Digital Creativity at Scale: Multimodal Teaching and Learning in Large Online Courses

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Abstract
This article describes sample multimedia and multimodal assignments and activities used in large online courses enrolling students from across the disciplines. It suggests ways to leverage the campus learning management system and cloud apps to encourage students to develop new digital literacies. The article includes mini case studies of three communications courses and perspectives from student participants regarding the collaborative online educational experience. The article concludes with an exploration of some main points and complications arising from high-tech multimodal teaching and learning at scale, including issues related to adopting emergent educational technologies and to students' digital skills gaps. It shares lessons learned when designing and delivering courses that are purpose-built to encourage and support students' creative and critical thinking skills, digital competencies, and multiliteracies.

Keywords
Online Teaching, Multimedia, Design, Large Classes

Introduction: From Textual Composition to Information Design

I feel like I did just as much research and critical thinking in this course than in any other course, but with the pleasant addition of bringing my work to life in a unique way (Student Self-Assessment 2015).

I think the shift from composition to design, to newer forms of text production, is rhetorically and semiotically richer than before (Kress, as cited in Bearne, 2005 p. 294).

Multimodal teaching and learning helps students develop 21st-century multiliteracies (Cope & Kalantzis, 2000). From digital and media literacies to information and visual literacies, today's students require skills and tools to develop new ways of knowing, to take advantage of computer technologies, and to understand the social

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implications of a networked information economy (Kress, 1997; Selber, 2004). Approaches to multimodality vary across academic programs, such that strategies that work well in the Drama Department or Global Development Studies Program may be suboptimal for classes in Kinesiology or Mechanical Engineering. However, as demonstrated in the teaching cases reviewed here, there are several kinds of multimedia assignments and multimodal teaching and learning activities that can be effective across the disciplines. This article presents some examples of the latter that were successfully implemented with a large and diverse group of students who completed one (or more) of three online communications courses. Having been road-tested by students pursuing over 40 different degree configurations, it is apparent that these multimedia modes, including for example, infographics, moodboards, and concept maps, can add value to different kinds of academic research. Although these assignments do not exhaust the possibilities of multimodal communication, they do involve students in creating research projects incorporating images, text, video, and HTML. After describing some of the learning objectives and student responses to the assignments, this paper documents some main points experienced by participants (including faculty), and it shares troubleshooting tips discovered along the way when executing multimodal teaching and learning online and at scale.

What Does Multimodal Literacy Matter?

As Gunther Kress argues, language-based communications practices are giving way to a "new landscape," which is inherently multimodal (Kress, 2003). Trends in mass media show that news outlets increasingly rely on visualization to present and explain data in ways that will appeal to and engage online audiences (Chong, 2012). Likewise, the last five years have seen the rise of image-sharing on social media platforms, especially those most popular with millennial cohort including Instagram, Snapchat, Flickr, Pinterest, Tumblr, Imagr, and WeHeartIt. As a result, visual literacy has become an increasingly important part of the digital skill set required to actively participate in connected communities and cultures, including academic cultures. When educators observe these visual mass-mediated communications trends, Kress notes, they might ask themselves, "Can I continue to ignore these things which are not language but which seem so central in communication?" (Kress, as cited in King, 1997, p. 287). Often, it seems the answer is yes, Kress observes, such that there is too frequently a gap between what happens in popular digital culture, the multimodal and networked world that students participate in every day, and the work they are asked to do in the classroom. Digital technology can be used to bridge that gap, Kress suggests, allowing students to actively participate in constructing their own learning experiences: those more relevant and in-sync with their interests (Kress, as cited in Bearne, 2005). As Gerri Sinclair argues (2006; 2010), today's learners need room for digital play and participatory learning, which should incorporate enough student-selected multimodal materials to make lessons meaningful and authentic. Sinclair suggests that education today should be focused on helping students to (a) create and share multimedia knowledge objects, (b) curate and critically consume it and (c) revise, remix, and redistribute digital information 2010).

