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PREFACE

This inaugural edition of the HSU SoTL journal represents numerous beginnings. It is the first edition. It is the beginning of HSU's concentrated participation in the international discourse on scholarly informed teaching and the scholarship of teaching and learning. It is the beginning of what we hope is a movement toward SoTL within its home institution. It is also the beginning of an organizational commitment that represents collective effort for collective impact. We want to take the opportunity to orient the reader to the rationale that frames this beginning. We encourage readers to join us in an exploration of what dialogue on teaching and learning in higher education is and can be. Consequently, we intentionally characterize this inaugural work as one that canvases the widest range of approaches to teaching and learning from as many points of view as possible. Our intent, however, is to open the doors to a wider range of authors who see themselves as educators yet may not be traditionally perceived as such.

There is a spectrum of scholarship relevant to teaching and learning in higher education. At one end of the spectrum is the work of those who regularly utilize existing scholarship to inform one's practice. From reading to trial and error informed practice, methods vary and are characterized by personal exploration and curiosity to add value to the learning ecosystem in informed, but non-experimental ways. At the other end is what has been formally established as the scholarship of teaching

and learning (SoTL), which is based on taking systematic and experimental approaches to identifying those curricular and pedagogical interventions that empirically shift student behavior and thinking. Whether quantitative, qualitative, or mixed, formal methodological approaches are defined and implemented in experimental conditions. Since much of our work as educators is informed by personal experience, this inaugural edition seeks to celebrate the spectrum and broaden the range of contributions.

We emphasize that an "educator" involves anyone who is working to further life-long learners in mindful and meaningful ways. From adjuncts to full professors, from library faculty to support staff, from administration to students, the contributions to evidence-informed instruction is much more robust when it includes a full range of voices. It is in relation to this body of work that we have found our bearing and inspiration for this first edition.

We believe that this edition can highlight the diversity of this work as well as be more inclusive of voices that are often implied or marginalized. It is certain that as the journal evolves so to will its compass points, but any changes will be consistent with its core mission to provide a venue for educators of any group to begin their journeys as authors.

Editorial Board

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2018

RE-IMAGINING THE ONE-SHOT: THE CASE FOR TRANSFORMATIONAL TEACHING

CINTHYA IPPOLITI¹

¹Oklahoma State University, Stillwater, OK

ABSTRACT

Coined by Jack Mezirow, and translated for classroom application by George Slavich and Philip Zimbardo (2012), transformational teaching seeks to increase student “mastery of key course concepts while transforming their learning-related attitudes, values, beliefs, and skills.” The Framework for Information Literacy has caused a widespread shift in how we approach instruction in librarianship as students explore newfound roles as information creators, disseminators, and evaluators. But this is only one of many steps along a journey of self-realization and discovery that they make throughout the duration of a course. Information literacy and transformational teaching share parallel goals and pedagogical methodologies which, when combined, can have a profound effect on students’ knowledge and attitudes about learning and can serve as a catalyst for positive change.

INTRODUCTION

The Framework for Information Literacy has caused a widespread shift in how we approach instruction in librarianship. While the instructional methods themselves may not have fundamentally changed, the focus seems to have arguably morphed from a point-and-click approach to a much more robust treatment of how information

is created, disseminated, and evaluated, especially in a context that is not socially or politically neutral. But while there are a growing number of examples of how to build lesson plans to address the various threshold concepts in the classroom, such as the Association of College & Research Libraries (ACRL) Framework for Information Literacy Toolkit, <http://acrl.libguides.com/framework/toolkit>,

librarians are still grappling with the confines of the one-shot model. This article proposes to help alleviate some of those challenges and examine the landscape of instruction from a transformational teaching perspective that focuses on classroom dynamics and relationships to situate information literacy as a stop along a journey of self-realization and discovery.

The concept of transformational teaching first surfaced as part of the work of Mezirow (2003), who discussed a journey of transformation rather than an isolated episode. He goes on to state that transformational learning “transforms problematic frames-of-reference sets of fixed assumptions and expectations (habits of mind, meaning, perspectives, mindsets) to make them more inclusive, discriminating, open, reflective, and emotionally able to change” (p. 58). King (2002) explained a progression as a four-stage process: (i) fear and uncertainty, (ii) testing and exploring, (iii) affirming and connecting, and finally (iv) new perspectives. Each of these broad stages encompasses smaller actions such as engaging in self-reflection, exploration of new habits and mindsets, and building confidence in these new roles. In addition, White and Nitkin (2014) asserted that the transition Mezirow discussed occurs through experience, critical reflection (which will be discussed in greater detail later on), as well as an element of agency where the “search for knowledge and understanding must at least in part be self-directed, which shifts the locus of learning from faculty to student” (p. 3).

Slavich and Zimbardo (2012) took transformational teaching into the classroom as a process that

“involves creating dynamic relationships between teachers, students, and a shared body of knowledge to promote student learning and personal growth” (p. 569). This sentiment is also echoed in the initial documentation about the framework, where threshold concepts “are those ideas in any discipline that are passageways or portals to enlarged understanding or ways of thinking and practicing within that discipline” (ACRL, 2017). Gersch, Lampner, and Turner (2016) made a connection that the four domains of “behavioral, affective, cognitive, and metacognitive engagement with the information ecosystem” (p. 202) encourage active participation, active emotion, active knowledge acquisition, and active reflection. In this instance, students are not merely consumers, but participants in the creation of knowledge in a digital information world characterized by collaboration and sharing. This appears to be a clear call to utilize the multi-faceted aspects of the framework to engage students in ways that tap into these four areas as they learn. It is reflective of the core element of transformational teaching, which looks at the individual complete with emotions, thoughts, fears, and aspirations in order to paint a more complete picture rather than focusing on the learning as an isolated element.

THE CHALLENGES OF THE ONE-SHOT MODEL OF INSTRUCTION

While these elements point to commonalities and linkages between information literacy, the Framework, and transformational teaching, there still appears to be a lack of acknowledgment that the structures in which these aspects reside are in and

of themselves flawed. By not examining the context in its totality, we are missing an opportunity to turn existing models on their heads and convert limitations into possibilities.

This issue is so problematic that the American Library Association (ALA) published *The One-Shot Library Instruction Survival Guide* by Buchanan and McDonough in 2014. This book is designed to address all of the major issues encountered when dealing with a single instructional event, ranging from how to collaborate with faculty in designing appropriate assignments, engaging students with hands-on activities, and assessing student learning. While having this type of information is certainly helpful, it does not address the true cause of the problem. Students cannot learn how to become information literate in one session, much less engage in the type of deep learning and inquiry that the framework hopes to achieve. The strategies that can be employed to further these goals are not only dependent on the librarian but also the faculty. In fact, McGuinness (2006) noted that faculty believe “information literacy develops gradually and intuitively, through participation in a number of different scenarios” (p. 580). Time outside the one-session model can be a commodity. Finding a way to control the learning process beyond this temporal event can be an insurmountable challenge, especially if there are no other opportunities to connect with students.

The suggested options for mitigating these factors have been written about extensively: offer extra credit to students who meet with the librarian outside of class; build in pre- and post- and/or rubric-based assessment measures to determine how

well students achieve specific learning outcomes; partner with a few faculty who are willing to think beyond the one-time approach; and either provide the opportunity for multiple sessions (which is also difficult to scale) or allow leeway for some type of online content in a flipped environment. Stevens (2007) stated that “the Standards acknowledge that neither librarians nor subject faculty are well equipped to meet [information literacy] objectives on their own” (p. 255). Where that partnership is lacking, it can spell disaster for even the most well-intentioned instruction. Bowles-Terry and Donovan (2016) frame a way for librarians to take control over their instructional environment and build a “culture where librarians are equal partners in the educational mission rather than support staff” (p. 140).

TRANSFORMATIONAL TEACHING AS A FRAME FOR PEDAGOGY

Before suggesting applications to the one-shot model, we must first understand how transformational teaching makes a difference in the classroom. By developing a shared blueprint for success, the instructor is in fact acting as an agent of change and becoming the facilitator needed in order for students to apply these components in a way that will position them to master course content, think differently about their learning processes, and develop strong relationships with the instructor, the librarian, and their peers. Slavich and Zimbardo (2012) highlight six ways in which this approach works:

- *Establishing a shared vision for the course that aims to describe what the class, students, and*

teacher hope to accomplish over the course of the semester. This serves to motivate students to work towards their envisioned goals and their broader future. Moreover, they mention that part of this vision-setting process involves discussing with students what key concepts and skills they will learn as part of the course, serving as further reinforcement of content and collective action.

- *Providing modeling and mastery experiences involves a high degree of persistent engagement and practice with the course content.* In addition, the implementation of these activities also helps at a more meta-level, where students are working together to confront difficult challenges and learn from the instructor how to deal with them. In other words, the instructor's attitude towards the content and the issues presented can make as much of a difference as his/her teaching habits and approaches. They can shape students' own thoughts and beliefs about their ability to learn and ultimately succeed in the course.
- *Intellectually challenging and encouraging students seems like an obvious way to help shape their learning, but it must be done in a way that is framed "in terms of students' current level of understanding and by presenting problems that are of appropriate difficulty"* (p. 586). An interesting point made here by Slavich and Zimbardo is that, along with these more structural tools, instructors can also provide support for students' "differences, needs, and welfare" (p. 586) such as allowing partner or group tests in order to remove anxiety and

increase their level of confidence, which is crucial for a positive learning experience.

- *Personalizing attention and feedback is a hallmark of best pedagogical practices in general, but have a specially punctuated meaning when applied within the context of transformational teaching.* Not only does this approach allow for a faculty member (and the librarian) to determine what prior knowledge students may have about a particular topic, but they can also use this information to ascertain what resources the students might need in order to increase their understanding in that area. Instructors therefore help students "identify specific attitudes, beliefs, and ways of thinking about or approaching problems that can become individualized targets for critical reflection and transformation" (p. 587).
- *Creating experiential lessons help students to "reshape their understanding of a core concept through experience, develop self-confidence and self-efficacy by applying their capabilities to achieve success... and enhance attitudes and beliefs about learning by experiencing ideas as relevant and meaningful"* (p. 591). Here too the case for information literacy seems to be overwhelming. Although writing a paper may not be a classic example of experiential learning, developing an infographic or similar type of assignment should help students delve into the details of a particular topic. With the help of a librarian, students can develop the confidence necessary to apply towards future endeavors across classes

or perhaps even in their daily lives as consumers and creators of information. If the assignment in question is seen in this light by both faculty and librarian, it can serve a tremendously useful purpose in transcending the boundaries of the course itself.

- *Promoting ample opportunities for pre-flection and reflection is a final and key component of transformational teaching and information literacy.* According to the authors, pre-flection and reflection not only facilitate students' mastery of key concepts, but also "play a critical role in enhancing students' skills and strategies for discovery" (p. 592). This is a significant tenant of information literacy. It can serve as a bridge in developing students' ability to think about what they learned in terms of their research skills, habits, and attitudes, and what additional questions they may have as a way to continue the conversation with the librarian beyond the one-time session. Even more important, however, is the intent of that reflection. In his book, *Fostering Critical Reflection in Adulthood: A Guide to Transformational and Emancipatory Learning*, Mezirow (1990) posits that:

"We very commonly check our prior learning to confirm that we have correctly proceeded to solve problems, but becoming critically aware of our own presuppositions involves challenging our established and habitual patterns of expectation, the meaning perspectives

with which we have made sense out of our encounters with the world, others, and ourselves" (p. 12).

USING TRANSFORMATIONAL TEACHING TO RE-ENVISION THE ONE-SHOT

Let's image for a moment a tripartite schema where the students, librarian, and the instructor inhabit the instructional space where the information literacy instruction will be delivered as a one-time event. Rather than approaching the element of transformation as needing to occur within that instructional space, let's think about what would be necessary in order for instruction to become a catalyst for transformational action rather than transformation per se. In this case, the focus would be on applying transformational teaching in a way that situates responsibility of learning as a shared experience that reinforces and highlights student agency within information literacy instruction. The focus for transformational teaching resides more in how the pedagogy is delivered within the context of the one-shot model rather than in attempting to apply the framework in a content-driven way. As with any type of one-shot, collaboration with faculty is still essential to ensure success, but the role of the students in this process becomes much more transparent and purposeful.

Following this outline, Slavich and Zimbardo's six core areas can be adapted for the one-shot information literacy session. To start, instead of asking students to talk about their shared goals for the course, librarians can ask them what success looks

like for the assignment in question from their perspective. What do they already know? Can they identify any existing biases they have about their topic and the issues? This does not have to necessarily be related to race or politics, but could even extend as far as preference for a type of resource over another such as library databases versus Google. Taking a minute to do this at the beginning of class using polling software (such as Mentimeter or Kahoot) to keep responses anonymous will give librarians a good sense of what the students hope to accomplish so that they, in turn, can target their instruction in a much more focused manner. Alternatively, they can write responses on a card as they come into the class and repeat the exercise again at the end of the session to see if those goals were in fact achieved or if they were at least on their way to feeling more prepared for the assignment than they previously were.

Slavich and Zimbardo (2012) neatly outline all of the tools available to instructors to deliver the experiential and collaborative learning experience that characterizes transformational teaching, including role-playing, think-pair-share, debating topics, or playing a game. All of these approaches call for a high level of interaction both among students but also with the librarian and instructor. They definitely require a flexible, activity-oriented mindset for the entire cohort. In addition, the library literature is very robust in this area with the development of lesson plans and ideas. Baker (2016) provides specific examples of different tools librarians can utilize to accomplish this work, ranging from the relatively simple, both in terms

of time and cost, such as EDPuzzle, to more robust versions, such as Articulate Storyline.

Taking this one step further, librarians can also ask students what types of activities they would like to try as a way to increase buy-in and still help meet instructional goals. For example, if a think-pair-share activity may work well for a particular concept, librarians can think of a couple of variants on that theme so that pairs can alter the activity to suit their needs. This may seem like a small detail to consider, but it may go a long way towards making students feel like they have a voice in how the work is structured. This may increase their level of engagement with the content and each other as well. This does require more work on the part of the librarian in terms of having several options to showcase based on how things are going, and it also requires the librarian to relinquish more control to the students and take on the role of consultant rather than instructor.

This next set of concepts requires the librarian to take a step back during the session and determine what students need at key points of the class to increase understanding and offer either simpler or more complex solutions based on how things are progressing. Wang (2017) discusses the notion that assessment for the one-shot should not be about measuring library or information skills because they require time to develop, but should instead center on research readiness. This is a combination of affective feelings, cognitive thoughts, physical actions, previous experience, and following-up. It is in many ways much more complex and difficult to measure than whether or not a student

understands how to find a call number, for example. This approach touches on many of the same aspects as transformational teaching regarding student thoughts, habits, and emotions surrounding the research process. It helps to lessen the burden on the librarian so that the focus is not on having students retain specifics covered during the session, which can vary, but rather on their level of preparation to begin the work needed in order to successfully complete the assignment.

Another important element of transformational teaching is on-the-spot assessment. It is vital for the librarian to check the “temperature” every so often to ascertain if the session is achieving its intended purpose. Much like the active learning that must remain flexible to shifts in direction and depth as the session goes along, so must understanding and attitudes towards the content presented be gauged. Again, this requires the librarian to have a general roadmap of the session that can change direction as needed, especially if during the course of this micro-assessment it becomes clear that students are struggling. A quick red/green flag or happy/sad face can accomplish this evaluation, as can polling software, if there is concern that students will not want to admit they are lost. Kraft and Williams (2016) discuss how something as seemingly superficial as a selfie and Twitter hashtags can not only enhance “traditional” library activities (in this case assessment), but also allow for greater variation in their application. Being able to quickly determine students’ understanding can minimize confusion after the session is over, especially if that

one session is the only opportunity the librarian has to engage with that class. In addition, having a collective set of these evaluations can provide a broader picture for the librarian, so that if the same pain points are present along the way regardless of the class, it may signal that a change in instruction or some other element is necessary.

Developing alternative assignments and ways to engage with the subject matter may seem impossible to do, especially when faced with an assignment to write a 5–10 page paper on a generic topic using 3–5 library resources. Here too, there may be an opportunity to have students create an infographic, add comments to a video on Voice Thread, or use a photo voice method as part of class activities. This can be a great way to apply some of the concepts that Meyers (2008) mentions, by creating a safe environment where different perspectives can be presented, encouraging students to think about their beliefs and biases, posing real-world problems, and encouraging action-oriented solutions. By providing these purposeful opportunities, even with limited time, librarians can still include issues of social justice as a way to have students work on a sample “real-world” problem, and model not only the information-related strategies they would need to research the topic, but also think about the broader context in which this problem operates as it relates to the overall subject of the course. This approach can further pieces of the framework that deal with questions of authority, information as process, and research as inquiry rather than method. Another way to view this strategy is from the

perspective of a mini construct, providing students with an outline for how they would tackle their own topic using the problem presented during class as a guide and engaging in some experiential learning, even if through a much scaled-down version.

The final step in this sequence is that of post-reflection and assessment. As mentioned previously, Wang's (2017) focus is on ensuring that students feel prepared for the research that lies ahead more so than acquiring specific library-related skills. Wang presents specific questions designed to get at some of these more intangible elements, such as "how challenging is your class assignment?" and "who are you most likely to ask for help?" (p. 629). Wang also argues that providing a pre/post assessment of this model can help chart a course for instruction, thus reinforcing both skill-based, as well as cognitive and affective states, via a three-pronged approach where students: "access disciplinary research literature, use appropriate search strategies, and effectively find and retrieve relevant and significant resources"; are "advised about the common problems they will encounter and strategies and resources to handle those problems"; and realize that a "one-shot session is not an isolated or stand-alone episode but a floating event to transfer students' previous library experience and skills to their present needs and escort them into the next research stage" (p. 627).

This statement encapsulates both the standpoint of the Framework for Information Literacy with its associated knowledge practices and dispositions, and the ultimate goal of transformational

teaching, which is to not only promote learning but also individual growth. Both the framework and transformational teaching contain a combination of skills and knowledge as well as all of the thoughts, emotions, and habits associated with an individual. Both also very much place students at the center of the process as active creators and agents whereby they collaborate with their instructor, the librarian, and each other to make meaning of these constructs, but ultimately express them in ways that are completely unique to their personal and academic aspirations, values, and circumstances. By getting a holistic view of how the class feels about their upcoming research path, librarians can help make the case with the faculty member for added sessions, individual consultations with students, or some other form of intervention. Too often assessment results do not get shared back with the faculty, which renders any meaningful follow-up all but impossible. This may leave students confused about what to do next, librarians frustrated because they have no further opportunity to help students, and faculty unaware of the challenges their students are facing. One way to think about this is to apply what Nilson (2014) refers to as wrappers, which are:

"activities and assignments that direct students' attention to self-regulation before, during, or after regular course components. Their purpose is to heighten students' conscious awareness of their learning process: what they are and are not understanding or retaining, how they are or are not learning, what they are deeming important,

how they are tackling and proceeding with an assignment... how much confidence they may have in their knowledge and skills, how much they may be overestimating their knowledge and skills” (p. 13).

A final aspect that this type of assessment can uncover is how implicit and, depending on the assignment and topic in question, explicit bias has changed as a result of the instruction session. It also functions when thinking about issues of whose voice is deemed authoritative and why, what type of value is placed over information and by whom, and who is being excluded from the scholarly conversation within the currently complex information landscape. There are two main ways in which this can be accomplished, one indirect, the other by developing questions that are similar to those discussed by Wang. Starting with the latter, questions such as “How did your awareness about the credibility of web-based sources of information regarding your topic change as a result of this session?” or “How do you think the paper/project you’re creating for this class could be utilized by others? And how do you think they could or should give credit to your work?”

By providing a way for students to express themselves and their thoughts in their own way, librarians can establish whether or not these biases still exist and to what extent. It might also help students better articulate how they perceive these alterations have occurred. A more indirect, albeit more difficult to effectuate, method is to include

this type of reflection as part of the assignment itself so that these ideas are integrated within the disciplinary discourse and are not perceived as an external process that only applies when thinking about information or only has a library emphasis. Here, the librarian has yet another opportunity to collaborate with the faculty member to create something that will help students get outside their own perspective and provide a way to engage with them beyond the one-shot time in class, delivering a more individualized level of feedback that makes for a transformational learning experience. For example, this might take the form of an alternate annotated bibliography where students not only discuss how the resource supports their paper or project, but also the process they went through and challenges they encountered in finding the information. This may influence them to think about who wrote it and why and what they learned about themselves as researchers as a result of this process.

