloom's taxonomy. Due to the usage rights encompassed in the 5 Rs, OER

## OER for Inclusion *continued*

simultaneously allows for instructors to teach and for students to demonstrate their knowledge in new ways. Specifically, students can show their knowledge by retaining, reusing, revising, remixing, and redistributing course content.

### **Inclusive Pedagogy Framework**

The Inclusive Pedagogy Framework from the Center for the Integration of Research, Teaching and Learning (2017) includes eight general skills instructors should practice in order to create inclusive learning environments. These skills are (a) intrapersonal awareness; (b) interpersonal skills; (c) fostering an inclusive learning environment; (d) creating a welcoming, respectful environment; (e) communicating clear course expectations; (f) offering multiple ways for students to demonstrate their knowledge; (g) using teaching methods that consider diverse learning, abilities, previous experiences and background knowledge; and (h) curricular transformation. The Framework includes strategies and specific practices for inclusive pedagogy related to these skill areas. Throughout this paper, we focus first on use of OER in higher education classrooms, before aligning the five OER usage rights with the eight general inclusive pedagogy skills found in the Framework (see Table 1).

### **Considerations of Using OER**

As mentioned previously, the value of OER should be seen as more than solely cost savings and instead as an opportunity for instructors to create learning environments that include all students and promote inclusive learning. Specifically, OER can empower students to learn more creatively, engage more deeply with content, and gain self-efficacy as they become knowledge creators. Specific examples of what this looks like in the higher education classroom are shared below.

### **Creating an Inclusive Learning Environment**

While the use of OER creates opportunity for improved access to course materials, additional considerations must be made to advance inclusion for students. To ensure an inclusive learning environment, educators must consider individual student contexts. When using OER, it is important to ensure students

have access to necessary technologies, because to use many OER, students must often have access to the internet. Granted, not all OER is digital, but in many instances, it is. For digital OER, at times, students need access to specific hardware and software. Without this access, the use of OER may block, instead of increase, learning opportunities (Appaji, 2018). Therefore, instructors must be aware of technology access issues in their classrooms and consider if there are hardware and software limitations of the resources they are selecting. With that in mind, it is recommended to select OER that works across platforms, in different browsers, and that suit a variety of learning preferences. Alternatively, instructors can seek to select a non-digital OER (e.g. OER textbook, workbook, or lab notebook) to mitigate concerns about technology access.

When the appropriate needs are considered, with the use of OER, students have access to resources at the beginning of a course. First day (or prior) access gives all students the same opportunities to be successful in a particular course while *fostering an inclusive learning environment* and *creating a welcoming, respectful environment*, two of the skills (see Table 1) identified in the Inclusive Pedagogy Framework (Center for the Integration of Research, Teaching and Learning, 2017). Instead of some students having to wait for a textbook to arrive from a third party source (which might be the most cost effective option), or worse - not having access to a textbook at all - every student can access the resources without any delay. Additionally, with OER, all students in the class have access to the same version and format of the course material. This is an immediate benefit for students who study in groups, follow along during lecture, and whose professors ask them to study content on specific pages.

### **Fostering Inclusion in (and out of) the Classroom**

Using resources that are open is more inclusive of all learners, not solely those who cannot afford traditional textbooks. With issues related to food and housing insecurity that are prevalent on college campuses, focusing on the monetary savings of OER makes sense, and is, in fact, a very positive outcome from the use of OER. While the affordability aspect is important, it is worth noting again that using open resources is also inclusive of students in ways that are not easily

## OER for Inclusion *continued*

quantifiable. No matter students' financial background, OER creates a more inclusive environment by:

- Creating learning environments that are flexible to students' needs;
- Allowing content to be updated to meet accessibility guidelines;
- Giving instructors the opportunity to include traditionally underrepresented voices and diverse perspectives in course material (Thomas, 2018);
- Providing new opportunities for students to demonstrate their knowledge and skills;
- Demonstrating students' digital literacy skills;
- Giving students the opportunity to retain course material to build on in future courses;
- Allowing students to create course material; and
- Showing students the impact of open content when it is created and shared.

The use of OER as a method for exposing students to a wide array of contexts and scholarly perspectives is worth calling out because it is such a crucial component of inclusive pedagogy. Thomas (2018) notes that OER allows for inclusion of voices not traditionally represented in the classroom. This is echoed by the founders of OER textbook provider OpenStax, who stress a commitment to inclusion:

Our mission as an OER provider is to make education attainable for any and every person, so we must ensure that all students can see themselves in our materials, and avoid misrepresentation. The instructors who adopt our resources and the people who advocate for the use of OER are working to provide their students with a fair chance at reaching their educational goals. (Palmiotto & Swift, 2019, para. 4)

Instructors can incorporate the voices of groups that have been marginalized or are not dominant in course material through strategic selection of textbooks and other supplementary materials. They can also include content from different regions of the world in order to promote a breadth of content knowledge, which can be particularly impactful and memorable for students in western classrooms. Selecting diverse OER

also promotes inclusion in the classroom; students can see themselves represented in content selected by the instructor. This also provides the opportunity for students to add their own unique voices to the resources, which will be discussed below.

All members of the learning community benefit when resources are freely and readily available. While the benefits of OER are greater for some student groups than others, instructors should be aware that OER is not limited in its support of student inclusion. Instead, the pedagogical methods that instructors can employ through the use of OER is inclusive of all learners.

### Making Room for Student Voices

The use of OER is a way to prepare students for engaging in a digital world; but as stated earlier, inclusive pedagogy offers many opportunities for engaging students in conversations and course activities. The Inclusive Pedagogy Framework identifies *interpersonal skills*, *intrapersonal awareness*, and *offering multiple ways for students to demonstrate their knowledge* as important pedagogical skills for classroom inclusion (Center for the Integration of Research, Teaching and Learning, 2017); these skills can foster student agency. As Jhangiani and DeRosa (2017) reflect,

If a central gift that OER brings to students is that it makes college more affordable, one of the central gifts that it brings to faculty is that of agency, and how this can help us rethink our pedagogies in ways that center on access. (para. 3)

This agency can, and should, be shared by students. Instructors who choose to use OER for classroom materials can take this shared sense of agency one step further by designing course experiences that allow students to partake in the creation of new knowledge. This could mean participating in the creation of an open textbook, collectively annotating existing scholarship, or contributing to Wikipedia entries that align with course material (see Table 1 for more examples of participatory learning experiences, as well as specific examples in the next section). By providing these opportunities to create new knowledge, faculty are also fostering students' development of new digital skills, encouraging them to engage more deeply with



## OER for Inclusion *continued*

disciplinary content, and helping students gain self-efficacy.

The Open Pedagogy Notebook (2020) houses many ideas for educators who are looking to incorporate OER in their classes. For example, Cheney (2019) encourages his students to make their work public. In his Interdisciplinary Studies course, this typically means sharing the work on the internet either with their name associated with it or anonymously. Miceli (2020) encourages students in her non-major science course to deploy agency in the learning process by voting on topics that will be covered in the course. Specifically,

The goal of this project was to give students agency in their own learning – being able to choose topics they are interested in learning about and having the opportunity to bring in content from their own majors – while creating content that would be at the appropriate level for other nonscience students to learn from. (Miceli, 2020, para. 4)

### **Inclusive Pedagogy Learning Activities with OER**

In the spirit of inclusive pedagogy, instructors can include learning activities that explicitly allow students to engage with course content while contributing to new knowledge in their discipline. Activities such as co-authoring an open textbook or annotating works on the web using tools such as Hypothes.is (a common occurrence on sites such as the Open Pedagogy Notebook [2002]) allow students to build digital skills, engage in the practice of open scholarship, share their unique perspectives, and engage more deeply with disciplinary content. Other examples of inclusive pedagogical practices that correspond well with the use of OER include combining various media, creating study guides for peer use (“OER-enabled pedagogy,” n.d.) and analyzing course materials to ensure inclusion of marginalized voices. The following section explores how OER in particular can help faculty build pedagogical opportunities for students to develop a sense of agency while exploring issues related to inclusivity.

### **OER and the Inclusive Pedagogy Framework**

The Inclusive Pedagogy Framework (from the Center for the Integration of Research at the Wisconsin Center for Education Research in the School of Education at the University of Wisconsin-Madison) includes three categories: Inclusive Communication, Inclusive Instructional Practices, and Designing Inclusive Curriculum (Center for the Integration of Research, Teaching and Learning, 2017). Each category includes skills, strategies, and specific practices educators can use. These categories are organized from general skills to specific practices for inclusive teaching.

As previously discussed, OER is defined by five usage rights. These five rights specifically align with inclusive pedagogy that can be used in higher education. OER-enabled pedagogy is best described as “the set of teaching and learning practices that are only possible or practical in the context of the 5R permissions which are characteristic of OER” which provides the benefit of allowing students to more freely and deeply engage with course materials and activities (Wiley & Hilton, 2018, p. 135). This feat is easier to accomplish with OER, rather than traditionally copyrighted resources (Wiley & Hilton, 2018). Below, we describe inclusive teaching strategies that align with the 5 Rs. Table 1 shows how the skills found in the Inclusive Pedagogy Framework align with the 5 Rs of OER and their specific practices.

OER for Inclusion *continued***Table 1:** 5 Rs Crosswalked with the Inclusive Pedagogy Framework

<b>5 Rs</b>	<b>Inclusive Pedagogy Framework Skill</b>	<b>OER Teaching Strategy</b>
<b>Retain</b>	Intrapersonal awareness	Instructors can share how their teaching has changed (e.g. engage students in revision of course syllabi)
	Interpersonal skills	Students can keep work created by other students with permission to use for study (e.g. creation of open study aids or test banks)
	Using teaching methods that consider diverse learning abilities, previous experience and background knowledge	Course materials can be kept for students to recall past learning opportunities (e.g. have students annotate syllabus and assignment instructions to guide future learners)
<b>Reuse</b>	Intrapersonal awareness	Students reflect on their own work (e.g. students commenting on & contributing to an open journal)
<b>Revise</b>	Fostering an inclusive learning environment	Update welcome material (e.g. use inclusive language in syllabus and/or provide course materials in multiple languages)
	Creating a welcoming, respectful environment	Update content to meet students where they are (e.g. surveying students for their learning preferences and adapting course materials to address them)
	Communicating clear course expectations	Course material can be revised mid-way through a course in order to accommodate students' needs based on their feedback  Add commentary to course syllabus
	Using teaching methods that consider diverse learning abilities, previous experience and background knowledge	Allow students to use their own voice in course material (e.g. having students collaborate to annotate course materials or contribute to an open text)
	Curricular transformation	Include various perspectives and voices in course content  Ensure material is up-to-date, addressing any issues or gaps related to diversity and inclusion
<b>Remix</b>	Interpersonal skills	Students can build study guides in groups
	Fostering an inclusive learning environment	Connect students with each other and a wider community (e.g. students contribute to a public blog or social media account, or engage in open scholarship initiatives such as citizen science research)
	Creating a welcoming, respectful environment	Create content that actively welcomes students and invites them into the course
	Offering multiple ways for students to demonstrate their knowledge	Students can build off existing content (e.g. contributing to open texts)  Students can add video and audio to existing works (e.g. asking students to reimagine and remake course materials or readings from diverse points of view)
	Using teaching methods that consider diverse learning abilities, previous experience and background knowledge	Increase assignment longevity (e.g. scaffold assignments by having students create content in one course that is used in future courses)
	Curricular transformation	Instructors can add their own commentary (e.g. create shared syllabi and/or interdisciplinary open textbooks to provide diverse perspectives)  Add material from marginalized groups (e.g. have students edit Wikipedia entries to incorporate diverse voices)
<b>Redistribute</b>	Interpersonal skills	Instructors can share their course materials with new faculty, teaching assistants, and adjuncts



## OER for Inclusion *continued*

### Retain

First, students and teachers have the right to retain OER content. Pedagogically, this means they can use the content year to year without needing to worry about copyright infringement. Additionally, the ability to retain content allows instructors to use resources without worry of it being removed online. In the digital world, content is frequently moved, deleted, or revised. For curricular reasons, educators may want to use a specific version of a resource. With this usage right, instructors can also house content in locations that are most easily accessible for their students. Too often, online courses are a list of links to content outside the learning management system. With OER, faculty can place content within the learning management system and keep students moving through the coursework without jumping to myriad different webpages.

This principle has additional benefits for learners. Extending access to course materials beyond an individual semester increases student agency and the likelihood that they will continue their studies in that topic area/discipline. Inclusive access to materials (including, but not limited to digital textbooks) is an important component to creating a more open and equitable learning environment, particularly for students that are studying new areas of content.

### Reuse

Second, students and teachers have the right to reuse OER content. Teachers can use OER in multiple class sessions, they can encourage students to use the resources for review, and they can make the resources available to students in future courses to help ensure students are successful on comprehensive exams. The ability to reuse OER content is particularly important for inclusion of all students. As all educators know, students get sick, family emergencies occur, and faculty must cancel class for illness. The right to reuse OER content in a different setting means students who must miss class are free to view the resources without infringing on copyright. As mentioned above, placing OER in the learning management system helps to keep students engaged in course materials in a more thoughtful way. White and Manton (2011) found that students tended to feel more trusting of reused content that was well curated. This trust also extends to faculty, as well:

those who were actively engaged in a professional community, online or face-to-face, whether based around subject, institution or otherwise, were very likely to reuse. The key factor here is the trust placed in resources recommended or produced by colleagues within these communities and the existence of a network which disseminates relevant resources. It may also be the case that those with a social model of knowledge are more likely to engage with communities of this type and are more likely to be comfortable with sharing and reusing resources. (White & Manton, 2011, p. 11)

Hockings et al. (2012) note that when students have access to reusable OER content, this increases their agency and thus makes the classroom a more inclusive space. It also allows learners to “harness their knowledge and experience and encourage them to reflect on, evaluate, and question their own and others’ beliefs and practice” (p. 240). This reflective work can result in students engaging with course content beyond their usual or “go to” perspective and/or background, which enhances equity in the classroom.

Faculty at Montgomery College worked together to create reusable OER content using the United Nations Sustainable Development Goals (Hernandez, 2018); each assignment focused specifically on one of the Sustainable Development Goals. To complete the assignments, students were placed in groups to work on a service-learning project that addressed the identified goal. This project allowed students to become change agents in their communities (Hernandez, 2018), while producing materials that could be used in other learning environments.

### Revise

Third, students and teachers have the right to revise OER content. Instructors can start with content created by another educator and modify it to fit the learning outcomes of their course. With this usage right, instructors can meet students where they are. Instead of assuming all students start at the same point with a topic, the teacher can conduct a pre-assessment to determine class knowledge. Based on the results of the pre-assessment, instructors can revise the OER content to ensure it does not repeat known information, or that it does not start

## OER for Inclusion *continued*

beyond students' current level of understanding. In other words, the educator can start with a created piece of work which can save them time, and then modify the work to meet students where they are.

Engaging with open content through revision is also a way to allow students to take the lead in creating content that they connect with. Rigling and Cross (2019) encourage faculty to incorporate student voices as a “unique perspective that can be a powerful force for change” (p. 208) particularly in regard to open advocacy:

we need to add our students' voices to the national conversation. This is particularly true since students benefit so much from hearing from their peers on issues of openness. Trumpeting their success can be an inspiration for students at other campuses. (Rigling & Cross, 2019, p. 209)

With the usage right of revise, faculty can also ensure course material is up-to-date. Course content is not reliant on a publisher for updates, but instead can be revised immediately as new knowledge is discovered, new voices speak into an issue, and new resources are developed of which students need to be aware. It also allows students to participate in knowledge production; as Goode (2018) notes, “To utilize open texts is to invite students into the challenging and often thorny *process* of knowledge-production—a process that continues long after the semester is over” (para. 3). Ward (2018) worked with her students to expand an existing open textbook focusing on Spanish literature. Over a 10-week period, students researched, edited, reviewed, and presented their updates, commenting on why and how their revisions advanced the original content. In this example, revising an existing work allowed students to dig deeper into a field, while also providing them with an opportunity to contribute new knowledge. Incorporating students' diverse backgrounds and experiences is a crucial component of the Inclusive Pedagogy Framework (Center for the Integration of Research, Teaching and Learning, 2017).

### Remix

Fourth, students and teachers have the right to remix OER content. Instructors can add their own commentary to OER textbooks, videos, and supplemental material.

For example, Open Author from OER Commons allows instructors to remix content in open textbooks by moving text, adding video and audio content, and adding new information or examples (Katz, 2019). The ability to remix OER content allows instructors to tailor material to specific learning objectives, in addition to allowing instructors to provide additional resources/content for students who may struggle with a particular aspect of a topic. Additionally, the ability to remix content provides a mechanism for instructors to include material from perspectives not already represented in the course material. By remixing OER, instructors can seamlessly give voice to diversity in course materials without it being obvious to the students that the content did not exist in the original resource. It is beneficial for students to see themselves represented in course material, because it helps them connect to the material, as well as provides a more accurate representation. When students know other people similar to themselves have participated in the course topic, they are more likely to feel included. This usage right provides opportunities for faculty to create a more equitable learning experience by tailoring content to the learning needs and backgrounds of individual students and classes.

When students are allowed to remix content, course assignments also increase in their longevity. In combination with the usage right of revise, students can update and rework their copies of course materials so that it remains current with what they have learned. Resources can be used in one class or span an entire program. One innovative way for students to remix content is by creating zines, which provides a lower barrier, often non-digital way for students to contribute new knowledge, while providing opportunities to collaborate on this knowledge creation alongside their instructors (Mannix, 2020a; Mannix, 2020b). Mannix (2020b) explores the use of zines as OER in the classroom, reflecting on the potential applications: “a zine could be an assignment for students with specific elements needed (references, research), it could be a collaborative exercise in a class to engage students in a topic, or it could be used as a teaching resource” (para. 9). In a rather meta example, Mannix (2020a) provides a zine guide for instructors wanting to experiment with using zines in higher education; this type of project fits well with the other OER Rs in that it promotes retention, reuse, and redistribution of curricular materials.

## OER for Inclusion *continued*

Bakaitis (2019) notes that having students create zines makes room for the “radical idea of recognizing students as knowledge creators, and encouraging a more participatory stake in the educational process” (para. 2) while simultaneously allowing participation from outside of the classroom. Zines are particularly impactful for promoting inclusivity that crosses disciplines and spans formats: “there’s a strong overlap between the representation of queer, or otherwise marginalized authors, and [zines are a] very welcoming, open format” (Bakaitis, 2019, para. 3). This perspective also dovetails seamlessly with the Inclusive Pedagogy Framework skills of *creating a welcoming, respectful environment* and *intrapersonal awareness*. Creating a respectful and welcoming environment is of particular significance here; zines provide a platform for students to remix existing content into something new and unique. As noted earlier, giving students a voice is crucial for creating an inclusive learning environment. Mannix (2020a) and Bakaitis (2019) emphasize the collaborative nature of zines, and how they can be used to open lines of communication in the classroom: “the joy in creating zines tends to elicit more meaningful content than in a typical written response; though variable, this can be a fun experience that flattens the boundaries of student/teacher, and knowledge/experience” (Bakaitis, 2019, para. 7).

OER content is not limited in its availability and faculty can ask students to use and build on existing work. In fact, if mapped throughout the curriculum, faculty can have students start using OER resources in their first course and present a final revised and remixed product at the end of their program to demonstrate their learning.

Worth noting, however, is that the “remix” practice of using OER can also present barriers, particularly when it comes to language. Amiel (2013) notes that:

we have come to realize that OER can potentially sustain divides, such as the division between those who traditionally create and those who consume educational resources. Without due attention we face a neo-colonization and one-way flow of content based on the massive amount of content published by those in richer nations. In effect, we cannot expect that the expansion of infrastructures will automatically promote more

equitable exchanges in educational content if we do not build systems and capacity so that minority and marginalized groups can effectively contribute. (p. 126)

These challenges should not be viewed as a reason to avoid use of OER; rather, these are important conversations that faculty can have in the classroom. Addressing and overcoming issues related to equity in content creation is an important reason to incorporate the creation of open content in higher education.

### Redistribute

Fifth, students and teachers have the right to redistribute OER content. Teachers can share links with adjunct instructors, TA’s, or other colleagues who wish to build off the work. This collaborative philosophy frequently occurs in the field of library and information science, where librarians create content and share it with other faculty to use in their courses. Additionally, toolkits such as Project CORA, the Association of College and Research Libraries Framework for Information Literacy Sandbox, and the New Literacies Alliance are sites where librarians and faculty share open assignments, tutorials, and class activities.

A key component of this usage right is the ability to share remixes and modifications of an original work. Those remixes can then be further modified by instructors who wish to make the content into a targeted resource for their students. Works can continue to be distributed and modified to meet the needs of students over time. The ability to redistribute content aids instructors who are new to teaching and thus new to creating course materials. Additionally, this usage right promotes equity by allowing instructors to share content with other instructors who are unfamiliar with teaching at the undergraduate or graduate level, or who are unfamiliar with teaching in a specific context (e.g. two-year college, liberal arts institution, research institution).

In addition to the disciplinary, program-level, and trans-institutional benefits of redistributing course materials, this usage right also works well for instructors wanting to experiment with open pedagogy. One tool that provides this opportunity is Wikipedia. The Wiki Education Foundation touts many pedagogical benefits of using the tool in the classroom, noting that

## OER for Inclusion *continued*

having students write Wikipedia articles empowers them “to share knowledge with the world” while at the same time providing students with the opportunity to research “course-related topics that are missing or underrepresented, synthesize the available literature, and use our free tools and trainings to add the information to Wikipedia” (“Teach with Wikipedia,” n.d.). Wikipedia Edit-a-Thons—community events with the shared goal of improving and updating Wikipedia entries—are often focused on themes that increase students’ exposure to diversity topics, such as women in science, art and feminism, and undiscovered African American or Latinx scholars. In addition to raising awareness of these topics, an added benefit is diversifying the voices of those editing Wikipedia. One of the authors of this article has organized Wikipedia Edit-a-thons as a way to redistribute content to further social justice (Mallon, 2017). Students, faculty, and the local community came together for an Art+Feminism edit-a-thon designed with simultaneous goals of correcting Wikipedia’s well-known gender imbalance and adding high-quality work to articles about women artists. In addition to creating new entries, participants were encouraged to strengthen existing entries in an effort to preserve and boost the stories of women artists. Redistribution of information, as a form of activism, is an important goal to advance inclusivity with OER.

The Wiki Education Foundation has a number of resources that make designing these projects easier, and all of their resources are fully open and ready to redistribute. Incorporating Wikipedia provides a unique method for faculty to incorporate open and inclusive pedagogy, as well as providing students with the opportunity to contribute to new knowledge, which will be explored more closely in the next section. Specifically, faculty in any discipline can have their students write a new Wikipedia article or expand an existing one. This is the most common assignment using Wikipedia (“Teach with Wikipedia,” n.d.). Another example that fits well within the fields of journalism and art is to have students create new media and upload it to Wikimedia Commons (“Teach with Wikipedia,” n.d.).

### Students as Producers of Digital Content

Post-secondary educators can use OER to position students to be producers of content and not solely

consumers, thus moving students from digital literacy, the ability to understand digital content, to digital fluency, the ability to create digital content (Sparrow, 2018). Digital fluency “is the ability to leverage technology to create new knowledge, new challenges, and new problems and to complement these with critical thinking, complex problem solving, and social intelligence to solve the new challenges” (Sparrow, 2018, para. 2). Inclusive pedagogy relies on digital fluency in the areas of *intrapersonal awareness*, *interpersonal skills*, and in *providing new ways for students to demonstrate their knowledge*. The key to moving students to digital fluency with OER, and thus to creating a more inclusive learning environment, is to have students use OER in an active way. Instead of having students read or watch content created in an open environment, students need to know they can also retain, reuse, revise, remix, and redistribute the resources. This means creating activities that ask students to work directly with the open educational resources to add their own knowledge, as in the Wikipedia and zine examples above (Bakaitis, 2019; Mallon, 2017; Mannix, 2020a; “Teach with Wikipedia,” n.d.), rework it for their own learning, or modify the content for the purposes of teaching someone else, such as in networked learning.

Keeping in mind the importance of offering multiple ways for students to demonstrate their knowledge for inclusion, there are various ways students can learn the skills necessary to become producers of digital content and many ways digital fluency skills can manifest in discipline-specific classrooms. For example, in a history course, students can work with an OER timeline and create additional dates and events that align with topics they are learning in the course. In a literature course, students can work with an OER version of a text and remix it by adding their own commentary. Students can then redistribute the text by sharing with the rest of the class or students at other institutions. This is also an opportunity for instructors to encourage peer review and peer teaching. With the remix and redistribution of the text, students can provide feedback to each other on how to improve their work. When revisions are made, students then share their work with their classmates and engage in new discussions about the text. This method is easily transferable to different disciplinary contexts; for example, in a public speaking course, students can work with a recorded speech that allows for remixing



## OER for Inclusion *continued*

and rework it for a new audience, while also working to incorporate diverse and/or marginalized voices.

Encouraging students to participate in the creation of new content, and participate in curricular transformation for inclusion, has the added benefit of fostering students' development of digital and network literacies. It also requires students to think about how they share their work and how they intend for others to engage with it. According to Paskevicius and Irvine (2019):

If the intention is to have learners share their work openly, the process by which they create needs to be done in an explicitly open way. Learners may need to change their workflows and practices for engaging with digital media to contribute resources appropriately. (p. 6)

This modification of workflow or processes, which may indeed be different from students' personal lives, results in the development of crucial skills related to critical thinking and engagement in the digital world. When students are able to actively participate in the 5 Rs of OER licensing, they can more fully engage with information creation in a way that positively impacts the scholarly conversation in their chosen discipline, as well as the open information environment.

### Next Steps for OER as Inclusive Pedagogy

Without the unique usage rights of open educational resources, the ability to use content to advance issues of inclusion would be limited. Rather, OER possesses the necessary rights for instructors to leverage resources in ways that create learning opportunities for all. This is particularly important when considering that affordability of course materials is an issue for all students, no matter their demographics. Faculty not only have a responsibility to equitably educate their students, but also to make sure that this education is inclusive of learning differences and student viewpoints, as well as accessible by students from all socioeconomic, racial, gender, and educational backgrounds and experiences.

So how can instructors take the open movement a step further? In addition to incorporating use of OER within their courses, instructors also have a unique opportunity to advance inclusive learning by embracing

the principles of open pedagogy. As Jhangiani and DeRosa (2017) note,

Open Pedagogy invites us to focus on how we can increase access to higher education and how we can increase access to knowledge – both its reception and its creation. This is, fundamentally, about the dream of a public learning commons, where learners are empowered to shape the world as they encounter it. With the open license at the heart of our work, we care both about 'free' and about 'freedom,' about resources and practices, about access and about accessibility, about content and about contribution. (para. 7)

Using OER is one step toward the use of open pedagogical methods that further inclusivity in higher education.

### Conclusion

The use of OER by educators promotes an inclusive learning environment, particularly when the focus is on pedagogical changes. The usage rights of OER material, blended with the skill areas in the Inclusive Pedagogy Framework, allow instructors to be more creative, engage students in new learning opportunities, and tailor content to meet the needs of current students. Additionally, the use of OER by instructors can allow students to move from being consumers of digital content to contributors to and producers of digital content when OER is incorporated into the class as an active learning object. This allows for students to advance scholarship by contributing their unique and diverse voices.

The use of OER also promotes inclusion through the allowance of student involvement with course material in new ways. Students can take course material and retain, reuse, revise, remix, and redistribute content in ways that fit their learning preferences, and both contribute to future learning by their peers while simultaneously fostering a more inclusive learning environment. Higher education instructors should encourage student involvement with their course content, asking students to be active participants in its use rather than passive consumers. Open educational resources unlock many new possibilities for innovative teaching methods that support inclusive learning environments.

OER for Inclusion *continued*

## References

- Amiel, T. (2013). Identifying barriers to the remix of translated open educational resources. *The International Review of Research in Open and Distributed Learning*, 14(1), 126-144.
- Appaji, P. (2018). *Can OER be more inclusive and equitable?* <https://creativecommonsusa.org/index.php/2018/04/04/can-oer-be-more-inclusive-and-equitable/>
- Bakaitis, E. (2019, Aug 4). Zines as open pedagogy. *Open Pedagogy Notebook*. <http://openpedagogy.org/assignment/zines-as-open-pedagogy/>
- Center for the Integration of Research, Teaching and Learning. (2017). *Inclusive pedagogy framework*. <https://cirtlincludes.net/wp-content/uploads/2018/03/Inclusive-Pedagogy-Framework.pdf>
- CNBC. (2018). *All-America economic survey*. <https://www.cnbc.com/video/2018/06/26/survey-44-percent-say-4-year-degree-not-worth-the-cost.html>
- Cheney, M. (2019). How public? Why public? *Open Pedagogy Notebook*. <http://openpedagogy.org/course-level/how-public-why-public/>
- Community College Consortium for Open Educational Resources. (n.d.). *Why open education?* <https://www.cccoer.org/learn/>
- DeRosa, R., & Robison, S. (2015). Pedagogy, technology, and the example of open educational resources. *Educause*. <https://er.educause.edu/articles/2015/11/pedagogy-technology-and-the-example-of-open-educational-resources>
- Florian, L. (2015). Inclusive pedagogy: A transformative approach to individual differences but can it help reduce educational inequalities. *Scottish Educational Review*, 47(1), 5-14.
- Florian, L., & Black-Hawkins, K. (2011). Exploring inclusive pedagogy. *British Educational Research Journal*, 37(5), 813-828.
- Georgetown University Teaching Commons. (n.d.). *Inclusive pedagogy*. <https://commons.georgetown.edu/teaching/design/inclusive-pedagogy/>
- Gidley, J. M., Hampson, G. P., Wheeler, L., & Bered-Samuel, E. (2010). From access to success: An integrated approach to quality higher education informed by social inclusion theory and practice. *Higher Education Policy*, 23(1), 123-147.
- Goode, A.L. (2018, Sept 16). Against 'product-based learning': Open texts are never finished. *Open Pedagogy Notebook*. <http://openpedagogy.org/course-level/against-product-based-learning-open-texts-are-never-finished/>
- Hernandez, S. H. (2018). United Nations Sustainable Development Goals open pedagogy assignment. *Open Pedagogy Notebook*. <http://openpedagogy.org/assignment/united-nations-sustainable-development-goals-open-pedagogy-assignments/>
- Hockings, C., Brett, P., & Terentjevs, M. (2012). Making a difference - Inclusive learning and teaching in higher education through open educational resources. *Distance Education*, 33(2), 237-252.
- Hodgkinson-Williams, C. A., & Trotter, H. (2018). A social justice framework for understanding Open Educational Resources and practices in the Global South. *Journal of Learning for Development*, 5(3). <https://jl4d.org/index.php/ejl4d/article/view/312>
- Jhangiani, R. & DeRosa, R. (2017, Jun 2). Open pedagogy and social justice. *Digital Pedagogy Lab*. <http://www.digitalpedagogylab.com/open-pedagogy-social-justice/>
- Katz, K. (2019). *Creating a remix on OER Commons*. <https://www.oercommons.org/authoring/4460-creating-a-remix-on-oer-commons/view>
- Keyk-Franssen, D. (2018). 5 tips for supporting inclusive and open pedagogy. *EDUCAUSE*. <https://er.educause.edu/blogs/2018/11/5-tips-for-supporting-inclusive-and-open-pedagogies>
- Mallon, M. N. (2017). *The pivotal role of academic librarians in digital learning*. ABC-CLIO.