This raises the question of what digital fluencies and technical competencies are required of students and faculty in order to facilitate and participate in this multimodal

and multimedia learning. As class sizes creep up into the hundreds and new media formats (blended, online) become more common across campus, challenges arise for instructors and learners alike. Remarkably, although computer applications can help enormously to manage and enhance large classes, some faculty demonstrate continued resistance to and suspicion of the pedagogical benefits of online teaching, educational technology, and students' digital-mobile-social media use habits (Baron, 2009; Johnson, 2013). Large classes inspire criticism on the grounds that they encourage anonymity, passivity, and disengagement (Ward & Jenkins, 1992). This is primarily due to concerns that over-reliance on lectures in large classes can mean fewer opportunities for student participation and active learning (Biggs, 1999). The goal, as many instructors and researchers have noted, is to create educational experiences that are high-quality, learner-centred, and support sustained engagement (Jungst, Licklider, & Wiersema, 2003).

With these difficulties and challenges in mind, in what follows, this paper will reflect on some of the unique pedagogical avantages that accompany large, blended and online courses. It will describe the productive opportunities that arise when a multidisciplinary group of undergraduates engage in collaborative multimodal learning activities online. The paper explores the creative affordances enabled by digital platforms (such as campus learning management systems) to help even the largest groups of students become more technologically fluent, to express their digital creativity together, and to engage with an authentic audience (Hafner, 2014). To address the very real pressure faculty experience when faced with the need to design, develop, and deliver such experiences, this paper shares lessons learned about those multimodal activities and multimedia assignments and online activities that can work especially well in large online courses. Included throughout this paper are comments from the perspectives of students who completed these kinds of courses. Their insights about facing and overcoming digital challenges, exercising and enjoying creativity, and collaborating online with dozens of peers adds a unique perspective to the discussion about high-tech teaching and learning.

Supersized Teaching Online

Insights in this paper are inspired by the research literature on multimodal teaching and knowing, and by classroom experience gained from teaching three university courses at a mid-sized R1 institution in Canada during 2014-2015. All three courses shared a common focus on the impact of digitalization on culture, communication, and consumerism. Two courses were delivered in a blended format (online and on-campus sections, taught simultaneously), and one was delivered exclusively online. During the period of this study, the three courses enrolled 200, 450, and 650 students respectively. With few prerequisites, these second- and third-year courses were accessible to postsecondary students in years one through four of their degree, serving students from any academic program, and as a continuing education option for mature students.

Although multimodality does not always involve digital tools and platforms, increasingly it does (Lotherington, 2011). In the cases reviewed here, the specific affordances of a digital environment enabled multimodal teaching and multimedia compositions and conversations among such large distributed student groups. All three courses used the campus learning management system (LMS, in this case Moodle), and cloud apps (such as Flickr, Twitter, or Slideshare) as teaching and learning tools. In each

course, all registered students engaged together in a single LMS site, regardless of whether they had selected the online or on-campus delivery format. The LMS was leveraged in a variety of ways. First, students were required to participate weekly in online forum discussions. Secondly, all required readings were digitally distributed via the LMS. Thirdly, lectures were delivered on this platform, via Powerpoint-enhanced presentations, webinars, and weekly podcasts and vodcasts. Finally and most importantly for the purposes of this paper, the learning management system was used as a peer-review tool, where students openly published their assignments and received complimentary and constructive feedback from hundreds of peers. This formative peer assessment provided student authors with a continuous feedback stream composed of a diverse range of disciplinary perspectives on their work. Considering the cyberdisinhibition (Zimmerman, 2013) that commonly results from computer-mediated-communication environments, it's reasonable to assume they received more candid critical assessments that might have been delivered in a face-to-face interaction.