Transformational teaching helps to pivot the issues we all face within a one-shot environment and offer a way to think differently about how we teach and interact with students. Transformational teaching combines psychology with motivation, collaboration with deep reflection, and requires a high degree of introspection on the part of both students and instructors. Developing a flexible outline of the course, allowing students as much freedom as possible, and reinforcing the development of their voice as creators and agents within the information world will hopefully not only make the one-shot approach more meaningful, but result in

a richer learning experience for students and open new avenues for collaboration with faculty.

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EMANCIPATORY LEARNING, OPEN EDUCATIONAL RESOURCES, OPEN EDUCATION, AND DIGITAL CRITICAL PARTICIPATORY ACTION RESEARCH

JASON M. LEGGETT¹, JAY WEN, ANTHONY CHATMAN

¹City University of New York, Kingsborough Community College, Brooklyn, NY

ABSTRACT

Given that we must prepare students for the future workforce today, how can we use the power of Open Educational Resources (OERs) and Digital Social Science research to improve student learning and help students develop technical skills needed for the high-tech workforce? In this article, we use transformative learning theory (Mezirow, 1978) and Digital + Critical Participatory Action Research (D+CPAR) to analyze the effectiveness of integrating OERs into a course and reflect on how we used OERs to support student learning and make civic engagement more equitable at an urban community college. In a criminal justice course analyzing the legal system as a social construct we found that students were better able to complete technical tasks that lead to practical learning, working both in teams and individually. Upon completion, learners had more opportunities for self-reflection, seeing their own personal contributions along with the other learners, which reflected emancipatory learning. This article stresses the importance of collaboration and forming long-term relationships and argues the benefits of OERs can be evidenced through open pedagogical practices that provide a holistic vision of the process beyond the classroom.

Keywords: Mezirow, transformation theory, learning theory, open educational resources, digital critical participatory action research, civic learning, open pedagogy, open education, radical

INTRODUCTION

The 21st century is here, and higher education must prepare students for it by teaching them to build a sustainable future, to be scholars of community change, and to engage as responsible workers and citizens in a world defined by diversity (Fakhari et al., 2013). One way higher education instructors have tried to move into the 21st century with students is through Open Educational Resources (OER) as transformational learning opportunities. While OERs have become more popular in the last few years, the pedagogical approach to integrating these digital tools has focused much more on the content and content-delivery systems than on how the classroom or educational process can be co-constructed (Lane, 2016) using these transformational digital tools¹ (Leggett, 2016.) In this article, I describe how a video game collaborative project with students, as an OER and open pedagogical practice, can be used to support student learning more equitably. This methodology serves as an alternative to other content-delivery learning systems in order to help prepare students for the future as scholars of community change and as responsible workers in diverse settings. I argue that OERs, beyond the textbook, provide an opportunity to revolutionize education through the practice of open pedagogy as a fusion with Critical Participatory Action Research with Digital Tools (D+CPAR).

Background

Like many of the educators, I found the traditional modes of learning, including the textbook, both

out of date and irrelevant to the goals and needs of learners, especially from underserved communities. I came to Kingsborough, the only community college in Brooklyn, N.Y., in 2010 and was an early adopter of the emerging online education efforts at the college. The students that come to the college represent over 100 national backgrounds as the area continues to be re-shaped and re-formed by immigrants (Semple, 2013, para. 8) and students who are the first in their family to attend college. As part of a national Bridging Cultures to Form a Nation grant with professional development support from the American Association of Colleges & Universities, I began a long-term course design process using Critical Participatory Action Research (CPAR) and looked for ways to integrate digital technologies. As a social science educator within a broader interdisciplinary department focused on humanities and civic engagement, I found this process to be a slow evolution that emerged into Digital + Critical Participatory Action Research (D+CPAR), focused on including students in a continuous design process of co-creating structured learning opportunities.

More broadly, D+CPAR is an attempt to begin defining a strand of the still-nascent field of Digital Social Science, where digital media and social media are integrated into critical participatory action research (Mayorga, 2014). In *Supporting Critical Civic Learning through Interactive Technology* (Leggett, 2016) I documented efforts to develop a “systems” approach to learning about legal studies and courts. Specifically, I defined a systems approach as a framework whereby students were

¹ See for example, Blackboard, MOOCs, Flip the Classroom, and DigiCation E-Portfolio; students do not have permission to access the creation side of these platforms generally but rather are dependent upon course enrollment.

given the opportunity to study the courts and law as a form of socially constructed relationships and a set of processes that can measure whether justice was applicable and accessible for all. Through that project I learned from students that individual uses of creative digital technology motivated most students to succeed in a way that the more traditional approaches of education did not. In short, I shifted the focus from how I could replace the textbook with digital materials (later associated with OER) to how I could facilitate an ongoing process whereby students engaged in the design of the learning process. This included opportunities for students to analyze existing learning materials and co-create new learning experiences.

From 2012–2016 I developed an approach to co-design learning opportunities that utilized a broad array of digital materials including maps, videos, interactive forms, and e-portfolio platforms. I was satisfied that students were able to provide course work through multiple platforms and could integrate a creative approach to evidencing their understanding. While this method was intensely differentiated and responsive to the needs of individual students, I wondered how to cross the individual learning and engagement threshold into a more dialogical and collaborative-based framework where students could work together on a common goal using digital tools. I began to envision a classroom experience that engaged students in a collaborative effort to construct knowledge that could lead to emancipation, agency, and action. From 2016–2018, I participated in a CUNY-wide

initiative to incorporate OERs and looked for digital tools and digital content that I could begin to work with to encourage collective learning and build on my previous CPAR work.

EXPLANATORY LITERATURE

Digital tools provide a way in which learners can view the world differently². However, these digital tools are often seen in a more limited way, as free digital stuff or as ways to lower student costs. I argue these digital tools are better utilized in a more radical way — as an “opportunity to empower our students, to help them see content as something they can curate and create, and to help them see themselves as contributing members to the public marketplace of ideas” (DeRosa & Robison, 2017). Radical or revolutionary education then moves away from a study of a particular model of delivering information, where educator simply shares a point of view, a primary source, or a piece of interpreted information, to a process where teacher and student engage in “what they will dialogue about” (Freire, 1970). In the 21st century, this necessarily includes how to use digital tools in that dialogue.

Educator and technologist Dr. David Wiley has expressed the potential of digital technology for revolutionary or emancipatory learning many times. In a Ted Talk, Wiley posited that “education is right on the rickety edge of its own reformation... Will we use it to be open or will we turn it back against itself to do other things like keep the status quo?” (Wiley, 2010). Thus, the pedagogical significance of utilizing digital tools, like OERs, entirely

² For example, see: https://youtu.be/_29DGltK_fQ

depend on how those resources are used. Wiley defines successful educators as “teachers who share the most completely with the most students” (Wiley, 2010). How educators share with students is as important as what they share. Open educational resources and open pedagogy can carry many contested definitions but, in my view, pedagogy that is open provides an approach that focuses more on the process of co-creating knowledge for the purpose of sharing publicly and less on replacing content, like an OER textbook.

Open educational resources and D+CPAR, when fused together, provide a clear framework for how to integrate digital tools into the learning experience in a way that can be labeled open pedagogy. This mode of learning, as an accessible and open medium of education, is necessary in order to “change the practice of education” (Wiley, 2013). As Wiley explained in a blogpost, “[o]pen pedagogy is that set of teaching and learning practices only possible in the context of the free access and 4R permissions characteristic of open educational resources.”³ It is difficult to imagine how educators could have moved beyond the delivery of interpreted information (the banking model) to a pedagogical structure to teach students how to listen and how to hear one another (Hooks, 1994) without digital tools. While many educators have focused on structured dialogue in the classroom, this approach still lacks a documentary element that depends on a subjective feeling of what is going on in any given class discussion; digital technology can facilitate the documentation of what is going

on throughout the course and can be managed and directed by students themselves (see Leggett, 2016).

Still, there are those that argue that the rhetoric of emancipation through open education “is way ahead of the reality” (Lane, 2016). In my view, this contention largely stems from a lack of imagination of what education can do and begins with a point of view based in “emancipation” as a “fact or process of being set free from legal, social, or political restrictions” (Lane, 2016). Lane incorrectly concludes “prevailing social, cultural, and economic norms still place greater value on education arising through existing physical, political, and legal infrastructures” (Lane, 2016) as a reason for skepticism. It is precisely through these existing structures that education can and must empower individuals. We always operate within political conditions and relationships based in power (Luke, 2005). Further, the very definition of who is legitimated to do intellectual work is also politically contested and knowledge claims must satisfy political and epistemological criteria of the contexts in which they reside (Collins, 1990). Thus, education at large arises from existing structures that re-inforce powerlessness among learners, especially among disadvantaged populations. This is a problem of facilitating a legitimated dialogue with learners, within the restricted structure of a course, that must also continue, somehow, beyond the course term and must also foster a collective experience for the purpose of action. In this way, to study collective knowledge creation as an empirical research project, one needs to document the process of dialogue with students.

³ later 5R's: the ability to Retain, Reuse, Revise, Remix and Redistribute content for educational purposes.

In the sections that follow I describe the process of collective learning through video game design, a way of imagining the fusion of D+CPAR and open pedagogy using OERs.

Transformative learning through video game development: Collective knowledge

My thoughts on collective learning come from the idea that knowledge does not come from one single source (Manheim, 1949). Traditionally hierarchical and rigid classroom experiences, where the teacher transfers information to the students and students are expected to regurgitate the same information back, not only do not give students any room to explore, but these learning opportunities also do not create a safe environment where students feel comfortable speaking and sharing information with each other (Wlodkowski & Ginsberg, 2009). Emancipatory learning requires a transformation that is rooted in dialogue and participation (Taylor, 2007). Collective learning assists in the transformation by critically questioning the illusion that knowledge is dictated from an elitist point of view as a source of unquestionable truth. This emphasis is important when introducing new digital learning tools in a classroom to overcome initial fear or resistance because collective learning is not the norm in most higher education settings (Leggett, 2016). Part of the process of transformative learning is that it is unique to the individual and the learning environment (Taylor, 2007; also see Dewey, 2009). In sum, the learning environment must be structured in such a way that learners engage in

social organization to co-create knowledge (Dewey, 2009).

I wanted to work toward a co-designed structured environment that served the dual goals of facilitating the co-creation of knowledge and encouraging dialogue and cooperation. I had tried discussion boards, e-portfolios, and interactive forms but these tools did not satisfy both of my goals due to access, technophobia, and other resistance to new technology (Leggett, 2016). I had been working with many students and several community partners since 2012 in a variety of fields. Then, in 2016, a colleague and I were talking with a student, Rotislav, when he suggested we design a video game that would operate like a live simulation. The idea was that students could go through the various components of the political-legal systems and experience these situations from multiple points of view, historical and cultural, through video game characters. I was intrigued, although I had not had much experience with video games, and shared the idea with one of my community partners.

Using the principles laid out by Gee (2007) I began the process of creating a video game and sketched out how to work with students over multiple semesters as a type of in-class simulation. I first shared the emancipatory goal of critical participatory action research:

“Liberatory learning begins by recognizing the domination of masses by the elites is rooted not only in the polarization of control over the means of material production but also over the

means of knowledge production, including the social power to determine what is valid or useful knowledge” (Fine, 2008).

We then spent the first few weeks of the semester learning how to research together in ways that “reveal and challenge social injustice... to provoke action for a more just distribution of resources and dignity” (Fine, 2008). Once again, a student suggested a video game while pointing to an application on their mobile device and a chorus of students agreed that this platform would best meet our needs and be adaptable for future classes. I confessed I knew little about video games but had been thinking about how to incorporate this mode of learning into my classes. I had worked with two people previously who I knew had expertise and invited them into the design process in the third week of the semester. In the next section, I describe how this partnership came together and the subsequent steps we took to begin co-creating a video game.

HOW THE COMMUNITY PARTNERSHIP EMERGED

My community partner, Jay Wen, is a photographer and environmental activist from Brooklyn, New York. Jay earned a Bachelor’s Degree in Film and Media Studies at Hunter College (CUNY) and took a video game development course that made an important impression on her. In 2014, while working

on a food justice project together, she explained to me her desire to develop a video game based on an apocalyptic event caused by an environmental disaster. The players in the game would need to learn how to work together to first recover and then to begin rebuilding a sustainable community. Jay had also helped with community partnerships in other environmental and arts education events in an effort to provide a wide array of civic engagement opportunities at Kingsborough Community College beginning in 2013, including an after-school program at an elementary school. One criminal justice student at the time, Anthony, had expressed interest in volunteering at the after-school garden program where Jay worked with a science educator to integrate science and art into the garden program. Anthony took the initiative to make a short film about the science and arts program at the elementary school garden and related efforts to provide food justice education at a farmers’ market near his home in East New York, Brooklyn. He had no experience with either filming or editing film, but with our help he was able to produce this video and share it at our annual Eco-Festival⁴. From this first encounter in 2013 we began to wonder what other creative projects we could imagine using Digital Critical Participatory Research (D+CPAR). Even after Anthony transferred to a four-year college in 2015 the three of us continued to create course materials and experiences using digital technology,

⁴ These videos can be found at our Youtube channel at <https://youtu.be/Vk9FBdP267w>

which included the launch of a podcast and YouTube channel hosting various educational videos.

Then, in early 2017 while I was exploring potential OERs, Jay proposed to teach a video game development module over three one-hour classes in a legal system course. The initial goal of this particular co-designed class was to use the video game development project and required technology as a way to foster collaboration among students while they studied narratives from *Going South: Jewish Women in the Civil Rights Movement* (Schultz, 2001). In this way, students could apply the narratives from the Civil Rights Movement as they helped imagine characters and scenes for the video game story. Jay, Anthony, and I also wanted to observe how students worked together, both in the classroom and on the digital platform, to learn how to better design these structured learning opportunities for future classes.

For our study we chose two OERs: 1) Scratch, a programming language that makes it easy to create interactive art, stories, simulations, and games — and share those creations online — developed in the Massachusetts Institute of Technology Media Lab⁵; and 2) CUNY COMMONS, an online, academic social network for faculty, staff, and graduate students of the City University of New York (CUNY) system designed to foster conversation, collaboration, and connections among the 24 individual colleges that make up the university system⁶.

We hoped that the game design application and the commons website would allow us to re-mix the original game across courses and to collaborate with other Kingsborough classes and staff and potentially with other campuses.

FROM INSTITUTIONAL-BASED PLATFORMS TO IDENTIFYING AND UTILIZING OERS

I am a certified hybrid and online instructor and a digital native born among the so-called Millennial generation. I have enrolled in online-based courses, participated in the design of online-based teaching materials, and manage a variety of websites and social media platforms. From 2012–2016, I sampled many learning platforms that were promoted by various members of the college administration. A colleague told me about Scratch and I decided to move from institutional-based platforms toward an OER that gave me control over the content we produced. Scratch is a free program developed by MIT that allows users to create games, interactive stories, and animations. As the developers describe it, Scratch⁷ helps young people learn to think creatively, reason systematically, and work collaboratively—essential skills for life in the 21st century. Students retain a copy of their work in the form of physical papers and documents before they are uploaded onto the Scratch website. These representations are then placed within the application to be

⁵ For more information please see: <http://scratched.gse.harvard.edu/>

⁶ For more information please see: <https://commons.gc.cuny.edu/about/about-the-commons/>

⁷ For more information please see: <https://scratch.mit.edu/about>

coded. The resulting game simulation is available by web link. The game is re-usable to play again, it can be remixed by creating a different version using similar components of the existing game, or it can be revised by changing the existing structure of the game. It can be redistributed to share with others to view or play. The Commons website works with Scratch to share the process and project goals. This approach to open pedagogy allows everyone to participate, collaborate, and contribute to a topic or a project throughout the semester at their own pace. Video games present an active way of learning through the mechanism of signal, choice, and consequence. Choices must be designed and characters can represent different points of view. This helps students experience the world in a new way from multiple points of view. Educator James Gee observes, “games recruit smart tools, distributed knowledge, and cross-functional teams just like modern high-tech workplaces” (Gee, 2007). Gee’s work underlines the need to integrate new user-based technology into higher education and into collaborative social science research,

“Many baby boomers think that being smart is moving as fast and efficiently to one’s goal as possible. Games encourage players to explore more thoroughly before moving on, to think laterally, not just linearly, and to use such exploration and lateral thinking to reconceive one’s goals from time to time. Good ideas in a

world full of high-risk complex systems” (Gee, p. 217).

Thus, while we read and critically examined narratives of change in civil rights history, we considered how we might build a social environment where injustice was reduced or eliminated into the game. The end product, the video game, provided an abstract representation of our collaborative inquiry. As a collective we could point to the work done in order to create the first scene of the video game as a social relations project and an example of group action. You can view our preliminary work on our academic commons website⁸.

DISCUSSION: METHODS, OPEN PEDAGOGY, CONDITIONS FOR EMANCIPATORY LEARNING

Our inquiry involved a need to consider under what conditions emancipatory learning was possible using digital tools. Under any definition of the term “emancipatory,” the self-awareness of one’s agency to make change within a collective, must be included. Learners are always situated within a singular classroom and other course-by-course environments. The disruption of other learning habits through the collective process leads to conditions that engender the competence needed to document the emancipatory process in dialogue with others. I knew that by changing the structure of the course using a collaborative approach to designing a video

⁸ <https://imagine1civic.commons.gc.cuny.edu/67-legal-studies-video-game/>

game workflow we would also need to learn the course material in a different way. Our co-created video game started from “scratch” and simply sought to create structured learning opportunities to co-create knowledge about social relations under a rule of law. However, this change also led to the conditions for emancipatory learning.

I use a definition of emancipatory learning that emphasizes that in order for the structured environment necessary for emancipatory learning to exist, there must also be the structured opportunity for critical reflection of the material sought to be learned (Mezirow, 1981; Habermas, 1971). Digital tools allow for a capture of our work as collaborators for emancipatory learning that includes all learners in the process. In this case, the work necessary to complete our goal of creating the first scene of a simple video game together was more work than any one person could manage. In response, students volunteered to work in one of three groups generated from our class dialogue with Jay and Anthony. The three groups were: 1) students who had an interest in drawing and coloring character sketches and backgrounds; and 2) students who had an interest in writing the stories and dialogue for the video game level; 3) students who had an interest in writing the code and designing the scene using the computer and digital tools. All students had to check-in and work together while Jay and I spent time with each group organizing their action research plan. When I examined the work produced by these three groups and our community partners, Anthony and Jay, it was evident that the

conditions for emancipatory learning were present. Emancipatory learning also led to technical and practical forms of learning that were interrelated (Dewey, 2009).

To measure our progress toward a more collaborative and participatory structured learning environment, we utilized transformative learning theory (Mezirow, 1978). This theory explicitly examines emancipation as a process of learning (Taylor, 2007). I was also mindful to look closely at the process by which students re-entered the learning space when we presented a new tool to learning that was vastly different from their other classroom experiences in the criminal justice program. We also wanted to talk with students about how the surprises, puzzlements, and hunches that structured self-reflection experiences enhanced their own motivation to make sense of things we might otherwise bury in classroom routine (Mezirow, 2000). In other words, we wanted students to participate in the process of ongoing course re-design with the understanding that this was intentionally different than other classes with the hope that we could solve these collaboration challenges together. It is in this sense that digital tools and D+CPAR allow for an OER, beyond the textbook, as an opportunity to co-create the conditions necessary for emancipatory learning.

We appreciated the way this learning theory measures the effect of structural change in the way we see ourselves and our relationships (Mezirow, 1978). We hoped that this learning theory would help us better teach students that the legal system

can alter the way we see ourselves and relationships and is subject to change. Ultimately, we hoped this method would increase students' motivation to act and get more involved in the process of rights-based activism as Jay, Anthony, and I responded to the emerging group through dialogue.

The research design for this multiple-semester collaboration utilizes a “motivational framework” (Wlodkowski & Ginsberg, 2009) that begins with critical examination and analysis of student work, including participation, to improve teaching and learning. As a culturally responsive pedagogy, structured assignments and assessments were designed in response to early student work to measure individual motivation and relevance (Leggett, 2016). Further, the design process was necessarily collaborative; CPAR allows a teaching and learning process that includes all learners in research because we begin the work together (Fine, 2008).