OER for Inclusion *continued*

- Mannix, S. (2020a). Zines as Open Educational Resources - The embodiment of open? *Medium*. <https://medium.com/@sarahmannix/zines-as-open-educational-resources-the-embodiment-of-open-d9da3b501344>
- Mannix, S. (2020b). *A guide to zines and higher education*. <http://documents.manchester.ac.uk/display.aspx?DocID=49275>
- Miceli, H. (2020). Non-major science students as content creators. *Open Pedagogy Notebook*. <http://openpedagogy.org/course-level/non-majors-science-students-as-content-creators/>
- Milem, J. E., Chang, M. J., & Antonio, A. L. (2005). *Making diversity work on campus: A research-based perspective*. Association of American Colleges and Universities.
- Mitchell, J., & Belkin, D. (2017). Americans losing faith in college degrees, poll finds. *The Wall Street Journal*. <https://www.wsj.com/articles/americans-losing-faith-in-college-degrees-poll-finds-1504776601>
- OER-enabled pedagogy. (n.d.). *Open Education Group*. <https://openedgroup.org/oer-enabled-pedagogy>
- Open Pedagogy Notebook. (2020). <http://openpedagogy.org/>
- Palmiotto, A., & Swift, S. (2019). Our commitment to diversity, equity, and inclusion in OpenStax textbooks. *OpenStax*. <https://openstax.org/blog/our-commitment-diversity-equity-and-inclusion-openstax-textbooks>
- Paskevicius, M., & Irvine V. (2019). Open education and learning design: Open pedagogy in praxis. *Journal of Interactive Media in Education*, 1, Article 10. <https://www-jime.open.ac.uk/article/10.5334/jime.512/>
- Rigling, L. & Cross, W. (2019). Getting to know you: How we turned community knowledge into open advocacy. In A. Wesolek, J. Lashley, & A. Langley (Eds.), *OER: A field guide for academic librarians*, (pp. 193-211). Pacific University Press.
- Salazar, M. D. C., Norton, A. S., & Tuit, F. A. (2010). 12: Weaving promising practices for inclusive excellence into the higher education classroom. *To Improve the Academy*, 28(1), 208-226.
- Scott, S. S., Mcguire, J. M., & Shaw, S. F. (2003). Universal design for instruction: A new paradigm for adult instruction in postsecondary education. *Remedial and Special Education*, 24(6), 369-379.
- Sparrow, J. (2018). Digital fluency: Preparing students to create big, bold problem. *Educause*. <https://er.educause.edu/articles/2018/3/digital-fluency-preparing-students-to-create-big-bold-problems>
- “Teach with Wikipedia.” (n.d.) Wiki Edu. <https://wikiedu.org/teach-with-wikipedia/>
- Thomas, C. (2018). OER and accessibility: Working toward inclusive learning. *SPARC*. <https://sparcopen.org/news/2018/oer-accessibility-working-toward-inclusive-learning/>
- Ward, J. (2018). Expand an open textbook. *Open Pedagogy Notebook*. <http://openpedagogy.org/assignment/expand-an-open-textbook/>
- Wiley, D. (n.d.). *Defining the “open” in open content and open educational resources*. <http://opencontent.org/definition/>
- Wiley, D., & Hilton, J. (2018). Defining OER-enabled pedagogy. *International Review of Research in Open and Distributed Learning*, 19(4), 133-147. <http://dx.doi.org/10.19173/irrodl.v18i4.3022>
- White, D., & Manton, M. (2011). *Open educational resources: The value of reuse in higher education*. JISC-funded OER Impact Study. University of Oxford.
- William and Flora Hewlett Foundation. (2019). *Open educational resources*. <https://hewlett.org/strategy/open-educational-resources/>

# PROGRAM REPORT

## The Virtual Mystery Web-tool: An online hybridized problem-based learning teaching tool created by students for students

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### Abstract

The Virtual Mystery web-tool is an online hybridized, problem-based learning teaching tool created by students in computer science and anthropology as a cost-effective way to engage students in large courses in collaborative small group problem-solving. The web-tool implements practical case scenarios in self-released, weekly, open-ended clues and images to create a series of student projects. The flexible interface allows students to move back and forth between clues, engage with facilitators, and see other group members' comments after posting their own. Links to external resources and independent research requirements encourage creativity and independent thinking. The Virtual Mystery web-tool received overwhelmingly positive student evaluations in an introductory course in biological anthropology and archaeology (N=78). The user-friendly nature of the web-tool is attributed to the student creators' understanding of student needs and capabilities in an online environment. The Virtual Mystery web-tool is currently being piloted in courses in humanities, social sciences, and sciences.

### Keywords:

problem-based learning, teaching tool, web-tool, online learning, technology, active learning

### The Virtual Mystery Web-tool: An online hybridized problem-based learning teaching tool created by students for students

Problem-based learning (PBL) is a well-established student-centered, active learning method that develops independent collaborative problem-solving abilities (Bate et al., 2014; Loyens, et al., 2015; Schmidt, 1983). It originated in medical schools to improve transferable critical thinking skills in applied clinical settings (Barrows, 1996, 1998; Barrows & Tamblyn, 1980; Dolmans & Schmidt, 1996; Schmidt, 1983; Wood, 2003). PBL is based on social constructivist theory, involving independent and collaborative problem-solving on a practical case scenario by small groups (typically 4-6 students) that create their own hypotheses around the problem, investigate possible methods for a solution, test their results, and produce a collaborative report of their project (Klegeris & Hurren, 2011; Murray

## Virtual Mystery Web-tool *continued*

& Summerlee, 2007). The principles of traditional PBL have produced a number of hybridized variations that are widely published across disciplines (see Albanese & Mitchell, 1993; Allen, et al., 2011; Hmelo-Silver, 2004; Savin-Baden, 2014; 2016; Schmidt, et al., 2011). More recently, PBL has been promoted in the social sciences in response to employer requests for graduates to have transferable skills where they can “think on their feet” with communication, collaboration, and problem-solving in practical scenarios (Bagarukayo, 2018; Fukuzawa et al., 2017; Klegeris & Hurren, 2011).

### **Online hybridized Problem-based Learning (PBL) in Large Classrooms**

Since PBL is based on the premise that student learning is a social construct, its success rests on the collaborative self-directed nature of the problem-solving process (Lo et al., 2011; Loyens et al., 2006). This means students must have an intrinsic motivation toward the open-ended case scenario for the PBL learning experience to be successful (Douglass & Morris, 2014; Fukuzawa et al., 2017; Fukuzawa & Cahn, 2019; Hung, 2011; Loyens et al., 2015). Intrinsic motivation is fostered through autonomy, so PBL courses have primarily involved small-group face to face collaborations with a facilitator to monitor student interactions within groups (Fukuzawa & Cahn, 2019). This makes PBL difficult to implement in a large classroom setting where the requirements for time, training, and instructor support prohibit PBL groups from being adequately monitored and mentored by a facilitator (Albanese & Mitchell, 1993; Fukuzawa, 2018; Loyens et al., 2015; Robinson et al., 2015). How can we engage students in large introductory courses in PBL projects without incurring any additional costs? This question was posed in a large introductory course in biological anthropology and archaeology (N=800 students). The solution was to run problem-based learning case studies from the discussion board option of the institutional learning management engine (i.e. Blackboard) so that one facilitator could monitor several PBL groups at the same time (see Fukuzawa & Boyd, 2016; Fukuzawa, 2018).

### **The Virtual Mystery Project**

The PBL case studies were called “virtual mysteries” to capture the attention of the students. Each week a large group of students (with N=50 students per group)

received a clue and an image that were related to a practical scenario. The students were asked to comment on the clue and image using the course materials (See the Appendix for an example of a virtual mystery scenario, weekly clues, and report prompt). Students saw their group members’ contributions after they commented. They used the information and discussion from each weekly clue to investigate subsequent clues, and eventually produced a collaborative solution to their problem.

The Virtual Mystery Project was successfully tested against a weekly passive learning option in 2015 (see Fukuzawa & Boyd, 2016). The initial iterations of the virtual mysteries had very high completion rates and the virtual mysteries were evaluated positively by the students. Students enjoyed the practical nature of the cases, which made them feel as though they were “learning to be anthropologists” (Fukuzawa & Boyd, 2016). However, students felt that the large group size led to a lot of repetition that hindered the collaborative process. The challenges with the Virtual Mystery Project arose primarily from the insufficient functionality of the learning management engines (Blackboard and Canvas) and the limited number of unique case scenarios. PBL groups needed to be manually uploaded and monitored on a weekly basis, since the learning management engine was not developed to have sequential and cumulative clues, comments, and images. Students could not go back and forth between weekly clues and had to take screen shots on their phones or computers to coalesce information from the successive weekly releases. Even with the positive student evaluations, the implementation of the virtual mysteries became unmanageable and cumbersome with the institutional learning management engine. It was clear that offering a greater variety of mysteries to groups smaller than 50 students would require an alternative platform.

### **The Virtual Mystery Custom Web-tool**

In 2018, a faculty member and three undergraduate students from the Department of Mathematical and Computational Sciences were recruited to collaborate with two graduate students and a supervisor in the Department of Anthropology on a solution for the challenges of the Virtual Mystery Project. The Virtual Mystery web-tool was developed to implement a

## Virtual Mystery Web-tool *continued*

large-scale, online hybridized problem-based learning experience by hosting weekly clues with images to small student groups (N = 4-6 students per group). Each virtual mystery is a unique open-ended practical case scenario (See Fukuzawa et al., 2017; Fukuzawa, 2018; Fukuzawa & Cohen, 2019). Students use prior knowledge and course material to comment on each weekly clue related to the practical scenario. After a student submits their comment, the web-tool allows them to see responses from other group members and participate in an online discussion with their group. Teaching assistants facilitate the process by grading submissions, providing private feedback to each student, and posting comments visible to the whole group within the web-tool (see example in the Appendix). After three clues, student groups produce a unique project to synthesize the information they gathered and simulates a real-world component of a career in anthropology, such as preparing museum displays, grant proposals, funding campaigns, posters, and pamphlets.

The Virtual Mystery web-tool goes beyond the capabilities of an online discussion board or assignment because it involves open-ended, practical problems that are scaffolded with teaching assistant facilitation and require active engagement with course material. External resources are provided via links within the clues and prompts guide student investigations with questions and key concepts to consider each week. The web-tool then allows students to build on and learn from their past answers, group members' responses, and facilitator comments by moving back and forth between the released clues and their group discussions as they progress through their investigation. To ensure equal participation, each student is responsible for independent research and comments before they have access to other group members' input and can participate in the ongoing discussion. Students can then use the group collaboration for the next clue. Group interaction with each clue in the web-tool promotes PBL's integrated approach of independent research within larger group reflection. The cumulative integration of group members' ideas as the clues move along support the collaborative PBL approach.

To make it easier to monitor group progress and ensure consistency in evaluation, facilitators can view images and group members' comments alongside an answer rubric

with each clue. Persistent, versioned storage, and generic clue templates make it easy to update and add to the virtual mysteries over time. The practical nature of the case scenarios intrinsically motivates student engagement by encouraging them to apply course material to professional case scenarios. In the introductory course in biological anthropology and archaeology, virtual mystery scenarios are centered on artifacts or specimens within the department teaching collections, giving students the opportunity to engage in face to face interactions with each other while they have hands-on access to their mystery object during the last week of the mystery. Biweekly traditional lectures scaffold the virtual mysteries with resources and foundational theoretical information. This blended approach allows students to directly engage with each other and the artifacts.

### **Student Evaluations of the Virtual Mystery Web-tool**

The Virtual Mystery web-tool was beta-tested in Fall 2018 in a third-year undergraduate archaeology course (N=35) and piloted in a larger introductory course in biological anthropology and archaeology during the summer session 2019 (N=78 students). Student evaluations of the Virtual Mystery web-tool were measured with pre- and post-course surveys. The participating students had a high pre-existing level of technological engagement, with 98% of students owning or having regular access to a smartphone or tablet and 90% reporting that they spent more time studying online than offline. The student evaluations of the web-tool were overwhelmingly positive. In fact, over 90% of the students found the custom web-tool easy in terms of login, navigation, and use as a learning tool (see Table 1 for a sample of student comments). In the introductory course in biological anthropology and archaeology, 92% of students agreed that the Virtual Mystery web-tool helped them understand what a professional anthropologist does; 88% found the web-tool to be user friendly; and 72% would like to see virtual mysteries in other courses. These results are particularly notable since 77% of the class had never taken an anthropology course before, 63% took the course as an elective, and students who planned to take future anthropology courses increased from 30% at the beginning of the course to 70% at the completion of the course.

Virtual Mystery Web-tool *continued*

**Table 1. Student comments on the post-course survey in the Introduction to Biological Anthropology and Archaeology (ANT101H) summer 2019 iteration**

<b>Q1. Do you feel the virtual mystery is a worthwhile course project? (N=44 responses)</b>	
<b>Examples of comments that represent common themes</b>	
"It gave us a deeper understanding of what we learned"	13
"It was fun"	7
"It was easy to do." "It was less stressful than projects in other courses"	5
"It makes work more interactive"	3
"It emulates what a real anthropologist does"	2
"It required us to research a given topic"	2
"It was an interesting way to maintain interest and give new assignments"	3

## Discussion

Virtual mysteries through the custom web-tool appear to be an effective component of high or increased student interest in both the assignment style and the subject matter covered in the mysteries. Student-centered learning increases student engagement in course material by intrinsically motivating students to think critically in order to create their own knowledge (Bachman & Bachman, 2011; Lumpkin et al., 2015). Problem-based learning is an established active learning technique that encourages students to take control of their learning through collaborative small group problem-solving in practical situations (Douglass & Morris, 2014). Instructors facilitate the learning process by monitoring the small group interactions instead of delivering course material to passive learners (Barrows, 1986, 1996). The implementation of PBL principles in an online model can be complicated as online discussions inherently limit the personal interactions that naturally evolve in a face-to-face situation (Fukuzawa & Cahn, 2019; Saqr & Alamro,

2019). Positive evaluations of online adoptions of PBL have been found in distance learning courses where the active learning techniques increased communication between students (Blackburn, 2017; Brodie, 2009; Chen, 2016; Gibbings et al., 2015). However, Saqr and Alamro (2019) point out that online interactions do not necessarily represent true collaboration, and there must be a supportive environment to encourage constructive autonomous online discussions. In their interaction analysis of online PBL social networks, they found that student to student interactions resulted in the greatest student engagement (as opposed to student-instructor interactions). Student engagement is defined by Hu and Kuh (2002) as "the quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes" (p. 555). Student engagement is a measurement of success in post-secondary education if it demonstrates intrinsic motivation, autonomy, competence, and relatedness (Deci & Ryan, 1985; Radovan & Makovec, 2015). The active problem solving involved in PBL cases may encourage student engagement through situational interest (Rotgans & Schmidt, 2011). Rotgans and Schmidt (2011) suggest that project-oriented active learning, such as problem-solving, tends to initiate critical thinking skills because students are focused on a specific task.

It is important to keep in mind when implementing online teaching tools that the pedagogical goals must drive the technology and not the other way around (Fukuzawa & Cahn, 2019; Gebre et al., 2014; Kim & Reeves, 2007). In the current technological environment, instructors may view technology as a mechanism to deliver course material in an engaging manner. However, studies have found that content in a web-tool must align specifically with the course objectives in order to engage students (Charsky & Ressler, 2011). In addition, students often prefer in-person discussions over online collaborations in blended courses (El Magboub, 2016; Fukuzawa & Cahn, 2019; Lohnes & Kinzer, 2007; Garcia & Qin, 2007). It is widely recognized that the current student population is comfortable with technology in their everyday lives. Today's students are considered 'digital natives' who are used to 'simulation –based digital settings' emphasizing individual non-linear learning (Karaksha et al., 2013). Students use a variety of learning methods that often navigate away from text-heavy narration toward



## Virtual Mystery Web-tool *continued*

multimedia visuals and user-friendly online resources. Web-tools cater to this student population because they are student-centered and accessible to use anywhere at any time (Karaksha, et al., 2013; Nieder et al., 2011; Prensky, 2009). Unfortunately, online facilitation by instructors is not a personalized 24-hour feature so students may not develop reflexive critical thinking in online learning (Uzunboylu et al., 2011). Reflexive prompts within online learning material, such as questions to think about or guiding phrases to highlight key concepts, can act to encourage critical thinking in students (Aleven & Koedinger, 2002; Davis, 2000; Chen et al., 2009).

In the Virtual Mystery web-tool, the case studies integrate reflexive prompts with every clue (See Appendix for an example). The open-ended questions and directed prompts within the clues guide the students to think critically about the course material and apply their knowledge to a practical scenario. The images and external links support visual learners and the limited text within the clues ensures that they are easy to follow and understand. The success of the virtual mysteries may be largely due to the synchronicity between the lecture material and the clues. Students are learning the theory and then applying it to practical situations with their own knowledge. This, in concert with the user-friendly nature of the web-tool, was an important aspect of its positive reception with students. Both of these successes can be attributed to the student creators who developed the content and the technology for their peers; appropriately, the creation of the Virtual Mystery web-tool used a problem-based learning process to solve challenges with a problem-based learning online implementation.

The applicability of the Virtual Mystery web-tool across disciplines will be tested in a multi-disciplinary study that pilot the web-tool in courses in the humanities (language studies), social sciences (psychology, archaeology) and the sciences (forensic science) over the next three years. Practical case scenarios from these disciplines will be created using the same model of hybridized PBL in the Virtual Mystery web-tool. For example, forensic case investigations have been proposed with content from a diversity of crime scenes. Virtual mysteries in an introductory course in neuro-psychology will engage students in different clinical applications of various neuro-psychological assessments. Students in

an Introduction to Language Studies course will work through a series of applications for language use that uses practical scenarios to apply language formation, language varieties, and linguistic relationships to culture and society.

### Conclusion

The Virtual Mystery web-tool enables the use of hybridized problem-based learning in a large traditional lecture setting without incurring the need for significant additional instructor resources. The partnership between computer science undergraduate students and anthropology graduate students in the creation of the web-tool is a model of collaboration resulting a tailor-made pedagogical tool with functionality that exceeds what is available in mainstream learning management engines. The auto-release functions, availability of past clues, and discussion board forum facilitate the implementation of the mysteries without significantly increasing demands on instructor time. Students today are ‘digital natives’ and the virtual mystery, administered through the customized web-tool, allows them to explore open-ended, practical scenarios in an informal, conversational forum as they work to synthesize and formalize the information they produce. Student response to the mysteries indicates that they build student confidence in course material by translating it into an understanding of what a professional anthropologist does as the virtual mystery turns the theoretical lecture material into practice. Coinciding with participation in the virtual mystery, is an increase in reported student desire to take courses in the subject matter of the mystery (in this case, Anthropology). Student engagement is expressed with autonomy and competence as students direct and create their own knowledge through the application of theoretical learning in a practical context.

## Virtual Mystery Web-tool *continued*

### Appendix

#### Virtual Mystery Example: Raid by Federal Authorities

##### Week 1, Clue 1

A raid by American federal authorities has recently recovered a cache of archaeological material containing this artifact, similar objects, and skeletal remains. As an archaeologist, you have been asked to join a team of consultants on the case, and your first task will be to identify what the artifacts are and where they came from. Begin by describing what you see for your records and report. What do you think it is? Do you believe that it holds symbolic meaning, and if so, what do you believe that might be?

##### Week 2, Clue 2

Excellent! This artifact is very likely to have symbolic importance, but you need more information. It looks like it is made from shell or bone, so you ask your bioanthropology colleague, who is assessing the recovered skeletal remains, what they think. You learn that you were correct, and that incised shells and bones appear throughout world prehistory. You now believe the artifacts are from a burial context, but the only hint of where they came from is on a faded label that says, Cahokia Atlantean. Your colleague exclaims, “Ugh, the collector must have believed the Moundbuilder Myth,” but they walk away before explaining. It sounds familiar, so you look it up online. What is the myth? Briefly summarize so you can explain the label in the report.

##### Week 3, Clue 3

Wow, sometimes ideas about the past and the history of anthropology can be really surprising! Luckily the Moundbuilder Myth was challenged and dispelled, but now you need to know who is actually connected to the recovered artifacts and skeletal remains. You have definitely heard of the Cahokia site before, but need a refresher on the details. Using the Cahokia Mounds website (<https://cahokiamounds.org/explore/>), what period could the remains be dated to and how would you briefly describe the site? Does this support your previous thought that the cache is from a burial, and that your artifacts have symbolic meanings?

##### Week 4, PBL Report

Great work, you have gathered what you need for your case report, now all you have to do is write it up. The agent in charge of the investigation has asked you for a 2 page summary, including what you think the artifact is, where it came from, and any other relevant information you might have about the site, time period, and cache as a whole. Your summary should include at least 2 scholarly resources to support your conclusions. The agent is also interested in your opinion on what should be done with the remains and artifacts, since they have heard about NAGPRA, but don't think the Osage Nation who previously occupied the region can claim them now that their territory is in Oklahoma. They are also considering handing the remains to the Cahokia Mounds museum, since the site is registered under the National Historic Preservation Act. The other option is for the authorities to hold the cache, since it is evidence in a case. Carefully consider the options proposed by the agent and tell them what you know about ownership and ethical treatment of archaeological materials.

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# Virtual Mystery Web-tool *continued*

## Appendix:

Student views of Virtual Mystery Custom Web-tool, annotated with some key features

Able to see how many other comments are submitted but not their content until after response submission

Ability to scroll through previous clues, images, and responses

Graded response and TA feedback; not visible to other group members.

View other responses and discussion board for current clue after response submission

**Virtual Mystery** Menu

### Mystery 1 – A Daunting Task

5 members have submitted their comments

Deadline: 11:59 Oct 9



Previous Week View Grade Next Week

**Your Clue:**  
Now it's time to start examining the cranial features of early anatomically modern *H. sapiens*. Name five cranial features that can be used to differentiate early *H. sapiens* from other species of Pleistocene *Homo*.

**Comment:**  
Write your response in here

Submit

**Mystery 1**  
Clue 2 Menu



Previous Week View Grade Next Week

**Your Clue:**  
Now it's time to start examining the cranial features of early anatomically modern *H. sapiens*. Name five cranial features that can be used to differentiate early *H. sapiens* from other species of Pleistocene *Homo*.

**PC** Vertical forehead, Pyramidal mastoid process

**Grader's comment** Mark : 1/2  
**TA** Good start - you identified two features correctly, discuss with your group to see if you can come up with the other three

**Mystery 1**  
Clue 2 Menu



Previous Week View Grade Next Week

**Your Clue:**  
Now it's time to start examining the cranial features of early anatomically modern *H. sapiens*. Name five cranial features that can be used to differentiate early *H. sapiens* from other species of Pleistocene *Homo*.

**PC** Vertical forehead, Pyramidal mastoid process

**IM** Canine fossa, brow ridges, Pyramidal mastoid process, presence of chin

**AP** Vertical forehead, Pyramidal mastoid process, chin, canine fossa, smaller supraorbital torus

Virtual Mystery Web-tool *continued*

## References

- Albanese, M. S., & Mitchell, S. (1993). Problem-based learning: A review of literature on its outcomes and implementation issues. *Academic Medicine*, 68, 52-81. <http://dx.doi.org/10.1097/00001888-199301000-00012>
- Aleven, V., & Kloedinger, K. (2002). An effective metacognitive strategy: learning by doing and explaining with a computer-based cognitive tutor. *Cognitive Science*, 26, 2, 147-179.
- Allen, D., Duch, B., & Groh, S. (1996). The power of problem-based learning in teaching introductory science courses. *New Directions for Teaching and Learning*, 68, 43-52. <http://dx.doi.org/10.1002/tl.37219966808>
- Allen, D. E., Donham, R., & Bernhardt, S. (2011). Problem based learning. *New Directions For Teaching and Learning*, 128, 21-29. <http://dx.doi.org/10.1002/tl.465>
- Bachman, L. & Bachman, C. (2011). A study of classroom response system clickers: Increasing student engagement and performance in a large undergraduate lecture class on architectural research. *Journal of Interactive Research*, 22, 5-21.
- Bagarukayo, E. (2018). Social media use to transfer knowledge into practice and aid interaction in higher education. *International Journal of Education and Development using Information Technology*, 14, 2, 211-232.
- Barrows, H. S. (1986). A taxonomy of problem-based learning methods. *Medical Education*, 20, 481-486. <http://dx.doi.org/10.1111/j.1365-2923.1986.tb01386.x>
- Barrows, H. S. (1996). Problem-based learning in medicine and beyond: A brief overview. *New Directions for Teaching and Learning*, 68, 3-12. <http://dx.doi.org/10.1002/tl.37219966804>
- Barrows, H.S. (1998). The essentials of problem-based learning. *Journal of Dental Education*, 62, 9, 630- 633.
- Barrows, H. S., & Tamblyn R. M. (1980). *Problem-based learning: An approach to medical education*. Springfield IL: Springer.
- Bate, E., Hommes J., Duvivier R., & Taylor D. (2014). Problem-based learning (PBL): Getting the most of your students – Their roles and responsibilities: AMEE Guide No. 84. *Medical Teacher*, 36, 1-12. <http://dx.doi.org/10.3109/0142159X.2014.848269>
- Blackburn, G. (2017). A university's strategic adoption process of a PBL-aligned eLearning environment: an exploratory case study. *Education, Technology and Research Development*, 65, 1, 147-176. <http://dx.doi.org/10.1007/s11423-016-9472-3>
- Brodie, L. (2009). eProblem-based learning: problem-based learning in virtual teams, *European Journal of Engineering Education*, 35, 6, 497-509. <http://dx.doi.org/10.1080/0304379092943868>
- Charsky, D., & Ressler, W. (2011). Games are for fun: Lessons on the effects of concept maps in the classroom use of computer games. *Computer Education*, 56, 3, 604-615.
- Chen, R. (2016). Learner perspective of online problem-based learning and applications from cognitive lead theory, *Psychology Learning & Teaching*, 15, 2, 195-203. <http://dx.doi.org/10.1177/14757257/6645961>
- Chen, N., Wei, C., Wu, K., & Uden, L. (2009). Effects of high level prompts and peer assessment on online learners' reflection levels. *Computers & Education*, 52, 2, 283-291.
- Davis, E. (2000) Scaffolding students' knowledge integration: Prompts for reflection in KIE. *International Journal of Science Education*, 20, 8, 819-837.
- Deci, E. and Ryan, R. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*, Plenum, New York, NY.

Virtual Mystery Web-tool *continued*

- Dolmans, D., & Schmidt, T. H. (1996). The advantages of problem-based curricula. *Postgraduate Medical Journal*, 72, 535-538. <http://dx.doi.org/10.1136/pgmj.72.851.535>
- Douglass, C. and Morris, S. (2014), Student perspectives on self-directed learning. *Journal of the Scholarship of Teaching and Learning*, 14, 1, 13-25. <http://dx.doi.org/10.14434/josotl.v14i1.3202>
- El-Magboub, A., Haworth, I., Sutch, B. and Romero, R. (2016). Evaluation of in-class and online discussion meetings in a biopharmaceutics problem-based learning class, *Currents in Pharmacy Teaching and Learning*, 8, 6, 811-820. <http://dx.doi.org/10.1016/j.cptl.2016.08.021>
- Fukuzawa, S. (2018). A technophobe's journey to creating a custom hybridized problem-based learning web-tool. *Journal for Research and Practice in College Teaching*, 3, 2, 8-14. <https://journals.uc.edu/index.php/jrpct/article/view/868/790>
- Fukuzawa, S., & Boyd, C. (2016). Student engagement in a large classroom: Using technology to generate a hybridized problem-based learning experience in a large first-year undergraduate class. *The Canadian Journal for the Scholarship of Teaching and Learning*, 7, 1, 7, 1-14. <http://dx.doi.org/10.5206/cjsotl-rcacea.2016.1.7>
- Fukuzawa, S., Boyd, C., & Cahn, J. (2017). Student motivation in response to problem-based learning. *Collected Essays on Learning and Teaching*, 10, 89-101 <https://celt.uwindsor.ca/ojs/leddy/index.php/CELT/issue/view/454/showToc>
- Fukuzawa, S., & Cahn, J. (2019). Technology in Problem-based Learning: Helpful or Hindrance? *International International Journal of Information and Learning Technology*, 36, 1, 66-76. <https://doi.org/10.1108/IJILT-12-2017-0123>
- Garcia, P., & Qin, J. (2007). Identifying the generation gap in higher education: Where do the differences really lie? *Innovate*, 3, 4. <http://innovateonline.info/index.php?view=article&id=379>.
- Gebre, E., Saroyan, A., & Bracewell, R. (2014). Students' engagement in technology rich classrooms and its relationship to professors' conceptions of effective teaching. *British Journal of Educational Technology*, 45, 1, 83-96. <http://dx.doi.org/10.1111/bjet.12001>
- Gibbings, P., Lidstone, J., & Bruce, C. (2015). Students' experience of problem-based learning in virtual space, *Higher Education Research & Development*, 34, 1, 74-88. <http://dx.doi.org/10.1080/07294360.2014.934327>
- Hmelo-Silver, C. (2004). Problem-based learning: What and how do students learn? *Educational Psychology Review*, 16, 3, 235-266.
- Hu, S., & Kuh, G. (2002). Being (dis)engaged in educationally purposeful activities: The influences of student and institutional characteristics. *Research in Higher Education*, 43, 5, 555-575. <http://dx.doi.org/10.1023/a1021004231387>
- Hung, W. (2011), "Theory to reality: a few issues in implementing problem-based learning", *Educational Theory, Research and Development*, 59, 4, 529-552. <http://dx.doi.org/10.1007/s11423-011-9198-1>
- Karaksha, A., Grant, A., Anoopkumar-Dukie, S., Nirthanan, S., & Davey A. (2013). Student engagement in pharmacology courses using online learning tools. *American Journal of Pharmaceutical Education*, 77, 6, 1-10.
- Kim, B., & Reeves, T. (2007). Reframing research on learning with technology: In search of the meaning of cognitive tools. *Instructional Science*, 28, 5, 469-480. <http://dx.doi.org/10.1007/>
- Klegeris, A., & Hurren, H. (2011). Impact of problem-based learning in a large classroom setting: Student perception and problem-solving skills. *Advances in Physiological Education*, 35, 408-415. <http://dx.doi.org/10.1152/advan.00046.2011>



Virtual Mystery Web-tool *continued*

- Lo, C., Johnson, E., & Tenorio, K. (2011). Promoting student learning by having college students participate in an online environment. *Journal of the Scholarship of Teaching and Learning*, 11, 2, 1-15.
- Lohnes, S., Kinzer, C. (2007). Questioning assumptions about students' expectations for technology in college classrooms, *Innovate*, 5, 3. <http://innovateonline.info/index.php?view-article&id=431>.
- Loyens, S., Jones, S. H., Mikkers, J., & van Gog, T. (2015). Problem-based learning as a facilitator of conceptual change. *Learning and Instruction*, 38, 34-42. <http://dx.doi.org/10.1016/j.learninstruc.2015.03.002>
- Loyens, S., Rikers, R., & Schmidt, H. (2006). Students conceptions of constructive learning: A comparison between traditional and a problem-based learning curriculum. *Advances in Health Sciences Education*, 11, 356-379. <http://dx.doi.org/10.1007/s10459-006-9015-5>
- Lumpkin, A., Achen, R., & Dodd, R. (2015). Student perceptions of active learning. *College Student Journal*, 49, 1, 121-133.
- Murray, J., & Summerlee, A. (2007). The impact of problem-based learning in an interdisciplinary first-year program on student learning behavior. *Canadian Journal of Higher Education*, 37, 3, 87-107.
- Nieder, G., Borges, N., & Pearson, J. (2011). Medical student use of online lectures: Exam performance, learning styles, achievement motivation and gender. *Journal of the International Association for Medical Science Education*, 21, 3, 222-228.
- Prensky, M. (2009). H. sapiens digital: From digital immigrant and digital natives to digital wisdom. *Innovate*, 5, 3, 1-9.
- Radovan, M., & Makovec, D. (2015). Relations between students' motivation, and perceptions of the learning environment, *Center for Educational Policy Studies Journal*, 5, 2, 115-123.
- Robinson, L., Harris, A., & Burton, R. (2015). Saving face: Managing rapport in a Problem-based learning group. *Active Learning in Higher Education*, 16, 1. <https://dx-doi-org/10.1177/1469787415573355>
- Rotgans, J., & Schmidt, H. (2011). Situational interest and academic achievement in the active-learning classroom. *Learning and Instruction*, 21, 58-67. <http://dx.doi.org/10.1016/j.learninstruc.2009.11.001>
- Saqr, M., & Alamro, A. (2019). The role of social network analysis as a learning analytics tool on online problem-based learning. *BMC Medical Education*, 19, 1, 160-171. <http://dx.doi.org/10.1186/s12909-019-1599-6>
- Savin-Baden, M. (2014) Using problem-based learning: New constellations for the 21st century. *Journal of Excellence in College Teaching*, 25, 3&4, 197-219.
- Savin-Baden, M. (2016). The impact of transdisciplinary threshold concepts on student engagement in problem-based learning: A conceptual synthesis. *Interdisciplinary Journal of Problem-based learning*, 10, 2, 1-22.
- Schmidt, H.G. (1983). Problem-based learning: Rationale and description. *Medical Education*, 62, 305-315. <http://dx.doi.org/10.1111/j.1365-2923.1983.tb01086.x>
- Schmidt, H. G., Rotgans, J. L., & Yew, E. H. J. (2011). The process of problem-based learning: What works and why. *Medical Education*, 45, 292-306. <http://dx.doi.org/10.1111/j.1365-2923.2011.04035.x>
- Uzunboylu, H., Bicen, H., & Cavus, N. (2011). The efficient virtual learning environment: A case study of web 2.0 tools and Windows live spaces. *Computers & Education*, 56, 720-726. <http://dx.doi.org/10.1016/j.compedu.2010.10.014>
- Wood, D. F. (2003). ABC of learning and teaching in medicine: Problem-based learning. *British Medical Journal*, 326, 91-99. <http://dx.doi.org/10.1136/bmj.326.7384.328>

# PROGRAM REPORT

## PechaKucha as an Alternative to Traditional Student Presentations

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### Abstract

Digital tools like PowerPoint are used frequently in student presentations, but seldom well. PechaKucha presentations—where students have exactly 20 slides set to automatically advance every 20 seconds—encourage students to use PowerPoint more effectively by leveraging the cognitive theory of multimedia learning. This paper introduces the PechaKucha format, details some of the existing research on its utility compared to traditional student PowerPoint presentations, and provides suggestions for how to facilitate students' transition to this presentation technique. Finally, sixty-five undergraduates reported on their experiences completing PechaKucha and traditional presentations. Compared to traditional presentations, students reported more engagement, enjoyment, creativity, and collaboration during PechaKucha, and reported that PechaKucha required less class time. These findings suggest that PechaKucha presentations hold promise as a new student presentation format that teaches students to more effectively use an existing digital tool.