Students completed and published a variety of creative communication assignments, each involving online research and graphic design, to practice their information literacy skills and data visualization techniques. The finished projects included digital moodboards, infographics, digital concept-maps, word clouds, and listicles (the specifics of these creative deliverables will be discussed in further depth in a later section). These assignments involved some basic design work and html coding, as students learned—from the professor and from viewing each other's submissions—how to present research data in new, meaningful, and visually compelling formats optimized for an online platform. Peer reviewing these information objects required readers to view them critically, evaluating information quality and visual grammar, which required them to reflect on the metalanguage of design (New London Group, 1996; Planken & Kreps, 2006; Eshet-Alkalai & Chajut, 2009). Working collaboratively, these formative peer assessment activities demonstrated that "the strength of a learning community can affect the strength of critical thinking" accomplished by participants (Molseed, 2011 p. 256). As one student commented:

> The comments and feedback that peers left on my posts eventually led to me producing better and better work with each following submission. It was one of the best aspects of the course to be able to share our work with others and be required to interact about it. My visual communication skills have improved by being open to new ways of displaying my ideas. With mind maps and word clouds, I was able to see key information that led to even deeper analysis. This analysis would not have been able to be completed without these visual tools. (Student Self-Assessment, 2015)

Many theorists have argued that today's learners have digital proclivities that predispose them to consuming media and thinking through visual texts (Prensky, 2001; Oblinger & Oblinger, 2005; Tapscott, 2009). Having come of age with Facebook and YouTube, these theorists suggest that net-generation students are visually-oriented and prefer graphics to text. Consequently millennial learners may be "more visually literate than earlier generations, and fluent in personal expression using images" (Oblinger & Oblinger, 2005, p. 214). As Bleed (2005) and Zenkov (2013) have suggested, today, visual literacy (the skill to interpret and create visual media texts and read photographs, illustrations, graphs, and icons) is as essential as more traditional forms of text-based literacy. Asking students

to "stand back" from what they are studying in the course readings, and to review the course concepts as they are reinterpreted visually by peers, supports them in developing new perspectives and designing new meanings and modes of understanding (Casden, 1996; The New London Group, 2005).

In these courses, the visual communication assignments were a complement to, not a replacement for, traditional academic writing. For each submission, students also completed a 500-word "designer's statement" containing reflective questions concerning their research and design process. Using such a cross-modal, integrated approach to reading and writing requires students to "move from words to visuals and back to words" (McLean & Rowsell, 2013, p. 116). The designer statements also prompted students to reflect on the peer feedback received about their compositions and to identify ways they could implement this feedback to improve their work going forward. Finally, the statements asked students to consider the potential transferability of each multimodal format to their home discipline. The next section describes two of these assignments and shares excerpts of students' self-reflective designer's statements.

Listicles and Mind Maps

Using a listicle format, students presented a research analysis of the production, distribution, and consumption of a short web video advertisement of their choice. A listicle is an article in the form of a list. Listicles curate information to tell a story through bite-sized, easily scan-read information, inviting the reader to connect the dots between data samples and information bits. Used in online journalism, the listicle is making its way into academic analysis as both a topic of study and a format for mobilizing research findings (Isaac & Schindler, 2014; Birthisel, 2014; Gunelius, 2014; Okrent, 2014). As part of the prep-work for this analysis, students mapped out the points they would list, using Coggle, MindNode or FreeMind to organize and visualize ideas and research. The designer's statement questionnaire for this assignment contained prompts including:
- Was the technology intuitive to use or did it get in your way as you visualized your ideas on screen?
- Would concept-mapping help you with your other coursework?
- How did the process of telling a research story in a listicle format affect your critical reflection and analysis?

Building multimedia listicles for academic analysis, the learners constructed meaning through online research and information design. In so doing they demonstrated new literacy practices appropriate for the digital age (Hung & Chiu, 2013). Students immediately recognized the cross-disciplinary use-value of these digital information tools, as one observed, "[t]hough I may not be able to directly apply the approaches we learned to assignments [in my major], I think I can incorporate them into my study techniques, to help with analytical thinking and making connections between theory and practice (i.e. making mind maps)" (Student Self-Assessment, 2015).