The integration of technology was absolutely necessary to the successful implementation and documentation of the course design process because it allowed for multiple researchers to upload data, share and edit text and presentations, and to communicate beyond the classroom (Leggett, 2016). Students participated in structured discussions about how we could imagine what co-constructed knowledge would look like on the website while also including course material and social science research done by them individually in the process of designing the video game with our community partners Jay and Anthony. I had encountered resistance to both new technology implementation and collective learning generally in the past so I chose to scaffold this integration into three pieces

after developing a dialogue with each learner individually. The first assignment involved a broad introduction to the game design application Scratch with Jay. The second session involved applying our course readings to design characters and scenes for the game without digital tools. The third involved the coding and uploading of our work using computers in the classroom.

Why transformative learning theory?

Jay, Anthony, and I agreed that this approach to learning provided students with the choice of how they could participate and let them choose how to best evidence course learning. This theory also provided us with a framework to scaffold our three lessons into a sequence that fit within the broader goals of the course. We also appreciated that this theory emphasized the participatory, or sometimes called deliberative, nature of democratic engagement. In pertinent, Mezirow (1981) turned to the work of Jurgen Habermas to devise a critical theory of adult learning and adult education within a democracy (Kitchenham, 2008). Habermas (1971) had proposed three domains of learning: 1) the technical, 2) the practical, and 3) the emancipatory. Technical learning is learning that is rote, specific to a task, and clearly governed by rules. Practical learning involves social norms. Emancipatory learning is introspective as the learner is self-reflective and experiences self-knowledge.

Our use of Transformative Learning Theory applied Habermas's three domains of learning explicitly. Technical tasks took place within three self-selected groups (visual designers, computer coders, and script writers), with the understanding

that each group would contribute these pieces to be used in the final video game design. Practical learning involved learners working in teams, and at times individually, on something they had a skill or interest in with our assurances that they would get guided support. At the end of the semester, when all the components of the video game were displayed, learners had an opportunity for a written self-reflection and a final class discussion. When learners saw their individual and group contributions along with the other contributions, they were able to see the process of emancipatory learning. The co-production of knowledge was facilitated by the video game design process, guided by Transformative Learning Theory, and the final product of that collaboration was visible on the commons website. The D+CPAR in process also provides evidence of the challenges of cooperation which can be analyzed during or after the semester. This approach allows for the group of learners to come together around common goals and then later analyze the work using digital tools.

Our end-of-the-semester discussion and reflection letters showed a strong sense of satisfaction for the collaborative approach in a learning environment. More importantly it also provides evidence of learning itself. The learners were able to see the result of their collaboration — a draft of scene one for a learning video game. Students were highly supportive of one another and we participated with them in what educators call “flow” (Wlodkowski & Ginsberg, 2009), whereby students lose track of time and often were eager to continue working on the project outside of the prescribed three-class sessions. In this way, emancipatory

learning engenders the learner’s ability to use their educational opportunity to define their inquiry. The participatory condition of this research process requires dialogue with other learners. The structured self-reflection helped learners integrate their learning into their new understanding of social relations within the structured learning environment. We agreed that the dialogue and openness that fosters long-term relationships necessary for collaboration are necessarily foundational for truly revolutionary open pedagogy.

D+CPAR, open pedagogy, OERs, and methodologies

In 2012, I had utilized an educational framework for culturally responsive teaching (Wlodkowski & Ginsberg, 2009) to assess whether the integration of digital tools (pre-OER) had an effect on critical participatory action research (Leggett, 2016). Through that research, I learned: 1) creative uses of technology allow for individuals to see the world in a new way; 2) digital tools move the burden of teaching and learning from me to the collective as a joint project; and 3) technology must be integrated into critical course work in the humanities so that students can engage with social, political, and legal institutions and behavior (Lane, 2016). This framework can also be used alongside transformative learning theory to develop a participatory methodology that emphasizes the process of learning as an interpretive event, not an isolated variable, in order to show causation of a particular set of learning outcomes related to content competencies. The problem is that linear, instrumental conceptions of causality are inadequate tools for explaining the

dynamic, indeterminate, contingent, interactive processes of judgment, choice, and reasoned intentionality of people in action (McCann, 1996). While studies that measure causation as it relates to the use of a new learning tool and individual

learning are important, I was interested in how our group perceived the process of D+CPAR.

Specifically, I wanted to examine with my community partners and my learners exactly how we think about co-creating knowledge using digital

Anthony Chatman, a former student, finished his Master's Degree at John Jay College of Criminal Justice with a focus on Policing and Digital Technology. Anthony started at Kingsborough Community College in the Criminal Justice Program at a time when we were trying to integrate civic engagement and liberal arts outcomes directly into classroom experiences. He was instrumental in turning our attention to the use of video games among learners in his generation. We decided to ask the class at the beginning of the semester about Anthony's recommendation and we found that all of the students had played a video game and knew them well. Anthony also alerted us to the use of online videos used as tutorials where fellow students learned about games and how to play the games. These insights were invaluable and support our core belief that OERs and D+CPAR foster long-term relationships inside and outside of the classroom that have implications in our communities. When Anthony speaks of making a difference because of "hearing different perspectives on certain issues", he is speaking for a collective of learners who are sharing information while pursuing empirical understandings. He is a representative of that PAR collective. Anthony became a content creator through the process of Open Pedagogy and D+CPAR, defying my own expectations, and continues today.

"While working with Professor Jason Leggett, using technology really brought things into perspective. In 2013 I felt using technology would help others learn, but it also helped me learn things in the process each time I was tasked with using technology, whether it be learning to use a camera, a new computer, or with the different types of software applications. Perhaps my best example is how using digital technology literally helps you view the world differently. When I was editing my videos I started to notice things I wouldn't normally have seen without the camera. Even something simple like zooming in on a subject helped me to think about how details contributed to both the product I was making and the process I was engaged with.

The editing process can be tedious but I was motivated to learn how to make the video what I wanted it to be. I think it makes the project speak volumes to what main point I was trying to make. Editing helps that message become clearer. Using technology has also helped with understanding certain criminal justice and social justice topics by seeing them in a different light, because each person has a unique idea on how they feel. I especially learned this while behind the camera interviewing others and then during editing where I would pick up on something I did not hear the first time. It also helped with opening my mind with seeing and hearing the different points of views while also understanding their way of thinking when asked about a certain topic.

tools. Digital + Critical Participatory Action Research provides a way to collect empirical data that can be analyzed to improve teaching. I wanted to facilitate an environment for radical or revolutionary education whereby students confronted political-legal institutions as co-researchers of injustice with the goals of individual and group

action. I think it is important that educators who try to engage with emancipation through open education focus more on the constitutive relationship formed in the classroom using norms that promote participation and dialogue than on proving causal relationships between content and information processing. At the root this kind of open pedagogy

Using technology and being able to have the opportunity to take part in self-cultivation has led me to want to use it as a focus when I eventually transition to my career in law enforcement. At the start, I never thought or even considered using technology as a career but only in terms of writing reports, filling out applications, and sending emails. Since this experience, my research is now focused on how technology can be used to help solve various problems of crime and building safer communities. My proficiency with technology has only grown over the years and with the constant advancements in technology I feel like I can make a difference because working on projects and hearing different perspectives on certain issues has really broadened my approach of how I view things. There will always be a need for the use of technology and since I've continued to use it and unlock the secrets that come with it, I just want to continue using it to the best of my abilities.

Without the use of digital tools, I would never have been motivated to continue my tasks at hand or open my eyes to view the world differently. If there wasn't a primary task with the requirement to use digital technology I don't think I would have been influenced as much since there would have only been a one-sided point of view of how certain things were being portrayed. Digital technology allowed me to see things from multiple points of view to get all sides of a story. The motivation that came with this fascination just added to the desire to learn more and see what else digital technology had to offer the more I kept using it. Digital technology enhanced my perception of a vast majority of subjects and certain issues in society, which ultimately increased my learning abilities in the process.

Based on my experience with video games, two key aspects that make or break it for me are the story and the characters. The story has to keep me engaged and be compelling enough so that it makes me want to see the game through until the very end. Sometimes, based on the story, I was able to critically think depending on a certain plot point and strategize the next plan of attack as the story develops over time. The reason characters are another important aspect of video games is because similar to technology I am still able to see different points of view from a protagonist(s) and even the antagonist(s). I am able to put myself in their shoes and have that sense of understanding of why they do what they do in the story itself. Then I am able to come up with my own judgements based on how they were able to handle things based on a situation within the game. It put a lot of things into perspective since this allowed me to see what motivated them to be that type of person in-game. Character development is important so knowing the qualities that each character has within the story can be essential to being able to relate to them. Although they're fictional, a bond can still be formed."

is the objective to co-create knowledge, including what to dialogue about and research.

Like Maxine Greene, I agreed that “I wanted to release students to be personally present to what they see and hear and read” and to remind students and educators of the need to “develop a sense of agency and participation” (Greene, 1995, p. 104). In response, I moved away from the information delivery method — to students from educator — to a situation in which I had created an environment where institutional educator, community partners, and students could engage in dialogue to bring out our separate realities and understanding of our world around us through the video game design sequence. In a final note about methodology and the fusion of OER and D+CPAR, I quote Dr. Michelle Fine at length:

“Classic social science is measured, in part, by the extent to which “experts” consider the design and constructs to be valid. PAR stands on the epistemological grounds that persons who have been historically marginalized or silenced carry substantial knowledge about the architecture of injustice... in PAR collectives, these rugged deliberations are fundamental to method; a crucial element of question generating, data gathering, analysis, and conversations about products and actions” (Fine, 2007).

In the next section, I present our findings as a collective learning process as we tried to facilitate the kind of emancipatory or liberatory educational experience defined throughout this paper and

grounded in the co-production of knowledge that was important to the collective.

RESULTS — WHAT WE CAN LEARN FROM VIDEO GAME DESIGN AS OPEN & D+CPAR

Initially, students exhibited fear about the expectations and steps needed to create the video game because they thought each person was solely responsible for an entire game. We discussed how, in many collaborative assignments, students are still individually responsible for their work to earn a passing grade. When Jay explained that we were all going to work on only one scene of the video game, we saw relief throughout the room, and we began to see smiles and excitement. Jay and I had not talked about how this project would be graded and had to navigate this discussion very carefully.

We decided to remove the singular goal of earning a grade through exams or paper writing to overcome the vastness of choice about what students could write about. We were experimenting with video game design as a way to collaborate and dialogue about the course material. Therefore, we were more focused on the collaborative aspect of this project. With class participation we decided to scaffold the three one-hour module classes as follows. First, Jay explained the premise of the video game, enabling the learners to think in a specific framework — that the game was intended to promote collaborative problem solving. Second, Jay introduced the principles of video game construction and showed them how to get players to interact with the game online. Finally, Jay worked with

three groups where each learner chose the group that they were interested in, or skilled in, to create the first scene in the game. The three groups focused on skills the students identified they had: 1) coding; 2) drawing; and 3) writing.

The initial goal of this particular co-designed class was to use the video game development project and required technology as a way to foster collaboration among students while they studied civil rights narratives. Jay, Anthony, and I also wanted to observe how students worked together, both in the classroom and on the digital platform, to learn how to better design these structured learning opportunities for future classes. We hoped the game design application and the commons website would allow us to re-mix the original game across courses and to collaborate with other Kingsborough classes and staff and potentially with other campuses.

There was no question that the Commons website and video game application greatly increased ongoing and sustainable collaboration. In the final reflection discussion, learners freely shared with us. Some students stated that they were more comfortable communicating with others through technology, using Scratch dialogue, coding sequences, message boards, and email. They even preferred it to person-to-person communication because of shyness, not wanting to speak in front of the entire class, or that they were able to articulate better in writing. In the process of the video game development students were able to display their often more-hidden artistic, creative, and technological talents. For example, we were surprised by the nine students who were experienced drawers and one

student who had a previous career in graphic design.

I now begin courses by encouraging students to use these skills with us no matter what the class content is as a way of making the course work relevant to course and academic goals. What is more, many future jobs will require some knowledge of how to use technology (Jordan, 2015). By learning how a piece of software or program works, the learner can see what the software can do and how they can manipulate it, creating a new technological literacy that they can apply to new programs and future classes.

Finally, in the last session, the class completed the opening scene and we all reflected on the process of game development and talked about what interesting components can be added to make a more engaging game. This final discussion evidenced learning that transcended the course and showed a transformation of identity and ability to advocate for the common good. For example, one student suggested that each game player should be able to create their own avatar to enter the game and another suggested adding a map that allows the players real-time interactions and to tailor the game toward mobile devices. As we reflected on the last class, we saw that we provoked co-researchers and collective learners to rethink and reimagine current arrangements, something that Greene (1995) calls “social imagination.” We observed that there were a lot of hidden talents that were revealed in just these short three sessions. This collaboration with and between students exposed them to a new way to think about how they can use their

talents to get jobs (transformative learning) and a new technological literacy that they can use for the future (career advising). The digital products of our collaboration provide student work that others and I can analyze that can also contribute to open education theory and practice.

Benefits of using D+CPAR and OERs: A holistic approach

We conclude this article by examining the process of integrating OERs to teach D+CPAR through the point of view of each of our community partners. I provide Jay and Anthony's point of view for several

This fusion of OER and Open Pedagogy began with Jay Wen, who facilitated an urban farm after-school program in 2013 where Anthony and two other Kingsborough students volunteered afternoons. As a digital artist and activist, Jay agreed with Anthony that a series of educational videos using digital tools was a worthwhile project for D+CPAR. I was able to integrate this digital work into structured learning opportunities within my current courses. CUNY Commons, a WordPress platform free for educational use, allowed me to effectively display the educational videos that are currently undergoing the necessary Creative Commons licensing. The combination of student-directed educational content and instructor-managed digital tools led to the need for a community partner to engage a larger audience, a need in a politically-situated urban community college for civic engagement. Jay was this partner and she instilled a common theme of collective learning using digital tools as a way to transform learning, or the sharing of information that informs a new point of view by engaging with others.

"In 2013, I volunteered to work at an after-school garden program at P.S. 126 Manhattan Academy of Technology with a science teacher. I was curious to see how the elementary school science teacher was incorporating science, technology, and gardening to the program for students ages 8–11 years old. Together, we created lesson plans to help students document their learning and let them form small groups from 2–4 people to complete activities and fill out work sheets together. The students were more collaborative since they were allowed to work with their friends. For example, I overheard one group ask another group to see if their answers were similar or correct. I started to see that this way of teaching felt more open and organic because everyone was communicating and learning with each other.

In our efforts to document the after-school program I saw Anthony take on a leadership role using the video camera and editing software even though he hadn't used either piece of technology before. He was given free range on how he wanted to document the program and I saw his creativity flourish while capturing different close up shots, wide shots, and setting up shots with students interacting with each other. When he began to edit the video footage, he really put all the pieces together and learned how to tell a great visual story. As a digital photographer I recognized his latent talent by how easy it was for him to be able to pick up these new skills because he was given the opportunity and creative freedom.

reasons. First, it is uncommon to see the impact of a teaching innovation at the end of a student's educational journey. We have been fortunate that Anthony has been a part of this redesign process since we first met in 2013 and was able to assist us in the integration of video games and OERs. This relationship informs our second reason for including his narrative — OERs and D+CPAR have enhanced the student-teacher and classroom-community relationship by allowing us to continue working with each other after the semester has ended and

influencing how we continue to build on our previous work. This ongoing collaboration among the three of us continues to create innovative products for use in the classroom and in our community. For those of us who believe that civic learning and democratic engagement are important educational outcomes, this has far-reaching implications. Finally, while we admit Anthony's story may be an outlier, he has provided a roadmap for course design that puts the students' voices and experiences first, which I continue to utilize in all my classes.

I learned from the students in the after-school program and working with Anthony that there was potential for a new way of collaborative learning incorporating technology. While many students already used some form of technology they did not necessarily use it with other people or use it to make a new product. In order to generate a common product, I wanted to create an opportunity for students to develop a collaborative video game as an assignment. From 2013–2015 I worked with students on storyboards for video games and developed photo-essay assignments with Prof. Leggett for his students. Then in 2018, we discussed the possibility of designing a video game with students using Scratch, an OER that allowed for basic video game production.

I wanted to make the video game development simple, let the students work at their own pace, and let them have creative freedom. Working, I overheard each group exchanging ideas on how they could make the characters come to life. I noticed the sketch group and script group really worked together to pinpoint the unique characteristics of Dottie, Ella, and Debra, individuals from the course reading materials, according to what they learned in previous classes. The sketch team used specific wardrobe choices referencing old photos and props they found on the internet that defined the characters' roles in the game. The script team wrote lines that embodied how the characters would really be based on the dialogue in the readings. I started to see the way they were communicating and collaborating together between groups was similar to the students from the after-school program and began to term this collective learning, a way of engaging material that produces new ways of understanding the material by applying it in real-world scenarios.

I explained to the students that the video game was going to be continued to be developed in future semesters. They were excited to share ideas on how to incorporate more ways to make the game more playable by adding different challenges, making the game for mobile devices, and how the future students can help to make it so. This showed me that they welcomed new changes and new ideas of how other people could work on the collective game.”

In reflection, I want to push the discussion about OERs and Open Pedagogy further toward the co-construction of knowledge. I believe D+CPAR allows this to happen, inside and outside of the classroom, on two levels: 1) the ability to co-create structured learning opportunities with students and community partners is built-in to the framework itself, which engenders transformational learning as a necessary process learning outcome; and 2) the digital aspect allows for a more objective measure of what is actually going on in the classroom and can be designed in such a way as to measure particular outcomes like civic engagement, better understanding of content, or specific interventions. This article does not seek to address whether the incorporation of OERs or open pedagogical practices leads to a deeper understanding of course material nor a measurement of test scores or overall comprehension of a particular discipline. In fact, the pedagogical goal of this paper is to shift the focus away from learners as objects to study and toward learners as the co-creators of what we want to study. In this way, I have provided both a theoretical framework to operate within Transformative Learning Theory and a set of practices rooted in Culturally Responsive Teaching. Success is measured by our understanding of this process, how it pushed our project forward, and how we formed new ways of thinking about knowledge as a result.

I have been able to replicate this process and scale the experience using OERs and D+CPAR in ways I never imagined when I set out to re-design courses at Kingsborough Community College. I am now working with other professors and dozens of

student co-researchers each semester to solve the challenge of bringing our work together. Anthony has been an ongoing help in this process. In closing, our latest effort has been to develop a series of videos that promote students' views on a wide variety of social justice and community issues. These engaged creative efforts continue to amaze us and to center students' lives in the educational process. We invite you to measure these narratives against our co-created work found online.

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ADAPTING THE KOLB MODEL FOR AUTHENTIC INSTRUCTIONAL DESIGN PROJECTS: THE 4-C FRAMEWORK

CARRIE LEWIS MILLER¹, JOHN GROOMS¹

¹Minnesota State University – Mankato, Mankato, MN

ABSTRACT

Authentic, real-world projects are the key to providing opportunities for instructional design graduate students to increase the skills they will need once they enter the job market. While experiential learning experiences can enhance skill transfer and allow students to network and create artifacts that can be added to a design portfolio, working with student design teams requires additional communication and support on the part of the client. Building on the Kolb Model of Experiential Learning and the Stout-Rostron model, a 4-C Framework was developed to help create more effective experiential learning experiences for instructional design students. Case studies are presented that illustrate some of the challenges and successes of working with student instructional design teams on real-world projects.

Keywords: experiential learning, instructional design, Kolb Model, authentic projects

INTRODUCTION

Research has indicated the need for real-world, authentic projects that prepare instructional designers to go into the workplace or organization of their choosing (Larson & Lockee, 2009; Sharif & Cho, 2015). As instructional designers enter the workplace, “there seems to be a consensus among

professionals in this field that there is a discrepancy between the way instructional design is taught and is practiced in real-world situations.” While much training of instructional designers prepares them to be technically competent with educational or instructional technologies, they are not often prepared for leading change within organizations

or the community through the lens of instructional design (Sharif & Cho, 2015, p. 80). Since there are a small number of undergraduate-level instructional design programs, it is the graduate-level instructional design programs that are implementing authentic projects for students in courses on advanced instructional design or evaluation, as the need for more direct instructional design experience is required to link theory to practice. Real-world projects both promote the transfer of theories to concrete skills and they prepare the student to enter the workplace or organization of their choice, both of which require practice outside the context of the classroom environment (Larson & Lockee, 2009). While connecting students to clients and finding authentic projects may not be a challenge, supporting students through the process of completing a real-world project can be (Dabbagh & Williams Blijd, 2010). From both a faculty and client perspective, a framework needs to be in place to support students as they encounter culture, personality, budget, participation, or administrative challenges that are frequently seen in workplace projects.