### Keywords:

PechaKucha, traditional presentation, PowerPoint, student engagement

### PechaKucha as an Alternative to Traditional Student Presentations

Presentations allow students to practice multiple important competencies, ranging from developing communication skills (McDonald & Derby, 2015) to working effectively in groups (Dobson, 2006). However, traditional student presentations pose some challenges. First, these presentations can require a significant amount of class time, with some presentations taking

15 to 20 minutes each (Dobson, 2006; Giuliano, 2001) and many students running over their allotted time or not presenting enough (Anderson & Williams, 2012; Oliver & Kowalczyk, 2013; Ramos-Rincón et al., 2018). Traditional presentations are also often done poorly (Morrow et al., 2018), with many students overusing Microsoft's clip art library (Gries & Brooke, 2010; Reynolds, 2008) and including too much text on the slides (Lortie, 2017; McDonald & Derby, 2015; Oliver & Kowalczyk, 2013; Reynolds, 2008), leading to "death by PowerPoint" (Eves & Davis, 2008; Nichani, 2014; Tomsett & Shaw, 2014) and audience disengagement (Ludwig et al., 2004). Yet, despite these pitfalls, slideware can be used in innovative and dynamic ways that can ameliorate many of these issues (Gries & Brook, 2010), with one such method being PechaKucha presentations.

PechaKucha—which means "chitchat" in Japanese and is pronounced like "pet-cha koo-cha"—is a presentation style in which presenters have to succinctly communicate their argument using exactly 20 PowerPoint slides which are set to automatically advance every 20 seconds (<http://pechakucha.com>). Originally developed by architects Mark Dytham and Astrid Klein in 2003 to keep presentations concise and encourage audience attention, this format has since spurred PechaKucha presentations around the globe (Nguyen et al., 2017; Tomsett & Shaw, 2014). Yet, despite the utility of this presentation format, PechaKucha has been slow to make its way into the classroom. Designed to keep presentations concise and encourage audience attention (Tomsett & Shaw, 2014), successful PechaKucha presentations are those in which presenters face the audience and deliver content without relying on note cards or reading from the slides (Gries & Brooke, 2010; McDonald & Derby, 2015; Morrow et al., 2018). Due to the brevity of the

## PechaKucha as an Alternative *continued*

PechaKucha format, presenters are required to write and rewrite their narratives to improve organization and craft a more coherent argument (Gries & Brooke, 2010; Nguyen et al., 2017). To facilitate the audience's learning and retention, presenters use conversational language (Ludwig et al., 2004; Mackiewicz, 2008) and because pictures tend to be more effective than words (Klemm, 2007), presenters must match carefully selected images to their verbal presentation rather than inundating audience members with blocks of bullet-pointed text (Klontzin et al., 2010; Lortie, 2017; Ludwig et al., 2004; McDonald & Derby, 2015; Nichani, 2014). Although PechaKucha and traditional presentations both utilize slideware like PowerPoint, they often look quite different and these differences may be related to how well they promote student learning by leveraging how we process multimedia information.

### Multimedia Learning

There are three assumptions of a cognitive theory of multimedia learning (Mayer, 2009). First, we possess separate channels for processing visual and auditory information (dual channels). Once this information makes it into our working memory, our brains organize these sounds and images into two categories: pictorial information or verbal information. Spoken words are processed as verbal information, whereas images are processed as pictorial information. Interestingly, written words require processing in both channels, as they're both pictorial and verbal; therefore, written words require both channels and quite a bit of cognitive processing. What the research shows is that we learn better from spoken words and well-paired pictures than from spoken words alone, as the brain can utilize both channels which will help us process all the information and will help us later move this information into long-term memory.

Second, we are limited in the amount of information that we can process in each channel at one time (limited capacity). Therefore, extraneous material (e.g., blocks of bullet-pointed text, sound effects, flashy transitions, random clipart) should be eliminated and our multimedia presentations should contain only those elements which are truly relevant. Third, we engage in active learning by attending to relevant incoming information, organizing selected information into coherent mental representations, and integrating

mental representations with other knowledge (active processing). Thus, we can facilitate active processing (i.e., learning) by not overloading one channel and removing extraneous material from our multimedia presentations. By design, PechaKucha presentations promote learning by addressing these limitations in cognitive processing.

### Additional Benefits of PechaKucha

Beyond allowing audience members to easily process auditory and visual stimuli simultaneously (Paivio, 1986), PechaKucha presentations consistently last only 6 minutes 40 seconds, which allows instructors to accurately estimate the amount of class time needed (McDonald & Derby, 2015). Moreover, evidence suggests that the shorter time frame does not measurably impact students' learning outcomes (Klontzin et al., 2010) and can even help students overcome their anxiety about public speaking by allowing them to focus on the short time frame rather than how long they must talk (Coskun, 2017; Lucas & Rawlins, 2015). The rigid time constraint also encourages students to rehearse together far more than do traditional presentations where many students opt for the "divide and conquer" approach to group work (Abraham et al., 2018; Bang-Jensen, 2010).

In addition, PechaKucha allow students to practice many of the same competencies as traditional presentations. Presentations can bridge written and oral communication skills and provide students with the opportunity to think creatively while building their PowerPoint skills (Gries & Brooke, 2010). Students learn to work collaboratively (Dobson, 2006) and practice researching their topics (Giuliano, 2001). Moreover, students have reported that the PechaKucha format helps them learn the presented content better than simply studying it themselves (McDonald & Derby, 2015) and that they learn the same amount of material with the PechaKucha format as traditional presentations (Anderson & Williams, 2012; Johnson & Christensen, 2011). Students also report enjoying the PechaKucha format more than the traditional style (Anderson & Williams, 2012; McDonald & Derby, 2015) and PechaKucha presentations tend to maintain student engagement better than traditional ones (Johnson, 2012; Klontzin et al., 2010). Together, these findings point to the utility of PechaKucha presentations for student learning, enjoyment, and engagement as

## PechaKucha as an Alternative *continued*

an audience member compared to traditional student presentations. Rather than teaching students how to use a new digital tool, PechaKucha teaches students how to use PowerPoint—a tool they are already familiar with—more effectively. Considering such, the purpose of this article is to describe how to facilitate introduction of PechaKucha as a student presentation method and to present students' perceptions of completing and being an audience member for these presentations.

### Method

#### Participants and Procedure

Participants were 65 undergraduates (four male, 61 female, age range: 19–22 years) from three separate classes at a small, private Northeastern college. Two of the classes had 25 students each, whereas the third class had 15 students. On the first day of class, students formed self-selected presentation teams (ranging from 2 to 4 students depending on the class size). To facilitate students' understanding of this new presentation format, the instructor demonstrated the technique in each class at the beginning of the semester. Before presenting, students were provided with the rubric with which they would be graded and after reviewing markers of a good presentation, the instructor presented on a topic related to the course using the PechaKucha format. After the demonstration, the class engaged in a discussion of what the instructor did well and where improvements could be made (admittedly, the instructor needed to note the first critique, as students may not have felt comfortable critiquing their instructor initially. However, once an area of improvement was noted, students were quick to offer additional suggestions).

After a thorough discussion of the strength and weaknesses of the instructor's presentation, students were presented with the script—with content organized by slide—so they could see how little could be said in 20 seconds without rushing. To further facilitate students' acclimation to PechaKucha presentations, students were also provided with a tip sheet, with sections devoted to writing their scripts, creating slides, and general presentation advice. Students were also shown how to find high-definition images online and how to do a reverse-image search if the image they found matched their content well but was poor quality. In addition, to scaffold each step of presentation preparation, students

were required to submit deliverables before their presentation date, after each of which students received detailed feedback from the instructor. Specifically, students had to submit their detailed topic two weeks before their presentation, a completed script—with content divided among slides and presenters—one week before their presentation, and their slides—set to automatically advance every 20 seconds—the night before their presentation. The goal of these deliverables was to ensure that students received feedback along the way, while also ensuring that they did not procrastinate working on their presentations. Once all PechaKucha were completed, students reported on their experiences doing these presentations compared to the traditional presentations they had completed in other courses using the survey instruments created for this experiment.

#### Measures

**Competencies.** To examine how well each presentation type allowed students to practice various course competencies, participants evaluated their experiences using 14 items (seven on traditional presentations and seven identical items regarding PechaKucha). Using a 4-point Likert-type scale ranging from 1 (*not at all*) to 4 (*to a great extent*), participants reported on how well each presentation type allowed them to practice their written communication, oral communication, research skills, collaboration with others, creativity, and PowerPoint / computer skills, as well as how well each presentation type allowed them to gain knowledge of their topic in greater depth than was achievable during class. Higher scores indicated greater achievement of each competency.

**Student engagement.** To test students' engagement during each presentation type, participants completed six items, with three items on each presentation type. First, participants responded to items such as “*During traditional presentations, how often did you pay attention and listen to the presenters?*” or “*During PechaKucha presentations, how often did you find other presentations to be engaging?*” using a 5-point Likert-type scale ranging from 1 (*never*) to 5 (*always*). Using a 4-point Likert-type scale ranging from 1 (*none*) to 4 (*a lot*), participants also rated how much information they retained from other students' presentations when they were an audience member. Higher scores indicated greater engagement during other students' presentations.

## PechaKucha as an Alternative *continued*

**Presentation length.** To determine the average length of students' traditional presentations, students reported on the minimum and maximum amount of time (in minutes) of the traditional presentations they completed in other courses. For each student, an average traditional presentation length score was created using the reported minimum and maximum times to control for the dramatic differences in presentation length that come with this type of presentation. Alternatively, students' PechaKucha presentations—due to the automatic advancement of slides—were consistently 6 minutes 40 seconds in length.

**Student perceptions.** Finally, to investigate students' perceptions of completing PechaKucha presentations, participants completed four items about their experience. First, participants rated items like, "Compared to traditional presentations, how much did you enjoy this assignment (i.e., your PechaKucha presentation)?" using a 5-point Likert-type scale ranging from 1 (*a lot less*) to 5 (*a lot more*). Next, participants used a 7-point Likert-type scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*) to evaluate their agreement with statements like, "I encourage future use of this assignment (i.e., PechaKucha presentations) over traditional presentations," "My PechaKucha presentation helped me to understand the class material better," and "PechaKucha presentations were a good supplement to lecture."

### Results

Once descriptive statistics were computed for the PechaKucha and traditional presentation groups (Table 1), dependent-samples *t* tests were used to determine whether apparent differences were statistically significant. In general, students reported that compared to traditional presentations, they were able to be more creative,  $t(64) = 6.97, p < 0.001, d = 0.86$ , and collaborative,  $t(64) = 5.962, p < 0.001, d = 0.74$ , with the PechaKucha format. Beyond the experiences of student presenters, students also reported on their engagement during others' presentations. Students reported they paid attention and listened to presenters more often during PechaKucha presentations than during traditional presentations,  $t(64) = 6.550, p < 0.001, d = 0.81$ , and they noted that they found other students' PechaKucha to be engaging more often than when their peers gave traditional presentations,  $t(64) = 11.476, p < 0.001, d =$

1.42. In addition, students reported that the traditional presentations they had done in other classes averaged over 12 minutes, which required considerably more class time than PechaKucha presentations,  $t(64) = 11.182, p < 0.001, d = 1.39$ . Taken together, these findings point to the utility of PechaKucha as a digital tool and suggest that instructors should consider this format as an alternative to traditional student PowerPoint presentations.

**Table 1: Means and Standard Deviations for Course Competencies and Student Engagement by Presentation Type (N = 65)**

	PechaKucha presentation	Traditional presentation
	M(SD)	M(SD)
<b>Course competencies</b>		
Written communication	2.98(.82)	2.75(.64)
Oral communication	3.66(.57)	3.45(.64)
Research	3.43(.73)	3.40(.70)
Collaboration*	3.82(.46)	3.17(.80)
Creativity*	3.72(.48)	2.74(.94)
PowerPoint/computer skills	3.45(.71)	3.35(.74)
Knowledge of your topic in greater depth	3.45(.77)	3.35(.60)
<b>Student engagement</b>		
Information retention	2.86(.75)	2.72(.72)
Pay attention and listen*	4.12(.76)	3.20(.83)
Found others' presentations engaging*	4.08(.78)	2.63(.60)
Presentation length (in minutes)*	6.67(0)	12.72(4.35)

**Note.** An asterisk indicates a statistically significant difference between the PechaKucha and traditional presentations using dependent-samples *t* tests.

When students were asked to provide their perceptions of completing PechaKucha presentations (compared to their past experiences with traditional presentations),



## PechaKucha as an Alternative *continued*

students reported enjoying giving PechaKucha presentations more ( $M = 3.40$ ,  $SD = 1.20$ ) and encouraged future use of PechaKucha over traditional presentations ( $M = 2.65$ ,  $SD = 1.45$ ). Moreover, students reported that completing their own PechaKucha presentation helped them to understand class material better ( $M = 2.34$ ,  $SD = 1.30$ ) and that PechaKucha presentations were a good supplement to lecture ( $M = 2.49$ ,  $SD = 1.30$ ).

### Suggestions for Incorporating PechaKucha in the Classroom:

- To help students understand why we should change the way we do presentations, briefly discuss the cognitive science behind this technique and encourage them to keep the three assumptions of the cognitive theory of multimedia learning (Mayer, 2009) in mind as they construct their own presentations.
- Because students may feel anxious about trying out a new presentation format, demonstrate the technique in class. Providing them with an example will be helpful as they construct their own presentations. Additionally, if students are given the opportunity to use a rubric to evaluate the instructor's presentation, they may gain greater understanding of how they will be graded and may be better able to apply those criteria when preparing their own presentations.
- To facilitate students' transition to this new presentation format, it is recommended that instructors provide students with rubrics, tip sheets, and instructions for how to set their slides to automatically advance. Because few students have ever used this slide transition feature, they may need additional help setting it up. Alternatively, instructors may wish to provide students with template slides already set to automatically advance, as this can prevent students from setting it up incorrectly and practicing with incorrect timing.
- Although students are quite experienced searching online for images, they often include poor quality, watermarked, or distorted images in their presentations. Students have often noted how they underestimated the time required to find high-

quality images that match their spoken content. To help students with this, consider teaching them how to complete a reverse-image search and how to find the size of an image to determine whether it will look grainy when enlarged on a projector screen. In addition, if students wish to record their PechaKucha presentations and post online (e.g., YouTube), they should search for copyright-free images.

- To prevent procrastination and to provide feedback at multiple stages, it is recommended that instructors require deliverables (i.e., topic, script, slides) in advance of students' PechaKucha presentations. Effective presentations take time to craft—whether in their spoken content, identifying images that pair with narration, or practicing presentation delivery with peers—and thus, ensuring that students make progress gradually can help them create a better overall presentation compared to one thrown together at the last minute.
- Studies suggest that group discussion and individual reflection following student presentations would help to ensure the connection between PechaKucha presentations and explicit knowledge (Lehtonen, 2011). That is, after each student presentation, it may be helpful to have a discussion about the main points to further stress what students should have learned.

### Discussion

Differences between PechaKucha and traditional presentations on collaboration and creativity add support to the growing literature on the merits of the PechaKucha format. For a PechaKucha presentation to be successful, students must collaborate extensively throughout narrative creation and rehearsal rather than "divide and conquer" (Bang-Jensen, 2010), which is likely why students reported this format led them to collaborate more with their teammates than did traditional presentations. With regards to creativity, the requirement to pair speech with high-quality images and use a conversational tone provides students with more opportunities for creativity than may traditional presentations (Abraham et al., 2018; Gries & Brooke,

## PechaKucha as an Alternative *continued*

2010; Klentzin et al., 2010).

Students are already familiar with slideware like PowerPoint, Google Slides, or Keynote; however, they may not have received training in how to craft effective presentations. Moreover, because so many instructors use slideware so poorly, students may not have seen exemplars of how to use this digital tool in a way that leverages the cognitive theory of multimedia. By assigning PechaKucha presentations and familiarizing students with this technique, however, they are given training in how to create better presentations and the rigid constraints of the PechaKucha format ensure that they condense their argument down to its most essential elements (Abraham et al., 2018; Gries & Brooks, 2010). Thus, rather than trying to teach students how to use a new digital tool, PechaKucha teaches students how to use a tool they are already familiar with (i.e., slideware) in a more effective manner.

In addition, results of the current study suggest that students enjoyed presenting in the PechaKucha style more than the traditional manner. This is in line with previous studies in which students rated PechaKucha as fun (Beyer, 2011; Klentzin et al., 2010), humorous and engaging (Carroll et al., 2016), and their favorite assignment (Levin & Peterson, 2013; McDonald & Derby, 2015). Also in line with previous research, PechaKucha presentations were found to take significantly less class time (Anderson & Williams, 2012), but did not impact students' learning (Klentzin et al., 2010). Considering such, it makes sense that students encouraged the future use of this assignment. Anderson and Williams (2012) found similar encouragement from students, as 75% of undergraduates and 94% of graduate students in their sample reported they would prefer to use the PechaKucha format in future presentations. Similarly, Ramos-Rincón et al. (2018) noted high overall satisfaction in medical students who used PechaKucha and reported that its use has spread across their medical program.

### Limitations

Results presented here point to some of the strengths of PechaKucha presentations over traditional student presentations; however, the current study does have its limitations. First, results of the current study are based on a small and homogeneous sample, with most students being female and white. To more rigorously test the effectiveness of the PechaKucha format, future studies should utilize a larger, more diverse sample of students. Second, the current study asked participants to compare their PechaKucha experiences with their previous experiences with traditional presentations. Future studies could better control students' presentation experiences by assigning students to traditional or PechaKucha presentations rather than having students compare their presentation experiences retroactively. Moreover, rather than exploring students' perceptions of completing PechaKucha compared to traditional presentations, other markers of student learning (e.g., grades, content knowledge) and engagement should be included.

### Conclusion

In conclusion, PechaKucha presentations appear to warrant consideration as an alternative to traditional student presentations. Students reported being more engaged and enjoyed completing these presentations more than their traditional counterparts. Moreover, PechaKucha presentations allowed students to be more creative and collaborative than did traditional presentations, suggesting that students could gain even more from these assignments simply by changing the presentation format. Finally, PechaKucha presentations require significantly less class time than traditional presentations and take advantage of how we process information to create better presentations. Taken together, these findings suggest that PechaKucha presentations hold promise as a new student presentation format in the classroom and would allow instructors to utilize this existing digital tool more effectively.

PechaKucha as an Alternative *continued*

## References

- Abraham, R. R., Torke, S., Gonsalves, J., Narayanan, S. N., Kamath, M. G., Prakash, J., & Rai K. S. (2018). Modified directed self-learning sessions in physiology with prereading assignments and Pecha Kucha talks: Perceptions of students. *Advances in Physiological Education*, 42(1), 26–31. <https://doi.org/10.1152/advan.00048.2017>
- Anderson, J. S., & Williams, S. K. (2012). Pecha Kucha for lean and sticky presentations in business classes. *Working Paper Series*, 12(3), 1–9.
- Bang-Jensen, V. (2010). Pecha Kucha: A quick and compelling format for student PowerPoint presentations. *Teaching Professor*, 24(5), 5–5.
- Beyer, A. M. (2011). Improving student presentations: Pecha Kucha and just plain PowerPoint. *Teaching of Psychology*, 38(2), 122–126. <https://doi.org/10.1177/0098628311401588>
- Carroll, A. J., Tchangalova, N., & Harrington, E. G. (2016). Flipping one-shot library instruction: using Canvas and Pecha Kucha for peer teaching. *Journal of the Medical Library Association*, 104(2), 125–130. <https://doi.org/10.3163/1536-5050.104.2.006>
- Coskun, A. (2017). The effect of Pecha Kucha presentations on students' English public speaking anxiety. *Issues in Teachers' Professional Development*, 19(Suppl. 1), 11–22. [https://doi.org/10.15446/profile.v19n\\_sup1.68495](https://doi.org/10.15446/profile.v19n_sup1.68495)
- Dobson, S. (2006). The assessment of student PowerPoint presentations—attempting the impossible? *Assessment & Evaluation in Higher Education*, 31(1), 109–119. <https://doi.org/10.1080/02602930500262403>
- Eves, R. L., & Davis, L. E. (2008). Death by PowerPoint? *Journal of College Science Teaching*, 37(5), 8–9.
- Giuliano, T. A. (2001). Student presentations of the life and work of prominent social psychologists. *Teaching of Psychology*, 28(4), 269–271. [https://doi.org/10.1207/S15328023TOP2804\\_08](https://doi.org/10.1207/S15328023TOP2804_08)
- Gries, L. E., & Brooke, C. G. (2010). An inconvenient tool: Rethinking the role of slideware in the writing classroom. *Composition Studies*, 38(1), 11–28.
- Johnson, M. L. (2012). Engaging students through Pecha-Kucha presentations. *Techniques: Connecting Education & Careers*, 87(6), 8–9.
- Johnson, D. A., & Christensen, J. (2011). A comparison of simplified-visually rich and traditional presentation styles. *Teaching of Psychology*, 38(4), 293–297. <https://doi.org/10.1177/0098628311421333>
- Klemm, W. R. (2007). Computer slide shows: A trap for bad teaching. *College Teaching*, 55(3), 121–124. <https://doi.org/10.3200/CTCH.55.3.121-124>
- Klentzin, J. C., Paladino, E. B., Johnson, B., & Devine, C. (2010). Pecha Kucha: Using “lightning talk” in university instruction. *Computers & Education*, 35(3), 175–187. [https://doi.org/10.1016/S0360-1315\(00\)00030-0](https://doi.org/10.1016/S0360-1315(00)00030-0)
- Lehtonen, M. (2011). Communicating competence through PechaKucha presentations. *Journal of Business Communication*, 48(4), 464–481. <https://doi.org/10.1177/0021943611414542>
- Levin, M. A., & Peterson, L. T. (2013). Use of Pecha Kucha in marketing students' presentations. *Marketing Education Review*, 23(1), 59–64. <https://doi.org/10.2753/MER1052-8008230110>
- Lortie C. J. (2017). Ten simple rules for short and swift presentations. *PLoS Computational Biology*, 13(3), e1005373. <https://doi.org/10.1371/journal.pcbi.1005373>
- Lucas, K., & Rawlins, J. D. (2015). PechaKucha presentations: Teaching storytelling, visual design, and conciseness. *Communication Teacher*, 29(2), 102–107. <https://doi.org/10.1080/17404622.2014.1001419>

## PechaKucha as an Alternative *continued*

- Ludwig, T. E., Daniel, D. B., Froman, R., & Mathie, V. A. (2004). Using multimedia in classroom presentations: Best principles [Prepared for the Society for Teaching of Psychology, Pedagogical Innovations Task Force]. Retrieved from <http://teachpsych.org/Resources/Documents/otrp/pedagogy/classroommultimedia.pdf>
- Mackiewicz, J. (2008). Comparing PowerPoint experts' and university students' opinions about PowerPoint presentations. *Journal of Technical Writing & Communication*, 38(2), 149–165. <https://doi.org/10.2190/TW.38.2.d>
- Mayer, R. E. (2009). *Multimedia learning (2<sup>nd</sup> ed.)*. New York, NY: Cambridge University Press.
- McDonald, R. E., & Derby, J. M. (2015). Active learning to improve presentation skills: The use of Pecha Kucha in undergraduate sales management classes. *Marketing Education Review*, 25(1), 21–25. <https://doi.org/10.1080/10528008.2015.999593>
- Morrow, J. A., Shipley, L., & Kelly, S. (2018). Using PechaKucha in the classroom. In R. J. Harnish, K. R. Bridges, D. N. Sattler, M. L. Signorella, & M. Munson (Eds.), *The use of technology in teaching and learning* (pp. 307–314). Retrieved from the Society for the Teaching of Psychology web site: <http://teachpsych.org/ebooks/>
- Nichani, A. S. (2014). Life after death by power point: PechaKucha to the rescue? *Journal of Indian Society of Periodontology*, 18(2), 127–128. <https://doi.org/10.4103/0972-124X.131292>
- Nguyen, V., Cheng, L., & Loh, S. (2017). UX in varied domains: Similarities and differences presented Pecha Kucha style. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 61(1), 372–374. <https://doi.org/10.1177/1541931213601575>
- Oliver, J., & Kowalczyk, C. (2013). Improving student group marketing presentations: A modified Pecha Kucha approach. *Marketing Education Review*, 23(1), 55–58. <https://doi.org/10.2753/MER1052-8008230109>
- Paivio, A. (1986). *Mental representations: A dual coding approach*. New York, NY: Oxford University Press.
- Ramos-Rincón, J. M., Sempere-Selva, T., Romero-Nieto, M., Peris-García, J., Martínez-de la Torre, G., Harris, M., & Fernández-Sánchez, J. (2018). Pecha Kucha presentations by medical students in Spain. *International Journal of Medical Education*, 9, 244–245 <https://doi.org/10.5116/ijme.5b92.52e3>
- Reynolds, G. (2008). *Presentation Zen: Simple ideas on presentation design and delivery*. Berkeley, CA: New Riders.
- Tomsett, P. M., & Shaw, M. R. (2014). Creative classroom experience using Pecha Kucha to encourage ESL use in undergraduate business courses: A pilot study. *International Multilingual Journal of Contemporary Research*, 2(2), 89–108.

# PROGRAM REPORT

## Social Media in Practice: Assignments, Perceptions, Possibilities

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### Abstract

This article explores the pedagogical artifacts that accompany social media assignments in writing-focused classes and students' perceptions about social media pedagogy. Using survey data about social media in writing classes, we employ grounded theory (Glaser & Strauss, 1967) and practitioner inquiry (Ray, 1993) to analyze instructor-created writing assignments and student responses to social-media-infused writing assignments. Our findings indicate that students are interested in social media writing assignments, generally think faculty members including social media in class assignments is positive, and see opportunities for learning to use social media more critically. While our assignment samples did not overwhelmingly showcase critical digital pedagogies and critical digital literacies in practice, the data do suggest possibilities for critical social media use. These findings also suggest opportunities for teacher-scholars across disciplines to reflect critically on whether and how to incorporate social media content and tools into digital, ideally critical, pedagogical practices.

### Keywords

social media, critical digital pedagogy, students, writing, survey-based research

### Introduction

A colleague stopped Jessica in the hallway to ask if students still use Vine for sharing videos or Yik Yak for messaging. “I don't think so,” she replied. “Vine is now Byte, sort of, and Yik Yak is defunct. And now I'm seeing lots of TikTok videos from my students.”

**“Apps change all the time. It's so hard to keep up,” he bemoaned.**

Jessica's colleague is absolutely right. Applications appear, disappear. New social media tools arrive, rise in popularity, wane. As do our students, we switch platforms, test interfaces, and try new social media features repeatedly. Beyond social media, when considering digital tools broadly, decisions about which technologies to incorporate, how, and why remain. The networked world outside our classrooms has made many educators de facto digital pedagogues.

Sources like *Hybrid Pedagogy* are wise to remind us that “digital pedagogy is precisely not about using digital technologies for teaching and, rather, about approaching those tools from a critical pedagogical perspective” (“What is Digital Pedagogy?” section), but we also recognize the way pedagogy works, the complex negotiation of theory into daily learning activities. When Mina (2019) used the word “ideally” to qualify how teachers' use of technology “should *ideally* be preceded by a number of decisions” (p. 5, emphasis ours), she both affirms the importance of *critical* digital



## Social Media in Practice *continued*

pedagogy as well as alludes to the tension between approaching digital technologies as *just* teaching tools and paying critical attention to those tools. Sometimes, however, using a new technology—putting it into classroom practice—precedes or neglects opportunities for critical investigation, as Selber (2004) theorized in *Multiliteracies for a Digital Age* more than fifteen years ago. There, Selber argued students should be encouraged to question their technologies, to develop critical literacies in addition to functional ones, and to “recognize and articulate the ways power circulates in technological contexts” (p. 135).

Certainly, critical digital pedagogy should not be synonymized with a technology-infused classroom that positions computers and their applications as either neutral tools or inherently valuable. The mere inclusion of technology such as social media (SM) in teaching, after all, does not necessarily beget better learning (see, for example, Hawisher & Selfe, 1991). Faculty members’ thoughtful, critical investigation and incorporation is needed. Still, it is important to acknowledge that one’s digital pedagogy often develops from practice with technology and that there is a natural reflexiveness between use, both everyday and academic, and the highly prized *critical* digital pedagogy, conceived in the spirit of McKee and DeVoss (2007), Selfe (1999), and Takayoshi (1995), that seeks to engender analysis, reflection, and use of digital tools in ways that unveil complex political, social, and ethical issues.

We think it’s worth making plain that incorporating digital tools and texts like SM into classroom practice should be critical, both in their selection and in the ways that students read, compose, and reflect with technology. *Ideally*, faculty members’ critical digital pedagogy fosters critical digital literacy. And yet, the worlds inside and beyond our classrooms are rarely ideal. As veteran writing instructors who teach in online, face-to-face, and hybrid modalities, we recognize the both/and nature of digital tools and content in practice, as well as the need to interrogate that selection and use.

Sixteen years ago (at the time of this writing), Hawisher et al. (2004) reminded us that when faculty focus too closely on familiar composing genres and technologies to the neglect of others, we often “miss a great deal of the more interesting and engaging self-

sponsored reading and composing students do on their own time” (p. 676). Today, their words still resonate, and one of the technological platforms we find most interesting and engaging for students’ self-sponsored reading and writing activities is SM. Thus, in this article, we specifically focus on SM in practice, and on its use in writing-focused classrooms across the United States, as a subset of digital pedagogy.

Grounded in data from a national survey on undergraduate students’ perceptions of SM in writing classes and pedagogical materials submitted by students from writing classes in which SM was used, we offer new evidence about how SM is actually incorporated and how students respond. We also suggest paths for inquiry and implementation influenced by a critical perspective. Though our data were gathered from studying writing classrooms, we believe our findings support a critical-literacy-infused approach to SM across multiple disciplines; thus, at the end of this article, we offer takeaways that can be incorporated into pedagogy in many fields.

### Why Study Social Media?

Literacy and writing scholars agree that students enter our classrooms with complicated, accumulated, multimodal literacy practices mediated by myriad technologies (Alexander & Rhodes, 2014; Brandt, 1998; Cope & Kalantzis, 2000; Ridolfo & DeVoss, 2009). In short, students write. A lot. Sometimes they write with paper and pencil in personal journals and often they write with smartphones in networked public spaces, among countless other physical and digital rhetorical ecologies. For example, the most current Pew Research Center data confirmed the near ubiquity of SM in daily life with 90% of 18- to 24-year-olds using YouTube, 76% using Facebook, 75% using Instagram, and 73% using Snapchat (Perrin & Anderson, 2019, “Instagram and Snapchat” figure). And while there are some age-related differences in platform preference, the share of adults using SM is no less significant. Social media is firmly embedded in our lives and in the lives of our students. Consequently, “writers are everywhere,” as Yancey (2009) noted and as data from a series of studies focusing on revitalizing and revisualizing composition have confirmed (Grabill et al., 2010; Moore et al., 2016).

## Social Media in Practice *continued*

As a result, writing studies researchers have begun to examine the intersection of SM and writing. Much of this research has examined undergraduate students' literacy practices in general, with SM examined as one site among many (i.e., games, fandom sites, etc.) for extracurricular composing practices (Buck, 2012; Moore et al., 2016; Williams, 2009). As well, much of this research has focused on singular platforms, such as Facebook (Amicucci, 2017; Shepherd, 2015, 2016), Twitter (Coad, 2017; Potts, 2013), Pinterest (DeLuca, 2015), WeChat (Wang, 2019), or Instagram (McGrath, 2018; McNely, 2015). Several special issues of journals have focused on SM (Kimme Hea, 2014; Vie & Walls, 2015). This heightened scholarly focus on SM and writing is mirrored in copious calls for using SM in the classroom, as Faris (2017) noted.

These calls recognize that the widespread popularity of SM—along with the abundance of self-sponsored writing produced in these spaces (Keeler, 2009) plus the importance students assign their social writing (Lunsford, 2007)—primes SM for writing instruction within composition classes and beyond. For example, Whitaker (2016) asked, “Why then can’t history majors use social media to archive history?” for the sake of “prioritizing application” in education (p. 6). In fact, many faculty members across disciplines are already incorporating SM into pedagogy. A 2011 study of teaching faculty across all disciplines in higher education found that “over 40% of faculty have required students to read or view social media as part of a course assignment, and 20% have assigned students to comment on or post to social media sites” (Moran et al., 2011, p. 3).

In sum, there exists manifold ways faculty across disciplines might capitalize on such a boon in writing, unless, of course, they don’t see SM writing as real writing, or see it as merely extracurricular writing that negatively impacts students’ academic performance. As long-time faculty members, we’ve both heard the refrain: SM is to blame for X, X being a variety of academic sins loosely related to the perceived degradation of students’ writing and thinking abilities (e.g., Hansen, 2013; Henry, 2013; Humphrys, 2007). Popular books like Bauerlein’s (2008) *The Dumbest Generation: How the Digital Age Stupefies Young Americans and Jeopardizes our Future (or, Don’t Trust Anyone Under 30)* have exacerbated the issue.

Certainly, many academics disagree (Amicucci, 2014; Anson, 2017; Buck, 2012; Mina, 2017; Rosinski, 2017; Vie, 2008). In fact, Lunsford (2013) suggested those instructors who still feel students’ out-of-class writing is “awash in self indulgence and narcissistic twaddle, most of it riddled with errors” aren’t considering the data that counter their assertions (para. 1). Her data from a long-term study of Stanford students’ writing and a national sample of student writing from across the United States revealed that students today make no more errors in their writing than previous generations of students (Lunsford, 2007, 2013). Likewise, Portanova (2017) reminded us that no empirical studies have demonstrated a “negative correlation between both social and general media use and students’ writing performance” (p. 247). Anson (2017) corroborated: Research does not support repeated contentions that our students’ extracurricular literacies are detrimental to academic literacies. In fact, many writing researchers (e.g., Mina, 2017, Shepherd, 2018, Rosinski, 2017) see students’ self-sponsored writing, “writing students choose to do (and are not required to do)” (Rosinski, 2017, p. 249), as a rich site of rhetorical decision making that instructors might purposefully connect to rhetorical decision making in academic contexts. However, both Shepherd (2018) and Rosinski (2017) noted that students will not “automatically transfer rhetorical knowledge” (p. 266), a point we will return to in our results and discussion.