Word Clouds and Infographics

In one of the course assignments, students were asked to compare messages communicated on two competing brands' websites and social media presences. To

complete this online content analysis, students did a digital data collection via basic web scraping from sites such as Facebook and Twitter. Students gathered text samples and created word clouds using Tagxedo or Wordle to visualize discursive patterns therein. By distilling text down to those words that appear with highest frequency, word clouds can be a useful way to form a preliminary overview of the main topics and themes in a website (Gottron, 2009; McNaught & Lam, 2010; Heimerl, Lohmann, Lange & Ertl, 2014). The designer's questionnaire for this assignment contained prompts including:

- In what context could word clouds be used for academic or market research? At what stage of the research process do you see this tool being useful, if at all?
- In your experience, do readers consume word clouds and concept-maps in similar ways, or is the reading experience for these data visualizations significantly different?

To accompany the word clouds and communicate research results, students prepared infographics, with most opting to use Piktochart, and some using Canva, Picasa, Picmonkey, while very few used Photoshop. These infographics were multimodal compositions with embedded images, text, videos, and hyperlinks. Students immediately found many applications for word clouds and infographics beyond these communications courses. As one participant explained,

> I had the ability to learn new design tools that I am actually using for my next geography project, which is a poster. I am excited to incorporate a word cloud and apply the design skills I learned throughout this course to another course. (Student Self-Assessment, 2015)

Incorporating a multimedia infographic assignment is one way to engage students and encourage their development of digital visual literacies (Felder & Solomon, 2000; Thomas, Place & Hillyard, 2008; Sorapure, 2010; Matrix & Hodson, 2014).

Flexible Topics

For each assignment in these communications and culture courses, whether it be an analysis of advertising strategies, viral media trends, celebrity endorsements, or the relationship of luxury brands to art worlds, students were given significant leeway to select research topics based on their interests. This flexible choose-your-own-research-adventure strategy meant that of the hundreds of submissions published online for each assignment, patterns emerged of popular, top-of-mind, newsworthy topics. These patterns themselves became a topic of discussion and a teachable moment. For example, though the first half dozen (or so) infographics published about the hottest celebrity-of-the-moment (oftentimes Taylor Swift or David Beckham, for example) were enthusiastically received by other students, rapidly attracting massive amounts of peer feedback, the next dozen or so submissions on these same subjects did not enjoy the same reception. Students learned quickly about the velocity of mass media trends and Internet memes, and how easily audiences (in this case their peers) lose interest and experience pop culture fatigue. As Gunther Kress explains, "Everybody who now is a producer has to say, 'Who am I producing this for?' in quite a new way. And so behind design stands the notion of rhetoric" (Kress, as cited in Bearne, 2005, p. 290). This open publishing model thus enabled student reflection and discussion about audience engagement in an attention

economy, and helped them to form better, more niche, and original research questions (Davenport, 2013; Lanham, 2006). Even without making this learning objective explicit, students picked up on it: "Unlike standard research essays, creating a visual communication forces the creator to think about the end audience," one student commented, "specifically about what they would want to know and how the presentation of information could impact their understanding" (Student Self-Assessment, 2015). Moreover, "while this is important for all research projects," the student continued, "the standard essay process seldom emphasizes considering this perspective" (Student Self-Assessment, 2015).

Students were encouraged to blend citations of popular and scholarly, as well as primary and secondary research sources for each assignment. This introduced a challenge for learners to hone their online research skills and to condense a wealth of disparate information, to display it efficiently within the specific format constraints of a moodboard or infographic (Chong, 2012). When student researchers sidestepped this challenge, neglecting the library databases and turning instead to the most convenient sources on online information, they often received critical peer feedback concerning their over-reliance on Wikipedia for scholarly research. Without any input from the professor, spontaneous peer-to-peer forum discussions and debates formed about the authenticity of online and crowdsourced resources and information literacy. The result was a sustained, authentic, student-driven conversation concerning the accuracy and usefulness of Wikipedia in particular, its ease of access, its place in academic scholarship, and the democratization of knowledge online in general. This conversation mirrored current research literature about the role of Wikipedia in university teaching and learning (Knight & Pryke, 2012; Konieczny, 2014; Todorinova, 2015).