LITERATURE REVIEW

Instructional design programs prepare learners to enter the world of curriculum and training design from multiple entry points. As future trainers, performance improvement specialists, evaluators, faculty developers, instructional technologists, curriculum designers, and instructional designers, instructional design students (with a graduate degree) are expected to enter the workplace with

hands-on, practical experience in the field. Often, many of these instructional designers are career changers, individuals who have an undergraduate degree in a field unrelated to instructional design, but who have completed a graduate degree in instructional design or educational technology and who consequently have only two years' worth of training in the field (Villachica & Conley, 2015). In order to develop instructional design skills in a compressed amount of time, program faculty approach this gap by embedding authentic learning experiences into the instructional design curriculum. From service-learning projects (Stefaniak, 2015) or reflexive practice (Shambaugh & Magliaro, 2001) to apprenticeships (Ertmer & Cennamo, 1995) or action learning (Bannan-Ritland, 2001), assignments and assessments that reflect the skills and knowledge instructional designers will need and practice in the workplace are embedded in the curriculum. Although there is little research supporting one method over another, the common thread in all of these approaches is the hands-on nature of the projects in the courses. Instructional design students under each of these methods put their skills into practice in either a real-life scenario or a scenario designed to look as close to real as possible. It is the experiences of completing the tasks, solving the problems, or designing the intervention that hone the skills of the fledgling instructional designer and provide them with a glimpse into the field prior to entering the workplace.

Research suggests that many instructional products are created by inexperienced instructional designers or instructional design students and

that novice designers can be presented with complex or advanced design problems as long as there is an appropriately designed structure or framework to continually support the learning process as they proceed through the project (Verstegen, Barnard, & Pilot, 2008). Additional studies have indicated that there is a disconnect between what instructional design students learn in the academic classroom and what they are required to implement in the workplace (Larson & Lockee, 2009; Thompson-Sellers & Calandra, 2012; Villachica, Marker, & Taylor, 2010). Much of the literature surrounding the preparation of instructional designers would seem to indicate that their practice and application of theory is developed largely through the experience of real projects once they are out in the field as a full-time employee (Larson, 2005; Thompson-Sellers & Calandra, 2012; Tracey & Boling, 2013; Villachica, Marker, & Taylor, 2010).

Although little research exists into the formalized training and education of instructional designers, there are learning theories that fit what instructional design program faculty are already practicing in their classes. The theory of Experiential Learning, as explained by Kolb (1984), “is the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience” (p. 41). In this four-stage model, learners progress through a learning cycle that moves them from the concrete to the abstract (see Figure 1). By working on authentic projects, service-learning or otherwise, instructional design students create knowledge from their hands-on

experiences working with a client as they would outside the classroom.

Using the Kolb Model to support authentic projects for instructional designers is not a novel concept. Dunlap, Dobrovolny, and Young (2008) implemented a real-world web-design project in their *Developing Educational Websites* course using the Kolb Model to structure and sequence the learning activities of the class. From the use of this model to implement experiential learning, they experienced higher levels of online student engagement and satisfaction than in previous courses. Their satisfaction with the ability of the Kolb Model to provide a structure for online learning in instructional design courses led them to implement the same model into subsequent courses using real-world projects.

To support this model of learning in instructional design programs, connections must be made

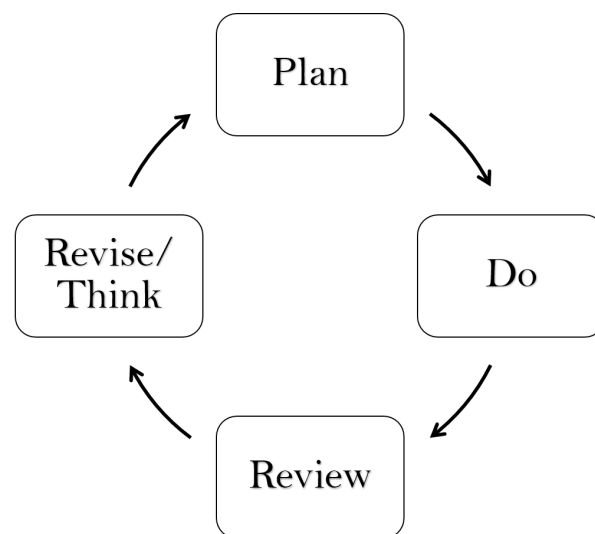


FIGURE 1 The Kolb Model of Experiential Learning.

between client and designer. While faculty are in place to support the students through experiential learning projects, structured support can be given on the part of the client as well, to make the learning experience more meaningful. Although this may remove some of the authenticity of the project, we believe that this better prepares the learners to review and reflect on their work and connect it to program content. Connecting the Kolb Model to coaching and mentoring, Stout-Rostron (2014) defines the Kolb Model steps in the following way:

Plan = Action/Experiment – What can we change or do?

Do = Concrete Experience – Something happens, and we experience it.

Review = Review/Reflection – What happened and why?

Revise/Think = Conclude/Conceptualize – What did it mean? (p. 151)

Implementing the Kolb Experiential Model in combination with a model of coaching and mentoring can enhance the learning process for instructional design students. Without a mentoring framework to guide them, students and clients alike may find themselves in situations for which they are unprepared. Allowing the client to serve as both client and mentor will support the students in their authentic experience without sacrificing the learning goals of the supervising faculty. As examples of how vital the coaching and mentoring piece is to the Experiential Model in authentic instructional design projects, the authors submit four

case studies illustrating how challenges can appear when working with student instructional design teams and how those challenges can be turned into learning experiences. We will also provide a framework for instructional design faculty, students, and “clients” that can be used when implementing authentic projects outside the classroom for maximum learning benefits.

AUTHENTIC PROJECTS

SMARTboard evaluation team

In the Fall 2015 semester, an instructional designer at a medium-sized comprehensive university in the Midwest was approached and asked to propose a series of potential evaluation projects for an online graduate course in instructional design and evaluation at a metropolitan research university in the Northwest. A Request for Proposal was presented to the graduate class and one team of four submitted a proposal to evaluate the SMARTboard training and usage on the campus of the midwestern school (Appendix A).

The instructional designer was both the point-of-contact and the subject matter expert in this evaluation project. In addition, the instructional designer served as Principal Investigator for the Institutional Review Board at the midwestern university. Proper approvals were granted, and the instructional designer guided the student team through the evaluation project in collaboration with the course instructor.

The student team designed the evaluation instruments using the theory of Brinkerhoff’s (2006)

Success Case Method, which included online anonymous surveys for faculty and students, a series of phone interview protocols for training staff and for faculty, and a set of rubrics used to analyze the qualitative data using a theory-driven approach. Brinkerhoff's Success Case Method was chosen specifically because the goal was to evaluate the value of the target service. Evaluation rubrics were designed to analyze the qualitative data based on four evaluative dimensions that the team identified from conversations with the instructional designer (Alignment, Usage, Preparation and Delivery, Student Engagement).

Challenges arose for the evaluation team when it came to collecting qualitative interview data. The team, perhaps because they were from outside the university, were unable to connect with faculty members to gather clarifying data about survey responses. Although faculty initially indicated that they were willing to participate in follow-up interviews, many missed meetings with the student team or did not contact them back to set up appointments. The remaining data were collected without problem. In addition, the data collection window was very short (one week) due to the compressed time-frame of the course and may have impacted the amount of surveys collected.

The interview portion presented a challenge to both the student team and instructional designer. As part of the course assignment, the student team was required to collect at least three data points to triangulate responses. Real qualitative data collection is often fraught with challenges in terms of actually connecting with potential participants

and conducting interviews, something that an actual evaluation team would possibly encounter and compensate for. However, in a semi-authentic situation such as a student-run project that determines a course grade, the data collection is a requirement of the course assignment. In this particular case, the difficulty of collecting the data from faculty put the team and the instructional designer in a difficult position because the team's overall course grade was in jeopardy. The collaborating faculty member was not flexible in this requirement and the instructional designer leveraged collegial connections and scheduled the interviews, acting as administrative support to ensure that the needed data were received.

Once all data were gathered, the student evaluation team presented the instructional designer with a full report of the results and the student team was able to publish a full write-up of their results in an online repository (Scheufler, O'Neal, Nicholson, & Hargett, 2015). The authors of this case study are not able to present their specific quantitative results as the student team has published them under their own intellectual property.

D2L training team

Working with the same collaborating faculty member from the evaluation project, in the Spring 2016 semester, the instructional designer submitted a new Request for Proposal (RFP) for a series of potential instructional design projects that student teams could complete for the midwestern university (Appendix B). One student team chose the RFP for training surrounding the midwestern

university's learning management system, Brightspace by D2L (D2L). This training would focus on preparing new faculty to use D2L to teach online, blended, or face-to-face courses.

This project was a challenge for the student team because their home university utilized a different learning management system and they had to put together a framework while familiarizing themselves with a new system. Guest accounts were created in the learning management system for the student team and a test course was set up for them to use for the purposes of the project. The student team was put into contact with the D2L administrator and the training support personnel for the tool. The team was also given access to the current training materials and models for a comparative analysis.

In ten weeks, the student team completed a gap analysis, task analysis, and a learner analysis. The team developed a complex framework for an asynchronous training class for new faculty on D2L. The instructional plan for this intervention included rationales for the mode of delivery and a sequence of instruction for each module. The final instructional plan document outlined coaching strategy recommendations and plans for formative and summative evaluation.

The instructional designer acted as both subject matter expert and client in this student learning experience. Because the student design team did not have to rely mainly on participant data collection in order to build their final deliverable, this project met all deadlines and ran smoothly. The final deliverable was well-received by the client

and the D2L administrator as a potential plan for a future training framework.

D2L evaluation team

In the Fall 2016 semester, one member of the D2L Training Team contacted the instructional designer and asked for an RFP for potential evaluation projects as part of a graduate-level course in instructional design evaluation. The instructional designer submitted an RFP for an evaluation of the current learning management system training and support available at the midwestern university. The RFP was accepted and a team of four students met with the instructional designer and the course instructor to submit a plan for evaluation (Appendix C).

Survey and interview instruments were submitted to the institutional review board (IRB) at the midwestern university but permission to conduct the study was denied citing the need for IRB approval at the northwestern school. Due to the compressed time frame of the course, second rounds of IRB approvals were not possible to obtain within the remaining four weeks of the 10-week course. In discussion with the faculty member and the student team, the client decided to forgo participant surveys and interviews and to focus more on document and data analysis in order to comply with the IRB requirements.

The student team analyzed quantitative data from training reports and from documents outlining the type of trainings conducted and the number of participants. Two evaluative dimensions were selected for analysis of the data (Quality of Services and Resources, Faculty Satisfaction Rate). A

four-point rubric (Poor to Excellent) was development to determine at what level each of the dimensions were met. While the team did not have qualitative data to support the quantitative findings, the study did provide the client with insights into the current state of D2L support and training at the midwestern university, which opened up avenues of future research for the instructional design team.

The result of the delay in having to redesign the study based on the IRB feedback was the need for the student team to receive an incomplete in the course while the evaluation report was completed. The team turned in their final evaluation report one week after the end of the course. It was later discovered by a member of the student evaluation team that the northwestern university had a standing approval for evaluation projects from their IRB.

IT professional development training

In the Summer 2016 semester, an instructional designer and a knowledge systems architect were struggling to develop additional content for a gamified training to help employees acclimate to the Information and Technology (IT) environment at the midwestern university. The development team reached out to a faculty member and Chair of the Psychology Department at the midwestern university in hopes of engaging an aspiring class of Industrial/Organizational (I/O) Psychology Masters students for aid as part of their preparation for corporate training. The conversation evolved into an engagement with the curriculum of two courses within this program.

The instructional designer and knowledge system architect, who acted as project leads, presented the goals of the IT organization to the class, emphasizing the exhausted knowledge of the leads of this project. During the Fall 2016 semester, it was determined, in accordance with the curriculum of the I/O course, that an outside gap analysis of what specific position actualities were versus what training was available for said positions. The Web Development, Security, and Service Desk functional units were targeted for this gap analysis.

The I/O Psychology students contacted the IT personnel who had been designated as subject matter experts by the project leads in order to better understand what their position descriptions were, what their actual job entailed, and what training was available. It was quickly discovered that while all individuals identified were made aware of their subject matter expert role prior to the project leads speaking with the students, priority was not properly allocated by their managers, and the students found it difficult to maintain continuous (if any) communication with the subject matter experts. This lack of communication was not portrayed to the project leads until the end of the semester, when the gap analysis was due for grading by the professor.

The gap analysis was evaluated by the professor and given to the project leads to provide additional feedback. The project leads evaluated the content, giving specific recommendations for future projects (see Appendix D). Both the I/O students and the project leads learned much from this project, including how to provide better facilitation

of communication between both parties, how to keep communication channels open throughout the project, and how to include additional details in technical reports.

In the Spring 2017 semester, the project leads once again engaged with the Psychology Chair to continue a working relationship and integrate real world projects into the curriculum of an I/O course. The curriculum of this course was specifically geared towards building training. An introduction to the project was provided by both project leads, as well as the Chief Information Officer.

To address difficulties identified in the previous semester, the Knowledge System Architect volunteered to facilitate communication between IT and the I/O class. Target training areas included but were not limited to specific functional areas: Service Desk, Web Development, and Academic Technology. Professional development areas were also included: listening skills, how to run an effective meeting, and presentation skills. Once again, subject matter experts were vetted and contacted prior to project kickoff. This time, however, supervisors were also made aware of the time commitment, and requested to prioritize time for the subject matter experts to help in providing content, in hopes of aiding the students in success.

Once again, the I/O students quickly contacted the subject matter experts. If there was a communication deficiency, the students contacted the development team members to help facilitate conversations. The semester seemed to be getting underway quite smoothly.

After the I/O students felt that they had enough information to build and gamify the training, they submitted their work to their professor who later provided it to the project leads. The results were hit-and-miss. Some groups provided excellent content, while others lacked quite a bit of information, even providing borderline detrimental comments. This led to an instructional technologist combing through the information, working with the instructional designer to restructure our training program, and provide additional resources based on the content provided.

In a debriefing session with the Chair of the Psychology Department, it was determined that the overall experience was a good one, with some small challenges to be addressed in the future. It was identified that some of the students had worked on the gap analysis the previous semester and had become discouraged because of the communication challenges that occurred during that project. It was also identified that some of the students enrolled in this class were first-year students who struggled to keep up with the workload. The IT department and the I/O Psychology students both benefited from having an outside client give insight into a confusing training program and had the opportunity to learn from each other.

DISCUSSION

All of the case studies involving student teams working with real “clients” were successful to some degree. Although the important features of these types of projects is for students to both learn and

gain hands-on experience, there also needs to be a clear benefit to the client as well. Working with student teams requires extra time, patience, communication, and effort on the part of the client because it is an important learning experience. Student teams will encounter challenges and roadblocks, as they would with any real project. In order to facilitate the maximum amount of authentic learning while garnering the maximum benefit for the client, the authors propose the following framework for serving as a client for student instructional design teams. The 4-C framework for “clients” of student instructional designers enrich the experience and support optimal learning outcomes based on the Kolb Model and the Stout-Rostron revision (see Figure 2).

Communication in this framework is a vital component to the planning and execution of any student-led project. Client expectations should be clearly stated, and the parameters of the project should be laid out before proposals are accepted. A designated client representative should be indicated for all project communication with the student team to facilitate both gathering of resources and meeting of deadlines.

Cooperation is both a show of good faith on the part of the client and a necessary piece of the learning process. Students must have access to the information they need to complete the project and there must be understanding on the part of the client that these are student instructional designers who may require extra communication, extra resources, and

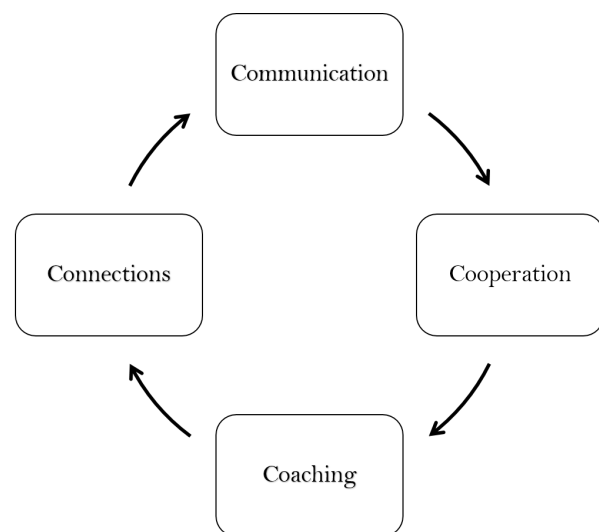


FIGURE 2 The 4-C framework for instructional design clients.

extra time over traditional contract instructional designers.

Coaching is an essential piece of the experiential learning process. Although the faculty member traditionally fills this role, the authors submit that a more successful authentic learning project includes a mentoring and/or coaching element from a representative of the client. All case studies described in this work benefited by mentoring and coaching from the “clients”. The instructional designers spent a lot of time with each student team, helping develop instruments, coordinating data collection, and providing moral support during challenges.

Connections are both an important part of a successful project and a unique element of an authentic learning project. The students must have the connections to the client organization to complete

the design project or evaluation. To complete analyses, they must have a way to both communicate with resources and to collect data. Additionally, as part of the authentic project, the students are essentially connecting with industry in a way that can help further their careers. Assisting students in networking is an authentic piece of the experiential process.

CONCLUSION

The case studies throughout this manuscript have provided one insight of a midwestern university and their challenges and successes in guiding today's students in order to provide them with real-world training and instructional design experience that deepens the surface knowledge of future instructional designers above and beyond the two years of graduate course work (Villachica & Conley, 2015). Rather than a quantitative research study, with these qualitative cases, our intent was to build a model based on the experiences of the students and clients in a series of authentic instructional design projects. In a 21st century working environment, it is expected that students graduate ready to instantly dive into the profession of their choosing. For those students who have compressed time frames to learn career skills, authentic experiential projects can help them practice needed skills. Using a framework to structure these authentic learning experiences, such as the Kolb Model, can shape these experiences for maximum learning gains. The projects described here organically follow the Kolb Model as revised by Stout-Rostron (2014). The

student teams planned, completed, reviewed, and revised based on their interactions with the stakeholders, their instructors, and the data. Connecting students immersed in these action learning projects with professionals in the field allow for coaching and mentoring to occur outside the classroom environment (Bannan-Ritland, 2001). Through the implementation of the 4-C Framework, these experiences can be deepened and made more meaningful.

It is by no means quick or easy to engage future instructional designers in real-world projects and then to expect flawless work from student teams, however, it is the authors' opinions that the means justify the end when it comes to authentic learning projects. The 4-C Framework based on the Kolb and Stout-Rostron models provides essential project elements for both faculty and industry professionals to engage with students by providing guidance to succeeding in the 21st century working environment.

Future areas of research include the application of the 4-C Framework to authentic graduate student projects with the intent to collect data and determine the effectiveness of the framework in the field. Additional research could be conducted with authentic projects like those described here and intentional data could be collected regarding the student experience and the actual outcomes of the work performed under the project. The limitations of the case studies as described here include the lack of quantitative data collected during the projects.

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APPENDIX A

Proposal for evaluation of SMARTboard usage

Background. About 5 years ago MNSU had a big push to integrate technology into the classrooms. One of the ways MNSU integrated technology was by installing SMARTboards in all the classrooms. The goal was to use the SMARTboards as a learning tool to increase student engagement and encourage active learning. Even though professors have access to these SMARTboards and have received training on how to use them, the general perception is that they are not being used. The evaluation I propose would evaluate whether professors are actually using the SMARTboards in their classrooms.