The narrative that SM, texting, and digital culture writ large are to blame for students’ poor writing ability and distractibility, among other negative descriptors, won’t disappear in the mainstream overnight, but we, along with many other teacher-researchers in higher education, in general, and writing studies, in particular, find that SM matters. In the next section, we explore some of the goals motivating this study of social media. Our research questions were: 1) What are undergraduate students’ attitudes toward social media use in higher education generally and their composition classes, specifically? and 2) What do assignments and activities for social-media-infused writing classrooms look like?

## Social Media in Practice *continued*

### The Stimulus for This Study

Despite the growing body of research about social media and faculty members' interest in the pedagogical possibilities of social media (Vie, 2007, 2008, 2015), there is much we don't know. Specifically, we lack students' perspectives on the effect of instructors' social-media infused pedagogy, as well as analysis of the pedagogical materials students encounter. Beyond the hope of adding new knowledge about social media and writing in practice through empirical research, we were also motivated by our everyday work with students, work that involves daily decisions about tools, texts, assignments, and skills, among others. As instructors consider incorporating SM into digital pedagogies, into curricula, and into learning activities, the following question is essential, if not a bit obvious. Walls and Vie (2017) put it this way: "Today, in the face of the ubiquitous writing technology that is social media, we must ask how writing teachers should address it" (p. 10).

The "how" in Walls and Vie's pronouncement should be examined in two ways. The first approach is observational—*how are* writing instructors bringing SM into their writing classrooms? A 2014-15 national survey of 619 writing faculty established that 90% of faculty use SM in the writing classroom (Vie, 2015), but there are few studies that illuminate the day-to-day, actual use of SM in the classroom. On the whole, we haven't moved from pedagogical possibilities to pedagogical reality. Our article demarcates the current use of social media in the writing classroom through analysis of pedagogical materials submitted by students enrolled in a range of writing-focused classes in which their instructor included SM assignments.

The second appraisal of "how" deals more directly with Walls and Vie's intention. Namely, it asks *how should* instructors bring SM into the classroom. The results of our study offer all instructors—not just writing instructors—opportunities to reflect critically on whether and how to incorporate SM into pedagogy by looking at how teachers are using SM in pedagogy (drawn from our analysis of pedagogical materials) and what students have to say about it (pulled from our national survey of students whose instructors incorporate SM). The addition of the researchers' experiences using SM in writing-focused classrooms extends these

findings, revealing additional possibilities for moving faculty from asking "how are we" to "how should we" (or even "should we") in ways that consider critical digital pedagogies and critical digital literacies. While our study data focused specifically on writing classrooms, our data show promise for a range of classrooms across disciplines, given the prevalence of writing assignments that can be included in classes such as history, biology, engineering, psychology, and so on. Considering SM use in pedagogy through the framework of critical digital literacy can enrich these courses in ways that support the infusion of writing across multiple disciplines.

### Methods

The data for this article were collected as part of a 2016-2017 Conference on College Composition and Communication (CCCC) Research Initiative program grant awarded to Stephanie Vie. The study included a national survey of undergraduates in writing-related courses, from first-year composition courses to senior seminars for English majors to media-focused courses, and beyond. The survey questions explored student attitudes toward and experiences with SM, with SM including both what was assigned in their writing classes and what they used extracurricularly, in everyday literate practices. The survey, composed in Qualtrics and disseminated through faculty listservs specific to writing instructors (e.g., WPA-L, ATTW-L) and SM (e.g., Facebook, Twitter), asked writing instructors to pass along the survey to their students and to university or departmental mailing lists in order to reach a broad population of potential student respondents. The survey yielded quantitative and qualitative data in response to open-ended and closed-ended survey questions. Respondents were also asked to upload pedagogical artifacts from their classroom experiences (e.g., writing assignments, syllabi, responses to composing prompts).

The study was approved by the University of Central Florida Institutional Review Board and specifically requested students to include, if possible, the pedagogical artifacts (e.g., assignment sheets, syllabi, etc.) from their courses that incorporated SM in some way. While federal guidelines for human subjects research do not consider such pedagogical artifacts to be research on human subjects, we acknowledge the ethical questions brought

## Social Media in Practice *continued*

up when students submit pedagogical artifacts created by an instructor who may not have the opportunity to contextualize those documents further. Indeed, we see a fruitful area for future research that builds on this study by attempting to trace back the authors of the pedagogical artifacts in order to interview those faculty about their aims and learning goals for the assignments.

While the majority of the artifacts provided were anonymous (and were de-identified for the purposes of this study), it could be possible to trace back the instructor by asking the student to recall the faculty member's name; in a few cases, students provided an assignment sheet with a course name and number and institution name, which (coupled with semester and year data) could be used to trace back the faculty member who assigned the work. Conversations with the faculty members could provide intriguing triangulation to the data presented in this study.

### Survey Data

While 202 students began the survey, after filtering for study eligibility (i.e., undergraduate status, and recent enrollment in a writing-related class that included any assignments about/using SM), 136 students remained eligible to respond to the remaining 16 survey questions.<sup>1</sup> These survey respondents were all undergraduates, mostly enrolled in face-to-face classes (72%); traditionally college-aged, between 18-24 years old (94%); and living in various geographical locations throughout the United States. Students most frequently reported as White (53%), Hispanic or Latinx (23%), Asian (13%), and Black or African American (7%). Students' textual responses were analyzed using grounded theory (Glaser & Strauss, 1967; Strauss & Corbin, 1998; Walsh et al., 2015) informed by practitioner inquiry (Ray, 1993); this combination recognizes the way themes are derived from data (grounded theory) as well as the researchers' subject positions (Foucault, 1973/2002). In our case, our experience and knowledge as veteran writing instructors and writing program administrators informed our analysis (practitioner inquiry theory). The Word Cruncher feature in ATLAS.ti qualitative data analysis software was also used for additional data richness and reliability. Working with the pedagogical materials involved a multi-step process described below.

<sup>1</sup> Respondents were not required to answer every survey question. Thus, response numbers fluctuate depending on the question being reported on, with a respondent high of 136 and a low of 88.

### Pedagogical Artifacts

As part of the survey, students were invited, but not required, to upload course materials from writing-focused classes that incorporated SM. We refer to these uploaded materials as "pedagogical artifacts" throughout this article.

### File Naming and Emergent Categories

Student respondents uploaded a total of 19 pedagogical artifacts, and we initially worked through the files to rename them with descriptive titles that would trigger information about assignment context. We asked, *What is the assignment here?* Sometimes the files themselves contained descriptive assignment-related titles; other times, our experience as classroom instructors allowed us to backwards-engineer the potential assignment prompt from the content of the artifact using rhetorical analysis. In the file-naming process, we discovered three duplicate files and subsequently excluded two; thus, 17 usable files remained.

The file-naming process also initiated analysis with grounded theory, which allowed us to sort the artifacts into three preliminary categories: Student-authored responses to a writing project (SR); instructor-created material (ICM); and course readings or mentions of course readings (CR + Title). See Table 1 below for an explanation of these terms.

**Table 1:** *Explanation of Acronyms*

Acronym	Description	Explanation
ICM	Instructor-Created Material	Individual writing assignments or pedagogical bundles, like syllabi and portfolio instructions, authored by course instructors
SR	Student texts	Student texts authored as a result of a class assignment
CR + Title	Course Reading + Title of that Reading	A course reading



## Social Media in Practice *continued*

### ICM & SR Only

Because our research questions centered on exploring the use of SM in writing-focused classes, we excluded two student uploads related to course readings. The readings were not situated within an assignment sheet or any other course-related context; therefore, we could not deduce the purpose of the reading or the ways in which it was meant to connect to SM in practice. Thus, 15 ICM and SR files remained in the sample pool of pedagogical artifacts.

### “Social Media” as an Ineffective Limiter

While all 15 files articulated well with the SR or ICM categories, the survey phrase “about SM and writing” as a content limiter proved problematic. As Mina (2019) noted about the term “new media,” the variations in use make selecting and applying a definition appropriate for a study’s context “no easy task” (p. 4). The same difficulty applied to choosing a definition of SM to establish criteria for including and excluding pedagogical artifacts. It was clear that the students’ choice of materials to upload collapsed distinctions between SM (e.g., Twitter, Facebook, Instagram), digitally-mediated presentations (e.g., Prezi), electronic portfolios (e.g., Digation), multimodal or web-based texts, and digital media, in general.

Following Mina (2019), we, too, decided to avoid applying a definition that “creates more divisions between technologies and their uses or areas of use” (p. 5), embracing the wide net the term “social media” casts and the many ways survey participants interpreted the term. We selected pedagogical artifacts as relevant to the goals of our research if the ICM or SR explicitly discussed, referenced, or performed within “media that exploit Web 2.0 technologies to allow for more user interaction, especially opportunities for user-generated content, [and] social interactions” (Verzosa Hurley & Kimme Hea, 2014, p. 57) and/or if the document suggested that SM would likely serve as content for analysis or as a tool for writing. Ultimately, three SR files and one ICM did not meet the SM inclusion criteria. These four files were subsequently excluded from the sample. Table 2 presents a summary of our final sample.

**Table 2:** *Final Sample Summary & Description*

Document Categories	Files	Description
Student Response (SR)	6	Individual student texts authored as a result of a class assignment
Instructor-Created Materials (ICM)	5	Includes stand-alone assignments, portfolio instructions, and syllabi
<b>Total</b>	<b>11</b>	

Though we treated each respondent’s upload as one file, ICMs like syllabi often contained multiple assignments and/or references to multiple learning activities. Four ICM files contained a collection of assignments or references to multiple assignments. These “pedagogical bundles” provided additional insight into the ways in which SM was woven throughout a course beyond a single assignment.

Before moving to results and discussion, it is worth questioning why student respondents uploaded the kinds of documents they did—especially the four assignments that two experienced writing instructors couldn’t connect to a SM assignment. Given that writing studies and related fields offer varying definitions and boundaries for SM, and given the ways terms like “social media,” “new media,” and “digital media” are used in the vernacular, the term “social media” might have simply served for student respondents as a proxy for a digital assignment, a media-infused project, or a nontraditional writing prompt—something with some funk (Banks, 2015; Bastian, 2017), like one upload that offered an analysis of a contemporary song and its artist. Also, any mention of technology or media might have triggered students to upload course materials with a digital component or media focus but not Web 2.0 affordances, like one upload in which the student writer discussed online journalism in relation to print media. Carr and Hayes (2015) have noted the difficulties in pinning down any one definition of SM, stating that “although we know what social media are, we are not necessarily able to articulate why they are what they are, and various disciplines address social media disparately” (pp. 46-47, emphasis in original). Thus, methodologically, SM researchers will likely continue to contend with issues



## Social Media in Practice *continued*

related to what counts as SM, why that matters, and who and what is made visible and invisible when we apply disciplinary definitions to terms rampant in popular culture. Future research across disciplines may want to explore how SM is defined by academics, practitioners, and students within those fields.

### Results and Discussion

#### Survey Data

##### SM Platform Preferences, In and Out of Class

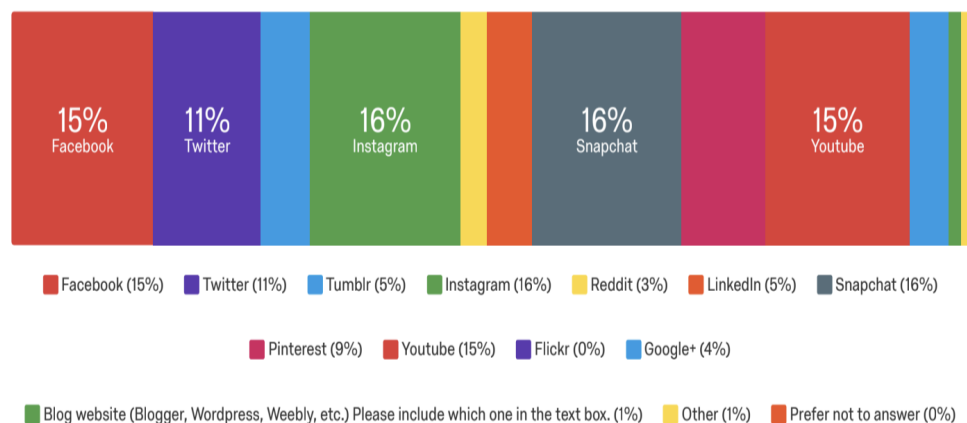
Our quantitative data align with previous research (Vie, 2015) that suggested 90% of writing faculty surveyed (N = 619) use SM in some way in their writing classes. Within the context of this current study, when asked if their writing classes used SM as part of a class assignment, either as content or as a composing space, 80% of student respondents said yes. The SM technologies used in the classroom have also remained stable since Vie's 2015 survey, when faculty reported using YouTube most often (81%), followed by Facebook (66%) and Twitter (60%). In this current survey, when asked which SM platforms their instructors used in their writing classes, students reported Twitter most frequently (61%), followed by YouTube (40%), Instagram (39%), and Facebook (38%). Facebook, Twitter, and YouTube have frequently been referred to as SM's "big three" and their continued presence in the classroom—given their ubiquity in everyday life—is unsurprising. Blogging websites were also used (25%) by a significant number of instructors, according to students.

Interestingly, when asked which SM platforms students used outside of their writing classrooms, students' responses were more diverse and more evenly spread among five major SM platforms. The survey results displayed in Figure 1 add important texture to previous research and our own

findings about instructor preference and SM platforms. Faculty members' use of SM within a class is not exactly aligned with students' SM preferences outside of class. However, the results in Figure 1 do align squarely with the Pew Research Center's most recent report regarding SM use in the United States. Pew data shows Instagram and Snapchat as increasingly popular among 18- to 29-year-olds with 67% and 62% of respondents using these sites, respectively (Perrin & Anderson, 2019, "Instagram, Snapchat Remain Especially Popular" section). Within an ever-changing digital landscape, our survey results coupled with the Pew data illustrate the importance of not hitching our digital pedagogies to particular tools since new tools come in and out of popularity within the span of a few short years; like Carr and Hayes (2015) asserted, SM research must allow for "media not yet available or even predictable" in ways that transcend discipline and contexts (p. 61).

**Figure 1:** *Students' SM Platform Use Outside of Class*

As our opening anecdote illustrated, social media applications are impermanent. What's lasting are the ways we teach students to think about technologies, particularly through a critical lens, and the heuristics we apply to negotiate different rhetorical ecologies through writing, speaking, and working with visuals. But at the same time, instructors need to familiarize themselves with new composing technologies (Vie, 2008) in order to teach students both to investigate them critically and compose within them responsibly, with agency and authority. In practice, for example, we might create spaces for students to analyze the affordances of their preferred SM interfaces—how they constrain rhetorical



## Social Media in Practice *continued*

choices, for example—by systematically investigating (e.g., writer’s logs) their own posts on frequently used platforms. We can also imagine assignments in which students create short videos on the writing conventions of a particular SM platform by comparing and contrasting those conventions to the writing conventions of a particular discipline. Across other disciplines, we could imagine assignments that might explore how professional organizations use voice and tone in SM to disseminate information critical to group members or how a currently trending news item is hashtagged across different SM platforms and why.

### SM Use, In and Out of Class

Of students surveyed, 81% said they use SM differently in class than out of class. In contrast, 11% of respondents said their use of SM in class did not differ from their use of SM outside of class, and 8% answered N/A, indicating they did not use SM outside of required classroom activities. While the tension between curricular and extracurricular SM use is clear, the themes that emerged from students’ descriptions of the differences they perceived did not center on work habits, contextual privacy, and convergent audiences as Faris (2017) reported. Our results point to a rhetorical difference, a difference related to a rhetor’s purpose or aim. Of the 81% that noted differences in their use, most individual student responses were only slight variations of these two examples:

- “I browse when I’m on my own time. When I’m on it for something scholastic, I’m on a mission and look specifically for the elements I’m being asked to look for.”
- “Viewing SM outside the classroom is basically just a time for my brain to rest, while using it in the classroom, there is some sort of academic interest behind viewing it.”

These responses and the 96 others like it point, perhaps, to a critical use of SM in the classroom, an instructor’s aligning of SM assignments to academic

learning goals like rhetorical awareness, analysis and reflection, writing skills, and community building/engagement (Mina, 2017; Vie, 2015). Using SM for academic purposes, though, has likely widened the gap that students perceive between their personal use and their instructors’ pedagogical use. Our results point to a lack of transfer between writing contexts, despite some overlaps in SM platform use. Such findings echo earlier studies that similarly showcase students who fail to see their existing digital and multimodal composing skills as connected to classroom practice (Anson, 2017; Rosinski, 2017; Shepherd, 2018).

This gap between how students see themselves using SM in and out of class may also provide insight into students’ responses to the following survey question: “Did you feel like using SM in your writing classroom affected your writing?” Less than half (47%) of students responded that SM use in the writing class affected their writing positively, 26% reported that SM hadn’t affected their writing at all, and another 25% responded, “I’m not sure.” Making clear the benefits of our pedagogical actions is often not explicitly stated within our in-class interactions. Therefore, it is likely that some activities, especially if they are infrequent, fail to make an impression on students’ perceptions of their own abilities. Several student responses reinforced the need for greater scaffolding of assignments and concepts that faculty particularly want to emphasize (or hope that students will transfer to other contexts):

- “The project was a one-time thing, and therefore I cannot say how it could have affected my writing since then. ... I would need more assignments like it to notice any differences in my writing.”
- “I’m not sure that social media affected my writing because our final projects didn’t really incorporate the use of Twitter, like the rest of the class.”

It might also be that these activities are less valuable for developing writing skills than they are for developing rhetorical awareness, analysis and reflection skills, or community building. Since the focus of a writing class is centered on teaching students how to think about writing, as well as developing writing skills to respond to varied rhetorical situations, these results may point to the need for further investigation about the instructor’s

## Social Media in Practice *continued*

intention for using SM in their pedagogy—a hallmark of critical digital pedagogy—as well as communicating those intentions to students. In other words, how well-equipped might students be to analyze for themselves whether their writing has changed as the result of a class? Do they understand why they are being asked to participate in certain classroom activities, or how those activities will support their learning (e.g., their ability to write, rhetorically analyze, think critically, etc.)?

Finally, if students believe the term *writing* can only be applied to certain genres, or function as a label for composition that meets particular criteria (e.g., has a thesis and five paragraphs, has an argument supported by evidence), then students may neglect to see their composing activities in social media, even when addressed in the classroom, as having anything to do with what they see as *real* writing. Furthermore, it may be difficult for students to perceive any positive connection between using SM in a writing classroom and their writing as a whole. We, therefore, must talk explicitly about the connections we’re hoping to foster between in-class and out-of-class use and incorporate opportunities for students to reflect on and predict transfer opportunities.

In Jessica’s own Introduction to Composition courses, for example, she recognizes that asking students to compose a critical review in the comments of a YouTube video does not necessarily mean students will evaluate product reviews on Amazon more critically, or even other YouTube videos, unless the assignment explicitly asks students to tease out those connections, to anticipate future sites of transfer. Similarly, in Stephanie’s courses, she embeds reflections on learning outcomes throughout the class, as well as asks students to consider how the assignments are scaffolded to build toward the end goal of her class and make connections to other learning experiences (in their major, minor, general education, or anticipated experiences post-graduation). Such activities are necessary to prompt students to make connections among their various learning experiences, which can seem quite disparate to students without such guidance. To this point, Rosinski (2017) specifically suggests creating reflective writing opportunities that encourage students to “see that they are already writers through their digital self-sponsored writing, and that they have a storehouse of knowledge . . . that they can draw upon

in academic writing contexts” (p. 266). Even beyond English or composition classes, these kind of brief reflective critical writing opportunities are a hallmark of writing-across-the-disciplines pedagogy and offer students a means for effective learning transfer.

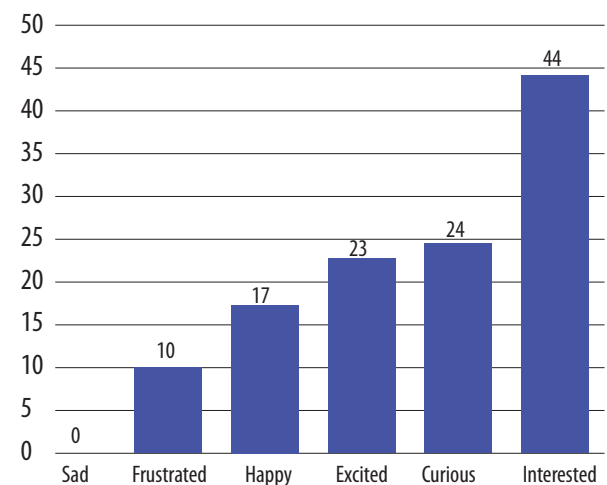
Still, despite the mixed responses from students related to SM and their developing writing skills, the majority of student respondents said that faculty members including SM in their writing classes is “generally a good thing” (see Table 3).

**Table 3:** Student Responses to Faculty Including SM in Writing Classes

Response Category	Percent	N
Generally a good thing	64.77%	57
Generally a bad thing	5.68%	5
I’m indifferent	23.86%	21
Prefer not to answer	5.68%	5

Moreover, students most frequently used the word *excited* to describe how they felt about being assigned to write about or in SM (see Figure 2).

**Figure 2:** Frequency of Emotion Words Related to SM in Writing Classes ( $n = 118$ )



## Social Media in Practice *continued*

Table 3 and Figure 2 highlight the positive feelings students expressed about SM and their overwhelming support for its use in their classes. A follow-up qualitative survey question seeking further input pointed to two likely causes: students' familiarity with SM technologies and SM's cultural significance. Words like *relatable* and *familiar* were frequently used to qualify both students' excitement and explain why faculty should include SM in their curriculum. Students' recognition of the broad reach of SM in society—from personal branding to corporate marketing to community building and activism—also emerged as a characteristic explanation. Phrases like *real world*, *prevalent in society*, and *incredibly popular* were plentiful in student responses. For example:

- “I think it’s important to focus on SM for at least part of writing classes because many young students are constantly exposed to it. Having it be a topic can make students more aware of what they’re viewing inside and outside of the classroom.”
- “Social media is used so widely. Since so many cultural, political, and social discourses are occurring online, it’s important for students to know how to use SM in a way that is productive to society and their education, not just for entertainment purposes.”

What’s interesting to note here is that students see the possibility, even the necessity, of learning to use SM more critically than is typical, or beyond entertainment purposes. Yet student respondents also articulated a clear distinction between mindless browsing for entertainment purposes (what they saw as an extracurricular use of SM) and their focused, academic/in-class SM assignments. They may see the potential and be able to articulate it, as in the responses above, but still fail to adjust their daily reading and writing practices.

In fact, students' familiarity with SM may be a barrier to critical digital literacy, as previous research pointed to a disconnect between comfort and critical engagement (Daer & Potts, 2014; Selfe, 1999; Vie, 2008). That is, the more comfortable we become with a given technology, the more invisible it becomes in our lives, and thus more difficult to critique. Thus, the very reason students find SM in academic places relevant,

interesting, and important may simultaneously make critical engagement more difficult, particularly because critical engagement asks us to work with and approach technologies in ways that are different from our normal approaches. After all, breaking habits is quite hard. This is particularly true of our writing and reading processes since they are frequently left unexamined, at least prior to writing courses. It may also be that our SM assignments fail in various ways to engender application, transfer, meshing, and merging of skills. Or perhaps we do not assign SM with a critical digital pedagogical purpose, but simply include them because of their ubiquity. Mere use in class may not intrinsically equate to students' development of critical perspectives. Just what do our “academic” SM assignments do, then? What do they look like, in practice? Our sample of pedagogical artifacts offers some insight.

### Pedagogical Artifacts

In addition to exploring students' attitudes toward SM use in the writing classrooms through survey data, we also analyzed artifacts from classrooms nationwide to glimpse the current landscape of SM in use. While our sample of pedagogical materials is small (see Table 2 in Methods for the final sample summary and description), it is novel. To date, there have been few previous studies investigating how students are asked to incorporate and respond to SM in the writing classroom beyond individual instructors' approaches. Consisting of both student responses to SM assignments (SR) and instructor-created materials (ICM) uploaded by students, our artifact pool highlights SM in action in various writing-focused courses, delivered by geographically diverse instructors teaching at urban and suburban institutions. Moreover, the four pedagogical bundles (syllabi and portfolio instructions) provide additional insight into whether and how SM is woven throughout a course (or not). We know the possibilities, but what's happening in practice? The following sections offer some perspective on this under-researched and timely question.

### SM in Practice: Assignment Scope and Platform Preferences

The thinking and writing tasks represented in the 11 student uploads (see Table 2 in Methods for reference) highlight diverse uses of SM in writing-focused classes.



## Social Media in Practice *continued*

Some ICMs asked students to write “Twitter fiction,” while other assignments asked students to “write a first-person narrative about a time when you learned how to use a new technology for the first time.” SR documents also evidenced a significant range of genres, topics, and writing purposes, from analytical academic essays on Amazon product reviews to reflective Facebook posts and infographic evaluations centered on the WeRateDogs accounts on Twitter and Instagram. Figure 3 below provides a visual example of an ICM (left) and an SR (right) file.

Despite the diversity in content, purpose, and genre, the SR documents represented in our sample mirror the data collected from the student survey about which platforms students used in classroom SM assignments. For example, five of the six SR documents discussed Facebook, Twitter, YouTube, and/or Instagram. The other focused on Amazon. Interestingly, platform preference is not as highly concentrated in most ICMs. Five of the six ICMs allowed a range of platform possibilities for students to engage. For example, as part of a pedagogical bundle titled, “Social Media Reading Theory Portfolio,” students were required to use a blogging/vlogging platform. While the instructor did list options (i.e., Reddit, Instagram, Blogger, YouTube, Soundscape, WordPress), they explicitly stated, “the choice is ultimately up to you, so use something you’re comfortable with.” Even the prescriptive assignment “Twitter Fiction” occurred within a pedagogical bundle for a creative writing class that offered opportunities for students to choose platforms that met their needs and the needs of the assignment.

Why, then, are the SR documents in our sample so concentrated around familiar platforms, given a relatively high level of choice on the ICM side? One reason for a lack of diversity in students’ platform choice might well be our small sample; another might point back to divisions between students’ “academic” and “personal” SM use discussed previously. Some platforms, like Facebook, for example, might lend themselves more readily to academic assignments and the intended audience for that assignment (the instructor), an issue we’ll return to in a subsequent section. That is, these may be the platforms that students anticipate their instructors will be more familiar with. For now, it’s significant to note that while our sample of pedagogical materials does highlight a wide

range of writing and thinking tasks related to SM, the student writing that followed most frequently involved Facebook, Twitter, and Instagram. Notably absent is the most novel, and very popular, Snapchat—an example of a SM platform that might make up what Mueller (2009)

**Figure 3:** *Examples of ICM (top) and SR (bottom) Documents Uploaded by Students*

**Twitter Fiction – Due 2/17**

This assignment is a creative writing assignment that requires you to tell a story using a twitter as a platform and digital medium.

The point of view you use to express the twitter story is an artist’s choice. It may be monolithic or a polyphonic point of view. This assignment is designed to have you examine how social media can be a specific expression of storytelling.

There are some questions to consider.

- What is going to be the subject of this narrative?
- What genre will you use to express yourself and how will you employ literary devices associated with such genre?
- How will your characters be expressed in this original work?

I’m interested in having you express your original work (prose, poetry, and drama) using twitter.

If you have decided to express this assignment using poetry, please write at least one full page of poems (3 – 7 poems) in the form of tweets. If you are going to use prose (fiction or non-fiction) to express this story, the work must be 2 – 6 pages long of tweets. I look forward to reading your writing.

This assignment is due five days before your scheduled workshop day **TO BE DISTRIBUTED TO YOUR CLASSMATES unless otherwise discussed.**

February 26, 2018

I am an avid online shopper I buy anything and everything online, and I rely on the reviews of products to get honest reviews from people to better understand the product. However, more times than not I have been lead in the wrong direction by fake or faux reviews on sites like amazon. For example, one of my friends had been looking into an eyelash serum to promote growth and healthy eyelashes. All of the reviews were nothing but five stars and excellent outcomes. So, she purchased the serum and began to use it. After the first night she applied the serum to her eyelashes there was no noticeable difference however, she also had make on and she couldn’t tell that the skin around her eyes was beginning to get rather red. Later that night she applied the serum again before taking off her makeup, only to later find out there her eyes had begun to bruise and were rather red. Immediately trying to scrub it all off, never to use it again. The fact of the matter is anyone who was looking into this product only saw outstanding reviews only to later find out that this serum can chemically burn your skin.

Sites like amazon.com rely on consumers to provide product reviews on the products. By participating in this it creates a sense of community with the buyers who frequently visit the site. Not only is the sense of community important to sites like amazon, according to Susan Mudambi the products are with the most reviews are more frequently visited. Not only that but amazon has begun to put the products with more reviews and visits at the top of pages



## Social Media in Practice *continued*

called students' "digital underlife." Mueller and others have argued that instructors must address students' writing in these "self-produced learning spaces" (Frost, 2011, p. 269), but neither the SR files or ICMs in our sample provide evidence of incorporation. An important reflection question for individual instructors follows: *Why not?*

### SM in Practice: Content, Composing Space, and/or Community Building

As Table 4 indicates, assignments that draw on SM as content (as the subject of students' writing and thinking) were more common than assignments that asked students to use SM as a composing space, thus confirming with student samples Mina's (2017) findings that instructors are more likely to use SM as content for analysis than as a production space, despite a growing awareness that students need to produce text in multiple modes in workplace settings.

**Table 4:** % of Pedagogical Materials using SM as Content, Composing Space, and/or Community Building/Networking

SM Use	% of Pedagogical Materials (SR + ICM)	SR/ICM Title
Content Only	46% (5)	SR: How Media Shapes Us; ICM: Learning Narrative; SR: Hashtag Analysis; SR: Amazon Product Reviews; SR: Who Does it Best in WeRateDogs
Composing Space Only	9% (1)	ICM: Creative Writing in Digital Spaces
Both Content & Composing Space	27% (3)	SR: Creeping Journal; SR: SM Reading Theory Portfolio; ICM SM Reading Theory
Community Building / Networking Only	18% (2)	ICM: Social Action Writing; ICM: Electronic Portfolio for Professional Writing

Given that privacy concerns often surface in discussions of incorporating SM into academic spaces (Hentges,

2016), and that rhetorical awareness and analysis and reflection are two of the four most common reasons faculty cite using SM in their classrooms (Mina, 2017; Vie, 2015), it is not surprising to see a focus on writing about SM. Additionally, instructors might question the ethics of requiring students to publicly post content that is designed for classroom practice. No matter the rationale for instructors' emphasis on SM as content over composing space, what's missing in the assignments using SM as content only is a critical engagement with SM. Amiccuci (2014) suggested that, through reflection about their own composing practices, students could be prompted to not only discover connections between composing decisions and context, but also become critical of the technologies they use. While Amiccuci's suggestion is compelling and aptly aligned with the goals of a critical digital pedagogy, the "Content Only" SM assignments in our sample do not provide evidence of critical digital pedagogy in practice. Likewise, the SR and ICM documents that use SM as "Tool Only" or as "Community Building/Networking Only" lack a critical focus.

We do see evidence of a critical digital pedagogy enacted and critical digital literacy developing in the assignments that use SM as "Both Content and Tool." The SR Creeping Journal, for example, questions Facebook's trustworthiness in relation to users' ability to delete their private information permanently and the consequences of being able to find content users thought they deleted. We also found explicit opportunities for students to connect out-of-class literate practices to academic literacies in the ICM: Social Media Reading Theory Portfolio. Here, the course instructor affirmed, "we will develop a theory for how to transfer these skills towards reading academic texts that we find challenging." Not only are explicit instructions like these important for fostering transfer, but as Mina (2019) argued, "emphasizing the role of instruction and open communication with students is likely to make teachers critically ponder their choices and decisions of using technology" (p. 12). Finally, in the last artifact in the "Both Content and Tool" subgroup, SR: Reading Social Media, the writer recognizes the exaggerated use of pathos in Tweets in his Twitter feed as well as the lack of dissenting opinions on controversial topics.

This subgroup, SR files and ICMs using SM as

## Social Media in Practice *continued*

“Content and Tool,” provides the most compelling data on how critical digital pedagogy and opportunities for transfer might make their way into practice. Interestingly, though, the use of SM as a composing space seemed incidental. In other words, though the assignments prompted writing in SM spaces, the SR documents did not feel as though they were composed for public audiences. Given the ethical and privacy concerns surrounding real SM posts assigned in college classrooms (i.e., those written and circulated on actual public SM platforms), some instructors may see that critical digital pedagogy and teaching for transfer don’t necessarily involve using SM as a composing space, especially if the intended audience for that SM writing is really the course instructor and/or classmates and not the public or students’ SM friends/followers. Similarly, the focus on SM as content may be in an effort to respect what we know about the ways students curate their SM feeds and make concerted efforts to cultivate a personal brand or identity—one that need not be infiltrated by academic content. The following section takes up this issue directly.