Fast Iterations

The open-endedness of the assignments allowed me to use my creativity to the utmost and the more practice I received, the easier it was to effectively communicate my thoughts in a visually appealing way (Student Self-Assessment 2015).

The courses employed a rapid iteration cycle, but instead of having students revise and resubmit their work, they were required to pick a fresh case study and use different digital tools to produce a new multimedia research narrative every two weeks. Each composition emphasized a related but different course concept. Based on the idea that practice makes perfect, this rapid iteration cycle functioned to keep the students interested and to produce a constant flow of fresh compositions ready for peer critique in the online forums. As James Paul Gee (2005) has argued, regular peer feedback helps keep students engaged in the course. As one student commented, "[t]hrough working on many different projects this semester that put a significant weight on creativity and visual communications, I had the opportunity to visualize my thoughts and receive feedback that helped me consistently improve" (Student Self-Assessment, 2015). This pedagogical strategy of rapid iteration solved a problem that many composition teachers face, namely, how to get students to significantly re-vision (not just minimally revise and resubmit) their work. Students were challenged to incorporate feedback received about each multimodal composition into a completely different research project, which prevented them from merely "fixing" minor problems (such as typos) in their first renditions. Instead, student authors

needed to genuinely revise and upgrade their rhetorical strategies (rather than the deliverables) to exercise their constantly improving technical competencies on a series of blank, digital canvasses: "Since we had to do these kinds of assignments six times," one student commented, "I was able to strengthen my skills throughout the process" (Student Self-Assessment, 2015). Without having to explicitly teach the concept, students gradually became aware that these "readerly" improvements correlated to increasing audience interest in, and engagement with, their work (Bowen & Whithaus, 2013). This was clearly evident to students who tracked interaction metrics such as the amount of peer feedback each submission attracted: "Throughout the term I had a lot of practice with these various programs, which gave me the ability to complete more advanced/detailed compilations," one student wrote, and "this was directly proportionate to the amount of comments other students left on my work" (Student Self-Assessment, 2015).

Student Perspectives on Multimodal Meaning-making

Throughout the term, students were engaged in both peer assessment and self-assessment, documenting their academic accomplishments in the course, including if and how they improved their digital literacies and technical self-efficacy via multimodal text production. Regarding the constraints and affordances of multimedia coursework, two themes emerged from a preliminary analysis of several hundred self-reflective student writings.

Theme 1: Digital Creativity

Creating the graphics, while sometimes frustrating, was very rewarding in the end of things, and I would often showcase my finished work to friends and family. I always found myself working on these projects longer than other assignments, and I was excited and motivated to brainstorm and plan layouts for each one (Student Self-Assessment 2014).

A recurring theme in the self-reflective writings was that creating multimedia assignments did not feel like schoolwork. Instead, the multimedia projects felt like fun activities that engaged students' creative curiosities: "When I am working on my assignment, I don't feel I'm working but enjoying something I really like to do," one student commented, adding that, "at the same time, I learned many things through doing the research" they concluded (Student Self-Assessment, 2015). The phrase "play" was used repeatedly, as in the following comment: "This course provided me with a creative outlet to express myself. Through the course and design tools, I was given the confidence to play around with, design and create my visuals" (Student Self-Assessment 2015). Borrowing insights from Gee's research (2003, 2005) on the educational benefits of gaming, it's possible to see why students describe these multimodal, collaborative and online activities as "fun" and a form of "play." By allowing learners to be producers, not just consumers of information, by enabling them to learn new skills that can be immediately put into play, and by offering "do-able challenges" and customizations that are only mildly or "pleasantly frustrating," these multimodal learning activities engaged and motivated students in the same ways that good games do (Gee, 2005, p. 2).

Theme 2: Transferable Skills

I can use the skills I have learned through [this course] in my everyday and professional life
(Student Self-Assessment 2015).