Purpose. The purpose of the evaluation would be to find out "what is" (i.e. Are the professors actually using the SMARTboards?) and find out whether there are ways to improve usage. The client plans to share the results of the evaluation with her superiors so they can decide if they should continue using the SMARTboards, improve the SMARTboard training program, or consider other options.

Stakeholders. Upstream stakeholders (The people who worked on the design, implementation, and management of the SMARTboard training program): The instructional technologist and the instructional designer responsible for training and ID. Immediate recipient (The people who use the SMARTboards): The professors and teaching assistants using the SMARTboards. Downstream impactees (Those affected by the SMARTboard training program): The students at MNSU.

APPENDIX B

RFP for ID projects:

1. Overview
2. Project Descriptions

Project 1 – New faculty course setup. MNSU currently has little to no getting-started guides for new faculty, adjuncts, or

teaching assistants. A how-to guide, elearning module, or other series of job aids are needed to walk new instructors through basic course set up, both in the LMS and at the university in general. The scope of this project does not include HR info, only course setup. Other universities offer modules or checklists for incoming instructors and could serve as models for this project.

Project 2 – Gamification of training. Internal Information & Technology Services (ITS) department is currently revising their internal training to a gamification system. There is a need to have a structure for badging, gamification, and overall framework built that various gamification themes could be dropped into.

Project 3 – Professional development certificate building. A needs analysis can be conducted based on the current professional development offerings by the Center for Excellence in Teaching and Learning. Recommendations for additional certificates should be made and pilot certificate modules should be created, and beta tested.

APPENDIX C

Proposal for evaluation of D2L training

Business goal. The ID team will need to contact the client to flesh this out.

Performance gap. Currently, less than 40% of university faculty use our learning management system, Desire2Learn (D2L) Brightspace. Of that percentage, less than 20% use it "fully", meaning to use the majority of the tool's features. Students have suggested that they would like faculty to use D2L more consistently both at this university and within the state system at large.

Should this project move forward, the ID team would need to work with the client to determine the best solution for training a diverse faculty population on the learning management system.

Other information. The client is willing to support an all-virtual student ID team; the ID team will need to work with the client to establish a viable scope of work.

Why the potential project is a good candidate for a training program. The ID team will need to flesh this out.

APPENDIX D

Recommendations to I/O psychology professor from KSA and ID project leads

1. Did the students understand the problem?
 - a. I believe that each group articulated that they understood the overall goal and problems for each area. Most of them I was aware of, but having out-

- side consultation is very beneficial to speaking with management. There were definitely some communication difficulties that were encountered.
- b. The availability of staff members within IT caused some difficulties in obtaining accurate information.
2. Are there reasonable products from this project?
 - a. Each group identified actionable products to be obtained.
 - b. I was a little disappointed in some of these products as many of them outlined almost exactly what we had described from our initial meeting, that further training and shadowing was needed.
 - c. Some of the items recommended are already in place, such as shadowing, but employees and management aren't always following procedures.
 3. Are these appropriate tasks/KSAOs/position descriptions from which to develop training programs next semester?
 - a. Security
 - i. In my opinion, this team did the best job in regards to identifying these items.
 - ii. The presentation could have used additional preparation, but the technical documentation was very thorough and impressive.
 - b. Web Development
 - i. Both the presentation and the documentation appeared to reiterate what we already knew and outlined with the path that we suggested.
 - ii. They utilized statistical analysis which is

- good, but didn't have a legend or appendix for definitions, which provided much confusion towards outcomes. Looking at the analysis is very confusing.
- c. Solutions Center
 - i. The recommendations for this report were based off conjecture from interviews which were all this team could gain (fault on IT, not the team), but were accurate.
 - ii. No statistical analysis (due to lack of participation from IT).

Overall, each team did a fantastic job in what they provided. I was a little disappointed in the team that worked with our web development team, but also understand that they had difficulties with getting together with that team. The KSAOs were very relevant and accurate for each team. There were some minor issues such as identifying our organization as the IT Solutions Center when all of IT is considered just IT Solutions, and that I was indirectly described as a manager when I am not.

Recommendations:

- Understand how the organization identifies itself and use that terminology.
- Provide appendices towards possible communication differences.
- Identify on the same page definitions and outcomes for statistical analysis.
- Continued communication especially with regard to communication difficulties with the project manager (in this case me) to ensure success.
- Overall inclusion of the project manager with regards to

	TARGET POPULATION	PERFORMANCE	STANDARD
DESIRED PERFORMANCE	What we want our instructors to be (faculty, adjunct, graduate teaching assistants).	Use D2L Brightspace in a consistent and competent manner for both online and blended courses.	(The ID team will need to determine the desired standards.)
ACTUAL PERFORMANCE	What our instructors are.	Doing now may be one or more of the following: <ul style="list-style-type: none"> • participating in optional "drop-in" LMS technical support before and during the semester • participating in optional "D2L Brightspace How-to" Special Interest Group webinars • scheduling optional one-on-one training with instructional designers or D2L coordinator • accessing information from university or LMS website or YouTube • accessing D2L Brightspace "Getting Started" course from Lynda.com 	(The ID team will need to determine the existing standards.)

communication. I had to internally ask if these meetings were happening and request that I be included.

- When you don't know what something means, ask. I often found myself stopping the conversations because, especially in IT, we use acronyms and terminology that non-IT people don't understand. For these conversations I attempted to stop for explanations when I knew the students wouldn't understand. For instance, "My job deals directly with ITIL processes in which I have to administer our CRM which is an ITSM tool to build these processes. I am also in charge of Knowledge Management in which I

have to ensure our system can handle our KCS processes and am now looking to incorporate these processes into our CMS". As an IT professional that deals with each of these acronyms, I understand them, but as a consulting group, others may not. When I was going through undergrad, I had these same difficulties. I went to an OS (operating systems) course that talked about IO (input output devices) and then directly to an IO Psych course where the same acronym stood for something completely different.

LEARNING ANALYTICS: TRANSLATING DATA INTO “JUST-IN-TIME” INTERVENTIONS

PAULINE SALIM MULJANA¹, GREG PLACENCIA²

¹Department of STEM Education and Professional Studies: Instructional Design and Technology, Old Dominion University, Norfolk, VA

²Department of Industrial and Manufacturing Engineering, California State Polytechnic University, Pomona, CA

ABSTRACT

Despite the burgeoning studies on student attrition and retention, many institutions continue to deal with related issues, including D, F, and W grades rates. The emerging and rapidly developing Learning Analytics (LA) field shows great potential for improving learning outcomes by monitoring and analyzing student performance to allow instructors to recommend specific interventions based on key performance indicators. Unfortunately, the important role of LA has not been fully recognized, and therefore higher education has been slow to implement it. We, therefore, provide the rationale and benefits of increased LA integration into courses and curriculum. We further identify and suggest ready-to-implement best practices, as well as tools available in Learning Management Systems (LMSs) and other helpful resources.

Keywords: student retention, student attrition, learning analytics, course design, instructional strategy, learning management system, DFW rates

INTRODUCTION

Institutions have battled with student attrition and graduation rates in higher education (such as in

two-year and four-year institutions), despite several decades of research (Appana, 2008; Berge & Huang, 2004; Tinto, 1982). Unfortunately, institutions

working to reduce attrition rates may encounter rigid constraints like inadequate budgets, misperception of academic quality, and reduced course registration (Liu, Gomez, & Yen, 2009; Poellhuber, Chomienne, & Karsenti, 2008; Willging & Johnson, 2009). Using existing or easy-to-obtain indicators is now a viable option. For example, decreasing the number of students receiving D, F, or W grades—DFW rates—at the course level has shown to be effective at reducing attrition (Hudson et al., 2014; Urtel, 2008). Monitoring students who display early “at-risk” signs—especially for D, F, or W grades—has also been found to improve performance effectively (McGuire & McGuire, 2015).

Improved technology can help instructors utilize data to find meaningful learning patterns and anticipate behavior regardless of whether the instruction is remote, hybrid, or traditional face-to-face. For example, businesses scrutinize customers’ behavior and characteristics using data analytics to predict future product success (Dietz et al., 2018; Finger & Dutta, 2014; Fritz, 2011; Macfadyen & Dawson, 2010; Sclater, 2017). In addition, analytics-related practices in business, referred to as business intelligence, are conducted in the background to gain a better understanding about people’s activities (also called consumers’ behaviors), according to Sclater (2017). Business organizations use such insights to optimize their processes and outputs (Sclater, 2017) to support people’s activities and meet consumers’ needs. Moreover, businesses utilize data analytics to find a connection between individuals’ past activities, underlying mindset, and most likely future activities using a series of

generalized techniques to uncover correlations among hidden variables, relationships, and trends, regardless of domain. Therefore, while business and higher education differ in nature, the basic tools upon which learning analytics is based have a proven record of accomplishment upon which higher education can build. In addition, both institutions “are influenced by money,” according to Dr. Mark Glynn, as quoted by Sclater (2017, p. 28). They are committed to helping students succeed and thus many institutions actively find ways to increase the graduation rate. Some efforts entail “things like taking care of the students throughout the institution, their transition during the first year, how they integrate into the social environment of the university. These are the types of things learning analytics can also detect,” said Dr. Abelardo Pardo as cited by Sclater (2017, p. 29).

Adopting learning analytics (LA) may seem convoluted, but academia stands to benefit greatly from similar analysis through the field of LA, which is implementable with relatively little additional investment. For instance, most universities and colleges already use Learning Management Systems (LMSs) to deliver course content to students. LMSs often provide detailed data logs that can be mined for actionable insights into current learning processes and to find behavioral patterns in learning outcomes so that instructors can improve learning performance (Dietz et al., 2018). Moreover, at the course level, LA is believed to have the capacity to help instructors detect struggling students early on by monitoring their progress and intervening at critical points according to the student's needs,

resulting in lower attrition rates over time (Casey & Azcona, 2017; Dietz-Uhler & Hurn, 2013; Strang, 2016). Although scholars have explored this topic by using LMS logs to determine interventions for improving learning outcomes, LA research and practices are still in the early stages, particularly in academic settings (Dunbar, Dingel, & Prat-Resina, 2014; Firat, 2016; Greller & Drachsler, 2012; Siemens, 2013; Verbert, Manouselis, Drachsler, & Duval, 2012). We maintain that academic stakeholders like administrators, faculty members (also referred to as instructors), and instructional designers can better serve student needs by better utilizing LA.

We believe, as did Kilgore (2016), that instructors should focus on learners' needs first by decoding their behavioral learning patterns. While technological development such as LMSs create a paradigm shift at all levels of education, they also necessitate adaptation of good Learner Experience (LX) design and instructional strategies to fulfill varied student needs. Therefore, we will outline how educators and instructional designers can use LMS tools to assess student interaction with learning materials more precisely and develop course structures that encourage better student engagement. Kilgore (2016) has affirmed that educators and course designers can "make more and better-informed choices on content delivery to help students better understand the critical concept." Used properly, LAs can help instructors dynamically adjust course elements and instructions to improve individual and collective student performance by

aligning current learning progress to meet student learning needs more effectively.

This article discusses analytic types in higher education, how LMSs increase the need to adopt LA, the benefits of LA integration into teaching and learning practices, best practices for implementing LA throughout a course term, available LMS tools, and several useful resources. We intend to encourage instructors to consider implementing LA techniques and conduct their own studies to contribute to the emerging LA field. Likewise, we invite instructional designers to perform data-informed, user-need analysis prior to designing and developing courses for enhancing student learning experiences.

ANALYTICS IN HIGHER EDUCATION

Before reviewing the definition of LA, identifying the types of analytics provides insight into LA's role in higher education. Barneveld, Arnold, and Campbell (2012) have suggested the following analytics types for use in higher education settings as well as a definition of each:

1. Analytics is an umbrella term for whenever data is used for decision making at all levels.
2. Academic analytics refers to institutional-level processes to obtain and utilize data for operational and financial decision making.
3. Learning analytics is an analytic technique used to improve learning outcomes at the

departmental or course level, which is the focus of this article. Perceptions of scholars and practitioners in academia, together with the findings of scholarly studies, are further presented in the later section of this article.

4. Predictive analytics is defined as statistical analysis that can be used at all levels to obtain information to investigate relationships and patterns for anticipating behaviors and critical events. An example model of open learning analytics architecture in higher education (Sclater & Mullan, 2017), viewed from the predictive lens, is illustrated in the Appendix section.

While each analytic type has its own traits and is performable at different levels, they all share the ultimate goal of improving student success while lowering attrition rates over time.

At a macro scale (Ifenthaler & Widanapathirana, 2014), beyond course-level analytics, the analytics techniques called academic analytics and predictive analytics can be performed to assess the areas that most need improvements. For instance, studies show that institutional support and services to students yield a positive impact to student retention (Gaytan, 2015; Heyman, 2010; Nichols, 2010; Shaw, Burrus, & Ferguson, 2016). Both academic and predictive analytics serve an imperative role in facilitating decision-making in establishing suitable support and resources that are focused on those in need. As early as possible, data can be retrieved and

analyzed (Raju & Schumacker, 2015; Torres, And, & Eberle, 2010) to identify which students have withdrawn from a course or have enrolled in courses with high incomplete rates. These students are not likely to persist through the learning process, nor be retained in the program (Cochran, Campbell, Baker, & Leeds, 2014; Wladis & Hachey, 2017; Wladis, Hachey, & Conway, 2014). Receiving such actionable insights, administrators may work with other stakeholders (faculty and staff members) in developing and launching improved procedures or programs such as professional development opportunities—like course redesign program—crafted specifically for instructors of disciplines with high incomplete rates and orientation modules covering effective learning strategies appropriate for students of these disciplines (Muljana & Luo, 2018).

For the purposes of this paper we adopt the most cited definition for “analytics at another level,” referred to as LA, as established by the prominent learning analytics organization, the Society for Learning Analytics Research (SoLAR). SoLAR defined LA as “the measurement, collection, analysis, and reporting of data about learners and their contexts, for the purpose of understanding and optimizing learning and the environment in which it occurs” (Siemens & Long, 2011, p. 32) at the First International Conference on Learning Analytics and Knowledge in 2011 (Ferguson, 2012; Strang, 2016).

The society’s definition highlights two key elements. First, it proposes measuring learners and

learning outcomes within a specific context. Second, analyzing data and reporting the findings are conducive to improving learning and the learning environment. For example, at the program level, course completion data reveals the most challenging courses, gateway courses, and courses that help students to exit the program. Analyzing these data can engender patterns to inform decisions on improvements, such as a program adjustment, possibly by changing the order of the courses to help students transition through courses in accordance with the pre-requisites and difficulty level (Dietz, Hurn, Mays, & Woods, 2018). At the course level, LMS course usage data are useful in determining necessary course elements for enhancement and serve as guidance for designing or redesigning courses (Dietz et al., 2018). Put simply, LA highlights the role of confirming “gut instinct” at detecting at-risk students and establishing appropriate remediation by using data analysis to increase its accuracy (Dietz-Uhler & Hurn, 2013). We further infer that LA does not replace any learning theory; rather, it helps instructors triangulate and comprehend learning and its environment prior to making decisions on improvements. After all, data analysis is only as good as its coherence with relevant pedagogical goals (Gašević, Dawson, & Siemens, 2015).

UBIQUITOUS ADOPTION OF LMS

The prevalence of LMS has influenced the adoption of LA in higher education. A 2013 national survey found that 99% of 800 institutions within the U.S. had adopted LMS (Dahlstrom, Brooks, & Bichsel, 2014) and that most of their faculty admitted using

LMS and highly regarded its features to enhance teaching and learning. This indicates a paradigm shift beyond LMS's early role as a content repository and delivery portal.

LMS records learning activities and participation, making tracing student activities and monitoring their progress more feasible (Martin & Whitmer, 2016; You, 2016). Moreover, it affords a capability to detect struggling students early within a course term (Macfadyen & Dawson, 2010) by analyzing readily available data that LMS programs store by default (Casey & Azcona, 2017; Valsamidis, Kontogiannis, Kazanidis, Theodosiou, & Karakos, 2012). Examples of available LMS data (Dietz-Uhler & Hurn, 2013; Dietz, Hurn, Mays, & Woods, 2018) include: (a) number of times a resource is accessed; (b) data and time of access; (c) number of discussion posts generated; (d) number and date/time of messages to the instructor; (e) assignment submission timestamp; (f) types of resources accessed; and (g) grades on discussion forum, assignment, test and final grades. Dyckhoff, Sielke, Bultman, Chatti, and Schroeder (2012) additionally suggested a way to use analytics as a checkpoint to promote preparatory learning activity. Student login and access behaviors are observable within an LMS course to indicate if students have or have not initiated a learning sequence. Such data can direct instructors to prompt, remind, or encourage students to start the learning process.

Additionally, instructors can gather qualitative data by using tools like discussion post themes and reviewing questions asked during instruction and contributions within collaborative projects. These

can indicate student engagement, student retention, and knowledge acquisition. Collecting these indicators is also useful for instructors in monitoring current learning progress and student engagement, identifying struggling students, and determining necessary interventions to boost student outcomes (Casey & Azcona, 2017; Dietz-Uhler & Hurn, 2013; Macfadyen & Dawson, 2010). The aforementioned suggestions are additionally beneficial in informing course content adjustments (Dyckhoff et al., 2012).

Our reactive reflection on this LMS proliferation is that the data capturing learning behaviors are readily available at the instructors' fingertips. Put simply, collecting these LMS data is considered non-intrusive and does not entail advanced interference from faculty or staff members (Macfadyen & Dawson, 2010). Our intent is to encourage the use of LMS usage data to inform intervention decisions—congruent with of any kind of learning theories held and learning objectives to achieve—intended to help students perform better.

BENEFITS OF LEARNING ANALYTICS

In better understanding the benefits of LA in higher education, we discuss scholars' and practitioners' perceptions and the substantive evidence from the existing research on the influence of LA tactics toward the enhancement of learning outcomes.

What the scholars and practitioners perceive

Sclater (2017) investigated the perceptions of scholars and working professionals in higher education

to determine their motivations for studying and adopting LA. Most indicated LA's vast potential to improve education as a primary driver. We briefly examine their collective responses and provide highlighted quotes, annotated with support from scholarly research.

Understanding the learning process. A critical element of LMS is the ability to perform non-intrusive, real-time data gathering and analysis. Such an approach bolsters intuitions instructors often have about student performance, which allows instructors to determine more accurately when students succeed, struggle and improve, or, most critically, struggle and fail to improve (Johnson, 2017). LA provides a capability to assist educators in understanding “learning as a dynamic process rather than a series of snapshots ... we can be much closer to the decisions that learners are making, and based on that we can have a much more complete picture about learning,” said Dr. Dragan Gašević as quoted by Sclater (2017, p. 21). More importantly, instructors can trace students' digital footprints to pinpoint critical learning points, accelerate successes, and remove roadblocks. Another advantage of LMS is that because students' records are readily available and retrievable, instructors can conduct long-term observations to reinforce decision-making about course content and adjust instructional strategy as needed.

Enhancing learning. As instructors understand student learning processes better, instructors may reflect on the efficacy of current instructional strategies and resources and remove those identified as ineffective. For example, we juxtapose the

concept of learning processes with signal-to-noise ratio (Kim, Glassman, Bartholomew, & Hur, 2013; Sun, Xie, & Anderman, 2018). We define signal-to-noise ratio in learning as the amount of content required to achieve subject matter proficiency compared to the amount of residual elements, e.g. non-essential, extraneous course materials and course structure. A course with a good balance of signal-to-noise ratio is transparent and has easy-to-navigate expectations that result in an accurate and timely assessment. As Dr. Stephanie Teasley, the President of SoLAR, professed in Sclater's book (2017, p. 22), "[I've] been doing research on learning for a long time and [I] have always been very interested in doing very close analysis of behavior to understand what aspects of the learning experience are most closely tied to cognitive gains." Thus, an LA approach is predominantly evidence-based, which allows instructors to recognize when learning processes result in true cognitive gains to know when course changes enable these gains and most importantly how to transmit content more optimally. As a result, both instructors and students can evaluate their own improvement process in real time (Ifenthaler, 2017; Ifenthaler & Widanapathirana, 2014).