### SM in Practice: Academic Audiences

ICMs and SR files in our sample of pedagogical materials often reproduced traditional writing assignments and featured writing to academic audiences despite SM’s capacity to promote public writing, as Table 5 shows.

**Table 5:** % of Pedagogical Materials Addressing Academic Audiences

Audience	% of Pedagogical Materials (SR + ICM)
Academic	91% (10)
Public	9% (1)

A Pew Research Center Internet and Technology study (Purcell et al., 2013) revealed that teachers think Internet-based writing and digital composing technologies offer students opportunities to write for “wider and more varied audiences” (“The AP and NWP Teachers Surveyed” section). Likewise, a student interviewee in Amiccuci’s (2014) research suggested instructors should find ways to capitalize on students’ “real” audiences from Facebook and text messaging in classroom assignments

(p. 486). Though possibilities abound, the reality is that students are mostly composing prose aimed at their instructors, at the university (Bartholomae, 1985), or themselves within the context of a traditional writing assignment, what Spinuzzi (1996) has referred to as “pseudotransactional writing,” or “writing that is patently designed by a student to meet teacher expectations rather than to perform the ‘real’ function the teacher has suggested” (p. 295). Even the ICM: Creative Writing in Digital Spaces, discussed previously as an example of a pedagogical material in which SM is used as “Tool Only,” asked students to conceive of their audience as primarily academic. For example, though the final portfolio in this class was meant to be created using Blogger or Weebly, the poetry and fiction within was preceded by a “300 word academic reflection [. . . ] on the home page.” Likewise, the “Twitter Fiction” and “Social Reality Narratives” within this pedagogical bundle could be composed in word processing software “as long as it reflects the genre of the SM narrative tool you are using” before it was distributed to classmates for workshoping.

SR files, too, demonstrate this penchant for traditional assignments and writing to academic audiences using SM tools. For example, two SR files placed screenshots of SM writing within traditionally-structured and instructor-centered essays; two SR files presented SM content in only alphabetic text; and the final two SRs, an infographic and a Facebook post, both transparently referenced classroom assignments. Though the incorporation of multimodal elements in the four SR files represent a broadened conception of writing, the included SM writing highlights mixed use of SM itself. For example, the Tweets incorporated in SR: Reading SM were clearly written for class and pseudotransactional, with the instructor-as-audience in mind. In contrast, SR: Hashtag Analysis incorporated images and text from Instagram that were composed outside of an academic writing assignment. SR: Hashtag Analysis offers an important example of what it might look like to act on the students’ advice in Amiccuci’s (2014) research: namely, to incorporate writing students have already done in SM platforms within classroom assignments. And though SR: Hashtag Analysis does not inspire critical investigation of hashtags and the platforms used to post them publicly, we see opportunities to incorporate critical perspectives. For example, students

## Social Media in Practice *continued*

might examine how hashtags function rhetorically and conceptually, and explore how users can/do enforce, resist, and complicate issues within a platform and its networked publics (boyd, 2014).

Overall, what we see in our sample is that, despite categorization of an ICM or SR as “Content Only,” “Content and Tool,” “Tool Only,” or “Community Building/Networking Only,” the kind of writing produced or the directions for what to produce were centered on envisioning an academic audience (see Table 5). Interestingly, the one ICM that makes up the 9% of pedagogical materials in which students’ writing is intended for public consumption falls into the SM used for “Community Building/Networking” category (see Table 4). This ICM was from a senior seminar course that required students to create a professional electronic writing portfolio; the portfolio was comprised of five projects: a “traditional essay” in MLA or APA style, a “technology project,” a “piece that highlights your document design skills,” and two other texts that “highlight the strength of your skills.” While SM was not specifically required in the portfolio contents, it was specifically mentioned in relation to networking opportunities in a subsequent section of the ICM. The instructor took care to specify that including SM in the professional electronic portfolio should be “professional,” and to “include an image of yourself (keep professional; use a head/shoulder shot/s).”

These results that showcase the predominance of academic audiences add important texture to the preference instructors have for incorporating SM as content instead of tool, also indicated by our sample. Namely, as new technologies transform culture and our disciplines (Hayles, 1999), we look for ways to incorporate them while preserving favorite, familiar, or fixed assignments. SM as content, for example, would allow an instructor teaching writing to retain their rhetorical analysis assignment while incorporating SM as content to leverage motivation, connection, and hipness. Or, perhaps, instructors are leery of SM’s persistence, visibility, spreadability, and searchability (boyd, 2014) and are wisely considering the ethics of asking students to post publicly in academic contexts that should offer opportunities to practice thinking, writing, being, and doing without fear of creating a lasting digital footprint. That is to say nothing of data tracking and mining latent

in proprietary SM platforms. No matter the reason and application, though, what we advocate for is a critical rational pedagogy—one that is precipitated by an investigation of SM *in* use, as well as the possibilities *of* use.

### Conclusion

Social media’s pervasiveness in our technology-mediated world compels us to consider its place in classroom practices, writing-focused ones and beyond. We, along with today’s undergraduates, engage in a multitude of SM composing processes: We produce Facebook status updates, Twitter Tweets, Tumblr blog posts, LinkedIn profiles, content and comments on YouTube, Instagram posts, Snapchat snaps, and many others. The immense popularity of SM worldwide coupled with the sheer amount of writing produced in these media illustrates the potential for SM to influence our understandings of what it means to be technologically literate in the twenty-first century. Our sharp attention to SM is certainly necessary as we build, refine, and reflect upon our digital pedagogies, specifically regarding how to align digital tools with rigorous, critical learning about our course content and skills.

Beyond the argument that SM matters, this article also contributes important new data about what *is* happening as educators bring SM into their classrooms—how possibility becomes concrete in learning activities and how students feel about it. We believe that knowing better does, in fact, allows us to do better. In this case, data from the current study (both student survey responses and pedagogical artifacts) in conjunction with previous research establish that students are interested in social-media-infused writing assignments and generally think it’s a good idea for instructors to incorporate them into coursework. Moreover, both instructors and students see potential for SM to help develop skills like rhetorical awareness, analysis and reflection, writing skills, and community building/engagement, as well as critical digital literacy skills. We also know more about how instructors are incorporating SM into writing assignments: 1) Despite opportunities to choose their own platform, students mostly write about and with Facebook, Twitter, and Instagram for academic SM assignments; 2) Social media is used more often as content than as a composing space; and 3) Social media

## Social Media in Practice *continued*

assignments often reproduce traditional assignments and produce texts written for academic audiences. While privacy issues and preferences for keeping students' classroom writing within the safer walled garden of the classroom may be contributing factors to the latter two findings, the first may be due to the academic affordances intrinsically embedded in particular platforms, as well as implicit or explicit instructor preference for, and familiarity with, the most popular SM platforms. There's much we still don't know, and future research should investigate the rationale behind ICMs that use SM, as well as gather a larger sample of both ICMs and SR artifacts.

Finally, though our sample of pedagogical materials does not overwhelmingly showcase critical digital pedagogies and the critical digital literacies they *ideally* engender, our findings suggest opportunities for teacher-scholars in many disciplines to reflect critically on their own SM assignments, as well as how to incorporate SM content and tools into digital, *ideally* critical, pedagogical practices. We've incorporated some of our suggestions throughout to spur thinking.

In closing, we present some questions for continued consideration, purposely conceived for faculty in diverse fields. By doing so, we explicitly encourage transfer between our findings and other pedagogical contexts by suggesting a starting place for decision-making about SM in any classroom that aims for critical engagement with the SM tools and technologies that are so ubiquitous in our world.

1. Is using SM in the classroom teaching your students about your course content, helping you accomplish writing goals, and/or facilitating community-building or networking opportunities?
2. Does your use of SM allow students opportunities to move from being passive consumers or commodified prosumers into positions of agency and authority?
3. Do you explicitly state/discuss how the thinking/writing/reading skills engendered by your SM assignment should relate to future thinking/writing/reading situations or specific academic/social literacies?

4. Does your use of SM respect students' prior knowledge, privacy concerns, accessibility requirements, and needs?
5. Does your use of SM connect to larger learning goals, outcomes, or purposes for your class?

If you answered yes to all five questions and have an interest in SM, we think you're headed in a productive direction. Not a perfect direction or permission to autopilot, but a fruitful one. If there is a no mixed in, we suggest you continue to ask questions. Pose them to your students and other faculty. For example, in what spaces, in what ways, and by whom is my course content discussed on SM? If so, how might students enter those conversations? Should they participate? Listen only? Analyze the writing/thinking of others? There are many possibilities for incorporating SM in a wide variety of courses and curricula, but doing so in service of critical digital pedagogy should be a central concern, one that is revisited and reflected upon both prior to and after incorporation. We encourage instructors to involve their students in this process, as the data from this study show that students have many productive reflections to offer on the use of SM technologies in pedagogical environments.

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## References

- Alexander, J., & Rhodes, J. (2014). *On multimodality: New media in composition studies*. CCCC/NCTE.
- Amicucci, A. N. (2014). How they really talk. *Journal of Adolescent & Adult Literacy*, 57(6), 483–491. <https://doi.org/10.1002/jaal.274>
- Amicucci, A. N. (2017). Rhetorical choices in Facebook discourse: Constructing voice and persona. *Computers and Composition*, 44, 36-51.
- Anson, C. M. (2017). Intellectual, argumentative, and informational affordances of public forums: Potential contributions to academic learning. In D. M. Walls & S. Vie (Eds.), *Social writing/social media: Publics, presentations, and pedagogies* (pp. 309-330). The WAC Clearinghouse and University Press of Colorado.
- Banks, A. (2015). 2015 CCCC chair's address: Ain't no walls behind the sky, baby! Funk, flight, freedom. *College Composition and Communication*, 67(2), 267-279.
- Bartholomae, D. (1985). *Inventing the university*. Guilford.
- Bastian, H. (2017). Student affective responses to "bringing the funk" in the first-year writing classroom. *College Composition and Communication*, 69(1), 6–34.
- Bauerlein, M. (2008). *The dumbest generation: How the digital age stupefies young Americans and jeopardizes our future (or, don't trust anyone under 30)*. Penguin.
- boyd, d. (2014). *It's complicated: The social lives of networked teens*. Yale University Press.
- Brandt, D. (1998). Sponsors of literacy. *College Composition and Communication*, 49(2), 165-85.
- Buck, A. (2012). Examining digital literacy practices on social network sites. *Research in the Teaching of English*, 47(1), 9-38.
- Carr, C. T., & Hayes, R. A. (2015). Social media: Defining, developing, and divining. *Atlantic Journal of Communication*, 23(1), 46-65.
- Coad, D. (2017). "That's my face to the whole field!": Graduate students' professional identity-building through Twitter at a writing studies conference. *Computers and Composition*, 45, 51-66.
- Cope, B., & Kalantzis, M. (2000). *Multiliteracies: Literacy learning and the design of social futures*. Routledge.
- Daer, A. B., & Potts, L. (2014). Teaching and learning with social media: Tools, cultures, and best practices. *Programmatic Perspectives*, 6(2), 21-40.
- DeLuca, K. (2015). "Can we block these political thingys? I just want to get f\*cking recipes:" Women, rhetoric, and politics on Pinterest. *Kairos: A Journal of Rhetoric, Technology, and Pedagogy*, 19(3). <http://kairos.technorhetoric.net/19.3/topoi/deluca/index.html>
- Faris, M. J. (2017). Contextualizing students' media ideologies and practices: An empirical study of social media use in a writing class. In D. M. Walls & S. Vie (Eds.), *Social writing/social media: Publics, presentations, and pedagogies* (pp. 283-307). The WAC Clearinghouse and University Press of Colorado.
- Foucault, M. (1973/2002). *The order of things: An archeology of the human sciences*. Routledge.
- Frost, E. A. (2011). Why teachers must learn: Student innovation as a driving factor in the future of the Web. *Computers and Composition*, 28(4), 269-275.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. AldineTransaction.
- Grabill, J., Hart-Davidson, W., Pigg, S., McLeod, M., Curran, P., Moore, J., ... Chavez, B. (2010). Revisualizing composition: Mapping the lives of first-year college students. WIDE Research Center, Michigan State University. <http://compositionawebb.pbworks.com/f/whitepaper.pdf>



Social Media in Practice *continued*

- Hansen, L. (2013, June 10). Six things social media is ruining. *The Week*. <https://theweek.com/articles/463408/6-things-social-media-ruining>
- Hawisher, G. E., & Selfe, C. L. (1991). The rhetoric of technology and the electronic writing class. *College Composition and Communication*, 42(1), 55-65.
- Hawisher, G. E., Selfe, C. L., Moraski, B., & Pearson, M. (2004). Becoming literate in the information age: Cultural ecologies and the literacies of technology. *College Composition and Communication*, 55(4), 642-92.
- Hayles, K. (1999). *How we became posthuman: Virtual bodies in cybernetics, literature, and informatics*. University of Chicago Press.
- Henry, J. (2013, January 20). Art of essay-writing damaged by Twitter and Facebook, Cambridge don warns. *The Telegraph*. <https://www.telegraph.co.uk/technology/social-media/9813109/Art-of-essay-writing-damaged-by-Twitter-and-Facebook-Cambridge-don-warns.html>
- Hentges, S. (2016). Toward #SocialJustice: Creating social media community in live and online classrooms. *Transformations: The Journal of Inclusive Scholarship and Pedagogy*, 26(2), 230-238.
- Humphrys, J. (2007, September 24). I h8 text msgs: How texting is wrecking our language. *Daily Mail*. <https://www.dailymail.co.uk/news/article-483511/I-h8-txt-msgs-How-texting-wrecking-language.html>
- Keeler, J. (2009, June 11). Studies explore whether the Internet makes students better writers. *The Chronicle of Higher Education*. <https://www.chronicle.com/article/Studies-Explore-Whether-the/44476>
- Kimme Hea, A. C. (2014). Social media in technical communication. Special issue of *Technical Communication Quarterly*, 23(1). <https://www.tandfonline.com/toc/htcq20/23/1>
- Lunsford, A. (2007, February). *The Stanford study of writing*. Stanford University. [https://ssw.stanford.edu/sites/g/files/sbiybj10266/f/Senate\\_report\\_February\\_2007.pdf](https://ssw.stanford.edu/sites/g/files/sbiybj10266/f/Senate_report_February_2007.pdf)
- Lunsford, A. (2013). *Our semi-literate youth? Not so fast*. Stanford University. [https://ssw.stanford.edu/sites/g/files/sbiybj10266/f/OPED\\_Our\\_Semi-Literate\\_Youth.pdf](https://ssw.stanford.edu/sites/g/files/sbiybj10266/f/OPED_Our_Semi-Literate_Youth.pdf)
- McKee, H. A., & DeVoss, D. N. (2007). Introduction. In H. A. McKee & D. N. DeVoss (Eds.), *Digital writing research: Technologies, methodologies, and ethical issues* (pp. 1-24). Hampton Press.
- McGrath, L. (2018). Achieving visibility: Midlife and older women's practices on Instagram and blogs. *Literacy in Composition Studies*, 6(2), 94-116.
- McNely, B. (2015). Instagram, geocaching, and the when of rhetorical literacies. *Kairos: A Journal of Rhetoric, Technology, and Pedagogy*, 19(3). <http://kairos.technorhetoric.net/19.3/topoi/mcnely/index.html>
- Mina, L. (2017). Social media in the FYC class: The new digital divide. In D. M. Walls & S. Vie (Eds.), *Social writing/social media: Publics, presentations, and pedagogies* (pp. 263-282). The WAC Clearinghouse and University Press of Colorado.
- Mina, L. (2019). Analyzing and theorizing writing teachers' approaches to using new media technologies. *Computers and Composition*, 52, 1-16.
- Moore, J. L., Rosinski, P., Peeples, T., Pigg, S., Rife, M. C., Brunk-Chavez, B., ... Grabill, J. T. (2016). Revisualizing composition: How first-year writers use composing technologies. *Computers and Composition*, 39, 1-13. <https://doi.org/10.1016/j.compcom.2015.11.001>
- Moran, M., Seaman, J., & Tinti-Kane, H. (2011). Teaching, learning, and sharing: How today's higher education faculty use social media [White paper]. Pearson Learning Solutions, the Babson Survey Research Group, and Converse. <https://files.eric.ed.gov/fulltext/ED535130.pdf>

Social Media in Practice *continued*

- Mueller, D. N. (2009). Digital underlife in the networked classroom. *Computers and Composition*, 26(4), 240-250.
- Perrin, A., & Anderson, M. (2019, April 10). *Share of U.S. adults using social media, including Facebook, is mostly unchanged since 2018*. Pew Research Center. <https://www.pewresearch.org/fact-tank/2019/04/10/share-of-u-s-adults-using-social-media-including-facebook-is-mostly-unchanged-since-2018/>
- Portanova, P. (2017). The rhetoric of distraction: New media use and the student writing process. In D. M. Walls & S. Vie (Eds.), *Social writing/social media: Publics, presentations, and pedagogies* (pp. 247-262). The WAC Clearinghouse and University Press of Colorado.
- Potts, L. (2013). *Social media in disaster response: How experience architects can build for participation*. Routledge.
- Purcell, K., Buchanan, J., & Friedrich, L. (2013, July 16). *The impact of digital tools on student writing and how writing is taught in schools*. Pew Research Center. <https://www.pewinternet.org/2013/07/16/the-impact-of-digital-tools-on-student-writing-and-how-writing-is-taught-in-schools/>
- Ray, R. E. (1993). *The practice of theory: Teacher research in composition*. NCTE. Ridolfo, J., & DeVoss, D. N. (2009). Composing for recomposition: Rhetorical velocity and delivery. *Kairos: A Journal of Rhetoric, Technology, and Pedagogy*, 13(2). [http://kairos.technorhetoric.net/13.2/topoi/ridolfo\\_devoss/velocity.html](http://kairos.technorhetoric.net/13.2/topoi/ridolfo_devoss/velocity.html)
- Rosinski, P. (2017). Students' perceptions of the transfer of rhetorical knowledge between digital self-sponsored writing and academic writing: The importance of authentic contexts and reflection. In J. L. Moore & C. M. Anson (Eds.), *Critical transitions: Writing and the question of transfer* (pp. 247-271). The WAC Clearinghouse and University Press of Colorado.
- Selber, S. A. (2004). *Multiliteracies for a digital age*. Southern Illinois University Press.
- Selfe, C. L. (1999). Technology and literacy: A story about the perils of not paying attention. *College Composition and Communication*, 50(3), 411-436.
- Shepherd, R. (2015). FB in FYC: Facebook use among first-year composition students. *Computers and Composition*, 35, 86-107.
- Shepherd, R. (2016). Men, women, and Web 2.0 writing: Gender difference in Facebook composing. *Computers and Composition*, 39, 14-26.
- Shepherd, R. (2018). Digital writing, multimodality, and learning transfer: Crafting connections between composition and online composing. *Computers and Composition*, 48, 103-114.
- Spinuzzi, C. (1996). Pseudotransactionality, activity theory, and professional writing instruction. *Technical Communication Quarterly*, 5(3), 295-308.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Sage.
- Takayoshi, P. D. (1995). *Theorizing technocentrism in computers and composition: Conflicting values, competing visions, and pedagogical interventions* [Unpublished doctoral dissertation]. Purdue University.
- Walls, D., & Vie, S. (2017). Social writing and social media: An introduction. In D. M. Walls & S. Vie (Eds.), *Social writing/social media: Publics, presentations, and pedagogies* (pp. 3-13). The WAC Clearinghouse and University Press of Colorado.
- Walsh, I., Holton, J. A., Bailyn, L., Fernandez, W., Levina, N., & Glaser, B. (2015). What grounded theory is... a critically reflective conversation among scholars. *Organizational Research Methods*, 18(4), 581-599.
- Wang, X. (2019). Observing literacy learning across WeChat and first-year writing: A scalar analysis of one transnational student's multilingualism. *Computers and Composition*, 52, 253-271.

Social Media in Practice *continued*

- What is Digital Pedagogy? (n.d.). *Hybrid Pedagogy*.  
<http://hybridpedagogy.org/digitalpedagogy/>
- Whitaker, M. C. (2016). (Re)Defining academic rigor: From theory to praxis in college classrooms. *Currents in Teaching and Learning*, 8(1), 4-17.
- Williams, B. T. (2009). *Shimmering literacies: Popular culture and reading and writing online*. Peter Lang.
- Yancey, K. B. (2009). *Writing in the 21st Century: A report from the National Council of Teachers of English*. NCTE.
- Verzosa Hurley, E., & Kimme Hea, A. C. (2014). The rhetoric of reach: Preparing students for technical communication in the age of social media. *Technical Communication Quarterly*, 23(1), 55–68.
- Vie, S. (2007). Engaging others in online social networking sites: Rhetorical practices in MySpace and Facebook [Unpublished doctoral dissertation]. The University of Arizona, Tucson, AZ.
- Vie, S. (2008). Digital divide 2.0: “Generation M” and online social networking sites in the composition classroom. *Computers and Composition*, 25(1), 9-23.
- Vie, S. (2015). What’s going on: Challenges and opportunities for social media use in the writing classroom. *The Journal of Faculty Development*, 29(2), 33-44.
- Vie, S., & Walls, D. (2015). Because Facebook: Digital rhetoric/social media. Special Issue of *Kairos: A Journal of Rhetoric, Technology, and Pedagogy*, 19(3).  
<http://kairos.technorhetoric.net/19.3/index.html>

# PROGRAM REPORT

## Increasing Accessibility and Diversity by Using a UDL Framework in an Infographics Assignment

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### Abstract

Higher education classes are more diverse than ever, comprising students of different ages, cultural backgrounds, and life experiences. One approach to enhancing inclusivity of diverse groups is by using the principles of Universal Design for Learning (UDL). By incorporating different ways of engaging learners, presenting information, and structuring assessments, instructors can increase inclusivity and accessibility for their students. In this paper we examine the three UDL principles, multiple means of engagement, multiple means of representation, and multiple means of action and expression, in a higher education context. We use an infographics assignment to show how the UDL framework was implemented in both an undergraduate and graduate-level course, and provide additional examples of incorporating UDL in a higher education context. We conclude the paper with recommendations for using UDL to increase inclusivity and accessibility in higher education.

### Keywords:

universal design for learning, infographics, accessibility, inclusion, digital pedagogies

### Increasing Accessibility and Diversity by Using a UDL Framework in an Infographics Assignment

In this paper we examine one approach to increasing accessibility and inclusion in higher education through digital pedagogies: an infographics assignment based on Universal Design for Learning (UDL) principles. Using two courses in different disciplines as case studies, we describe the purpose and structure of the assignments and how they use UDL principles to incorporate accessibility and inclusion. We conclude the paper with recommendations for others who want to use digital pedagogies to enhance accessibility and inclusion.

### Literature Review

#### Universal Design for Learning in Higher Education

Higher education classrooms are not composed of homogeneous groups of students, rather they have students of different ages, cultural backgrounds, and life experiences. Instructors can leverage student diversity to enhance the learning experience using the UDL framework. The aims of UDL are to structure learning activities that appeal to the largest number of learners, thereby increasing inclusivity and accessibility. Using the UDL framework offers an innovative approach to embrace student diversity (Tobin & Behling, 2018).

## Increasing Accessibility and Diversity *continued*

UDL can be described as a set of principles that guide the design of learning environments, activities, and assessments based on how people learn. Drawing from a number of different fields, including environmental design, cognitive neuroscience, and teaching practice, proponents assert that principles of UDL can be used to increase accessibility while maintaining standards and expectations of student learning (Al-Azawei et al., 2016; CAST, 2020a). UDL originally had a stronger focus on disability; however, as educators began to implement UDL principles, they noted that many learners benefitted when barriers to education were reduced. In higher education where the student population is increasingly diverse, making learning experiences more accessible through UDL can help meet the learning needs of students more broadly, beyond those with disabilities (Chen et al., 2018; Smith, 2012).

### Multiple Means of Engagement

The first UDL principle is multiple means of engagement. According to this principle, students have different levels of motivation and comfort in various learning environments. Therefore, by engaging them in different ways, students will be motivated to learn while strengthening weaker areas. Another aspect of this principle is to engage students with varying levels of academic challenge, as well as fostering community and collaboration, and encouraging student reflection and resilience (CAST, 2020a; Tobin & Behling, 2018).

In a higher education course, multiple means of engagement may be incorporated in many ways. For example, the instructor can add variety in teaching and learning activities by incorporating case studies and problem sets into a traditional lecture session. They might foster collaboration through in-class and online discussions. Learning technologies can be used for small group projects or practice exam questions. Student choice can be incorporated as well; for example, through optional readings or modules. Student self-regulation and resilience can be enhanced through goal setting and self-assessments (La et al., 2018).

### Multiple Means of Representation

Principle two is called multiple means of representation, which is meant to provide learners with various ways to access and engage with course information and materials. At its core is ensuring that course materials are accessible to as many students as possible. Additionally, multiple means of representation can be interpreted as including different pedagogical approaches in a course to appeal to a wider range of learning preferences (CAST, 2020a; Tobin & Behling, 2018).

There are many examples of how multiple means of representation can be approached in higher education. Course materials can be made accessible by posting online and adding an electronic version of the course text to the library. Multimodal sources of information include video lectures with closed captioning. The instructor might use different pedagogical approaches such as case studies to supplement a lecture. Student-created materials such as graphic organizers and glossaries can be used to customize the learning for individuals. Practice exercises and summary modules allow students to review and apply concepts. Instructors can also check for understanding through a student response system or questioning in class (La et al., 2018).

### Multiple Means of Action and Expression

The third principle, multiple means of action and expression, focuses on how students demonstrate their learning in various ways. Thus, multiple means of action and expression encourage students to apply what they have learned and demonstrate it in formats such as essays, projects, and exams. While many of the activities in higher education are graded, some are for feedback only or are scaffolded by dividing it into stages that build up to a graded assignment (CAST, 2020a; Tobin & Behling, 2018).

There are numerous opportunities for multiple means of action and expression in higher education classes. Quizzes and final exams can include different question types, such as multiple choice, matching, and short answer questions. Specific questions can also assess various ways of understanding concepts, such as comprehension questions, applying concepts or theories, and evaluating information. Assignments such as debates or authentic assessments require a demonstration of



## Increasing Accessibility and Diversity *continued*

skills. Opportunities for feedback include providing students with a rubric at the beginning of an assignment, and building in a peer review component. Allowing students the choice of assignment format allows them to demonstrate their learning in a way that they are comfortable, thereby mitigating assessment anxiety (La et al., 2018).

While the UDL framework has been used primarily in K-12 education in the past (Davies et al., 2013; Tobin & Behling, 2018), it provides a solid foundation for approaching accessibility in higher education courses as well. The UDL principle of multiple means of engagement emphasizes engagement in learning and student self-direction and regulation. Principle two, multiple means of representation, encourages instructors to make course materials available to learners in different ways as well as considering different pedagogical approaches to a topic. Accessibility is also emphasized in the third principle, multiple means of action and expression: by varying the assessments in seemingly simple ways, such as exam question type, it allows students the opportunity to succeed where they might have otherwise struggled. Therefore, the UDL framework can be beneficial when designing a higher education course for student engagement and accessibility (Smith, 2012).

### Course Design

When designing courses to incorporate UDL principles, one of the overarching goals is to foster positive outcomes for all students by providing equal access to learning (Dell et al., 2015). Using UDL principles to design courses, select content delivery and structure teaching and learning activities has the potential to not only benefit students with disabilities, but rather all students in the course. Learning outcomes will not change for a course that is designed with UDL principles in mind, but will be the same in terms of academic rigor as a course that does not strategically incorporate UDL. Enhancing accessibility and inclusion may require additional time at the stage of course design and development as instructors find ways to remove barriers when designing teaching and learning activities and assessments; for example, the instructor may need additional time to record video tutorials with captioning or create concept maps, prepare study guides or graphic organizers, and prepare sample quizzes. However, instructors can start small and make an existing course

more accessible by incorporating additional strategies over time (Burgstahler, 2020; Dell et al., 2015).

### Diversity in Higher Education

There are many definitions of diversity. The Queensborough Community College (2019) describes diversity as understanding the uniqueness of individuals, valuing different perspectives, and building alliances to move “beyond simple tolerance to embracing and celebrating the rich dimensions of diversity contained within each individual”. According to Aguirre and Martinez (2002), diversity can be defined as “a social force in higher education that promotes the importance of understanding difference (e.g. cultural, racial, ethnic, etc.) in building a cohesive social fabric in society” (p. 54). Demographic diversity, including age, ethnicity, gender and sexual orientation (de Anca & Aragón, 2018), is just one type of diversity, though. Experiential diversity includes different abilities, nationality, political and religious views, and socioeconomic status, for example, while cognitive diversity refers to education, learning preferences, and personality (de Anca & Aragón, 2018). Many believe that diversity in higher education is critical for students to understand other perspectives, mitigate stereotypes, develop skills to participate in a global community, and foster inclusive environments (Dewsbury & Brame, 2019; Meyer & Cui, 2019).

### Accessibility and Inclusion

Accessibility and inclusion are embedded within all three UDL principles. The term inclusive education can be used to convey that all students are supported educationally regardless of their background, and can fully participate in a positive learning environment (Inclusive Education Canada, 2017). Inclusive classrooms are strategically and deliberately designed to ensure that all students feel encouraged by having the support they need to be successful (University of Michigan, 2016). As an inclusive, learner-centered approach, accessible education, engages diverse learners through providing multiple means of content representation and knowledge expression (McGuire et al., 2006). Making education more accessible to higher education students through principles of UDL is becoming more prominent in the literature, particularly in the areas of enhancing skills of preservice teachers, professional development for faculty members, and improving web accessibility (Roberts

## Increasing Accessibility and Diversity *continued*

et al., 2011). Educational researchers propose that “designing ‘accessible’ content and delivering it in an ‘accessible’ learning environment can improve learning experience regardless of individual learning abilities” (Al-Azawei et al., 2016, p. 40). Accessibility in teaching and learning in higher education is characterized as a process of intentionally designing courses and developing a facilitation style to equitably meet the learning needs of a diverse group of students (Rao et al., 2014).

### Infographics

A popular adage claims that a picture is worth a thousand words. Infographics are visual representations of information, including drawings, charts, maps and diagrams, combined with text, the use of color and white space, to convey that information in a way that can make it easier for viewers to understand (Cifci, 2016, p. 155; Dyjur & Li, 2015). Siricharoen and Siricharoen (2018) asserted that the power of images, such as drawings or photos, were an effective way to get the brain’s attention to remember important details versus plain text alone. Infographics have been used in higher education in various ways to support teaching and learning by presenting information in visual format as a way to engage students and promote effective learning. A research study (Yildirim, 2016) found that the participants preferred visual information through infographics as opposed to plain text.

Having students create their own materials can provide valuable learning opportunities as it moves learners from passively receiving information to thinking about how best to convey the information to others. In 2013, Toth described an infographics assignment embedded in an undergraduate business and professional communications course. Students reported that they “were surprised with how much thought and work actually needs to go into infographics when at face value the genre can appear simple and effortless” (Toth, 2013, p. 456). Learners claimed that the assignment generated a sense of engagement as a result of the freedom and choices available to the learners in creating the infographics. VanderMolen and Spivey (2017) introduced a similar infographic project in an undergraduate health economics and introductory health research course for Allied Health Sciences majors. The authors asserted that through the creation of infographics, undergraduate students developed their communication skills and

were able to “apply research skills using information literacy and technology-based tools that are engaging” (VanderMolen & Spivey, 2017, p. 199). Dyjur and Li (2015) found that students learned a variety of skills in an infographics assignment in addition to digital literacy skills, such as strengthening critical thinking, problem solving, and communicating ideas clearly and concisely. Similarly, Matrix and Hodson (2014) found that their assignment in which students created an infographic promoted critical thinking, enhanced visual literacy, and prompted learners to be innovative and self-directed. These case studies show how the focus of digital pedagogies can go far beyond the technology to support student learning in the course.

In health care, infographics can be an essential tool to communicate vital health information either to an individual patient perspective or to a whole population (Siricharoen & Siricharoen, 2018). In a randomized controlled trial conducted by Ebrahimabadi et al. (2018), the authors found that the use of infographics showed a statistically significant increase in medication adherence score over time for patients diagnosed with asthma as compared to participants exposed to health education via video format. Using a targeted sampling method, the study included 80 patients (48 females and 32 males) between the ages of 20 and 65 years. Fifty-one participants (63.75%) reported having a diploma or university education. Thirty-nine patients were randomly assigned to the video intervention, while 41 patients were allocated to the infographic intervention to provide health education around medication adherence. A follow-up was conducted at the two-week ( $M = 6.33$ ,  $SD = 1.46$ ) and four-week ( $M = 6.81$ ,  $SD = 1.23$ ) point after the education session and results showed an increased average medication adherence score with the infographic cohort at both time periods. It is interesting to note that the patients in the infographic group continued to have an increased medication adherence score between the two time points whereas the patients in the video cohort showed a decreased score between week two ( $M = 5.92$ ,  $SD = 1.28$ ) and week four ( $M = 5.75$ ,  $SD = 1.27$ ). The authors noted that an explanation for the sustained increased medication adherence score over time was due to the accessibility of the information. For those in the video group, participants potentially had certain barriers to accessing the information they were provided such as time, location, and access to proper equipment to view the recording.