One of the most obvious themes emerging from the student self-reflections was the cross-disciplinary applicability of their multimodal learning activities. Many learners mentioned using the digital composition skills introduced in communications class to complete assignments in their other courses from Nursing to Commerce, Concurrent Education to Engineering. In slide presentations, essays, and reports, students reported immediately applying newly acquired principles of visual information design, and using technical skills such as text hyperlinking and sourcing Creative Commons images online.

In addition, students repeatedly mentioned using digital creativity skills from class assignments on their own time, to create communications materials for campus clubs, and for personal use. One student expressed pride in her ability to design an invitation for her sister's bridal shower, and another expressed her delight at creating a valentine e-card, both continuing to practice their new proficiencies with Piktochart. Many more students mentioned adding their multimedia course assignments to online professional portfolios, to impress hiring committees at job interviews that took place while the class was still ongoing. Able to immediately apply course concepts outside class, students perceived the creative multimedia assignments as highly relevant and valuable additions to their compositional repertoires, to supplement the standard research essays, presentations, and lab report formats required in other classes.

Lessons Learned

Lesson 1: Cloud Complications

Teaching a large, online course presents unique opportunities and challenges with regard to collaborative, multimodal learning. Of the many lessons learned, two of the most important ones relate to the challenges of using cloud-based, non-enterprise software for teaching and the complications that result from the lack of basic computational skills among the "digital natives" who make up the net-generation.

Today's post-secondary virtual teaching platforms, such as Moodle, provide many functions for multimodal compositions, but so too do a host of edtech startups—cloud apps—which are democratizing information design and ushering in new digital media use patterns (Matthewman, Blight & Davies, 2004). Free and paid apps such as Piktochart (infographics), Coggle (mind mapping), Wordle (word clouds), and Picasa (image editing and collages), offer students the opportunity to create and share multimedia works via intuitive interfaces. These cloud computing tools deliver many benefits, including increasing student engagement and cost effectiveness (Behrend et al., 2011; Thomas, 2011).

At the same time, there are limitations that come with using free cloud app services, including security concerns, lack of technical support, distracting online advertising, and the promotional corporate branding that often automatically appears when students output their compositions. Also, the unpredictability of start-up culture means that apps may be free today and paid tomorrow, or here online today and acquired by a tech giant (Facebook, Google, Yahoo)

and shuttered tomorrow. Encouraging students to experiment with various cloud-based and mobile apps requires that instructors teach students about the costs and benefits of using free digital services. Faculty making edtech adoptions and recommendations generally do due diligence by reading reviews and testimonials from other experienced educators. There are a wealth of blogs and discussion boards sharing edtech assessments, ratings, and assignment ideas widely available online, including EdTech Digest and Free Technology for Teachers, authored by K-12 educators, instructional designers and instructors in higher education.