Leveraging the use of empirical data. LMSs continue to be used primarily for information/content delivery and outside-class interaction (Dahlstrom et al., 2014). This indicates that despite popular adoption, their advanced, built-in features for analytics and improving learning performance remain underutilized (Dahlstrom et al., 2014). LA scholars and practitioners have encouraged using

these analytical features to identify underlying patterns that can explain behaviors and learning strategies associated with superior performance (Firat, 2016; Goda et al., 2015; Yamada et al., 2016, 2017; You, 2016). Additionally, examining data and recognizing patterns are helpful to instructors in formulating new questions and hypotheses aligned with learning theory and related to learning context. This idea is reinforced by Dr. Alyssa Wise, in Sclater's book (2017, p. 24):

The real drive is turning all this abundant data that is being generated and could be generated into useful, actionable insight...There's a nice relationship between when data becomes available, and realizing new questions you can ask — so I don't think it's just about using data to answer the questions you already have, but also for question generation.

Personalizing instructions. Students enter classes with differing prior expertise and experience, which affects the learning pace. Since LA can detect underlying patterns, it promises to match course pace and content to students' learning processes (Daniel, 2015) through personalized scaffolds and environments (Elias, 2011; Ifenthaler & Widanapathirana, 2014; Kim et al., 2016). Although one size does not fit all, the potential for "mass customization" tailors commonalities to accommodate diverse learning needs by introducing fundamental knowledge as needed. For example, students with limited prerequisite knowledge can receive deficit-focused instruction, while students

with learning disabilities can receive special instruction. Another example described by Dr. Mark Milliron, in Sclater (2017, p. 25), is:

My own theory is that second, third, fourth generation students are scaffolded by the stories of the people who came before. If they get stuck, someone can come and help them. We now have a lot of first generation students who don't have the same kind of social networks. Learning analytics at their best, and I'm broadly defining learning analytics, can help that student understand the next set of choices they can make. We can help scaffold the student at that stage—part of the scaffolding by the way is to engage them when it's time to get tougher—it's not about spoon-feeding them— it's about getting them the right resources at the right moment and helping them in a way that most students in second, third, fourth generation are being scaffolded anyway.

Intersecting multiple fields. Learning issues are complex, which favors a multidisciplinary approach to providing solutions. As expressed by Dr. Abelardo Pardo (Sclater, 2017), one unique advantage of LA is that it integrates diverse fields, including psychology, educational psychology, pedagogical theory, data analytics, and technology constructs. Data lacks meaning when unaligned to pedagogical theory and learning context (Gašević et al., 2015). Understanding pedagogical intent and how multiple disciplines expound the data's context plays an important role in analyzing students'

learning behavior in different learning conditions (Gašević, Dawson, Rogers, & Gasevic, 2016). Properly implemented, LA requires a symbiotic relationship among multiple fields such that they align their key attributes to support the ultimate goal of improving education.

What the research studies have revealed

Student persistence during the learning journey is associated with academic completion (Eliasquević, Seruffo, & Resque, 2017) as well as with course achievement. Such persistence is influenced by underlying behavioral characteristics possessed by the individual students. A couple examples of these behaviors are self-regulation (O'Neill & Sai, 2014) and metacognition (Lee, Choi, & Kim, 2013). Since these characteristics are latent variables (non-directly observable nor measurable), assessing and fostering these behaviors can be challenging. However, it is now more feasible through the utilization of technology to offer analytics features (Roll & Winne, 2015), since these tools are capable of tracing learning behaviors. A small, but growing, number of studies have examined these characteristics in triangulation with other measurement techniques, like LA. We present the following studies that utilized self-report measurements and course usage data.

In these two studies, data related to assignment completion rates (Goda et al., 2015), the access frequency to the materials, and regularity of study time were collected and classified into different types of learning patterns before making a correlation with course achievement (You, 2016).

Enhancing learning outcomes, the findings signify the importance of promoting learning behaviors associated with theoretical constructs of self-regulation such as scheduling study time sufficiently, submitting assignments on time, accessing course materials regularly, and reviewing course instructions or materials frequently in LMS. Thus, the researchers have recommended the analysis of course usage data early in the course term in order to catch potential at-risk students and deploy suitable interventions to meet these students' needs in time.

In a longitudinal study, Tabuenca, Kalz, Drachler, and Specht (2015) revealed that having online students log and monitor their study time scaffolds their time management skills (which is a crucial factor influencing one's self-regulation), particularly when encouraged at the beginning of the course term. In addition, the course usage log displayed high activities immediately after delivering a notification or course announcement. Notifications comprising tips on learning strategies were also found to have the most effect on students' time management and study planning. The timing of delivering notifications or announcements (sent at scheduled times versus at random times) had a moderate impact on time management skills as well—scheduled notifications were discovered to be more effective. Their findings have suggested that employing consistent course notifications or announcements containing meaningful updates and reminders foster positive learning behaviors. Like Dr. Mark Milliron, we reiterate that this is not spoon-feeding the students, rather we proactively provide them with the appropriate resources at the

right time before it is too late to help them (Sclater, 2017).

A study published in 2016 examined 151 modules used by more than 111,000 online students from various disciplines to predict academic retention (Rienties & Toetenel, 2016). Using a learning analytics technique, the researchers discovered that course logs (time spent on the course site) were positively linked to the social learning activities or communication activities in class that had been found to predict academic retention, which researchers operationally defined as students who received a grade of C or better. Hence, designing socially engaging learning activities that align with course learning objectives is one heuristic practice for enhancing academic retention. Through LA methodology, this study has implications for extending research on pedagogical theory related to social learning that can influence academic retention in a profoundly positively way.

Although primarily utilizing LMS course usage data, the following study also offers salient findings. Comparing two courses, one using adaptive released modules and the other in a controlled environment without using an adaptive release function, researchers discovered that timed adaptive release modules motivated students to spend more time per session (Martin & Whitmer, 2016). The difference between both groups was reportedly significant. The study essentially inferred that students in the experimental group were likely to engage better with the learning materials because their access to the course modules was more focused. From this finding, we learn that releasing a special module

(such as remedial resources or learning materials) to those who need it may increase the exposure to the course topics, with which they have been struggling. Further, it implies that a course-content adjustment performed according to evidence-based behaviors, such as the frequency of course access and time spent on the materials, has an impact on student-to-content engagement.

The current state of LA recommends itself highly as a tool to improve student performance in higher education. The success of data analytics, from which LA is derived, offers great benefits to improve student success by assisting instructor efforts and potentially decreasing workload. While it is tempting to consider successes in the business domain to be mutually exclusive to those that could be achieved in the learning domain, the generalized nature of data analytics at identifying correlations between past activities, current mental perceptions, and future activities makes adoption of LA compelling. With this in mind, we present suggestions to “jumpstart” instructors in higher education who are considering adopting LA.

BEST PRACTICES

Given the aforementioned rationale and benefits of LA, we recommend a set of ready-to-implement best practices to assist instructors seeking to adopt an LA approach using LMS. These can be applied throughout a course term within the web-assisted, hybrid, or online environment. Although these recommendations may sound simple, designing effective courses may be challenging. Fortunately, many institutions provide supporting personnel such as

instructional designers, whose services we highly recommend. Moreover, good course design should entail an iterative process, not a single implementation.

Before the course term starts

Positive learning experiences start with effective course design. Therefore, preparation prior to the course term is essential to ensure successful teaching and learning processes (Feldman, 1996). Instead of immediately uploading course materials to the LMS, instructors may want to consider deploying consistent and logical course structure. Clarity and consistency of course layout are positively associated with students' perceived learning (Swan et al., 2000). One approach is to develop weekly modules and incorporate materials and assessments accordingly and chronologically. Such course development would result in easy navigation and assist students in establishing learning routines. Moreover, a well-planned course layout motivates a learning atmosphere. Students frustrated with course navigation may feel discouraged and demotivated to further explore the content (Simunich, Robins, & Kelly, 2015).

Another critical element is to give a set of clear and measurable learning goals or objectives (Swan et al., 2000) at the beginning of each course module to orient students' efforts. Learning objectives appear to increase course transparency by communicating to students what an instructor expects them to achieve by completing the module, which potentially increases their competence (McGuire & McGuire, 2015). Such objectives further allow students

to gauge their own level of competency and recognize whether it matches class prerequisites and those of later courses. These objectives form the basis of curriculum criteria and key performance indicators that appraise students' achievement over time.

We also recommend creating a course calendar within the LMS during the design phase. The calendar functions like a course schedule/timeline that enables instructors to organize the course and provide a clear timeline for student deliverables. Course calendars add further value by providing reminders to instructors and students, as well as the ability to deploy course material, schedule assignments, and other deliverables automatically.

It is undeniable that students have diverse learning needs (Lewis & Sullivan, 2018) and enter classes with varying levels of prior expertise and experience. One strategy to diagnose current levels is by conducting a pre-assessment before course instruction begins. It can be as simple as asking students about their level of comfort with the technology (Woodley, Hernandez, Parra, & Negash, 2017), the pre-requisite theoretical foundation, and their motivation(s) for taking the course. Administering anonymous quizzes and/or discussion boards through an LMS helps instructors conduct such assessments (Woodley et al., 2017).

At the beginning of the course term

It is imperative to set the right tone for students (McGuire & McGuire, 2015) at the beginning of the course term to convey clear expectations. The first interaction with students, like a welcome message,

should emphasize the importance of frequent download and review of course materials, and the expectation that students should employ regular study time. Students who frequently access course materials often perform better (Zimmerman, 2012). We, therefore, recommend a course tour on the first day to reveal the “big picture” of what the course entails and to allow students to understand the course structure and location of materials and assessments. If the agenda of the first-day class is full, a short video is suitable to deliver a virtual tour.

Moreover, LMSs have statistical features allowing instructors to observe when, and often where, students last accessed the course site, although these tools have different labels within different systems. Since scaffolding can teach learning strategy (Zimmerman, 2002), students who do not access a course for a long time can receive email reminders regarding the importance of regular access to course materials. Most LMSs allow instructors to email students directly from the course site with a few clicks, either individually or collectively. In addition, analyzing course access statistics reveals patterns about when (day and time) students most commonly access the course to guide when course update should occur so as to reduce the likelihood students will miss them. Automated announcements linked to updates or deployments of course material or assessments provide another option.

During course term

As course instruction progresses, instructors may establish an iterative process, repeating actions as necessary. As students engage in learning activities

and complete assignments or assessment, it is necessary to monitor their progress as early as possible. We highly recommend analyzing course usage data early in the course term to anticipate course achievement, identify learning problems, and decide whether to employ just-in-time interventions to improve student performance (You, 2016). In cases where students miss or submit late assignments and/or receive poor scores, instructors can offer support like motivational feedback or studying tips. When students are passive in online discussions, similar interventions can be executed. To reiterate, many LMSs provide email features without necessitating extraneous steps.

Monitoring formative assessments is helpful in tracking the learning progress. We define formative assessment as an evaluation method performed while learning is still occurring that provides information needed to move learning forward (Heritage, 2007). Quizzes and tests are common formative assessments that LMSs, like Blackboard, allows instructors to determine the validity and reliability. Such analysis results potentially reveal the most difficult test item and hard-to-grasp topics. As a result, instructors can use empirical data to assess the efficacy of materials and/or interventions. In essence, improvements such as revising instructional strategies, updating learning activities and assignments, and releasing remedial materials may occur iteratively throughout the term.

At the end of the course term

Instructors often evaluate overall student learning by administering summative assessments before

wrapping up a course term. Defined as “a judgment which encapsulates all the evidence up to a given point... [and] is seen as a finality at the point of the judgment” (Taras, 2005, p. 468), this type of assessment may occur at the end of a chapter, the end of a unit, or at the end of a semester or a program. While summative assessment can be applied throughout a term, we limit our discussion to the conclusion of a course term. Comparing summative assessment results from the previous cohort(s) or courses to the present one(s) is helpful in determining the effectiveness of a newly-adapted technique (Ifenthaler & Widanapathirana, 2014). Furthermore, an LMS-generated course statistical report can help identify the most and least engaging learning activities, in addition to the most and least accessed materials. With these findings, instructors may brainstorm ideas for course design improvements. Enlisting an instructional designer’s professional expertise is highly recommended to develop innovative instructional strategies. Soliciting students’ feedback about their learning experience may also provide incredible insight since they are the primary course users. Overall, instructors should always deploy interventions, being mindful of whether they improve student performance or not.

Available tools in LMSs and existing resources

To help deploy the aforementioned best practices throughout a course term, Table 1 lists built-in tools for three of the most commonly used LMSs—Blackboard, Moodle, and Canvas. While these tools may have a high learning curve and pose

great challenges for first-time users, most LMS developers provide easy-to-understand tutorials and guidelines via support websites such as these:

- Blackboard Help for Instructor is available at <https://help.blackboard.com/Learn/Instructor>
- Managing a Moodle Course (a guide for teachers) can be found at https://docs.moodle.org/34/en/Managing_a_Moodle_course
- Canvas Instructor Guide is available at <https://community.canvaslms.com/docs/DOC-10460>

If it is unclear where one can find a guide for a particular tool, you may simply type the name of the tool in the website’s search box. More often than not, instructors may rely on institutions to provide instructional designers to help them enhance learning and brainstorm about potential interventions and technology to adopt. As a side note, while we are aware of numerous online resources, e.g. “how-to” videos, we cannot vouch for their consistency or quality, and therefore cannot recommend them outright.

TABLE 1 Available built-in LMS tools and achievable actions through their respective tools.

ACHIEVABLE ACTIONS	BLACKBOARD	MOODLE	CANVAS
Before the course term starts:			
• Schedule or post course events and reminders	Course Calendar	Calendar	Course Calendar, Scheduler
• Create pre-assessment	Test, Discussion Board	Quiz, Forum	Quizzes, Discussions
At the beginning of the course term:			
• Create a welcome message and emphasize the importance of frequent access to the course site	Announcement, Send Email, Course Messages	Course Summary, Announcements Forum (with email option)	Announcements, Inbox
• Define criteria and key performance indicators that consider students' achievement	Retention Center	Competencies, Learning Plan Templates	Learning Mastery Gradebook, Student Learning Mastery Gradebook
• Check students' last access to the course	Grade Center, Retention Center	Logs (within Reports)	Analytics, People
• Acquire course reports to find day/time patterns when students access the course most frequently	Course Reports	Logs (within Reports), Statistics	Course Statistics, Analytics

Note: The listed tools are from three of the most commonly used LMSs. Tool availability may vary by institutional LMS policy and procedure and whether enabled by LMS administrator.

TABLE 1 *continued*

ACHIEVABLE ACTIONS	BLACKBOARD	MOODLE	CANVAS
During course term:			
<ul style="list-style-type: none"> Discover at-risk students and monitor patterns over time 	Retention Center	Analytics, Send Message, Logs	Analytics
<ul style="list-style-type: none"> Identify students who miss assignments or submit late assignments 	Grade Center, Retention Center	Grades, Activity Completion Report, Logs (by activity), Configurable Reports (performed at the LMS administration end)	Analytics, Gradebook
<ul style="list-style-type: none"> Identify students who are less engaged in discussions 	Performance Dashboard	Logs, Activity Reports	Analytics, Discussions, Speedgrader
<ul style="list-style-type: none"> Identify students who perform poorly on exams/quizzes or tests 	Grade Center, Retention Center	Grades, Quiz Reports	Gradebook, Analytics, Quiz Statistics
<ul style="list-style-type: none"> Reach out to students showing early “at-risk” signs to offer support and scaffolding 	Retention Center, Send Email (can be performed directly from Gradebook)	Quickmail, Send email directly from Grades	Analytics, Inbox, Send email directly from gradebook
<ul style="list-style-type: none"> Analyze the validity and reliability of test questions and identify difficult questions for students 	Item Analysis	Quiz Reports, Quiz Responses, Quiz Statistics	Quiz Statistics, Item Analysis (in Quizzes)
<ul style="list-style-type: none"> Provide supplementary materials for difficult subjects personalized to students' current performance 	Content Area, Course Reports, Adaptive Release	Lesson, Restrict Access, Competencies, Learning Plan Templates	Modules, Analytics, MasteryPaths
At the end of the course term:			
<ul style="list-style-type: none"> Analyze overall course usage over the course term to identify the most or least engaging learning activities—the report will be useful in informing course-redesign decisions for the next course term 	Course Reports	Completion Reports, Activity Reports, Course Participation Reports, Configurable Reports, Logs	Course Statistics, Analytics
<ul style="list-style-type: none"> Administer a final exam, assignment, or project to assess overall student learning 	Test, Assignment	Quiz, Assignment	Quizzes, Assignments, Quizzes.Next (in beta)
<ul style="list-style-type: none"> Administer an exit survey to gain students' insights regarding their learning experience 	Survey	Choice, Feedback	Survey

Note: The listed tools are from three of the most commonly used LMSs. Tool availability may vary by institutional LMS policy and procedure and whether enabled by LMS administrator.

CONCLUSION

Technology is not a panacea, it only amplifies current processes and practices. In this paper, we have offered compelling support for what LA can provide to boost the abilities of instructors in higher education. In particular, LA offers instructors tools to enable them to confirm their observation in much less time. More importantly, LA offers instructors the ability to become much more proactive by providing relevant feedback in near real-time. We have also given several easy-to-implement suggestions to assist instructors who wish to experiment or adopt LA in the classroom environment. These suggestions are ready to implement with a few process changes. While this requires advanced planning, our experiences have shown that such investment in time is well worth the saving during course execution. Learning analytics also provides another means for assessing the efficacy of teaching and learning practices. Moreover, LA provides a way for instructors to engage in their own research with relatively little investment as much of the infrastructure already exists in higher education vis-a-vis the proliferation of LMSs. This confirms the imperative role of LA now emerging within higher education and the urgent need to explore its potential in reaching the ultimate goal of promoting academic success.

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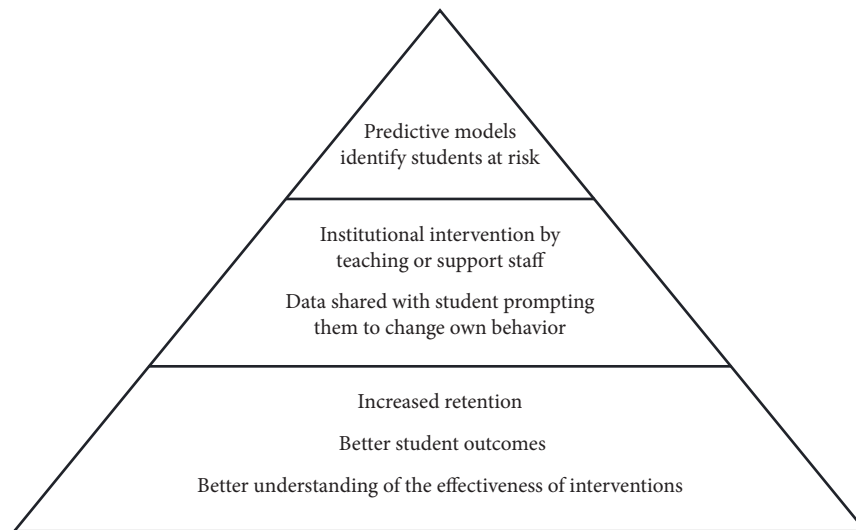
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APPENDIX



APPENDIX A Open learning analytics architecture in higher education through predictive models proposed by Sclater and Mullan (2017).

GOOGLE FORMS IN LIBRARY INSTRUCTION: CREATING AN ACTIVE LEARNING SPACE AND COMMUNICATING WITH STUDENTS

ELENA RODRIGUEZ¹

¹College of Charleston, Charleston, SC

ABSTRACT

The many programs offered through Google's G Suite for Education have steadily found their footing across the varied fields of librarianship, including instruction. One such program that has potential in encouraging and developing information literacy skills in undergraduate students is Google Forms. From the observation of a Google Form activity used in four sections of a 100-level History course, utilizing Forms during one-shot instruction can create active learning experiences, be a valuable tool in aiding the continuation of a lesson after a completed one-shot, and can play an important role for the librarian when assessing if learning outcomes have been met. These experiences assist in creating a more robust learning environment for students and inform librarians of potential changes to improve their role as an instructor.