## Increasing Accessibility and Diversity *continued*

The use of infographics in both education and health care share a common goal of increasing understanding and meaning making to promote learning amongst students and patients. In the following case studies, we describe how two different courses in higher education incorporated principles of UDL through an infographic assignment.

### Methods

The purpose of the case study was to capture how a digital media assignment, creating an infographic, could be used as an approach to incorporate UDL principles into courses in different disciplines. A case study approach was used as this approach allowed us to use thick, rich description, exploring the phenomenon in detail (Merriam, 1998). In the first case study, we describe an undergraduate course in nursing education, while the second one was a graduate-level education course. Data collection included course documentation such as course outlines and assignment guidelines, instructor self-reflection, and artifacts of student work in the form of publicly-available infographics assignments (Yin, 2009).

Data were analyzed for each course separately by the instructors of the courses. Course documents, including the syllabus and assignment guidelines were used to pull out evidence of learning goals for the course and assignment, degree of student choice, pacing of the assignment, level of support offered to students, and other factors relating to UDL. As reflective practitioners, we also reflected on the courses individually. We explored and unpacked the student learning experience before gathering to discuss our reflections.

Then the instructors of the two courses met twice, using the UDL principles as a framework when analyzing the data. The framework, based on higher education, articulated characteristics of each of the three principles (La et al., 2018). We added the data to the matrix, organizing them into characteristics of UDL (Yin, 2009). During the meetings we discussed the analysis matrix to make connections, inform our understanding, and identify themes between the two cases. We also looked at student work to determine the extent to which students were able to achieve the learning goals. Within

the two courses, we looked for evidence that students were able to grasp course content and communicate their learning through the assignments. Such evidence included different ways of expressing their learning (text, images, icons, and charts), design choices, attainment of learning goals, ability to select the most relevant content for their infographic, accessibility of information, and attention to audience.

### Infographics Assignments in Two Higher Education Courses

#### Case One: Undergraduate-Level Course in the Faculty of Nursing

In a senior-level undergraduate nursing course, students had the option of taking a class called The Principles of Teaching and Learning for Nursing Practice: Nurse as Educator. The intent of the course was for students to understand the educator role within the discipline and profession of nursing and recognize foundational knowledge needed to engage healthcare consumers in safeguarding their health and well-being. Nurses' capacity to educate patients, families, communities, and populations is critical in promoting, maintaining, and restoring health (Bastable, 2019). In the Nurse as Educator course, nursing students engaged in several assessments that required them to apply their knowledge of teaching and learning principles, including the creation of an infographic.

The infographic was part of a larger assignment where students presented a mock health education session. The assignment was worth 35% of the students' final grade and the infographic component accounted for 10% of the assignment. Students worked in pairs to complete this assignment and were tasked with demonstrating the following student learning outcomes:

- To identify a health education need relative to the client population they are working with in their practicum course.
- To utilize evidence and pedagogical theory to develop teaching and learning approaches that effectively address their population health education need.

## Increasing Accessibility and Diversity *continued*

Students created a teaching tool in the form of an infographic that was later used in their mock health education session.

Instructors helped learners to narrow down a health-related topic and bring awareness to the links between health education and teaching and learning principles. A rubric was available to the students to remind them of the requirements of the assignment which included a section on what was expected in their infographic (i.e. design decisions that reflected considerations of the population they are currently working with). Students were given examples of what an infographic looked like and important design decisions to consider to effectively communicate key messages about their chosen topic. While some students chose to create their infographic using Microsoft PowerPoint™, instructors shared online commercial software such as Piktochart™ or Canva™ with students. There were no formal sessions about how to create an infographic, but instructors were available to answer questions and provided guidance to students. In creating the infographics, students had ongoing feedback so they could make improvements prior to a mock patient education session.

### Case Two: Master's-Level Course in the Faculty of Education

In the second example, an infographics assignment was incorporated into a graduate-level course on digital media in a faculty of education. This online course on digital content used a project-based approach in which students completed three digital communication assignments: an infographic, an ebook or video, and a website. The following student learning outcomes were emphasized through the infographics assignment:

#### Students will be expected to:

- Think critically about different ways of displaying information, including graphs and charts, description, icons and images.
- Display information effectively for a given audience, considering the interaction of content, color, white space, and text.
- Design educational materials for a particular audience

using sound instructional design principles.

The infographics assignment was cumulative, with three parts. They received feedback on the first and second parts, which allowed them to incorporate comments that would result in improvement over time. The assignment was structured in the following way:

- Part 1: Proposal. Students submitted a proposal to the instructor, who provided feedback on the topic, scope and type of infographic suggested (comparison, flow chart, timeline, process, image-based, data, narrative, metaphor, or combination). This part of the assignment was not graded.
- Part 2: First draft and peer review. Students submitted their first draft by posting it to the discussion board of the learning management system. In this way students could view each other's assignments and learn from one another. There was also a peer review component in which students provided detailed feedback to two other students, weighted at 5% of their final course grade.
- Part 3: Project and documentation. Students submitted their final assignment along with documentation outlining their learning outcomes, consideration for their audience, and design decisions. The assignment was weighted at 20% of their final course grade.

The timeline for all stages of the project was approximately one month. Students used a commercial product, Piktochart™, to create the infographics. They had access to the grading rubric at the beginning of the course, and we used the discussion board in our learning management system to discuss any questions or issues.

### Findings and Discussion

The UDL framework provided an excellent foundation for incorporating accessibility and inclusion into our courses. In the tables below, we outline each of the principles according to themes that are salient to higher education (La et al., 2018). We then include examples of how the theme may be implemented in higher education courses, its alignment with a UDL guideline and checkpoint, and how we incorporated the principle



## Increasing Accessibility and Diversity *continued*

in our infographics assignments to increase accessibility (if appropriate). Table 1 highlights how the principle of multiple means of engagement was used to increase accessibility in the courses:

(See Table 1, page 78)

In Table 2, we show how the principle of multiple means of representation was enacted in two courses, as well as other examples from higher education:

(See Table 2, page 79)

Table 3 demonstrates how we incorporated the principle of multiple means of action and expression into our courses to increase accessibility, with further examples from higher education.

(See Table 3, page 80)

The findings suggest that assignments such as this one that incorporate digital pedagogies into higher education courses can work in different disciplines as well as at different stages in students' learning (undergraduate and graduate degrees). We also found that having the students create their own infographics was beneficial in amplifying aspects of UDL such as incorporating student choice and use of technology, thereby increasing accessibility and inclusion while benefitting from student diversity. Additionally, we observed that the UDL framework was valuable for enhancing accessibility and inclusion in our courses. The infographics assignments incorporated the following themes particularly well: multimodal and accessible course materials, variety in pedagogical approaches, interaction with others, use of technology in learning, student flexibility and choice, student-created learning materials, opportunities for feedback, and authentic demonstration of skills.

We also found that in general, students were able to meet the learning goals of the course. In the nursing course, an examination of the infographics assignments demonstrated a better quality than the other assignment option, a pamphlet. Notably, the infographic format prompted students to be more selective about the information they included, challenging them to think deeply about what content is most salient for a specific audience rather than equating more content and a longer assignment with a better grade. Students engaged with

the content in a way that aligned with the purpose of the assignment. In both courses, they achieved a deep level of engagement with course information which supported new schemas and ways for students to make sense of their learning. We feel confident stating that using the UDL framework lessened barriers, increased accessibility, and heightened students' likelihood of meeting learning goals in the courses.

### Recommendations

Based on our experiences with these assignments, we make the following recommendations to others who are interested in enhancing inclusivity and accessibility by applying UDL principles in their courses. Our suggestions apply not only to infographics assignments, but to other digital pedagogies too. As with any recommendation, the individual instructor must decide whether a suggestion is applicable to their course, students and context.

First, we recommend that instructors make use of free online resources as well as materials that are available through their online library system. Accessible course materials not only benefit online and distance learners, but also ease the financial burden for students who have to make decisions about whether or not they can afford to buy course texts. Additionally, incorporating text, videos, recorded lectures, graphs and charts, and other multimodal sources of information can engage learners in different ways, thereby increasing inclusivity.

Second, we suggest that instructors consider giving an assignment that incorporates an element of student choice where feasible, such as choice of topic or assignment format. We have found that allowing students the choice of topic was motivating for them; in the undergraduate course it enabled them to customize the assignment to their practice setting, while in the graduate course it allowed them to demonstrate their understanding in a way that was different from the typical essay assignment, both of which contributed to inclusivity in the course.

To assist students in making appropriate choices we offer the following suggestions. Provide a list of potential topics to serve as a starting point; while students might pick something different, the list will help to guide them in terms of scope. We have provided examples of past student work where possible to illustrate what

continued on page 81



Increasing Accessibility and Diversity *continued***Table 1: Multiple Means of Engagement and Increased Accessibility**

<b>Themes in Higher Education</b>	<b>Case #1: Undergraduate Nursing Course</b>	<b>Case #2: Graduate-level Education Course</b>	<b>Other Examples in Higher Education</b>	<b>Alignment with UDL Guideline and Checkpoint (CAST, 2020c)</b>
Variety in teaching and learning activities	First infographics assignment in the undergraduate program, different from the typical research essay	Incorporated peer review into the assignment	Incorporate discussions and small group activities into lectures Embed materials such as sample exam questions into lecture notes	Recruiting interest: Optimize relevance, value, and authenticity
Interaction with others	Students worked in pairs to determine the topic and what to include in the infographic	Online discussion board	In-class and online discussions Study groups	Sustaining Effort and Persistence: Foster collaboration and community
Engagement with content	Multiple sources of data Mandatory, desirable and optional information	Optional remedial materials All readings available online	Students prepare summary notes on different readings and share Use course analytics to see which resources are heavily used	Recruiting interest: Optimize relevance, value and authenticity
Use of technology	Use of infographics software Use of learning technologies to represent their understanding	Online course increased accessibility for those at a distance Infographics software used	Digital pedagogies Use of learning technologies and online learning environment for small group work, videos, practice exam questions	Recruiting interest: Optimize individual choice and autonomy
Student choice of course content	Topic for infographic based on students' clinical practice setting to make the assignment relevant	Students chose the topic for their infographic They selected readings based on their learning needs	Student choice of topic Optional readings	Recruiting interest: Optimize individual choice and autonomy
Self-regulation and motivation	The infographic was the first part of a three-part assignment	Students identified a real audience for their assignment Grading rubric was available at the beginning of the assignment to prompt self-assessment	Online quizzes for self-assessment Checklists for students to track their own progress	Self-regulation: Promote expectations and beliefs that optimize motivation

Increasing Accessibility and Diversity *continued***Table 2: Multiple Means of Representation and Increased Accessibility**

<b>Themes in Higher Education</b>	<b>Case #1: Undergraduate Nursing Course</b>	<b>Case #2: Graduate-level Education Course</b>	<b>Other Examples in Higher Education</b>	<b>Alignment with UDL Guideline and Checkpoint (CAST, 2020d)</b>
Accessible course materials	Used online tools for continuous student access Course text was available digitally	No course text – readings were all freely available online Other course materials were posted online	Use Creative Commons and Open Education Resources Use common file formats	Perception: Offer ways of customizing the display of information
Multimodal sources of information	Examples of infographics with a focus on healthcare topics were provided	Examples of different types of infographics were provided: comparison, flow chart, timeline, process, image-based, data, narrative, metaphor, combination	Include captions for graphics Provide models, videos and graphics in addition to text	Perception: Offer alternatives for visual information
Pedagogical approaches	The infographics assignment required students to access evidence-based healthcare information	The infographics assignment incorporated readings, an authentic task, peer review, and a small written component	Use different pedagogical approaches to topics or concepts, such as logic, statistics, narrative, case study, historical, multiple perspective, and testimonial	Comprehension: Guide information processing and visualization
Inclusive materials	Students think about population diversity in the assignment: students create inclusive materials	Examples from different disciplines Resources included gender and ethnic diversity	Materials include demographic diversity, including age, gender, ethnicity Incorporate different disciplines and strengths	Comprehension: Activate or supply background knowledge
Student-created materials	Students created a health education tool for the purpose of health teaching	Students created a unique project which they could then use in their own teaching context	Students create a graphic organizer to summarize their understanding of a topic Students create their own glossary of terms throughout the course	Comprehension: Maximize transfer and generalization
Comprehension and key concepts	In order to create an infographic, they needed to evaluate salient priority information	A couple of example infographics were posted on the discussion board for students to critique	Study guide of key concepts Post a list of Frequently Asked Questions (FAQs) and responses online	Comprehension: Highlight patterns, critical features, big ideas, and relationships
Check for understanding	Informal check-in points	Online discussions Peer review	Practice exercises and solutions Small group discussions	Comprehension: Maximize transfer and generalization

Increasing Accessibility and Diversity *continued***Table 3: Multiple Means of Action and Expression and Increased Accessibility**

Themes in Higher Education	Case #1: Undergraduate Nursing Course	Case #2: Graduate-level Education Course	Other Examples in Higher Education	Alignment with UDL Guideline and Checkpoint (CAST, 2020b)
Exams	No exams in this course	No exams in this course	Variety of question types on exams: multiple choice, matching, short answer Exam questions that assess various ways of understanding: remember/ comprehend, analyze/ apply, evaluate/ create	
Assignments and demonstration of skills	Authentic assessment: Infographic was used in simulated clinical practice	Students demonstrate their learning of course outcomes while acquiring new skills	Authentic assessment Demonstrate skills in different ways such as role-play, debate, simulations	Expression and Communication: Use multiple tools for construction and composition
Opportunities for feedback	Informal peer and instructor feedback Debrief and discussion	Cumulative assignment with feedback on proposal Peer feedback on first draft	Use question sets from a textbook as practice Student-led study groups	Executive Functions: Enhance capacity for monitoring progress
Student choice	Choice of topic for health teaching Choice of assignment format: infographic or pamphlet	Choice of topic for infographic Choice of target audience relating to their work context	Choice of assignment format: paper, presentation, website Students select 4 out of 5 smaller assignments for grades	Executive Functions: Guide appropriate goal setting
Mitigating assessment anxiety	Set realistic expectations Multi-phase scaffolded assignment with feedback at each stage Weighting of assignments were reflective of the amount of student work	Students get feedback on a cumulative assignment in stages allowing them to improve their work over time Examples of assignments with feedback	Use assignment guidelines to outline your expectations Low-stakes first assignment with plenty of feedback	Executive functions: Enhance capacity for monitoring progress

## Increasing Accessibility and Diversity *continued*

was appropriate in terms of topic, scope and quality of assignments. Unlike a typical written assignment, infographics do not have a word limit, making it harder for students to gauge what is enough or too much for the assignment. Therefore, one instructor suggested a range of blocks of content instead, along with examples of infographics that had too much content, too little, and about the right amount for the assignment. Additionally, we incorporated an assignment proposal so that we could provide feedback on the topic and scope prior to students starting on it. In creating the infographics for the undergraduate nursing course, students were encouraged to identify the content of their infographic based on the following types of information – mandatory, desirable, and possible needs. In the field of nursing, Bastable (2019) described mandatory needs as information that is required and critical for safety and survival. Desirable information is relevant to one's well-being but not life dependent, while possible information would be considered nice to know.

When incorporating digital assignments and pedagogical approaches it is possible for students to focus more on the technology and less on the learning goals of the course. Our third recommendation is to keep students pedagogically-focused and on track by using cumulative due dates and providing feedback at strategic points. We also used in-class and online check-ins for students to ask questions and discuss any difficulties they were having.

A fourth recommendation for using UDL principles to promote inclusivity is to incorporate variety in pedagogical approaches and student learning processes. We were purposeful about incorporating readings, presentation of information, discussion, practice activities, peer feedback, and reflection into the learning process. Consistent with the literature, these varied approaches bolstered student engagement and inclusivity (Davies et al., 2013).

### Summary

Incorporating principles of UDL is one way to increase accessibility and inclusion for higher education students. In this paper we described how we used an infographics assignment to incorporate UDL principles,

thereby allowing students to apply their learning in a real context, exercise choice, and receive feedback prior to final submission, while using digital resources that allowed for unrestricted access. The approach was successful in courses from different disciplines, at both the undergraduate and graduate levels. The tables in this paper outline how UDL principles were interpreted in our courses, with further examples that are applicable to higher education. We offer the following recommendations to those who wish to use digital pedagogies to enhance accessibility and inclusion in their courses: 1. Use free online resources, including a variety of different formats; 2. Incorporate student choice to increase student motivation and allow them to customize their learning; 3. Use check-ins and provide feedback to keep students on track, and; 4. Vary the pedagogical approach to enhance student engagement and inclusivity.

Increasing Accessibility and Diversity *continued*

## References

- Aguirre, A. Jr., & Martinez, R. (2002). Leadership practices and diversity in higher education: Transitional and transformational frameworks. *The Journal of Leadership Studies*, 8(3), 53-62. <https://doi.org/10.1177/107179190200800305>
- Al-Azawei, A., Serenelli, F., & Lundqvist, K. (2016). Universal design for learning (UDL): A content analysis of peer-reviewed journal papers from 2012 to 2015. *Journal of the Scholarship of Teaching and Learning*, 16(3), 39-56.
- Bastable, S. (2019). *Nurse as educator: Principles of teaching and learning for nursing practice*. (5th ed.). Jones & Bartlett Learning.
- Burgstahler, S. (2020). *Universal design of instruction (UDI): Definition, principles, guidelines, and examples*. <https://www.washington.edu/doit/universal-design-instruction-udi-definition-principles-guidelines-and-examples>
- CAST, Inc. (2020a). *About Universal Design for Learning*. Retrieved from [http://www.cast.org/our-work/about-udl.html#\\_XPaS2o97mUk](http://www.cast.org/our-work/about-udl.html#_XPaS2o97mUk)
- CAST, Inc. (2020b). *Provide multiple means of action & expression*. <http://udlguidelines.cast.org/action-expression>
- CAST, Inc. (2020c). *Provide multiple means of engagement*. <http://udlguidelines.cast.org/engagement>
- CAST, Inc. (2020d). *Provide multiple means of representation*. <http://udlguidelines.cast.org/representation>
- Chen, B., Bastedo, K., & Howard, W. (2018). Exploring design elements for online STEM courses: Active learning, engagement & assessment design. *Online Learning Journal*, 22(2), 59-75. <https://doi.org/10.24059/olj.v22i2.1369>
- Cifici, T. (2016). Effects of infographics on students' achievement and attitude towards geography lessons. *Journal of Education and Learning*, 5(1), 154-166. <http://dx.doi.org/10.5539/jel.v5n1p154>
- Davies, P. L., Schelly, C. L., & Spooner, C. L. (2013). Measuring the effectiveness of universal design for learning intervention in postsecondary education. *Journal of Postsecondary Education and Disability*, 26(3), 195-220.
- de Anca, C., & Aragón, S. (2018). The 3 types of diversity that shape our identities. *Harvard Business Review*, May 24, 2018. <https://hbr.org/2018/05/the-3-types-of-diversity-that-shape-our-identities>
- Dell, C. A., Dell, T. F., & Blackwell, T. L. (2015). Applying Universal Design for Learning in online courses: Pedagogical and practical considerations. *The Journal of Educators Online-JEO*, 13(2), 166- 191.
- Dewsbury, B. & Brame, C. J. Inclusive teaching. *CBE – Life Sciences Education*, 18(2), <https://doi.org/10.1187/cbe.19-01-0021>
- Dyjur, P. & Li, L. (2015). Learning 21st century skills by engaging in an infographics assignment. In Preciado Babb, Takeuchi, and Lock (Eds.). *Proceedings of IDEAS: Designing Responsive Pedagogy*, 62-71. Werklund School of Education, University of Calgary.
- Ebrahimabadi, M., Rezaei, K., Moini, A., Fournier, A., & Abedi, A. (2018). Infographics or video; which one is more effective in asthmatic patients' health? A randomized clinical trial. *Journal of Asthma*, 5,1-8. <https://doi.org/10.1080/02770903.2018.1536143>
- Inclusive Education Canada. (2017). What is inclusive education? Retrieved from <https://inclusiveeducation.ca/about/what-is-ie/>
- La, H., Dyjur, P., & Bair, H. (2018). *Universal design for learning in higher education*. Taylor Institute for Teaching and Learning. Calgary: University of Calgary.



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- Matrix, S., & Hodson, J. (2014). Teaching with infographics: Practicing new digital competencies and visual literacies. *Journal of Pedagogic Development*, 4(2). Retrieved from <https://www.beds.ac.uk/jpd/volume-4-issue-2/teaching-with-infographics>
- McGuire, J. M., Scott, S. S., & Shaw, S. F. (2006). Universal design and its application in educational environments. *Remedial & Special Education*, 27(3), 166-175. <https://doi.org/10.1177/07419325060270030501>
- Merriam, S. B. (1998). *Qualitative research and case study applications in education* (2nd ed.). Jossey-Bass Publishers.
- Meyer, E. R., & Cui, D. (2019). Diversity and inclusion in anatomy and physiology education, degree programs, and professional societies. *HAPS Educator*, 23(2), 396-419. <https://doi.org/10.21692/haps.2019.012>
- Queensborough Community College. (2019). *Definition for diversity*. <http://www.qcc.cuny.edu/diversity/definition.html>
- Rao, K., Ok, M. W., & Bryant, B. R. (2014). A review of research on universal design educational models. *Remedial and Special Education*, 35(3), 153-166. <https://doi.org/10.1177/0741932513518980>
- Roberts, K. D., Park, H. J., Brown, S., & Cook, B. (2011). Universal design for instruction in postsecondary education: A systematic review of empirically based articles. *Journal of Postsecondary Education and Disability*, 24(1), 5-15.
- Siricharoen, W.V., & Siricharoen, N. (2018). Infographic utility in accelerating better health communication. *Mobile Networks and Applications*, 23, 57-67. <https://doi.org/10.1007/s11036-017-0900-3>
- Smith, F. G. (2012). Analyzing a college course that adheres to the Universal Design for Learning (UDL) framework. *Journal of the Scholarship of Teaching and Learning*, 12(3), 31-61.
- Tobin, T. J., & Behling, K. T. (2018). *Reach everyone, teach everyone*. Morgantown: West Virginia University Press.
- Toth, C. (2013). Revisiting a genre: Teaching infographics in business and professional communication courses. *Business Communications Quarterly*, 76(4), 446-457. <https://doi.org/10.1177/1080569913506253>
- University of Michigan. (2016). *Creating inclusive college classrooms*. Retrieved from: [http://www.crlt.umich.edu/gsis/p3\\_1](http://www.crlt.umich.edu/gsis/p3_1)
- VanderMolen, J., & Spivey, C. (2017). Creating infographics to enhance student engagement and communication in health economics. *Journal of Economic Education*, 48(3), 198-205. <https://doi.org/10.1080/00220485.2017.1320605>
- Yildirim, S. (2016). Infographics for educational purposes: Their structure, properties and reader approaches. *The Turkish Online Journal of Educational Technology*, 15(3), 98-110.
- Yin, R. K. (2009). *Case study research: Designs and methods* (4th ed.). SAGE Publications Inc.

# PROGRAM REPORT

## Who's missing? A program report of one online academic success course

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### Abstract

LASK 1001: Mastering Skills for College Success is a course offered through Student Academic Success Services at the University of Minnesota, Twin Cities. The course is designed to help students learn skills and strategies that facilitate college success. The face-to-face course has proven to be popular for a diverse group of students across a range of academic majors. However, offering LASK 1001 as an online course has resulted in increased accessibility and inclusiveness, especially for student-parents, working students, and students over the age of 25. Drawing on the Community of Inquiry framework (Garrison et al., 2000), this program report highlights the ways in which social presence, cognitive presence, and teaching presence were integrated and facilitated into the curriculum mapping and design of the online course to support the needs of a growing student population.

### Keywords:

academic success courses, online learning, curriculum development, Community of Inquiry framework

### Who's missing? A program report of one online academic success course

At the start of each semester I invite students to complete a brief information sheet where I ask them how I can best support their learning throughout the semester. I typically receive responses ranging from students sharing why they enrolled in the course to accommodations that students may have through the campus disability resource center. However, when I launched LASK 1001: Mastering Skills for College Success as an online course for the first time in the fall of 2018, I received responses from students that I had never received before as a novice graduate instructor. One non-degree seeking student in their 80s left a response asking if they could provide their friend my email address in case they experienced any health issues throughout the semester and could not access their computer. A retired student in their 60s returning to college after several decades away responded by letting me know that it was their first time using a laptop, which they had recently purchased in order to complete their bachelor's degree. This student requested I share any campus technology support resources for students so they could learn about how to navigate course management systems. Other students responded by sharing that they were student-parents and/or worked part- or full-time. Several of these students asked if I knew of any student-parent campus resources that they may be able to utilize while completing their bachelor's degree. It was apparent almost immediately that offering

## Who's missing? *continued*

LASK 1001 as an online course was attracting student populations beyond that of our traditional face-to-face course offerings.

### Context of Academic Success Courses

*Student Academic Success Services (SASS)* is a program embedded within Student Counseling Services at the University of Minnesota, Twin Cities (hereafter, the University) to promote academic success through five factors: (a) active learning; (b) study skills; (c) life balance; (d) self-awareness; and (e) campus engagement. SASS emerged in the 1930s as a place for students to receive academic testing and later shifted to a reading and study skills center. Today, SASS works with students specifically through two services: academic success courses and one-on-one academic skills coaching.

The focus of this program report is on the academic success courses, specifically the online version of LASK 1001: Mastering Skills for College Success. LASK 1001 is centered around the concept of developing stronger self-regulated learning, a process in which students are taking a more active and intentional approach to the motivational, cognitive, and behavioral components of their learning process (Pintrich, 2004; Zimmerman, 2000). The course is designed to help students learn the skills and strategies that facilitate college success. Therefore, the course is designed to support any learner, ranging from students who want to be more efficient with their learning to students who are experiencing academic difficulty.

In the 2017-2018 academic year (prior to piloting LASK 1001 online in fall 2018), a majority of the students enrolled in LASK 1001 were among the traditional college age of 18-24 years old (95%) and matriculated to the University after graduating from high school (68%) or transferring to the University (27%). LASK 1001 also serves as a popular course for a diverse group of students. A majority of LASK 1001 students (52%) in the 2017-2018 academic year were international students (17%) and Students of Color (35%). Consistently, students enrolled in LASK 1001 have been more diverse than the University as a whole. For instance, in the 2017-2018 academic year, 48% of students who enrolled in LASK 1001 racially identified as “white or unknown” compared 68.5% identifying as “white or unknown”

across the University at large (University of Minnesota, 2020). Finally, because the course is intended to support student success, and the content is transferable across academic disciplines, the course also attracts students from a range of academic majors across the University. This demographic data for the LASK 1001 face-to-face course has remained consistent for each of the succeeding academic years.

LASK 1001 creates high student engagement for approximately two hours each week throughout an academic semester (plus individual engagement with course readings and learning activities and assignments outside of the scheduled class time) to identify skills and strategies that support their academic success. The response from students who enroll in LASK 1001 has been positive. Students often rate the class highly (5.5+ out of 6) through University-wide course evaluations. As instructors of this class, we often hear from students, sometimes semesters later, letting us know that the class has given them confidence with their coursework, especially when they enter their disciplinary and upper-division coursework.

### Our Impetus for Developing an Online Version of LASK 1001

With our knowledge of the success of the face-to-face course, we began to wonder how accessible and inclusive LASK 1001 was for all students, and if we were missing any students enrolling in and engaging with our curriculum. One of the authors (Jenny Steiner) attended a conference in the spring of 2018 at which there was a session about the increasing enrollment of students in online classes, specifically on campuses that look like the University (i.e., a large public research-intensive university) (Allen et al., 2016). This sparked an interest to explore the possibility of offering an online version of LASK 1001 to attract and support students who may have been missing from our face-to-face courses.

Specifically, we began to wonder how LASK 1001 was (or was not) serving what the field of higher education has called the “new normal college student” (Mitchell, 2017 as cited in Deruy, 2017) or the “new traditional student” (Jenkins, 2012). Mitchell (2017) argues,

The focus needs to shift away from the image of the

## Who's missing? *continued*

18-year-old that gets dropped off at a leafy campus and picked up four years later, and we really need to think about the new normal college student—who's just as likely to be a 24-year-old returning veteran, a 32-year-old single mom, a 50-year-old displaced worker. And the traditional structures and mechanisms for college don't necessarily work for those students who need to consume their education in smaller chunks, who may need to go to school part-time while they're raising a family or holding down a job. (as cited in Deruy, 2017, para 6).

With a goal of making our curriculum more accessible and inclusive to a wider range of students, including the “new normal college student,” we began to discuss ways in which our curriculum could be taught within an online setting. We wondered if providing LASK 1001 online would provide a greater access to the course for those students who may not be able to enroll in our traditional face-to-face courses due to work or family commitments, or for fear and anxiety about returning to college after a number of years away (Jenkins, 2012).

While our face-to-face course is popular for a diverse group of students across a range of academic majors, offering LASK 1001 as an online course has resulted in increased accessibility and inclusiveness, especially for the “new normal student.” Because we only offered one section of the online version of LASK 1001 each semester during the 2018-2019 academic year, we did not see significant changes in our student demographics. The online course continued to see students enroll who were among the traditional college age of 18-24 years old (86%) and who matriculated to the University after graduating from high school (74%) or transferring to the University (18%). The online course also continued to see a large number of students who racially identified as a Student of Color (47%).

However, there was a notable shift in some of the student demographics of the online course, for example, in students' age. Prior to offering LASK 1001 online (during the 2017-2018 academic year), 4% of students enrolled in the course were in the age range of 25-34 and no students were over the age of 30. In the 2018-2019 academic year, 2% of students enrolled in LASK 1001 face-to-face courses were in the age range of 25-34 and

less than 1% were over the age of 30. Yet, during the 2018-2019 academic year, 7% of students in the online section of LASK 1001 were in the age range of 25-34 and 7% were over the age of 30. Anecdotally, through course learning activities and assignments, as well as individual conversations, students enrolled in the online course shared that they were not only students who had matriculated from high school or transferred, but also students returning from military service, student-parents, students who were working either part- or full-time, and students returning after a break from college.

Table 1 (see next page) displays a side-by-side glimpse of student demographic data from LASK 1001 face-to-face and online course offerings from the 2019 and 2020 fiscal years (fall 2018 through spring 2020). However, this demographic data falls short of capturing the very important shifts in student demographics that we observed as instructors. Thus, demographic data is not the only story we aim to share in this program report. Drawing on the Community of Inquiry framework (Garrison et al., 2000), this program report highlights the ways in which social presence, cognitive presence, and teaching presence were integrated and facilitated into the curriculum mapping and design of the online course to support the needs of a growing student population.

### Background

Developing an online course can be quite the undertaking. We recognized the many factors that go into this work and that creating any successful course (face-to-face or online) starts with the instructor's curriculum mapping and design, and how well these elements are integrated into the class experience (Dolan, 2008). Developing an online version of LASK 1001 required intentional time and planning. Our goal in this work was to “create experiences that allow students to create meaning out of newly gathered and previously held information” (Green et al., 2015, p. 20). We acknowledge study skills are not necessarily something challenging to learn, but we do know that putting skills into *practice* can often serve as a barrier for college students. With new knowledge of skills and strategies, coupled with existing knowledge of what is already working, students can begin to craft a plan for academic success.

Because LASK 1001 has been a popular course for a diverse range of students, at the core of our development

Who's missing? *continued***Table 1: A Comparison of LASK 1001 Face-to-Face and Online Student Demographics**

Demographics	Face-to-Face		Online	
	2018-2019	2019-2020	2018-2019	2019-2020
<b>College</b>				
Biological Sciences	19 (6%)	16 (5%)	3 (7%)	5 (6%)
School of Management	3 (1%)	9 (3%)	5 (12%)	3 (3%)
Continuing/Prof Studies	14 (5%)	16 (5%)	4 (9%)	3 (3%)
Design	12 (4%)	8 (3%)	5 (12%)	4 (5%)
Education & Human Dev	38 (13%)	24 (8%)	6 (14%)	6 (7%)
Food, Ag & Nat Res Sci	18 (6%)	13 (4%)	1 (2%)	4 (5%)
Liberal Arts	152 (50%)	185 (59%)	19 (44%)	45 (52%)
Science & Engineering	48 (16%)	45 (14%)	0 (0%)	16 (18%)
Other	0 (0%)	0 (0%)	0 (0%)	1 (1%)
N	304 (100%)	316 (100%)	43 (100%)	87 (100%)
<b>Student Status</b>				
NAS	73 (24%)	63 (20%)	8 (19%)	22 (25%)
NHS	213 (70%)	231 (73%)	32 (74%)	59 (68%)
Other	18 (6%)	22 (7%)	3 (7%)	6 (7%)
N	304 (100%)	316 (100%)	43 (100%)	87 (100%)
<b>Ethnicity</b>				
International	37 (12%)	51 (16%)	1 (2%)	10 (11%)
Not Specified	11 (4%)	8 (3%)	2 (5%)	4 (5%)
Students of Color	116 (38%)	111 (36%)	20 (47%)	36 (42%)
White	140 (46%)	146 (46%)	20 (47%)	37 (43%)
N	304 (100%)	316 (100%)	43 (100%)	87 (100%)
<b>Age Range</b>				
<=18	94 (31%)	87 (28%)	0 (0%)	12 (14%)
19-20	140 (46%)	151 (48%)	22 (51%)	41 (47%)
21-24	62 (20%)	67 (21%)	15 (35%)	28 (32%)
25-34	7 (2%)	8 (3%)	3 (7%)	5 (6%)
>=35	1 (<1%)	3 (1%)	3 (7%)	1 (1%)
N	304 (100%)	316 (100%)	43 (100%)	87 (100%)

*Note.* NAS = New Advanced Standing. These are students who have graduated from high school, who have enrolled in or earned credit in courses at another post-secondary education institution during the academic year. NHS = New High School. These are students who have graduated from high school but have not previously matriculated to

another post-secondary institution. They may have earned college credits while they were enrolled in high school. The Students of Color group includes Asian/Pacific Islander, American Indian/Alaska Native, Black, non-Hispanic, and Hispanic students.