Lesson 2: Skills Gaps
      Moving from the logic of the page to the logic of the screen (Kress, 2003), students may quickly confront the limits of their technical fluencies and gaps in their computational skill-sets. Although often described as "digital natives" (Prensky, 2001; Palfrey & Gasser, 2013), today's students are more adept at using Facebook and Snapchat than at navigating campus learning management systems and cloud apps. Also, consuming and creating multimedia technologies are very different activities, and since students do far more of the former, it's unsurprising that they struggle with simple digital tasks such as creating a live web link, changing the dimensions of an image for optimal display online, and embedding multimedia on the LMS.
      Two solutions to this problem proved effective. First, short screencasts and walk-thru videos were prepared, narrating and demonstrating step-by-step instructions for each assignment. In one course (2015) with 450 participants, these ten-minute (or less) instructional videos, with titles such as "Design a Content Analysis Using Wordclouds" and "Visualize Your Research Using Concept Maps and Infographics," were posted on Vimeo. Over a four week period, they were played an average of 483 times each: "The [cloud] programs were very intuitive," one student wrote, "and your amplifying instructions provided in the instructional videos contained all of the necessary information [and] were a great help" (Student Self-Assessment, 2014). Contextually relevant, just-in-time, and on-demand video resources, these screencasts (created with Camtasia Studio) provided a scaffold to support student multimodal learning.
A second solution to the digital skills gap required far less effort on the part of the instructor. One of the upsides of larger classes using open online discussion forums is the way the learning community regularly operates as a peer-support technology help desk. Computer-savvy students regularly step up online to answer FAQs and to troubleshoot for those who are struggling to scale digital learning curves. This grassroots tech support contributes to a cohesive course community, a culture of learning, and a climate in which it is okay to step out of one's comfort zone without fear of failure: "I saw that no one was afraid of what they posted, and everyone seemed to push creative bounds" one student wrote, "thus I was influenced to improve my own creative confidence, and I also learned how to use many graphic tools in this course, such as Piktochart, Coggle and more" (Student Self-Assessment, 2014). Another student reflected on the relationship between creative confidence and risk: "I was taking risks in my projects. For a few I tried simplicity, and for some I tried an excess of information. It was interesting getting feedback to find out what worked, what didn't, and what to work on next time. By pushing my boundaries, I felt very rewarded" (Student Self-Assessment, 2015). A third solution involved sharing student assignments from previous course offerings: "I would browse through the work and find pieces that inspired me," one student wrote, "then I would determine why I felt a connection to them and I would then apply these aspects in

my project." Reviewing exemplars of best practices authored by past students helped current learners to visualize different approaches to each assignment, and to see ways to use visual grammar and rhetorical strategies to achieve the particular communicative purpose of the exercise, and to execute their creative vision (Bhatia, 2004).

Conclusion: New Digital Competencies

In an increasingly digital world, [this course] has enlightened me to the powers of visual communication and encouraged me to think about our ever-changing social culture in decision-making. The world is becoming increasingly technological [sic] literate, and we must adapt our method of thinking to account for this (Student Self-Assessment, 2014).

    In large, online classes, instructors can lean on the LMS as a platform to support students' creative collaborations using a variety of digital media formats and forums. In doing so, new social learning practices emerge, leveraging digital modes students already use (Street, 2009) and forming what Kress (2009) describes as a productive, multimodal domain of inquiry, in which students can achieve new understandings of what it means to actively participate in digital community and culture.

    To design and manage learning environments in which students can develop their digital competencies requires that faculty possess a level of adeptness and comfort with technology, a thorough understanding of the limits and functions of the campus LMS, and experience using social tools and cloud applications for multimedia composing and information discovery (Aldunate, 2013; Hafner, 2014; Davidson, 2015). With this foundation in place, the experience of working together with students as they explore multimedia tools, develop multimodal literacy, and express their digital creativity is exceptionally rewarding.

Acknowledgements

Appendix: List of Tools and Sites Mentioned in Paper

• Canva. Free and paid cloud-based graphic design tool useful for creating infographics. https://www.canva.com/
• Coggle. Cloud-based free concept-mapping. https://coggle.it/
• EdTech Digest. Reviews of educational technology tools. https://edtechdigest.wordpress.com/
• Flickr. Largest online repository for Creative Commons photographs. https://www.flickr.com/
• Free Technology for Teachers. Reviews of educational technology tools. http://www.freetech4teachers.com/

- MindNode. Free and paid concept-mapping app for Mac/iOS.
  https://mindnode.com/
- Moodle. Open-source learning management system. https://moodle.org/
- Photoshop. Part of the Adobe Creative Cloud graphic design bundle.
  http://www.adobe.com/ca/products/photoshopfamily.html
- Piktochart. Free and paid cloud-based digital design tool for reports, presentations,
  and infographics. http://piktochart.com/
- PowerPoint. Part of the Microsoft Office suite of applications, used to design
  presentation slides. http://products.office.com/en-us/powerpoint
- Slideshare. Free and paid cloud-based site to share presentation slides.
  http://www.slideshare.net/
- Tagxedo. Free cloud-based app for creating word or tag clouds.
  http://www.tagxedo.com/
- Wordle. Free cloud-based app for creating word or tag clouds.
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