Keywords: Google Forms, G Suite for Education, information literacy, active learning, assessment, library instruction, one-shot

INTRODUCTION

The usefulness and need for cloud computing applications are numerous whether it be in an academic, personal, or professional setting. The ability

to immediately access, share, and collaborate on information from any internet-linked device feeds into our growing technological (and cultural) need to keep connected and organized at all times. As

librarians continually attempt to stay abreast of new Web 2.0 technologies, it comes as no surprise that these applications have found their way into our own instruction. In particular, G Suite for Education has become a valuable resource as higher education institutions continue to transition their online communication needs to Google. The demand for this resource is abundantly clear as more than 70 million people use the education platform currently (Viswanatha, 2017). The many functions available in G Suite for Education are practical options to utilize, with their cost-free and easy-to-use design. Their integration into the many fields of librarianship has been a growing trend. Of particular interest is the application of Google Forms in library instruction. With a focus on incorporating the Association of College and Research Libraries (ACRL) Framework for Information Literacy for Higher Education (2016), librarians have become more aware of creating an instructional environment that encourages students to become metacognitive learners. The Framework provides “interconnected core concepts, with flexible options for implementation, rather than on a set of standards or learning outcomes, or any prescriptive enumeration of skills” (ACRL, 2016). Since many institutions are already familiar with how to utilize Google Forms as a survey or assessment tool, the goal of this study was to incorporate a Google Form into a library activity to not only assist the students in their learning process and address key information literacy standards but to also evaluate how well the learning outcomes were met. The librarian also theorized that using Google Forms would allow for a

tidy and less time-consuming in-class activity in comparison to a paper worksheet that often gets left behind by students. Using formulas to evaluate student submissions in addition to evaluating the Instruction Session Assessment Survey data, this research demonstrates the benefits of using Google Forms during library instruction and addresses the challenges instruction librarians may face when incorporating them into their own lessons. In particular, the librarian observed that Google Forms can assist in creating an active learning environment and create opportunities to communicate with students after an instruction session has ended. The findings can aid other instruction librarians as they consider implementing new types of activities in their own instruction, especially when highlighting key information literacy frames.

CONTEXT

The application of using Google Forms in library instruction was used in four sections of History 115 (HIST 115) at the College of Charleston (the College) and was made accessible to students on a tab on the course LibGuide. A Springshare product, LibGuides is a user-friendly content management system used to “curate knowledge and share information” with library users (“LibGuides,” 2017). Library instruction sessions are typically taught using the one-shot method, which was the case for the sections of HIST 115. The focus of HIST 115 was on Pre-Modern History; two sections used the lens of travel and intercultural contact, and the other two used the lens of folktales and legends. The librarian created course-specific LibGuides and supplied the

learning outcomes on the “Welcome” tab. Students were told the learning outcomes at the start of each session which implied students would learn:

1. How to generate keywords and design an effective search strategy for [their] topic[s].
2. How to utilize the Discovery Service to search, narrow, and find peer-reviewed journal articles that [they] will need for this course.
3. How to evaluate the authority the author of a source has, in addition to the quality of the information [the source] provides.

The majority of students in the HIST 115 courses were undergraduate freshmen, and in total, 103 students attended the sessions during the Fall semester of the 2017–2018 academic year. The librarian created, delivered, and evaluated all lectures and activities during the one-shots.

LITERATURE REVIEW

Utilizing the many programs of G Suite, previously branded as Google Apps, has been a growing trend in librarianship (Denton, 2012; Booth, 2011). Less than a year after Google announced updates to the then relatively new Google Apps for Education at the EDUCAUSE 2006 annual conference (“New and Noteworthy,” 2006), librarians were recognizing the value of certain programs in terms of teaching information literacy. McPherson (2007) observed that the flexible file formats of Google Docs and the collaborative writing options allowed a teacher or librarian to improve, and engage with,

a student’s information literacy skills. Pang (2009) reiterated McPherson’s sentiments and expanded on Google Doc usage within higher education. In the more recent past, multiple library departments continued to use G Suite applications. The University of Dayton libraries took advantage of Google Sheets to perform a library-wide physical item inventory (Boman & Voelker, 2017). New York University Abu Dhabi used a combination of Google Forms and Google Sheets to collect and evaluate user count data when they transitioned to a larger physical library space (Lindsay, 2016). The libraries at the University of Colorado Boulder utilized the Calendar feature of G Suite to manage their Research Consultation requests and appointments (Kuglitsch, Tingle, & Watkins, 2017).

The literature on the use of Google Forms is predominantly geared towards it being a worthwhile tool when it comes to surveying and assessment. Whicker, Shields, and Chadwell (2012) suggest using Google Forms “to create a pretest or posttest to assess student learning outcomes” (p. 18). Frutchey (2012) put this into practice by creating a Form to assess his own instruction or interaction he had with a patron. Koury and Jardine (2013) continue this conversation and stress how “Google does all the work” of organizing and interpreting the data you collect from assessments (p. 166). They also discuss how “[s]tudents appreciate the anonymous nature of the surveys,” which can be shared with students through their email or in class (p. 166). The value of using Google Forms in this capacity is clearly evident because it makes the task of assessing students easier; it allows for

organized, immediate feedback to be returned to the instructor.

Djenno, Insua, and Pho (2015) discussed the valuable role Google Forms can play in assessing and surveying students after a library session. However, they also briefly describe a pilot program, executed in 2013, that explored using Google Forms “as a way of incorporating active learning during information literacy sessions” and to replace a traditional paper worksheet (Djenno et al., 2015, pp. 9–10). From the review of the literature, this appears to be one of the only published examples of Google Forms being used as a tool for active learning in library instruction. Given that librarians in academic institutions often serve as faculty members, it was necessary to explore the role of Google Forms in higher education as a whole. In a study conducted in 2010, Kim (2011) provides clear results of how utilizing Google Forms multiple times during his business statistics classes improved student engagement. Not only did he observe that students were actively engaged with each mini-lesson preceding the Form activity, but from surveys after the class, he learned that students generally enjoyed using Google Forms throughout the class. An important distinction, of course, is that Kim taught an entire course and his classes ran 75 minutes. Incorporating Google Forms into library instruction would mean adapting for shorter periods of instruction and in one-shots, but Kim’s study shows that there is great potential in using Google Forms in the classroom. Outside of this example in higher education, the literature, again, primarily focuses on using Google Forms as a survey and

assessment tool (Haddad & Kalaani, 2014; Henrie et al., 2015).

However, in 2016, three years after the initial pilot program of Djenno et al. (2015) and six years after the experiences of Kim (2011), Google updated the functionality of their forms (“New Google Forms,” 2016). The updated Google Forms are more education-friendly with quizzing, assignment, and presentation templates. It also allows for more options in the distribution of the results, a participant or creator-friendly design, and an option to revert back to the old version of Google Forms, if desired. With these updates, Google Forms are no longer just an excellent tool for assessment, but they have created more opportunities to engage with students during and after instruction.

METHODOLOGY: DATABASE ACTIVITY, HIST 115

The four sections of HIST 115 at the College received a comprehensive library instruction session per the request of the faculty but with a focus on finding relevant peer-reviewed articles using the library’s Discovery Service — a single, unified search box on the library website for searching a variety of library resources. The assignment was an analytical essay where the final draft would require students to have one primary source and at least three peer-reviewed secondary sources. The faculty ensured that students would come to the library instruction with their chosen primary source and their desired research topics. With this in mind, the librarian created two course LibGuides and developed two Google Forms. These LibGuides and

Google Forms were identical except for the title, which reflected the focus of the class: folktales or travel. The librarian created a “Library Activity” tab on the course LibGuide that housed the Google Form activity embedded into the page in addition to explaining the goals of the activity.

The class navigated to their course LibGuide and received an overview of researching skills and how to apply those skills to navigate library resources. This provided students with the tools to engage in the research process. Given that the College uses G Suite for Education, students were required to sign into their college Google Accounts in order to access the Form. The questions intended to indirectly expose students to each of the ACRL information literacy frames, as shown in Table 1. The frames of focus for the activity as a whole, however,

were Research as Inquiry and Searching as Strategic Exploration.

The tangible goal of the activity was for students to find at least one peer-reviewed article to use in the analytical paper, thus working toward a requirement for the assignment. The Framework-designed goal of the activity was for students to refine their information literacy skills and improve their abilities as a researcher by searching and evaluating sources. While the students only had to find one article during the class period in order to complete the activity, the librarian instructed them to continue their searching to find additional sources that may be useful when writing their essay. Both the librarian and professor assisted students throughout the activity. The Form automatically emailed a copy of the answers to the student upon submission, and

TABLE 1 Correlation between Google Form Activity Questions and ACRL’s Information Literacy Framework for Higher Education.

REQUIRED ACTIVITY QUESTION	ACRL’S INFORMATION LITERACY FRAME
1. Brainstorm keywords that fit within your topic.	<i>Searching as Strategic Exploration;</i> <i>Research as Inquiry</i>
2. Complete at least three searches. What terms did you use? How many results did you get? If you needed to, how did you refine your results?	<i>Searching as Strategic Exploration;</i> <i>Research as Inquiry</i>
3. Select a peer-reviewed article relevant to your topic. Who is the author? What makes them an authority on this topic? How do you know it is peer-reviewed?	<i>Authority is Constructed and Contextual</i>
4. In at least one paragraph, evaluate your source. What does it discover or address? How is it important? Are there gaps in the discussion? What words can you add to your keyword bank?	<i>Scholarship as Conversation;</i> <i>Information Creation as a Process</i>
5. Provide the Chicago citation for your source.	<i>Information has Value</i>

the librarian viewed individual responses through the editing page of the activity. As the sessions concluded, students had the option to complete a Library Instruction Assessment survey.

ANALYSIS

Measuring learning outcomes

In order to evaluate if students successfully met the learning outcomes presented at the start of the instruction session, the librarian created formulas

to calculate the success rate based off the answers supplied on the Google Forms as described in Table 2. The librarian evaluated all 103 student submissions including only partially completed Google Forms. Of the 103 submissions, 30 of the Google Forms had one or more answers missing, with 47% of those students stating that they ran out of time. The other incomplete submissions stated that they could not find a source/ felt confused (20%) or did not offer a reason for not finishing the activity (33%).

TABLE 2 Measured success of student understanding of learning outcomes.

LEARNING OUTCOME	SUCCESS FORMULA	SUCCESS RATE (OUT OF 103 STUDENTS)
How to generate keywords and design an effective search strategy for your topic.	Students successfully generated keywords if they supplied three or more terms or phrases. (Q1)	85%
	Students successfully designed an effective search strategy if they listed appropriate search strategies ^a in their searches. (Q2)	69%
How to utilize the Discovery Service to search, narrow, and find peer-reviewed journal articles that you will need for this course.	Students successfully utilized the Discovery Service if they explained how they limited their results. (Q3)	78% 89% (89 students)
	Students successfully evaluated the author if they found and shared information that discussed his or her credentials and authority ^b . (Q4)	67% 77% (89 students)
How to evaluate the authority the author of a source has, in addition to the quality of the information it provides.	Students successfully evaluated the source by explaining what the source discusses and how it relates to their topic. (Q5)	60% 78% (78 students)

Note. Q# = question from Google Form Activity. Bolded percentages represent the success rate within the students who provided an answer to that specific question.

^aAppropriate strategies included, but were not limited to, using Boolean operators, phrase searching, truncation, and subject searching.

^bTo evaluate authority, students had to include information about the author, including, but not limited to, education, expertise, or other publications.

Library instruction assessment

Upon completion of the instruction sessions, students were given the opportunity to complete an optional Library Instruction Assessment. The librarian designed the assessment survey in Springshare's LibWizard, a multipurpose tool that allows the operator to "quickly and easily assess learning and gain immediate insight into user understanding" ("LibWizard," 2017). Using this tool for assessment is the current practice of the Research and Instruction Librarians at the College. Since 103 students were part of the instruction sessions, the hope was to have at least 10 responses, roughly 10% of the population size; the librarian received 12 (N=103; n=12).

When asked to summarize the most important points covered in today's sessions, student feedback reflected key skills that related to Learning Outcomes and key Information Literacy Frames. There was a focus on searching skills (Searching as Strategic Exploration), where to conduct library research (Research as Inquiry), and how to find and identify parts of a citation (Information has Value). Of note, students stated:

- "Today was very helpful, the most important point covered was that of how to keyword search and truly narrow down your search."
- "I feel like the most important thing that I learned today was how to search using and, or, and not. I learned how to use filters to ensure that I've found the best sources to use."

- "How to use the library for resources. How to find peer-reviewed articles. How to get a citation from the articles."
- "You can use the [databases] to cite your sources, though it's not always correct so be careful."
- "How to find real and correct articles for information. How to know if an article is peer-reviewed. How to search using keywords with the library's database. The layout of my course's library page and how to navigate it."
- "We found out about how to find scholarly articles and limit and refine our search with keywords — the activity really helped!"

Additionally, the survey asked two ordinal scale questions (one being poor, four being excellent) to assess the student's overall feeling of the session and the usefulness of the information. Compiling those responses, 75% of students gave the overall instruction session a rating of four (excellent); the remaining 25% gave an overall rating of three. One hundred percent of the students found the usefulness of the information to be excellent.

DISCUSSION

The initial goal of using Google Forms was to help simplify the in-class activity and to provide an opportunity to better measure if the learning outcomes had been met. Considering the experience as a whole and the analysis of the Google Form

submissions and the Library Instruction Assessment surveys, the librarian observed that despite certain challenges with time and functionality, the goal was met, particularly when being able to measure learning outcomes. The Database Activity also successfully served as an active learning tool that connected students to the two primary frames of focus—Research as Inquiry and Searching as Strategic Exploration—and provided the unexpected benefit of serving as a communication tool after the instruction session concluded.

Learning outcomes

Post-session assessment surveys are an option when measuring the success of learning outcomes during a one-shot, but those results do not always show the full picture of the session's finer details. Evaluating the answers students provided on their Google Forms created an opportunity for the librarian to better reflect on their own instructional pedagogies. Taking the results from Table 2 into consideration, students were generally successful in meeting the proposed learning outcomes, but there is always room for improvement. Students connected with generating keywords and using the Discovery Service. However, it would be beneficial in future instruction sessions to allocate time to discussing or practicing how to create effective search strings and evaluating authors and sources. This would increase a student's connection to the learning outcomes and assist in linking the instruction to the ACRL Framework, thus cultivating

key information literacy skills. It is possible that students did not share the exact search string they used to get their results, and clear instructions in class and on the Form would assist in combating this issue. Moreover, completing the Form with students during the session would serve as a practical example as they complete their individual work and also aid in ending any potential confusion concerning the activity. Student comments on the Assessment survey supported this idea.

Google Forms for active learning

Students actively engaging with resources they will undoubtedly continue to use as they progress in their education is a vital part of library instruction. Active learning allows students to connect and “seemingly comprehend more when they have agency in the learning process” because they can “make meaning and demonstrate what they know in authentic ways” (Udvari-Solner & Kluth, 2018, p. ix). The Database Activity reinforced the lecture and allowed students to search for and evaluate sources that directly related to their topics. Having the opportunity to justify why the source they selected was significant to their arguments allowed them to draw conclusions and think critically about their research process, a step that students sometimes overlook. One student addressed this on their submission by saying, “I thought this would be a good article but it ended up being about something completely unrelated to my topic.”

While reviewing the learning outcome results is one way to evaluate connection with the lesson and activity, the librarian observed in the instruction session that the students remained engaged, stayed on task, and asked relevant questions pertaining to the instruction session. While they were not required to participate in group discussions, students felt comfortable discussing issues and collaborating with their peers. As students left the session, many of them acknowledged the usefulness of the activity as it directly applied to the essay they were working on during the semester. The faculty member also appreciated that the students received hands-on practice with library resources, and they had a record of their activity to refer to at a later point in their research process. It is worth noting that using Google Forms in this one-shot required making changes and restructuring the original lesson plan. However, this appeared to be a worthwhile compromise when evaluating what students said they learned from the Library Instruction Assessment survey and considering their satisfaction as a whole.

Google Forms as a communication tool

Librarians frequently leave instruction sessions wondering if students have fully connected with the information delivered and practiced with them, especially in a one-shot setting. Students are more successful in their researching after attending a library instruction session and more likely to consult with a librarian upon having a classroom visit (Spievak and Hayes-Bohannan, 2013). This does not change the fact that a librarian may not see a

student again after an instruction session, or if they do, it is at the eleventh hour when the student is looking for immediate assistance and not a lesson on information literacy. Additionally, while we can see the strengths and weaknesses of instruction through anonymous assessment, the opportunity to connect with students who still struggle eludes us. Since the Database Activity required students to log in with their college Google Accounts, their email addresses were kept with their submissions. This allowed the librarian to connect with students after each library session to address direct concerns or to assist in providing clearer understanding of concepts addressed in the learning outcomes. Several students included questions or simply expressed frustration over not finding sources on their submitted Form. Despite walking around and talking with each student as they worked, it became apparent that some students still did not feel comfortable asking questions while in the classroom. Communicating through the Form allowed the librarian to administer one-on-one help to these students, which was an unexpected benefit of using Google Forms. For example, one student expressed that she could not evaluate the article she located because the full text did not appear to be available. Upon seeing this response, the librarian contacted the student and discussed the options she had in requesting the article through Interlibrary Loan. Furthermore, the librarian recognized that should a trend arise in the student responses that reflected a learning outcome not being met, the issue could be presented to the faculty member for remediation.

While the previous observation demonstrated how the librarian could actively pursue engagement with students by directly viewing the Form results, having a record of student responses also allowed for deeper discussion when meeting with students one-on-one. Multiple students scheduled research consultations following the instruction sessions. Being able to refer to the Form they completed in class helped remind each student what the instruction session discussed and reconnected them to the content. Strengthening these student-librarian relationships also encouraged students to continue consulting with a librarian when they had questions or simply wished to verify that the work they did on their own was satisfactory.

Challenges of using Google Forms

While creating and editing Google Forms is intuitive, there are limitations to its design. The Database Activity utilized paragraph-style questions to allow students the space to reflect on their research process and critically engage with sources and databases. However, this decision was also made because it was the most logical option in the predetermined selection of question types. This selection includes short answer, paragraph, multiple choice, checkboxes, dropdown, linear scale, multiple choice grid, and checkbox grid. Additionally, students are limited in how they can format their answers which made their responses muddled and cumbersome to navigate. In particular, the inability to easily make lists, tables, or italicize hinders the student's capability to easily answer certain

questions. This also made assessing the learning outcomes using formulas challenging. It is possible to tack on additional questions at the end of the activity that directly assess the learning outcomes, but if students are not finishing the original activity questions, then there is the likelihood for a gap in that assessment.

Secondly, utilizing paragraph-style questions on the Google Forms also requires more time to simply read through a substantial amount of submissions. Adding the time spent reaching out to students who expressed confusion or had noticeable errors is also a factor to take into consideration. The librarian taught the four HIST 115 sessions within a matter of two weeks; reviewing and contacting students in a timely fashion, in addition to other job responsibilities, took a concentrated effort. While the process was worthwhile given the chance to continue a lesson after a session had concluded, neglecting to reflect on the amount of personal time involved in this process would be careless.

In that same vein, one-shot instruction sessions have their own time constraints, all of which should be carefully considered. Even though the librarian observed that the students were comfortable using an online platform to submit their work, there were still issues with students completing the entire worksheet in the allotted activity time. The librarian considers this to be a combination of technology issues and unrealistic time allotments for the worksheets. While the Google Forms platform cannot be held responsible for over-planning on

the librarian's part, the technology issues likely impacted completion. In every HIST 115 instruction session, there were students who did not remember their login information to access their college Google Account. Most frequently, these students have their login information saved on their personal computers and needed to sync or reset their passwords. In some instances, students had their laptops with them and the librarian permitted them to use their device during the class. An immediate solution is to not require them to log in with their college Google Account and simply have them enter their email directly on the Form itself (an option that is available when designing the Form). This does open the librarian up to the possibility that anyone who comes across the Form Activity embedded on the public LibGuide could complete the activity and skew the assessment.

Finally, when considering the challenges technology brings, it is also important for librarians or instructors to remember an obvious fact: in order to use Cloud Computing Services, students need a stable internet connection. Additionally, to successfully participate in online activities, each student will require access to a computer. While the HIST 115 sections meet in a library computer classroom and therefore did not face the latter challenge, the threat of a weak internet connection is always possible. To this end, the librarian had a Word version of the Google Form Worksheet ready to photocopy in case of a technical emergency. This does raise the question: if technology can fail, why shift from a print worksheet in the first place? While there is

no simple answer to this question, the observations from the Database Activity suggest that the benefit of having even the chance to engage with students, both in the classroom and afterward, is enough of a reason to attempt something new in terms of instructional design.