## Who's missing? *continued*

of the online course was the desire to keep our objectives similar to those of the face-to-face course—to provide a learning environment where students can try new skills, reflect on those skills, and learn from their peers. The challenge was to figure out ways in which we could build new knowledge together as the face-to-face course is a discussion-based course with a heavy focus on self-awareness activities and various peer-to-peer teaching opportunities. We knew we needed to keep the essence of the face-to-face class central to the student experience in an online context.

With a desire to keep our objectives similar to those of the face-to-face course, we utilized the Community of Inquiry (COI) framework—a key reference in rethinking courses for online design—to build the LASK 1001 online course structure (Garrison et al., 2000). The COI framework stresses that meaning making happens through the development of social presence, cognitive presence, and teaching presence (Garrison et al., 2000). As we developed the course, we were strategic in building in the three elements of the COI framework, which will be discussed in greater detail in the following section.

We began our conversations about offering an online version of LASK 1001 at least eight months before the class was scheduled to begin, with much of our discussions devoted to determining our process for mapping the face-to-face curriculum in an online setting. We quickly recognized that some of the face-to-face assignments could be adapted to an online course, while others would need to be modified or reimaged (Green et al., 2015). As we developed the online version of LASK 1001, we continuously reflected on the following questions:

1. What are the specific elements and components that make the activity successful in person?
2. Can these elements and components be replicated online with minimal modification?
3. If not, what are the core goals and objectives of the original activity, and how else might they be accomplished online? (Green et al., 2015, p. 21)

With these questions and the three elements of the COI framework in mind, we began to imagine the LASK 1001 curriculum for an online setting.

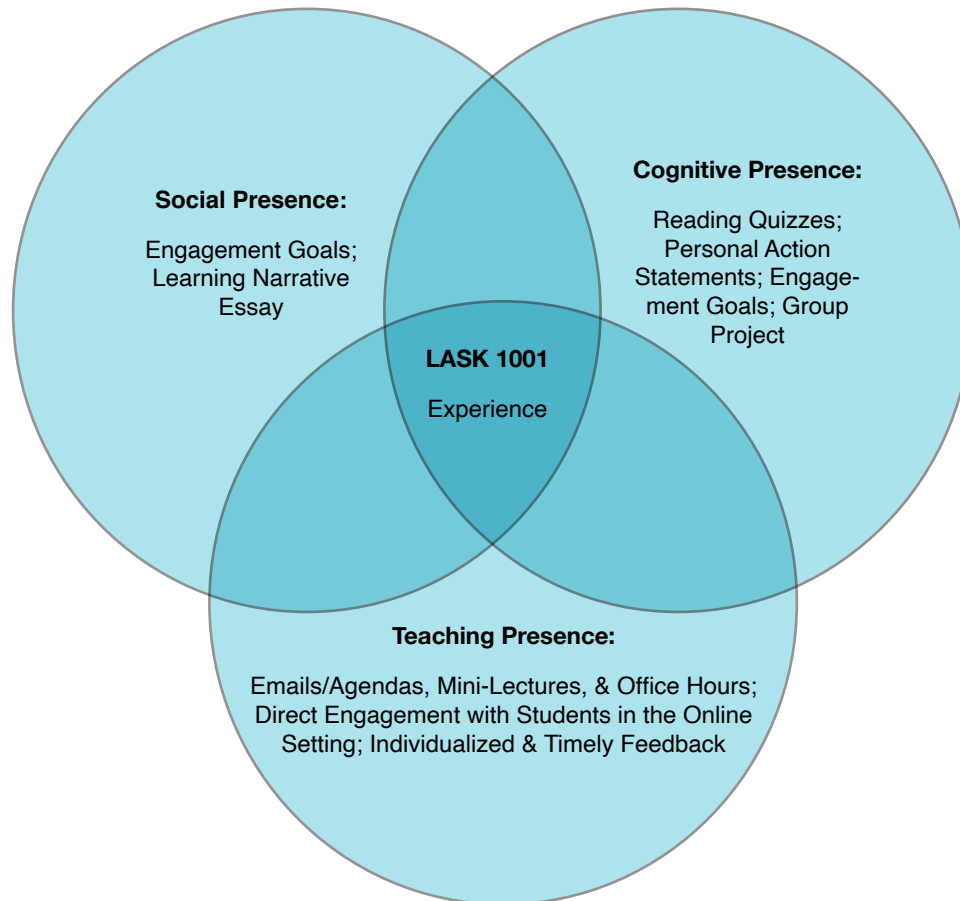
### COI Framework in Action

The following details the COI framework in action as we designed, and implemented for the first time, the online curriculum for LASK 1001. While we present each element of the COI framework separately, it is noteworthy that social presence, cognitive presence, and teaching presence do not exist in isolation from one another. Instead, the COI framework, composed of students and instructors, serves as a trinity that makes up the overall educational experience. Figure 1 (*See Figure 1 next page*), which is adapted from Garrison et al. (2000), displays the overlap and connection between the three elements of the COI framework that make up the overall educational experience of the online version of LASK 1001.

### Social Presence

Social presence is defined as “the ability of participants ... to project their personal characteristics into the community, thereby presenting themselves ... as ‘real people’” (Garrison et al., 2000, p. 89). The face-to-face version of LASK 1001 relies heavily on a number of learning activities and assignments early in the semester that honor the strengths and experiences students bring into the classroom and invite students to become producers, rather than consumers, of their learning. We did not want to lose this important aspect of LASK 1001 when designing the online curriculum. Therefore, we clearly outlined within the online class syllabus and an introductory mini-lecture the ways we expected students to participate in the class through, for example, readings, mini-lectures, and, most importantly, a variety of learning activities and assignments that promote active engagement among students in the online setting (Bender, 2012).

We decided to begin the class with a video and discussion forum, including introduction videos from each student (and the instructor) sharing their learning experiences and having students watch and respond to their peers' videos. These videos, as well as the other weekly discussion and video forums, are part of what we call *Engagement Goals*, or ways in which students are asked to engage with one another each week. We frame Engagement Goals similar to student participation in a face-to-face class—engaging with one another in an

*Who's missing? continued***Figure 1****COI Framework and LASK 1001 Online**

## Who's missing? *continued*

online setting fosters discussion and a way of knowing more about course concepts as well as more about one another. We were adamant that just because this class was online, the community engagement that is known and beloved by our face-to-face students would not be lost in an online setting.

In addition to the introduction video, weekly Engagement Goal prompts may, for example, ask students to share a favorite tip or trick they use to take class notes. Here, students also are asked to share resources (e.g., campus resources, YouTube videos, blog posts) or a personal system (e.g., a picture or description of their personal note-taking system) that has helped them refine their note-taking skills—and why that resource or system has been beneficial to their academic success. Students then engage in various discussions around their study skills or strategies connected to our shared text, ranging from peer responses to posing and responding to questions from one another.

We also foster social presence through an assignment called the *Learning Narrative Essay*. In the face-to-face course, the Learning Narrative Essay allows students to reflect on their individual learning experiences that have helped shape their understanding of how college fits into their personal and career goals. As instructors, we find this assignment to be rich and an opportunity to get to know our students in more meaningful ways, as students often share personal stories about their learning successes and challenges. The Learning Narrative Essay also is the first reflective assignment where we invite students to connect to and draw on their own knowledge and experiences so that they might bring that information into future classroom discussions (Bender, 2012). We prompt discussion in the classroom around this assignment to allow students to learn more about one another's experiences. For the online course, we needed to modify this assignment, and decided to include both a draft essay assignment and a peer-review process. This allowed the students to not only practice writing skills (a key component of academic success) and receive instructor and peer feedback, but also to get to know and build community with one another early in the semester. Both the draft essay and peer-review assignments are submitted prior to the final essay being due.

One of the authors (Carmine Perrotti) crafted the peer-

review assignment in a way that allowed students to have ownership and control over what they shared. Students had the option to, for example, submit an outline, paragraph, or their entire draft essay to their peer-reviewer for feedback. Through this exercise, students learn how to share their reflective writing with their peers, receive and provide feedback on academic writing, and, most importantly, come to discover similarities and differences in stories that led students to enroll in LASK 1001 and to pursue a college degree, more broadly. Both Engagement Goals and the Learning Narrative Essay assignments begin within the first two weeks of the semester, which build a foundation for connection among students. The Learning Narrative Essay assignment is scaffolded into the course across three weeks of the semester, beginning with the draft essay and peer-review assignments and then the final essay submission. Engagement Goals continue each week throughout the entirety of the semester as a way to maintain and build upon social presence as an important part of the learning process.

### Cognitive Presence

Simply put, cognitive presence is defined as “a community of inquiry . . . able to construct meaning through sustained communication” (Garrison et al., 2000, p. 89). By enrolling in LASK 1001, students work toward the following course objectives: (a) identify the multiple roles and responsibilities of a successful student; (b) clarify individual educational goals, values, and sources of motivation; (c) identify individual academic strengths and areas for growth; (d) begin to formulate a plan for personal skill development; (e) develop useful study habits and learning strategies; and (f) develop a skill set that can be utilized throughout the lifespan. At the core of LASK 1001, and the aforementioned objectives, is the way in which communication through discussion and sharing creates co-constructed knowledge about academic skills and strategies for college success. We honor the fact that our students come to the University and, in turn, our classes with numerous strengths and talents, encouraging multiple engagement points for students to share their knowledge and experiences with their peers in relation to the course content.

To establish strong and sustained communication within LASK 1001 online, we wanted to first ensure students had a shared understanding of the course

## Who's missing? *continued*

concepts, including our course readings. Each week, students are responsible for reading the assigned materials and taking a short reading quiz. This assignment differs from the face-to-face class where there is no formal way of evaluating if a student has completed the reading. The reading quizzes are intended to prepare students for the week's topic, allowing students to have a foundation of knowledge with which to engage their classmates. Students also are asked to reflect on each week's content through short worksheet activities and through what we call a *Personal Action Statement*, or a critical thinking task that enables students to make decisions and set short-term goals related to their academic behaviors and attitudes. Then, based on each week's topic and related activities, the Engagement Goals (primarily designed to create and maintain social presence) also have been shaped to encourage cognitive presence through continued meaning making of course concepts through sustained communication. This scaffolding of weekly assignments allows students to first personally reflect on the material through various activities before communicating with their peers about how they are taking the knowledge from the readings and applying it to their academic life.

In the second half of the semester, cognitive presence is emergent when students participate in a group project where they are provided a case study about a student at the University. In small groups, students are asked to analyze the case study in relation to course content and construct a campus engagement plan based on the information provided in their case. Case studies include, for example, a student who is struggling with their chemistry class; an international student who wants to have stronger connections to the cultural groups on campus; a student who is experiencing some challenges with their mental health; and a student-parent who is returning to school after some time away from campus.

Students work in their small groups to create a collaborative plan to support the academic success of the student in their case study. However, before creating the campus engagement plan, students first engage in course content and a group assignment around effectively working in groups. Here, students are asked to establish a written plan for how their group will work together to complete the assignment, including establishing group roles, group policies, and a project task list. After receiving instructor feedback on each groups' written

plan, as well as additional opportunities for instructor feedback throughout each groups' project planning and preparation (e.g., an optional Google Meet between each group and the instructor), students construct their campus engagement plan and present it to our online class community through a digital presentation (e.g., PowerPoint, Prezi, VoiceThread, YouTube). The online class community then engages with the presentations through various Engagement Goal prompts, further building upon both social and cognitive presence. Both the scaffolding of weekly assignments and the group project encourage strong and sustained communication between students and the course concepts throughout the entirety of the course.

### Teaching Presence

Teaching presence is where the instructor designs “the selection, organization, and primary presentation of course content, as well as the design and development of learning activities and assessment” (Garrison et al., 2000, p. 90). Organization of LASK 1001 begins with a heavy emphasis on building skills, allowing students to establish strategies that work for their individualized success for the entire semester and beyond the course. Whereas the second half of the course is organized in a way to allow students to apply learned skills more broadly through goal setting and campus engagement activities. The instructor, through their teaching presence, also is responsible for facilitating the process of the social and cognitive presence in the course (Garrison et al., 2000). The way in which we approached the online version of LASK 1001 is very similar to that of the face-to-face class—we create the agenda, but the students bring it to life. We crafted the curriculum in a way that honors the *holistic* experience of the student, that they are more than just a college student, juggling a variety of responsibilities in addition to college. We recognize that though we *know* college, we were enrolled as undergraduates a while ago. Therefore, how can we truly be the experts in sharing knowledge around academic skills and strategies? We had to be intentional about the ways in which we shaped the dynamics, structures, and hierarchies that are often associated with academic learning environments in ways that allowed students to have ownership and control over their online learning environment. So, through careful planning, we created assignments (like weekly reading quizzes and various other learning activities and

## Who's missing? *continued*

assignments) to ensure that students were understanding the course content, and then provided opportunities for students to learn from one another through weekly Engagement Goals, the Learning Narrative Essay, and the group project.

Teaching presence was considered throughout the entire development of the curriculum. As with online environments, it should be thought of course wide, not just simply through discussion (Shea et al., 2010). We were intentional in thinking of all the ways the instructor would be interacting with students. In the face-to-face course, we already view our work as lying at the intersection of academic and student affairs. Being a person that students could rely on throughout the semester as their instructor and supporter was important, as this is an essential element to the success of our in-person design. So, as we thought about teaching presence, we also realized there would be some trial and error in our teaching practice (Green et al., 2015).

While we send a weekly email at the start of each week introducing the week's topic and agenda, post mini-lectures, and offer both traditional face-to-face and virtual office hours (i.e., by phone or Google Meet), teaching presence is most effective through direct engagement with students in the online setting. For instance, as instructors, we *show up* alongside our students in the weekly discussion and video forums—sharing more about ourselves and our own experiences with learning, tips and tricks (and personal systems) for academic success, and sharing of campus resources.

Providing multiple opportunities for feedback also has also been effective. For example, and as previously discussed, while students are engaging in the Learning Narrative Essay peer-review process, we also provide students feedback on their reflective writing before their final essay is due. With all assignments, we aim to provide feedback in a timely manner—typically within one week after an assignment due date—and we let students know early and often that we are always open to answering questions they may have about feedback or grades. This strategy is intended to provide motivation for the student to continue their persistence with the coursework (Hillman et al., 1994; Moore, 1989). And, again, we also offer opportunities for students to connect with us in real time (e.g., by phone or Google Meet) to

receive feedback throughout the group project. Students have noted in University-wide course evaluations that they value this individualized feedback, as many college students are new to reflective writing or working in small groups remotely.

It is noteworthy that after offering LASK 1001 for the first time online in fall 2018, we had to adjust our teaching presence to include more structured learning activities and assignments about how to effectively work in groups, specifically within an online environment. Though students said that they found value in small group work, they noted in course evaluations that they wanted more coaching on how to effectively work in groups, especially in an online class. So, we had to adjust our teaching presence to be responsive to our students' needs and success. For instance, the group project is now scaffolded, beginning with course content around how to effectively work in groups. Students engage in readings and establish a written plan for how they will work together prior to constructing their campus engagement plan and presentation, with opportunities for instructor feedback built into the project. We are continuing to reflect upon and build into the curriculum a student *toolkit* on how to effectively work in virtual small groups, which also was feedback we received from students. Spending time engaging students in readings, activities, and assignments around effective group work has become particularly important in response to COVID-19 where much of the University's operations, including many undergraduate courses, are currently only being offered as online courses.

In addition to valuing individualized feedback, students have said they value the clear assignment instructions and frequent communication and interactions with their peers and instructor. Many students have noted that they did not expect to have strong and sustained interactions with their peers and the instructor in an online course. In total, we have planned approximately 30-hours (or approximately two hours per week) of online instruction or instructional equivalencies throughout the academic semester. As discussed above, online instruction or instructional equivalencies include the weekly emails, asynchronous mini-lectures, synchronous office-hours, instructor authored content through our course management system (e.g., Canvas), and instructor engagement within the weekly video and discussion



## Who's missing? *continued*

forums. Our intentional efforts focused around teaching presence have strongly contributed to the social and cognitive presence we strive for in the online version of LASK 1001.

### Significance

Throughout the pilot of LASK 1001 online in fall 2018, the instructors met weekly to reflect on what was working and what could be improved in the course. We focused our conversations on the COI framework and continuously reflected on Green and colleagues' (2015) questions around adapting face-to-face assignments to online learning. We made tweaks to the curriculum based on student feedback and our own reflections on the course before offering it for a second time in spring 2019.

Throughout the first two semesters of offering a section of LASK 1001 online, we noticed something almost immediately; our student population included not only students who had matriculated from high school and transfer students, but also students returning from military service, student-parents, students who were working either part- or full-time, and students returning after a break from college. As such, we saw an increase in students who were over the age of 25. This shift in student demographics was directly connected to what initially sparked our interest in moving the LASK 1001 curriculum into an online setting—to support a more diverse range of students whose identities may have been missing from our face-to-face course offerings; to support the “new normal college student.”

An increase in student-parents, working students, students returning after a break from college, and students over the age of 25 indicates to us that our traditional face-to-face course offerings were not accessible and inclusive for all students. There have been several instances with the face-to-face course where these populations of students have enrolled in LASK 1001, and quickly dropped the course. We speculated multiple reasons for the quick withdrawal, such as the dynamics, structures, and hierarchies that often are associated with academic learning environments, including the time of day that our face-to-face courses are offered and the possibility of feeling discomfort in a classroom with a majority of students near the traditional college age of 18-24 years old

(Jenkins, 2012). In fact, scholarship has found that the same demographics of students that we see enrolling in LASK 1001 online often experience increased academic success in online courses (Guri-Rosenblit, 1999; Moore & Kearsley, 2012; Torres Colorado & Eberle, 2010).

Through developing an online course that is accessible and inclusive for more students than our face-to-face offerings, we believe LASK 1001 online has contributed to reshaping dynamics, structures, and hierarchies often associated with academic learning environments. For instance, offering an online version of LASK 1001 allowed one non-degree seeking student in their 80s to enroll in the course, completing LASK 1001 before continuing on to upper-division coursework. Offering LASK 1001 online also supported a retired student in their 60s returning to college after several decades away to complete a bachelor's degree. Likewise, a mid-career adult learner who was a certified nursing assistant enrolled in LASK 1001 as a (re)entry point to college coursework before pursuing a bachelor's degree in nursing. Not only does the online course offer these student populations the opportunity to gain academic skills and strategies, but we also have heard from students that LASK 1001 online has helped them, for example, acclimate to the University's campus technology, ensuring successful use of course management systems in their future coursework. As continuous improvements are made to the LASK 1001 curriculum, it is essential that we consider these various student populations to maximize the benefits of the online learning experience (Torres Colorado & Eberle, 2010).

Students have rated LASK 1001 online similar to that of the face-to-face course (5.5+ out of 6). Higher ratings of the online course have related to statements, such as, “The course site was easy to use,” “Instructional technology employed in this course was effective,” “The activities in this course supported my learning,” and “I would recommend this course to other students.” We see the comparable high ratings of the online course to the face-to-face course, as well as the shift in student demographics, as an initial sign that offering LASK 1001 online is effectively serving the needs of our growing and diverse student population.

The course is now in its third year and is being taught by an instructor who was not involved in the original

## Who's missing? *continued*

planning process of moving the LASK 1001 curriculum into an online setting. We felt having a fresh set of eyes on the curriculum and the intentional ways we are trying to facilitate deep social, cognitive, and teaching presence was necessary to provide continuous improvements to the course and to ultimately support the needs of our growing student population. We also successfully piloted a version of LASK 1001 online during the University's 2019 summer session to continue to meet the needs of our students. We continued to make improvements and offered the online version of LASK 1001 again during summer 2020.

### Limitations

We acknowledge the limitations associated with this program report. First, the demographic data presented in this program report is limited. While we can present demographic data on the differences between the face-to-face and online course offerings, we recognize the difficulty in comparing these two courses given the differences in the total number of students enrolled in each of the courses. For instance, we offer at least five sections of the face-to-face course each semester, resulting in a greater number of enrolled students than the online course, which only has had one to two sections offered each semester since the fall 2018.

Likewise, though we can present data on the colleges that students are enrolled in, student status, ethnicity, and student age range, these data do not paint the full picture of LASK 1001 online. Our demographic data from institutional research does not as easily represent the “new normal college student,” including student-parents and students who are working. However, as previously stated, demographic data is not the only story we aimed to share in this program report. Much of the data we presented came directly from individual communications with our students through course learning activities and assignments and individual meetings. We find this anecdotal data, as well as the data from course evaluations, to be extremely valuable to inform our teaching practices and as we make continuous improvements to our online offering of LASK 1001.

A second limitation includes our understanding of the ways in which the LASK 1001 online curriculum impacts student persistence and retention. One of the authors

(Jenny Steiner) has been working with institutional research to gather more longitudinal information for persistence rates tied to LASK 1001. Because LASK 1001 online is a fairly new course, data on retention and persistence is not yet clear for previously enrolled students. Data on persistence and retention rates are a work in progress and we hope to share this important information in future work.

Finally, moving LASK 1001 online has been exciting, but it also was an undertaking. While we think teaching online can be effective, we believe in intentional onboarding to ensure instructors are set up for success with the course materials. Therefore, we have been strategic in offering fewer sections of the online class to not grow too quickly and maintain a high-quality experience for students. We recommend this as a first step for making the transition from a face-to-face class to an online setting.

However, we acknowledge that in some cases there may be little time to address moving a class into an online format. With COVID-19, midway through the spring 2020 semester, we needed to move all of our LASK 1001 classes online and were grateful for the online curriculum we developed. (And all LASK 1001 classes will remain online throughout the 2020-2021 academic year due to the ongoing COVID-19 pandemic.) Still, it was a major adjustment for instructors who had not yet taught in an online format. They were thankful for the curriculum but did express the steep learning curve of teaching online, even from instructors who have taught face-to-face with our program for several years. As we have articulated throughout this program report, teaching online requires instructors to intentionally rethink their teaching presence and how they help to create and foster social and cognitive presence in an online environment.

### Conclusion

Moving LASK 1001 to the online environment has led to a number of positive outcomes, including: (a) connecting a more diverse range of students to our course content, particularly student-parents, students who are working, as well as students over the age of 25; (b) better supporting students whose schedules and life experiences do not align with our traditional face-to-face course offerings; and (c) we have been able to

## Who's missing? *continued*

continue to meet the needs of our growing and diverse student population by offering LASK 1001 online over the summer term. Ultimately, we believe these outcomes have led to student success and plan to partner with institutional research to gain understanding on impact of student success. We serve a diverse range of students across the continuum of majors and intentionally aim to meet our students where they are at to help shape the ways in which they understand themselves as learners and apply that self-awareness to their specific discipline.

Developing an online course can be quite the undertaking, and we recognize the many factors that go into creating a successful course. We also recognize the advantages we had in moving LASK 1001, a long-standing face-to-face course, to an online environment. Prior to our curriculum mapping and design of the online course, we had spent significant time re-developing the face-to-face curriculum with a team of instructors. Because of our comfort with the face-to-face curriculum, we were able to (re)imagine assignments in the online context due to our content familiarity, our department's ethos, and our individual pedagogical training. We find value in the classroom community and positive experiences we were part of in the face-to-face class and believe that spirit was carried with us into the online environment. We do not think the online version of LASK 1001 would be as successful if we did not have such a deep familiarity with the face-to-face curriculum and classroom experience of LASK 1001. Because we want to meet the needs of our diverse learners, we see value in continuing to offer both face-to-face and online course offerings. We hope to further grow our online presence, while still maintaining a strong footing in the face-to-face course options, as this allows for curriculum and pedagogical innovation in real time that will inform what we transfer into the online context.

Who's missing? *continued*

## References

- Allen, E. I., Seaman J., Poulin, R., & Straut, T. T. (2016). *Online report card: Tracking online education in the United States*. Babson Survey Research Group and Quahog Research Group, LLC. <https://files.eric.ed.gov/fulltext/ED572777.pdf>
- Bender, T. (2012). *Discussion-based online teaching to enhance student learning: Theory, practice, and assessment* (2nd ed.). Stylus.
- Deruy, E. (2017, January 20). 9 questions with the man who oversaw higher education with Obama. *The Atlantic*. <https://www.theatlantic.com/education/archive/2017/01/9-questions-with-the-man-who-oversaw-higher-education-under-obama/513767/>
- Dolan, K. (2008). Comparing modes of instruction: The relative efficacy of on-line and in-person teaching for student learning. *PS: Political Science and Politics*, 41(2), 387-391. <https://doi.org/10.1017/S1049096508080608>
- Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education* 2(2-3), 87-105. [https://doi.org/10.1016/S1096-7516\(00\)00016-6](https://doi.org/10.1016/S1096-7516(00)00016-6)
- Green, E. R., Hamarman, A. M., & McKee, R. W. (2015). Online sexuality education pedagogy: Translating five in-person teaching methods to online learning environments. *Sex Education*, 15(1), 19-31. <https://doi.org/10.1080/14681811.2014.942033>
- Guri-Rosenblit, S. (1999). *Distance and campus universities: Tensions and interactions. A comparison study of five countries*. Emerald Publishing Limited.
- Hillman, D. C., Willis, D. J., & Guawardena, C. N. (1994). Learner-interface interaction in distance education: An extension of contemporary models and strategies for practitioners. *American Journal of Distance Education*, 8(2), 30-42. <https://doi.org/10.1080/08923649409526853>
- Jenkins, R. (2012, December 12). The “new traditional student.” *The Chronicle of Higher Education*. <https://www.chronicle.com/article/The-New-Traditional-on/135012>
- Moore, M. G. (1989). Three types of interaction. *American Journal of Distance Education*, 3(2), 1-6. <https://doi.org/10.1080/08923648909526659>
- Moore, M. G., & Kearsley, G. (2012). *Distance education: A systems view of online education* (3rd ed.). Wadsworth.
- Pintrich, P. (2004). A conceptual framework for assessing motivation and self-regulated learning in college students. *Educational Psychology Review*, 16, 385-407. <https://doi.org/10.1007/s10648-004-0006-x>
- Shea, P., Vickers, J., & Hayes, S. (2010). Online instructional effort measured through the lens of teaching presence in the community of inquiry framework: A re-examination of measures and approach. *International Review of Research in Open and Distance Learning*, 11(3), 127-154.
- Torres Colorado, J., & Eberle, J. (2010). Student demographics and success in online learning environments. *Emporia State Research Studies*, 46(1), 4-10.
- University of Minnesota. (2020). *University of Minnesota: Student enrollment pivot*. [Data set.] University of Minnesota: Data Warehouse. <https://oir.umn.edu/student/pivot>
- Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25(1), 82-91. <https://doi.org/10.1006/ceps.1999.1016>

## PROGRAM REPORT

# Blended Learning in Graduate Teacher Education Programs: Understanding Teacher Candidates' Perceptions and Experiences

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### Abstract

There has been a growing interest in the literature on blended instruction. While the prevailing research has focused mainly on recommendations for course design, implementation, and possible benefits, student perceptions about blended instruction have not been researched as thoroughly. This paper explored graduate teacher candidates' perceptions and experiences with blended instruction through a qualitative case study method. Primary data were collected through in-depth focus group interviews with 12 teacher candidates, and class observations were used as secondary data sources. The analysis of the data revealed that regardless of ineffectual online teaching at times, disconnect between face-to-face and online sessions, and ineffective use of technology, graduate students prefer blended instruction mainly due to its flexibility. Although the study focuses on teacher education, our findings can apply to other disciplines interested in enhancing blended instruction by improving connections between face-to-face and online sessions, using technology more intentionally, and connecting theory to practice. The current study occurred prior to the COVID-19 pandemic, thereby offering a baseline to institutions who are concerned about strategically implementing alternative course-delivery modes.

### Keywords:

Blended Instruction, Teacher Education, Graduate Students, Student Perceptions

Research on blended instruction has been an emerging literature since the beginning of the 21<sup>st</sup> century. According to Linder (2017), scholars have employed a variety of names to refer to courses with the combination of in-person and online components: flipped instruction, hybrid learning, and blended instruction. Margulieux et al. (2014) state that blended instruction is the most appropriate term as it incorporates all aspects of hybrid and flipped formatted instruction. In this paper, we use the term blended instruction to refer to courses that have both in-person and online components.

Over a decade ago, Garrison and Kanuka (2004) offered an informative introduction to the potential for a blended instruction environment and experience. They posited that this type of blended instruction provided a range of advantages, such as the development of a sense of community among participants, enhanced critical thinking, and an increase in peer-to-peer connectivity among students. More recently, Linder et al. (2018) suggested that the importance of providing students with blended instruction encourages the strengthening of practices and skill sets applicable to real world settings while finding a balance across multiple learning modalities. Blended instruction may encourage pedagogical practices that underscore differentiated learning among students by combining online learning



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with linked in-person classroom engagement, the promotion of self-directed learning online, and student autonomy between the two formats, thereby reinforcing adaptation within varying socializing contexts.

The research on blended instruction is not without divergence, as scholars have underscored both optimism in the creativity surrounding course offerings as well as caution regarding the quality of course design. The latter can be highlighted in better understanding student's perceptions of blended instruction. According to Martin and Bolliger (2018), the opportunities made available for effective online engagement vary considerably. Positive experiences for students are dependent on the responsiveness of instructors and the kinds of online engagement that instructors make available to students. Examples of instructor responsiveness include contributing to the quality of online engagement such as presentation of academic content (e.g., outline projects and facilitating discussions), encouraging collaboration and use of communication tools (i.e., prioritizing technology use and applications), and evaluation practices (e.g., instructors offering students clear instructions, rubrics, and feedback). These findings associated with online learning influence how students perceive blended instruction, as they may place pronounced value in the quality of learning online, that then may or may not be successfully linked to in-person instruction. Students often prefer blended instruction when the online context can bridge or mediate how students appreciate in-person engagement and many opportunities for learning (Owston & York, 2018). Therefore, better alignment of the in-person and online experience among students matters and may even be moderated in part by technology use that includes instructor and student connectivity. As Mestan (2019) has suggested, embedded within technology use and application is the importance of understanding how students receive appropriate academic support and feedback through blended instruction. The capacity among students to use the available technology interface is one aspect within blended instruction (e.g., learning management systems and the like), but still another is the consistency in how online and in-person academic support is provided, referring to instructor feedback to students (e.g., whether in real-time, personalized, or over dialogue and exchange; a shared instructor and student valued experience). In their review of the effectiveness of

blended instruction, Nortvig et al. (2018) concluded that flexibility in course offering supports increased student access and exploration of opportunities for integrated forms of student learning, while also prioritizing the importance of enhancing the quality of instruction. Similarly, across different academic disciplines, a number of studies on blended instruction suggest favorable outcomes when there is a synergy between implementation and quality of learning (e.g., Aycock et al., 2002; Chapman et al., 2020; Martín et al., 2015; Vaughan, 2007). When looking at these themes together, effective implementation of blended instruction likely relies on the value-added alignment of several factors, including (but not limited to): institutional priorities, faculty training, and meeting the demands of quality course expectations among students (Chapman et al., 2020; Moskal et al., 2013).

Blended instruction in teacher preparation programs has been supported in the research literature, with substantial growth in aiming to better understand the effectiveness of blended formatted courses (Boelens et al., 2017). Within the field of teacher preparation, scholars have signaled that teacher candidates can benefit from blended instruction, because blended instruction may help to facilitate their academic learning, promote their professional development, and the acquisition of new pedagogical skills and practices (Comas-Quinn, 2011; Jennings & Peloso, 2010; Sailors & Hoffman, 2019). Our paper adds to this literature by examining the experiences and perceptions of teacher candidates, particularly those at the graduate level, after having accessed, participated in, and completed blended instruction in teacher education courses. The following questions guided our study: 1) What are graduate teacher candidates' perceptions on blended instruction in teacher preparation programs? and 2) What is the overall learning experience among graduate teacher candidates who participated in blended instruction in teacher preparation programs?

### Blended Instruction and Teacher Education

Literature about blended instruction in the field of teacher education is a growing body of work. Contemporary perspectives that underscore blended instruction and teacher education include underlying principles such as those associated with Technology,

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Pedagogy, Content, and Knowledge (TPACK), alternative forms of accessing teacher education programs (e.g., beyond traditional face-to-face or physical location boundaries), blended instruction to spark creativity and innovation in teacher education, challenges to course delivery, training and universal design learning, and best practices for adult learning (Altun, 2019; Kennette & Wilson, 2019; McNeil, 2016; Moore-Adams et al., 2016; Uribe & Vaughan, 2017; Vininsky & Saxe, 2016). As a whole, a common theme presented is the intentionality behind blended instruction design and delivery in relation to teacher education—calling for a greater focus on facilitating the development of a blended learning community. According to Boothe et al. (2018), the applications that can be introduced and practiced within blended instruction are important for introducing and modeling scaffolding practices that support meeting the demands of several generations of learners. As such, within the context of blended instruction and teacher education, the learning environment is suggested to be situated to develop learners or individuals that increasingly access and participate in what is referred to as learning in a “3<sup>rd</sup> space,” i.e., a constructed learning environment that goes beyond a solo in-person experience or a solo online experience (Jackson & Burch, 2019). Additionally, through the encouragement of extended technology use (e.g., personal computers, laptops, and mobile devices (including mobile applications), socialization practices address issues of accessibility and flexibility across course work, student-to-student and instructor-to-student collaboration, course participation, and learner feedback (Boothe et al., 2018). In the context of teacher education, access and participation in blended instruction may offer additional significance to the learning experiences of students. In addition, scholars have suggested that training in blended instruction practices serve a larger purpose as well; namely, raising awareness and preparation for potential future opportunities in the teaching profession to lead and facilitate blended curriculum (Graziano & Bryans-Bongee, 2018).

Blended instruction may also contribute to teacher candidates’ broader pedagogical learning (Grant, 2009; Mumford & Dikilitas, 2020; Nami et al., 2018). For instance, Nami et al. (2018) explored the use of synchronous chats in a blended environment to support the growth and development of teacher candidates. The authors concluded that this course format increased peer

support and knowledge of teaching. Similarly, Mumford and Dikilitas (2019) reported that teacher candidates’ reflective teaching practices are strengthened as a result of blended instruction that provides multimodal communication. These studies offer important insights into how the quality of blended instruction may contribute to a student’s overall perception of a course. This attention to course design and delivery presents an opportunity to not only better structure a blended course, but to do so with a strong consideration for how beneficial the course may be to students.

### Student Motivation and Blended Environments

Butz and Stupinsky (2016) suggested a clear distinction between blended instruction and traditional in-person learning, finding that students’ feelings of unrelatedness may vary between those enrolled in solely blended courses versus solely in-person or on-campus courses (e.g., solely face-to-face course offerings). This aligns with previous research on the relationship between students in blended courses and their potential feelings of isolation (Butz et al., 2014; Glazer & Wanstreet, 2011). Moreover, these researchers reported on key components associated with feelings in relation to students experiencing blended instruction—questions spotlighting peer-relatedness, technology influence, instructor impact, and program structure. Relatedly, Rovai and Jordan (2004) found that, in relation to cultivating a sense of community in students, blended instruction may rank above both traditional and fully online courses. Also focusing on student satisfaction, Ginns and Ellis’s (2007) argued that satisfaction with an online portion of a blended course depends on qualities such as teaching styles, range of resources, overall workload, and student interaction. Positive reception of course structure likely depends on alignment between the online and in-person learning itself. Stromie and Baudier (2017) suggested interdependence occurs when the classroom participants experience the two learning (e.g., online and in-person) environments as equal and structured. Linder et al. (2018) reinforced this notion that care to the quality of in-person social engagement may mean assisting students in building a climate of trust, thereby creating an impactful and meaningful learning community.

In their research on student perceptions of blended instruction, El Mansour and Mupinga (2007) examined

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the differences in positive and negative feelings toward blended courses by conducting interviews with student participants. Their research reported variations in experiences related to blended delivery format. For example, students enrolled in blended instruction classes rated both course flexibility and instructor availability as positive aspects. On the other hand, students shared negative reflections about the rigidity of the course scheduling of the in-class meetings as well as technical issues. Within the online segment, students enjoyed the positive benefits of convenience, class expectations, and instructor availability. However, negative feedback included technological problems as well as feeling “lost in cyberspace.” The authors concluded that students should be aware of these pros and cons, and when given the option, choose a delivery mode that suits their personal preference. Taken together, promoting and reinforcing student motivation in blended environments may require that instructors continuously aim to be learner-centered, co-constructive/reflective, and intentional in understanding the likely quality of learning received among students through course design and delivery.

### Three Types of Presence in Online and Blended Instruction

There are three types of presence in online or blended instruction: instructor presence, social presence, and cognitive presence (Stavredes, 2011). Instructor presence is vital in creating a community of inquiry, because how we interact with our students has a great impact on establishing social presence, which in turn has an effect on developing cognitive presence (Stavredes, 2011). In defining “instructor presence,” Zen (2008) stated that “what determines the quality or the effectiveness of a course is not the format, not the technology, but the teacher, the teacher’s devotion, expertise, caring for students, willingness to learn and openness to change” (p. 6). Communicating feedback on students’ work as well as encouraging self-directness are crucial in creating instructor presence in blended instruction. Social presence in blended instruction allows students to engage in a community and build relationships or rapport. When students feel a sense of community, they are willing to share ideas and thoughts that are important for constructing knowledge. In other words, students need to interact and communicate with their peers as well as the instructor frequently to facilitate their

learning. Also, learners’ ability to have direct contact with classmates and instructors can prevent them from feeling isolated (Richardson & Lowenthal, 2017). Garrison et al. (2001) defined cognitive presence as “the extent to which participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication” (p. 5). Cognitive presence is developed when students share their different perspectives to build knowledge through ongoing communication (Stavredes, 2011). Active learning plays an important role in creating cognitive presence in blended instruction because it places the responsibility of learning and acquiring knowledge on the students. Rather than merely trying to meet the objectives, active learning is meaningful.

These three types of presence set the baseline for what is understood as fostering an integrated learning experience in blended instruction (Picciano, 2017). An integrated learning experience refers to a theoretical framing that can inform blended instruction by combining the applications of multiple learning theories into a single course. It suggests that, by design, the blended course can embed content and assessment in a manner that promotes theories about how students learn (Picciano, 2017). For example, blended instruction may lend itself to specific underlying theories such as social learning and constructivism, where a considerable amount of attention is placed on facilitating learning through the online experience as well as in-person student social engagement. When online, students may have opportunities to develop socializing skills with peers in the form of engaging in online discussions and collaborating on project components. When in person, there may be opportunities for reflection to foster personal connections to peers and course content as well as feedback looping between students and faculty. An integrated theoretical approach (Picciano, 2017) meaningfully identifies how blended instruction advances getting to know student learners on a deeper level of learning processes, while also promoting applied skills across multiple competencies (e.g., technology; collaboration; critical feedback; personalization).

Having taken into consideration current trends in research on pedagogical practices, student reception, and theory in relation to blended instruction—our study centers on graduate teacher candidates’ in-depth

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experiences with blended instruction. An instrumental qualitative case study approach (Stake, 1995) was applied in this study. Through this approach, we hoped to gain greater insight into the perceptions of teacher candidates regarding their experiences about blended instruction.

### Method

The study took place at a mid-sized liberal arts private university in the Northeastern United States. The two graduate teacher education degree programs offered by the School of Education at the time of the study were Masters of Arts in Teaching (MAT) and Masters of Special Education (MsEd). There was an approximate total of 36-48 courses offered within these programs for a variety of certifications (Elementary, Secondary, K-12) and endorsements (Early Childhood, English as a Second Language (ESL), Special Education). Among these courses, about 10 courses were offered as blended instruction, and the average class size of these courses ranged from 5 to 15 students per class. The design and structure of these courses was based on individual professors' preferences without specific guidelines set by the university or the school. For instance, some courses alternated between in-class and online sessions every other week, while others met in class every two to three weeks, and some met in class for the first half of the class session and completed work online individually for the second half of the class. In general, during the in-person class sessions, students participated in various classroom activities, including lectures. In the online sessions, the majority of professors had students participate in online discussions as well as submitting assignments made available by instructors through the Learning Management System (LMS), eCampus. There were also individual professors who conducted live sessions through Adobe Connect or a live chat function on the LMS. Instructors who chose not to use the LMS had students submit a reading reflection via email.

Before the start of the Fall semester in 2017, the first author sent an email to the six instructors who were scheduled to teach blended courses in that semester, inviting them and their classes to participate in the study. Of the six instructors, four accepted the invitation, agreeing to allow the researchers to observe their courses as well as invite their students to participate. These four instructors all used eCampus for their online sessions.

Next, the first author went into these classes during an in-person session and invited the students to participate in a focus group interview. At first, 26 students signed up, but only a total of 12 students showed up for the focus group interviews. Although we interviewed the instructors, the graduate teacher candidates described their overall experiences based on the different blended instruction courses they had enrolled in. We solely focused on the student participants' experience in the present study.

### Participants

The total number of participants for this case study was 12 graduate teacher candidates. This sample size may be sufficient, given our case study focused on the contexts and the perspectives of the participants (Creswell, 2013; see also Yin, 2009). In our analysis of the data, we also identified repeating patterns among the participants, which is vital in a qualitative case study (Charmaz, 1990). Eleven of the participants were White and female, with one individual identifying as Korean-Italian and female. Half of the participants were in the MAT program, earning an endorsement in teaching ESL, while the other half were in the MsEd program. Of the 12 participants, eight of them were full time students (taking 9-12 credits per semester) and four of them were part time, taking between one to two courses per semester. The full-time participants indicated that they had part-time jobs. Conversely, the participants who were part time students all had full time jobs. Students were also required to fulfill 60-100 field hours in a local school each semester. The amount of field hours varied, depending on how many courses students were enrolled in. Ten of the participants had taken at least three blended courses at the time of the study, while two had taken one only.

### Data

The data sources collected for this study were from (1) three focus group interviews with the graduate participants and (2) observations of two in-class sessions and (3) observations of the LMS sites of each of the four instructors. Field notes with thick and rich descriptions (Ponterotto, 2006) were taken by the first author and a research assistant during the observations. Our primary data were the participants' responses during the in-depth, semi-structured focus group interviews that were conducted at the end of the semester. Two focus



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group interviews had three graduate participants, while one had six participants. These numbers were based on student availabilities.

The interview questions focused on understanding the participants' perceptions and experiences with blended courses. Sample questions included "How do you think blended instruction has helped/hindered your progress and learning to become a teacher?" and "What are the academic positives concerning the blended format?" We also asked follow-up questions based on the participants' responses during the interviews and from the field notes from the classroom observations. The interviews were recorded and then later transcribed. Each focus group interview lasted about 65-70 minutes.

Although we went beyond the participants' experiences in the courses observed, the observations, we believe, helped us develop an understanding of what the participants experienced in a blended instruction environment. Thus, we used the observation field notes as secondary data and referred to them when necessary.

### Data Analysis

Data analysis was conducted in two phases. During the first phase, all authors analyzed the field notes from the classroom observations to gain a deeper understanding of how the courses were structured and what happened in the classes. This phase of analysis helped us formulate the interview questions as well. In the second phase, the focus was on the transcriptions of the interviews through the open coding strategy (Rossman & Rallis, 2003). The first and second authors as well as a research assistant individually read and summarized the interviews using a holistic coding method. Then, they went back to the data and coded them using In Vivo Coding to learn more from the participants' voices and experiences. After that, they compared the codes to ensure the thought process was similar and discussed the potential categories. The codes (e.g., meaningful, waste of time) were revisited and were refined into axial code (e.g., mixed feelings) representing overarching themes (Marshall & Rossman, 2011). Finally, to ensure confirmability, both the transcriptions of the interviews as well as the analysis of the data were presented to the third author for verification (Patton, 2001).

### Results

According to our analysis, we realized that the participants' perceptions were primarily based on their experiences with blended instruction. As such, we combined our findings for research questions #1 and #2 in our reporting. Upon reviewing the data, three themes emerged: 1) mixed student feelings, 2) connections between in-person and online sessions, and 3) effectiveness of technology. Below, we present each theme followed by a summary of related contexts and associated student responses.

#### Mixed Student Feelings

Ten of the 12 participants expressed mixed feelings about blended instruction. Overall, the participants preferred the in-person sessions, because they appreciated in-depth discussions and hands-on activities when meeting face-to-face. In other words, they disliked the lack of in-depth discussions and hands on activities in the online portion. However, the online sessions allowed them to find a better balance between classwork, fieldwork, full-time jobs, and family obligations. Since education majors are required to fulfill a great number of field hours in a K-12 setting, evening education classes in the blended format accommodated various schedules. Many of the students described this set-up as "a break" that gave them a chance to focus on various things, such as being able to use the time to complete the fieldwork requirement and personal matters, rather than being in class physically all the time. For example, when talking about her regular job, field hours, and course work, one participant said:

"I'm in a year-long program, which means that I'm at an elementary school four days a week. On Mondays and Wednesdays, I'm in the school from 7:00 to 4:00 and then I have a class from 4:30 to 7:30. And [I have] my own child, and I have to be up the next morning."

Because of the emphasis on the fieldwork component for teacher candidates, all of the participants voiced that it would be desirable if blended instruction and fieldwork could be coordinated so they could see more connections of what they are observing in the field and what they are learning in class. On the other hand, the participants expressed that the lack of interaction with professors



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and classmates during the online sessions made learning feel isolated and less meaningful. Compared to a fully online course, the participants appreciated the nature of a blended course, because they are able to make personal connections with their fellow classmates during the in-class sessions. Such connections are important for both their academic and personal growth as future teachers, because they were able to discuss what strategies worked and why. They also expressed that discussions in the classroom and online were different, because they were also able to carry on a conversation with their classmates about their field observations in the former setting, but having the same discussion online was difficult as online conversations often died down easily.

From our observations on the LMS, we noticed that the majority of the online tasks were asynchronous, such as chapter reflections, submission of papers, and discussion boards on which instructors posted a question related to the reading of the week and students responded by a due date. Two instructors responded to every student's post, while others occasionally provided feedback online. All of the participants stated that it was frustrating for them when professors did not respond or only provided a one-word response such as "good job", suggesting that this did not benefit their learning. One participant stated, "it was very much like dumping out a box of a puzzle and just moving around the pieces, and then you don't know if you solved the puzzle." As for student-to-student interactions in the discussion board, the participants agreed that it was nice to work on the discussions whenever they could by the due dates; however, having to respond to a certain number of class members could be difficult as some students often waited until the last minute to post their work. Therefore, as much as they would like to interact with different classmates each time, they would end up responding to the same people who submitted their original posts relatively earlier every time. In addition, they agreed that instructors play an important role in stimulating student to student interactions during online sessions. One participant recalled the feedback she had received from various professors on the discussion board and shared:

"I've had professors go in and say to me, oh, now think of it this way or what if this was a situation, and then gets you thinking and you actually respond more. And then, I've also had professors

who go in and are just like, good job, three out of three. And then I feel like I don't have to write anymore. I already got my grade. It was a 100, so why do I have to write anymore?"

Thus, the participants voiced that having professors who provide timely and constructive feedback for their online work is important because it inspires them to think critically and further engage in discussions.

Another factor that contributed to the mixed feelings about blended courses is in regard to how the course is organized. The participants pointed out that their experiences varied depending on the professors that they had. The expectations for the quality of work and the instructions for the online work needs to be very clear and consistent so that they could focus on their learning rather than wasting their energy worrying about how to get things done and if they would miss any assignments. For example, a participant voiced, "[i]t's really professor dependent. And you can have a professor who does an amazing job at it. And you can have a professor who's just – it's a waste of your time."

### Connection between In-Person and Online Sessions

Ten of the participants pointed out that all of the blended courses should follow the same format. Participants who had taken several blended courses in the program stated that overall, there is a lack of connection between in-person and online sessions because the online sessions often felt like a separate class that was not related to the in-class component. One of the participants shared that, "I dislike that there often feels like there is a disconnect between the in-class sessions and the online ones. It seems like there are almost two different classes happening because the assignments and preparation are so vastly different."

Despite these negative experiences regarding the lack of connectivity in some of their blended courses, these participants also recalled the positive experience they had with particular professors. Eight of them (four from the MAT program and four from the MsEd program) reported that a professor from each of these two programs made sure to relate the next online session while in the face-to-face class. Subsequently, what students learned

## Blended Learning *continued*

in the face-to-face class was always applied in the next online session. We observed these two professors' blended courses and noticed that their in-class sessions included reviews of materials they had previously covered, small group work, mini lectures, and discussions. They also previewed what students would do in the next online session and how the tasks were related to the in-class activities. The participants agreed that the online instructional sessions with these professors was an added dimension to what they were learning in class. Because of the various experiences with different professors, the participants voiced that it is important for all professors to consider the sequence of their blended courses and how the in-class and online sessions are related.

### Effective Use of Technology

Eight of the participants discussed their experiences with respect to technological use in their blended courses. All of the participants had used the eCampus LMS for their blended courses and six participants had also used Adobe Connect for their online interactive sessions with peers and professors. During the online sessions, the participants mostly posted their responses to specific questions on discussion boards and uploaded assignments. The six participants who had used Adobe Connect reported that at times there were live chats with classmates and professors using the tool. While they agreed that live chats, discussions, and videos were powerful and good ways to simulate face-to-face interactions, they did not have positive experiences with respect to making good use of technology. Their concerns were mainly due to the nature of the assignments, not necessarily the tool. For example, one participant said:

“I have seen one example of assignments lacking quality during a video Adobe Connect session where students were given a long list of busy questions that they would then respond to. It was a poor, thoughtless, and meaningless use of the technology.”

Similarly, all of the participants claimed that asynchronous discussions enabled by technology often seemed meaningless when professors did not provide their thoughts and if they were only asked to respond to questions from textbooks instead of applying their knowledge to teaching scenarios. When compared to the

discussions they had in class, some of the participants felt that online discussions seemed inauthentic. Oftentimes, students were given a few days to write their original post and respond to peers. However, they admitted that they lost their train of thought after a day, and conversations stopped due to that reason. In contrast, when participating in face-to-face discussion in class, students were able to carry on the conversations with one another and, to them, that is how learning takes place. In addition, a few participants thought that discussions without clear directions from professors are not beneficial. One student expressed:

“They’re just tedious. They’re not giving you anything. If you go onto the discussion board and you’re just summarizing and responding to other people...I’m not getting anything out of that. I’m getting a Master’s. I want to earn that Master’s.”

With respect to a graduate degree, three participants mentioned the importance of research and technology. They believe that the blended format could be a useful tool to cultivate teacher candidates' deeper understanding of instruction and their future students' learning through research and data collection. However, they did not see this happen within the program, especially when they had to spend a great deal of hours in the field where they could conduct evidence-based research. Rather, they expressed that precious time was often spent on meaningless discussion posts. The excerpt below illustrates this point:

“One of the things that I’ve been a bit upset...I’ve kinda yearned for was opportunities for [research]. And this format, I think, would really provide a good experience for students to have their hands more in research. [The university] does offer a really good database for research, it’s just not utilized.”

Notably, without seeing the professors in the classroom as much as in non-blended courses, all of the participants deemed email communication as having high importance. Some professors, however, did not respond to email in a timely manner—meaning that students were not able to have their questions answered before a given assignment may have been due. The participants agreed that the interaction that comes by way of responses from their professors through quick and thorough emails

## Blended Learning *continued*

makes blended instruction more effective. Students also mentioned that courses that do not provide digital feedback or offer thorough feedback consistently makes instructor interaction impossible. One participant said: “It may take some professors a while to respond to an email and sometimes that time is something that one does not have.” Lacking communication from the professors during online sessions made some of these participants believe that it was unprofessional. In one of the participants’ words, “They treat that as an off week for them, but students are still expected to do work... you still have to be ready and available if your students have any questions. You should still be there.”

On the contrary, the participants reported positive experiences with technology if the course was perceived to be well organized, expectations were clearly explained, and thorough responses were given by the professors in a timely manner. One student stated:

“Technology makes me nervous sometimes, so knowing what the expectations were and following the clear format of the online portion made the course so much more enjoyable. I knew what was due when, and by which technological means, so this made the course a better learning experience.”

Despite the mixed feelings that the participants reported due to a disconnect between the in-person and online sessions and the ineffective use of technology at times, all of the participants still preferred a blended format over a traditional in-person or a fully online course. This appears to be due to the flexibility that blended instruction provides, while still offering the face-to-face interactions with peers and professors which, to them, is important for their learning.

### Discussion

In this case study, we examined teacher candidates’ experiences in and perceptions about blended instruction in graduate teacher preparation programs. Presumably, the reception of such a format would be one in which an integrated learning experience (Picciano, 2017) would be possible. The participants preferred blended instruction over a fully online or a traditional face-to-face class due to its flexibility in scheduling. Moreover, the findings in this small-scale study reflect the literature on best

teaching practices. How a course is formatted and made available (connecting online and in-person sessions), and whether it is meaningfully orientated towards connecting theory to practice, were very important to the participants. The established literature on successful blended instruction encourages instructors to divide the time spent in online plus in-person class sessions while also working to weave together a strong structure that enables self-directed learning, triggers student interest, offers collaboration opportunities, and socializing skills across technology as well as in-person active learning (Linder et al., 2018). Our findings reveal that blended instruction that does not include connecting theory to practice through research opportunities involving teaching practices and on-going discussions about field observations are sometimes viewed unfavorably by students. The findings of the study indicate that teacher candidates’ experiences varied based on how the courses were structured as well as the amount of communication and feedback provided by the professors. Given the fact that blended instruction is becoming more and more popular (Auster, 2016; Moustafa, 2017), we suggest that this format necessitates faculty professional development on blended instruction. Specifically, there should be greater emphasis on providing effective models and guides for how to design and implement blended instruction to provide students with integrated learning experiences (Ginns & Ellis, 2007; Stromie & Baudier, 2017).

The participants in this study also voiced the lack of meaningful connections with online discussions and live sessions in some of their courses. Such findings imply that teacher educators should reflect on the rationale of the use of technology to best reach their students rather than using technology to attempt to simulate face-to-face interaction. Since fieldwork is an important component of teacher preparation programs, we suggest that teacher educators can utilize blended instruction and make good use of the online sessions to structure graduate students’ learning based in their field to connect theory to practice. This also applies to other disciplines that include field experiences and/or clinical practices in their programs. Scholars have suggested in recent years that blended instruction, when well prepared and delivered, offers students additional opportunities to develop competencies across and within the relevant curricula and technological applications (e.g., contributing to

## Blended Learning *continued*

pedagogical awareness and practices) (Altun, 2019; Kennette & Wilson, 2019; Uribe & Vaughan, 2017). Similarly, these suggested competencies may lend themselves to meeting the demands of continuous shifting student demographics as well as even K-12 course instruction, including blended courses and increased use of variations in LMS (Boothe et al., 2018; Graziano & Bryans-Bongey, 2018).

Future research should look at instances in which blended instruction is presented in the most effective manner and offer meaningful experiences to graduate students. While the sample size of our case study was relatively small, it does serve as an initiative to critically think about the ways in which teacher candidates at the graduate level are experiencing blended instruction. The findings also provide educators in other disciplines insights into how to better design their blended instruction for graduate students. Since participation was voluntary, it is also important to consider beyond the perspectives of this study that may have varied if the participant sample was more ethnically, racially, and gender diverse.

### Conclusion and Implications

While there are merits to both traditional and online formatted courses, blended instruction, rather than simply combining the two components, requires a different set of pedagogical skills and structure. In following best practices for all learning, including blended instruction, educators ought to first consider the purpose of course design and objectives of activities and assignments. Since fieldwork is a major component in teacher education, we recommend that teacher educators take advantage of what blended instruction can offer in order to connect theory to practice. To do so, we recommend that instructors consider the three types of presence when designing and implementing blended instruction: instructor presence, social presence, and cognitive presence (Stavredes, 2011). This way, students can enjoy the flexibility that blended instruction offers while maximizing their learning and building of interpersonal relationships with their instructor and peers. The participants in the present study indicated negative experiences during their online sessions, and too often described their online work as “busy work.” Asynchronous communication can provide students

opportunities to develop content knowledge in more depth, if used appropriately (Weasenforth et al., 2002). To achieve meaningful learning via the asynchronous mode, instructors may consider including collaboration in problem-based learning to reflect real life situations (e.g., classroom scenarios). With the three types of presence, as well as designing meaningful assignments through collaborative problem-based learning, instructors can decide what technology tools will help them achieve the purposes of each assignment (Stavredes, 2011).

While our study revealed graduate teacher candidates’ preferences and experiences, the findings of this study are also beneficial to other disciplines. Ongoing professional development on blended instruction and open conversations about this increasingly popular format are necessary. Our study highlights the importance of creating student-centered learning environments that build connections between face-to-face and online sessions, effective utilization of technology, and reasoning to connect theory to practice in order to maximize engagement and learning. This can be relevant within and across a range of disciplines, although each field might center on a particular set of experiences, the overarching applications in thinking more about quality in blended instruction is applicable. Finally, it is important to note that our research was completed prior to the COVID-19 pandemic. Therefore, our research offers a baseline for considering the implications of adopting and sustaining blended instruction. A caution and a limitation to our study is that we did not directly compare blended instruction with a solely online course delivery experience. We suggest that further research should aim to address this by exploring how blended instruction and online courses may or may not have comparable underlining framing as well as may diverge with respect to course design, delivery, and student reception or learning outcomes.

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## References

- Altun, D. (2019). Investigating pre-service early childhood education teachers' technological pedagogical content knowledge (tpak) competencies regarding digital literacy skills and their technology attitudes and usage. *Journal of Education and Learning*, 8(1), 249-263.
- Auster, C. (2016). Blended learning as a potentially winning combination of face-to-face and online learning: An exploratory study. *Teaching Sociology*, 44(1), 39-48.
- Aycock, A, Garnham, C., & Kalera, R. (2002). Lessons learned from the hybrid course project. *Teaching with Technology Today*, 8(6), 9-21.
- Boothe, K. A., Lohmann, M. J., Donnell, K. A., & Hall, D. D. (2018). Applying the principles of universal design for learning (udl) in the college classroom. *The Journal of Special Education Apprenticeship*, 7(3), 1-13.
- Boelens, R., De Wever, B., & Voet, M. (2017). Four key challenges to the design of blended learning. A systematic literature review. *Educational Review Research*, 22, 1-18.
- Butz, N. T., Stupnisky, R. H., Peterson, E. S., & Majerus, N. M. (2014). Motivation in synchronous hybrid graduate business programs: A self-determination approach to contrasting online and on-campus students. *Journal of Online Learning and Teaching*, 10(2), 211-27.
- Butz, N. T. & Stupnisky, R. H. (2016). A mixed methods study of graduate students' self-determined motivation in synchronous hybrid learning environments. *The Internet and Higher Education*, 28, 85-95.
- Chapman, S. J., Wong, C. Y., & Estudillo, A. G. (2020). Hurdle or pathway to learning? Student and instructor sentiment towards graduate-level hybrid learning. *The International Journal of Technologies in Learning*, 28(1), 1-15. <https://doi.org/10.18848/2327-0144/CGP/v28i01/1-15>
- Charmaz, K. (1990). 'Discovering' chronic illness: Using ground theory. *Social Science and Medicine*, 30, 1161-1172.
- Comas-Quinn, A. (2011). Learning to teach online or learning to become an online teacher: An exploration of teachers' experiences in blended learning course. *European Association for Computer Assisted Language Learning*, 23(3). 218-232.
- Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches* (3<sup>rd</sup> ed.). Thousand Oaks, CA: SAGE.
- El Mansour, B. & Mupinga, D. M. (2007). Students' positive and negative experiences in hybrid and online classes. *College Student Journal*, 41(1), 242-48.
- Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The internet and higher education*, 7(2), 95-105.
- Ginns, P. & Ellis, R. (2007). Quality in blended learning: Exploring the relationships between on-line and face-to-face teaching and learning. *Internet and Higher Education*, 10, 53-64.
- Glazer, H. R. & Wanstreet, C. E. (2011). Connection to the academic community: Perceptions of students in online education. *The Quarterly Review of Distance Education*, 12(1), 55-62.
- Grant, A. (2009). Tearing down the walls: Creating global classrooms through online teacher preparation programs. *Distance Learning*, 7(2)
- Graziano, K. J., & Bryans-Bongey S. (2018). Surveying the national landscape of online teacher training in k-12 teacher preparation programs. *Journal of Digital Learning in Teacher Education*, 34(4), 259-277.
- Jackson, A. & Burch, J. (2019). New directions for teacher education: Investigating school/university partnership in an increasingly school-based context. *Professional Development in Education*, 45(1), 138- 150.



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- Jennings, G. & Peloso, J. (2010). The Underutilized Potential of the hybrid educator in teacher education. *The New Educator*, 6, 153-162.
- Kennette, L. N. & Wilson, N. A., (2019). Universal design for learning (udl): Student and faculty perceptions. *Journal of Effective Teaching in Higher Education*, 1(2), 1-26.
- Linder, K. E. (2017). Fundamentals of hybrid teaching and learning. In Linder K.E. (Ed.), *Hybrid Teaching and Learning: New Directions for Teaching and Learning*. Plano, TX: Jossey-Bass.
- Linder, K. E., Hayes, C. M., & Thompson, K. (Eds.). (2018). *High-impact practices in online education: Research and best practices*. Sterling, VA: Stylus Publishing.
- Marshall, C., & Rossman, G. B. (2011). *Designing qualitative research*. Thousand Oaks, CA: Sage.
- Margulieux, L. E., Bujak, K. R., McCracken, W. M., & Majerich, D. M. (2014). *Hybrid, blended, flipped, and inverted: Defining terms in a two dimensional taxonomy*. Proceedings of The Hawaii 12<sup>th</sup> International Conference on Education, 12, 2394- 2402.
- Martin, F., & Bolliger, D. U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning*, 22(1), 205–222.
- Martin, J., Kreiger, J., Apicerno, A. (2015). Effectiveness of a hybrid classroom in the delivery of medical terminology course content. *Journal of the Scholarship of Teaching and Learning*, 15(5), 72-81.
- McNeil, M. (2016). Preparing teachers for hybrid and online language instruction. *Issues and Trends in Educational Technology*, 4(1).
- Mestan, K. (2019). Create a fine blend: An examination of institutional transition to blended learning. *Australasian Journal of Educational Technology*, 35(1), 70–84.
- Moore-Adams, B.L., Monty Jones, W., & Cohen, J. (2016). Learning to teach online: A systematic review the literature on k-12 teacher preparation for teaching online. *Distance Education*, 37(3), 333- 348.
- Moskal, P., Dziuban, C., & Hartman, J. (2013). Blended learning: A dangerous idea?" *The Internet and Higher Education*, 18, 15-23.
- Moustafa, L. H. (2017). Teaching the digital natives. *Review of Middle East Studies*, 51(1), 45-49.
- Mumford, S., Dikilitas, K. (2020). Pre-service language teachers' reflection development through online interaction in a hybrid learning course. *Computers & Education*. 144.
- Nami, F., Marandi, S., Sotoudehnama, E. (2018). Interaction in a discussion list: An exploration of cognitive, social, and teaching presence of teachers' online collaborations. *European Association for Computer Assisted Learning Language*. 30(3): 375- 398.
- Nortvig, A. M., Petersen, A. K., and Balle, S. H., (2018). A literature review of the factors influencing e-learning and blended learning in relation to learning outcome, student satisfaction and engagement. *The Electronic Journal of E-Learning*, 16(1), pp. 46-55.
- Owston, R. D., & York, D. N. (2018). The nagging question when designing blended courses: Does the proportion of time devoted to online activities matter? *Internet and Higher Education*, 36, 22-32.
- Patton, M. Q. (2001). *Qualitative Evaluation and Research Methods*. Thousand Oaks, CA: Sage Publications.
- Picciano, A. G. (2017). Theories and frameworks for online education: Seeking an integrated model. *Online Learning*, 21(3), 166-190.
- Ponterotto, J. G. (2006). Brief Note on the Origins, Evolution, and Meaning of the Qualitative Research Concept Thick Description. *The Qualitative Report*, 11(3), 538-549.

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- Richardson, J. C., & Lowenthal, P. (2017). Instructor social presence: Learners' needs and a neglected component of the community of inquiry framework". *Social Presence in Online Learning: Multiple Perspectives on Practice and Research*, 32-44.
- Rossman, G. B., & Rallis, S. F. (2003). *Learning in the field: An introduction to qualitative research*. Thousand Oaks, CA: Sage.
- Rovai, A. & Jordan, H. (2004). Blended learning and sense of community: A comparative analysis with traditional and fully online graduate courses. *The International Review of Research in Open and Distance Learning*, 5(2), 1-12.
- Sailors, M., Hoffman, J. (2019). Mentoring in transformative hybrid spaces: Preservice teacher preparation and literacy training in mocambique. *Journal of Adolescent and Adult Literacy*, 63(2). 127-133.
- Stake, R. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.
- Stavredes, T. (2011). *Effective online teaching*. San Francisco, CA: Jossey-Bass.
- Stromie, T. & Baudier, J. G. (2017). Assessing student learning in hybrid courses. *New Directions for Teaching and Learning*, 2017(149), 37-45.
- Uribe, S. N. & Vaughan, M. (2017). Facilitating learning in distance education: A case study on the development and implementation of a multifaceted feedback system. *Distance Education*, 38(3), 288- 301.
- Vaughan, N. (2007). Perspectives on blended learning in higher education. *International Journal on E-Learning*, 6(1), 81-94.
- Vininsky H. & Saxe, A. (2016). The best of both worlds: A proposal for hybrid teacher education. *Mcgill Journal of Education*, 51(3), 1187-1196.
- Weasenforth, D., Biesenbach-Lucas, S., & Meloni, C. (2002). Realizing constructivist objectives through collaborative technologies: Threaded discussions. *Language, Learning & Technology*, 6(3), 58.
- Yin, R. K. (2009). *Case study research: Design and methods* (4th Ed.). Thousand Oaks, CA: Sage.
- Zen, D. (2008, April 2-5). *How to be an effective online instructor?* Paper presented at the 42<sup>nd</sup> Annual TESOL Convention, New York, USA.



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