CONCLUSION

The methods for developing a student's information literacy skills during instruction is certainly an area of librarianship that continues to see considerable growth. From the initial research detailed here, there is still room to expand the use of Google Forms in the development of information literacy. Overall, utilizing Google Forms in library instruction was a positive experience for both the librarian and the HIST 115 students, but there are immediate changes to implement when using the Database Activity in the future. It would be ideal to incorporate an optional space for students to ask questions or share any roadblocks they experienced in their research. This would make identifying questions or problems when reviewing the results easier for the librarian. The other consideration for the future is to keep it simple; the librarian plans on adjusting the scope of the activity in order to assist students in completing the worksheet in its entirety. While the focus of the lecture and demonstration portion of the instruction session was on Research as Inquiry and Searching as Strategic Exploration, carrying this focus into the actual activity will also allow students to have a better understanding of key information literacy concepts.

While Google Forms is a proven tool for collecting data, its services extend beyond assessment. Its role in library instruction provides a way to create an active learning environment so that students leave instructional sessions with concrete skills and resources, in addition to meeting the student learning outcomes. Furthermore, the ability of librarians to connect with students upon seeing their completed Google Forms allows the librarian to construct a valuable bridge with students outside of the classroom. The data collected from student submissions also play a valuable part in what librarians can change to improve their role as instructors. Finally, the challenges Google Forms present undoubtedly need addressing but are not insurmountable when considering time management, technology issues, and what questions to include. New tools and methods are finding their way into the classroom in order to improve the student's experience and create an engaging environment, and their arrival assists in developing metaliterate learners. It is safe to assume that as technology continues to advance and cloud computing apps improve, the usage of these free services in the classroom will continue to find their place.

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CATCHING THE

WHEN, IN FALL 2017, I DECIDED TO UP MY LIBRARIAN GAME AND ESTABLISH A PROFESSIONAL TWITTER ACCOUNT, ONE OF THE FIRST PEOPLE I STARTED FOLLOWING WAS MY FORMER MLS PROFESSOR, LAUREN HAYS. I QUICKLY GATHERED FROM HER TWEETS THAT SHE WAS DEEPLY INVOLVED WITH A MYSTERIOUS ACRONYMIC PURSUIT: THAT OF SoTL. THIS CAUGHT MY

ATTENTION AND I THOUGHT,

I SHOULDN'T JUST LIKE HER TWEETS AND FOLLOW HER LINKS, I SHOULD TALK TO HER ABOUT SoTL.

LAUREN WAS BUSY WRAPPING UP HER DISSERTATION WHEN I REACHED OUT TO HER, BUT SHE KINDLY TOOK THE TIME TO SPEAK WITH ME AND IMPART HER WISDOM.

SOTL BUG

AN INTERVIEW WITH LIBRARIAN LAUREN HAYS

INTERVIEW BY KELLY HANGAUER



LAUREN HAYS Ph.D. is the Instructional and Research Librarian at MidAmerica Nazarene University in Olathe, KS. She co-presented on the Scholarship of Teaching and Learning (SoTL) at Library Instruction West, 2016, and was the 2017 speaker on SoTL for the Association of College and Research Libraries' Student Learning and Information Literacy Committee's Midwinter Discussion. Currently, she is co-editing a book on SoTL for academic librarians. Her professional interests include teaching, SoTL, information literacy, educational technology, Library and Information Science education, teacher identity, and faculty development. On a personal note, she loves dogs, traveling, and home.

This conversation took place on Friday, February 23, 2018 at 9:00 am PDT and has been edited for clarity.

Hi Lauren, thank you for being here. Why don't you go ahead and introduce yourself.

Certainly. Well, as you know, I am Lauren Hays and I work full time as the instruction and research librarian at MidAmerica Nazarene University. I am finishing up a Ph.D. in Educational Leadership and should graduate this coming May. So I am really excited about that. My primary areas of research have been around the scholarship of teaching and learning and that is what my doctoral research is on. I am specifically looking at academic instruction librarians' involvement in the scholarship of teaching and learning, and how it affects their teacher identity as well as their instructional strategies. So the scholarship of teaching and learning has been an interest of mine for many years now, and I have really enjoyed digging into it more in this doctoral program.

That's awesome. It's perfect because I am a new academic librarian and I've been doing a lot more instruction, and so a lot of these things are new to me. Coming into it last semester, I didn't have much of a background in issues of pedagogy and active learning techniques—I had experience with it, but I didn't understand it on a theoretical level. And so now at Humboldt State, where I work, there is a new journal, as you are aware, the *Scholarship of Teaching and Learning and*

Innovative Pedagogy, and this conversation is meant to contribute to that.

I want to get your perspective on what you have found as far as the relationship between academic librarians and how SoTL can influence their teaching—or how it *has* influenced their teaching. I mean, are there already examples of that?

Yeah—so let me back up a little bit and set the stage for this answer. So you mentioned that just coming in as a new academic librarian, you didn't have a lot of theoretical grounding in pedagogy or—and I don't want to speak too much, or speak too strongly about this—but you didn't have a lot of experience or understanding of how to teach. Is that correct?

Right, yes—just from a little bit of experience, but not actually studying it.

Certainly. And so, while I think that Library and Information Science programs have gotten a lot better in the last decade or two with more emphasis on teaching, there are certainly examples of how that is not happening enough and there is more room for growth. And I think you speak to the need for continued growth, because instruction is so much of what we do as academic librarians. Even if we are not standing up in front of a classroom, which I'll say a lot of us do—whether it's in a one-shot instruction session, or maybe we're working with a class a bit longer—we are still teaching when we are working individually with students at the reference desk and when they're coming into our office asking questions. And so I think

it's really important that we understand pedagogy.

My undergraduate degree is in Education and so I had a pretty good understanding and feel for teaching when I started working as an academic librarian. I was really just passionate about teaching and education in general. I knew about educational psychology, and I knew that there was a lot of research that happened in that area in Higher Ed—but I then realized that there was also this whole world of the scholarship of teaching and learning where faculty members study the teaching and learning that's occurring in their own classrooms, and look at it from their own disciplinary expertise, which I think is really interesting.

I also think this is really helpful for librarians who might not have that education background; that they know that they can delve into teaching and learning, instruction, and readings from a librarian perspective.

So back to your question about how the scholarship of teaching and learning is impacting academic instruction librarians. I am still working on the last little bit of analyzing my data—I am really close to being done, but still working on it. But to give you a preview of what will be coming in that dissertation,

the scholarship of teaching and learning does certainly seem to impact academic instruction librarians in their teaching, particularly in the areas of active learning. Not so much in their use of technology or assessment, but in the way they interact, and in their attitude towards thinking they can get better, and wanting to get better. I feel like the scholarship of teaching and learning has an impact most on, again, just their attitude. They want to improve more because they realize they can, and there are new ways that they weren't aware of before that can help in a class setting.

I THINK PRAXIS IS REALLY IMPORTANT

FOR ALL OF US AS EDUCATORS—

THAT WE ENGAGE IN PRAXIS & IN

BEING REFLECTIVE PRACTITIONERS

So do you feel like the premise of SoTL is to offer practical techniques, or practical advice, in teaching and learning? Is that what differentiates it from other that would cover

journals similar topics?

There's a lot of discussion in the SoTL field about its purpose and its goals, and so I don't want to speak too narrowly about its purpose.

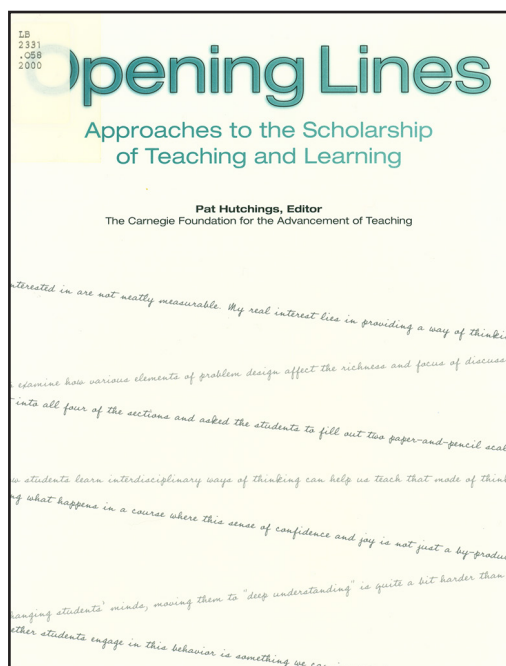
Sure.

But I will say that there is a lot of room for practical advice that can be learned from conducting a SoTL study. And I know a lot of SoTL studies that I read practically impact what I do. In many ways, I think it's good to

think about it as praxis—the reflection and the theory impacting our practice of teaching. I think praxis is really important for all of us as educators—that we engage in praxis and in being reflective practitioners.

And SoTL really helps me think about that, because the way the framework—and I'm thinking about Pat Hutchings' work—she has four questions. I feel like every time I talk about SoTL, I am always referring back to her four questions. There are certainly other ones, O'Brien's compass for example, which I find really helpful as well. But it helps me think about what's happening in the classroom and what I'm curious about, and gives me some frameworks for organizing questions I have about what's happening in my own teaching, and in my students' learning.

And so Pat Hutchings is someone who is influential in the field?



Certainly, yes. Pat Hutchings wrote a book called *Opening Lines*—I have it in my office here—where she introduced a taxonomy of four questions that you could ask about teaching and learning in your classroom.

I'll have to check it out! You mentioned collecting data in your own research, and I was wondering if you could share more about it. You might be publishing it later and so you probably don't want to divulge too much—

Well, I certainly hope to be able to publish it, but I am okay sharing some of the basics of what I've learned. So, as I mentioned earlier, I am completing a Ph.D. in Educational Leadership. It was an explanatory sequential mixed-methods study where I surveyed academic instruction librarians to get a better understanding of their involvement, even who is involved, in the scholarship of teaching and learning—how many academic librarians would say that they have some involvement in this. And then I followed up that survey with interviews of seven academic instruction librarians to delve deeper and to help explain those quantitative survey results. I was specifically looking at the reasons academic librarians are involved in SoTL, the impact of SoTL on academic instruction librarian teacher identities, and then the impact of SoTL on the instructional practices of, again, academic instruction librarians.

So that's what I am finishing up right now. I am working with a librarian, Lindsay McNiff. She works at Dalhousie University, and she and I recently had an article published in *Communications in Information Literacy*. It was about teaching SoTL, introducing LIS students to SoTL. It was a lot

of fun working with her, and we had such a good working relationship that we are planning to conduct a SoTL study this fall with some masters of library science students.

You're doing exciting work it sounds like.

Yeah, I really enjoy it! It's fun for me, I find it exciting and just really like everything that I get to do. And one thing I feel like I should also say about this is that a group of us who were at the International Society for the Scholarship for Teaching and Learning Conference back in October in Canada met together and were talking about ways that we could connect information literacy more with the scholarship of teaching and learning. Recently we had an information literacy special interest group approved by the ISSoTL board—ISSoTL is the International Society for the Scholarship of Teaching and Learning. And so ISSoTL now has a special interest group on information literacy within their organization.

So SoTL started off as something that was not necessarily meant for librarians, right? Or is it a librarian creation?

No, it really has its roots in the work of Ernest Boyer. He wrote a book called *Scholarship Reconsidered*. I think it was in 1990 that it was published—maybe it was '91, but I believe it was 1990—about areas of scholarship for faculty. The scholarship of teaching was one of the four areas that he proposed. Out of that, the scholarship of teaching grew

- **“What works?”**: These are questions that seek “evidence about the relative effectiveness of different [teaching] approaches.”
- **“What is?”**: These are questions that seek to describe, but not evaluate the effectiveness of, different teaching approaches. These are also questions that seek to describe how students learn.
- **“Visions of the possible”**: These are questions related to goals for teaching and learning that have yet to be met or are new to the faculty member asking the questions.
- **“Theory building”** questions: These are questions designed to build theoretical frameworks for SoTL similar to frameworks used in other disciplines.

into the scholarship of teaching and learning with the work of CASTL out of the Carnegie Academy¹. There's a lot of work that grew out of that group led by Lee Shulman and some other core individuals. And so SoTL has really grown as this area of research and study in academia broadly. I would say that librarians haven't been as quick to jump into it as other fields in higher education.

My first real introduction to the scholarship of teaching and learning was made by Margy MacMillan², and she is fantastic. At the time she worked at Mount Royal University in Calgary, Canada. We got to know each other online before we met at an ACRL Conference for the very first time, the one in Portland, and she was my first introduction to SoTL. Her enthusiasm for it was contagious.

And so I feel like I kind of caught the SoTL bug from her. Then she and I teamed up on a conference presentation at Library Instruction West a few years ago. From there I feel like I just can't get enough – I just get

¹ <http://archive.carnegiefoundation.org/scholarship-teaching-learning>

² <http://www.projectinfolit.org/margy-macmillan.html>

³ Image retrieved from <https://my.vanderbilt.edu/sotl/doing-sotl/getting-started/>

really excited about every opportunity I can get to think more about connecting SoTL with librarianship and information literacy, and just everything that we do. I think there are a lot of good synergies there that can be further explored.

And do you feel like the future of academic librarianship is—I mean, it’s already established that instruction is a big part of it, but do you feel like it will be even more so ten years from now?

Predicting the future is hard—

Well, that’s why we are here. We are here to predict the future.

[Laughs]

You know, I would love to see that. I would love to see the scholarship of teaching and learning grow in librarianship because I think that it is a really good fit. I’ll only speak for what I do, but in many ways, I feel like some of my job—I certainly still teach information literacy and work a lot with students—but I also have found myself in the past few years working a lot more directly with faculty. I have been working to help them think about ways to embed information literacy into their curriculum, and helping them think about

ways to use library resources more effectively in their curriculum. I sit on the faculty development committee at my university and so that’s part of how that connection has been made.

But overall, I am only one person and we are a small school. We have four librarians, and I can’t work with all the students on campus. And so I found that I am in some ways more effective when I am working more with faculty to help them think through using some of what we can offer in the library. Be-

cause of that, I often find myself, or see myself, in the role of an educational developer or, certainly still a librarian—I own that identity and like it—but I see a lot of adjacencies between what Centers for Teaching and Learning

do and what librarians do. There are many types of librarians and so this might not be as good of a fit for librarians who work in other areas, but for me, when I am focused on instruction and research—again, that Center for Teaching and Learning connection—that educational developer connection makes a lot of sense to me and seems to work really well with how I work with the faculty and students at my institution. If other librarians are experiencing some of the same things

I WOULD LOVE TO SEE THE

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that I am—and I won't speak for them—but if they are, I think SoTL is a really good fit and connection to what we do.

So it's a way to connect librarians with other faculty in the university?

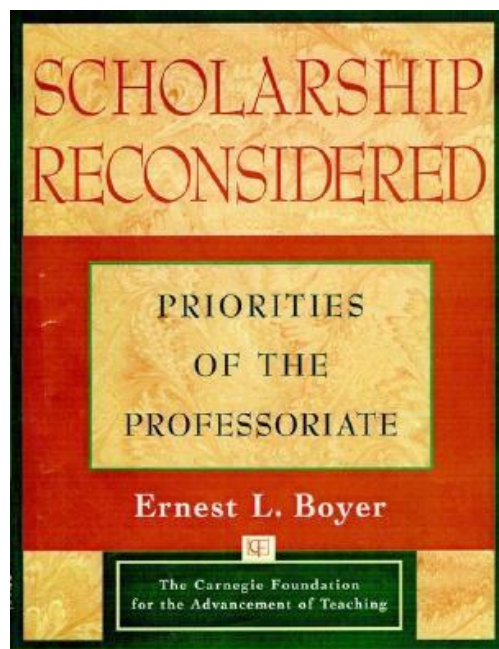
Certainly. And also that librarians can take the lead in their own research in teaching and learning. I think SoTL is excellent for partnerships, I also think it's excellent for individual studies. Even just reading the teaching and learning literature to get a better sense of what are some—I don't really like the term best practices, but maybe for a lack of a better term off the top of my head—what are some best practices or—

Why do you not like that term?

I think the reason I don't like the term best practices is—I might regret saying this, but I don't think I will—is that—

[laughs]

—because I have said it before. I think it implies, at least, that there are certain things that are always going to work. Certainly there are some strategies that will work more often than others. I think active learning, relationship building between students and faculty, peer-to-peer interaction, and experiential learning—all of those things are incredibly important and do work well and could be considered best practices. But I also tend to think that each student population is different, and we really need to understand our students to know what will be best in that setting. I also think there are some disci-



plinary differences in how we teach, so I am certainly not going to teach nursing students about evidence-based practice the same way I might approach a history course where we need to think about primary sources in an archive. I am going to use some different teaching strategies in those class settings just because of the disciplinary nature. I just think that using the term best practices implies something that is a little too generic.

I'm sold—I won't use best practices anymore.

You certainly can, I am not trying to change anyone here, but I've just tried to avoid using that term in my own conversations lately.

Is there a connection between SoTL and open access?

I would definitely say so. I think there's probably a lot of room in the literature for

studies on open pedagogy—the use of open educational resources in teaching and learning. That’s not something that I’ve done a lot of research on, so I can’t say—and when I say research, I mean literature research. I don’t know how many studies or articles have been written on that, but I certainly imagine there is room in the literature still for comments on that. I know there is one librarian who had a poster presentation at the ISSoTL on OER, and so I know he’s been doing some work in that. His name is Erik Christiansen⁴ and he works at Mount Royal University. They do great work in Canada.

Yeah, they do.

Especially around the scholarship of teaching and learning. And so he might honestly have—

Why is that? Why are they so on top of this?

I am not Canadian, as you know, and I don’t really know enough about their higher education system to know why they have such a focus on the scholarship of teaching and learning. But they just do an excellent job.

Right on. Well, are there any other comments you would like to make?

I guess maybe one thing I’ll just add is that, as I said earlier, I really enjoy talking about the scholarship of teaching and learning and thinking about how it can look in librarianship and information literacy in particular. Even as you mentioned, there are other areas of librarianship, like OER, where I think

there could be some good work done. I am really interested in connecting those two and I am very open to having conversations with people and brainstorming ideas for new projects. I guess what I’m saying is this is an open invitation for future conversations with anybody you might share this with.

Great! Well, I appreciate you taking time to talk about SoTL and your work with it. Sounds like you are doing an awesome job, so keep it up. Also, looks like the end is in sight for your dissertation.

Yeah, my defense is April 3rd, so it is right around the corner.

Wow, I look forward to reading what you publish. Well thank you so much, Lauren. This has been a fantastic conversation and I appreciate you doing this.

Thank you! ■

Some recommended SoTL journals from Lauren Hays:

- *International Journal for the Scholarship of Teaching & Learning*
- *Journal on Excellence for College Teaching*
- *New Directions for Teaching and Learning*
- *Teaching and Learning Inquiry*
- *Teaching in Higher Education*

⁴ http://library.mtroyal.ca/prf.php?account_id=109305

PARTING THOUGHTS

BY
KELLY
HANGAUER



MY CONVERSATION with Lauren opened my eyes to not only the history and mission of SoTL, but also the opportunities for education and collaboration inherent in the SoTL platform. For new instruction librarians without an education background, like myself, SoTL provides numerous opportunities to explore pedagogies, active learning techniques, and methods of assessment. And, what's more, SoTL keeps it fresh by staying relevant to today's learners and exposing librarians to new experimental techniques. I feel that I would have benefitted from learning about SoTL during library school, and it is encouraging to hear that Lauren and Lindsay McNiff are striving to make this happen

I also appreciate how SoTL invites collaboration. When so much of our work as librarians is centered around relationship-building with teaching faculty, it is incredibly beneficial to have a sense of what our colleagues are teaching, and how they are teaching it. This awareness is beneficial for any liaison librarian, and helps foster productive conversation and partnerships. As librarians, we can utilize SoTL to encourage teaching faculty to try something new, reflect on their teaching, and publish their findings through an open source channel. Furthermore, SoTL encourages teaching librarians to come together and discuss all things information literacy. Judging by Lauren's enthusiasm for the professional connections she has made, the SoTL community seems like an exciting one to join!