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Message From the President

Welcome to the inaugural issue of the *Journal of Innovation, Teaching and Digital Learning Excellence*. This journal highlights the work of our talented and dedicated faculty, their commitment to the students of this College, and their never-ending pursuit of continual learning in order to promote the success of the students they teach. As we move toward our goal of becoming a student-ready college, this journal serves as a wealth of information on how we can meet our students where they are and how we can inspire our students to get where they want to be. I thank all who have made this journal possible, and I look forward to reading and learning.

A handwritten signature in black ink, reading "L. Joy Gates Black". The signature is written in a cursive, flowing style.

L. Joy Gates Black, Ed.D.
President

Message From the Vice President of Academic Affairs

It is with pride that I welcome you to the College's online journal of scholarly work of College faculty the *Journal of Innovation, Teaching and Digital Learning Excellence*.

Learning from others is essential to our personal and professional growth and learning from our peers is especially important when they are meeting and working with the same student population. With the publication of this inaugural issue and future issues of this journal, we hope you will learn new approaches to student learning and classroom pedagogy or find out about the latest topics in higher education.

Special acknowledgment for this publication goes to Dr. Alexandra Salas, Dean, Innovation, Teaching and Digital Learning Excellence, and Dr. Erica Danowitz, Professor/Reference and Instructional Librarian, who are responsible for the *Journal of Innovation, Teaching and Digital Learning Excellence*. Through this journal they seek to pique your curiosity, engage you in new conversations, and enhance your interactions with students.

Marian McGorry, Ph.D.
Vice President of Academic Affairs

Message From the Learning Commons

On behalf of the Learning Commons/Library Services, it is a pleasure to participate in the inaugural publication of the *Journal of Innovation, Teaching and Digital Learning Excellence*. This open access journal is made possible by the collaboration of the Office of Academic & Student Affairs, the Division of Innovation, Teaching and Digital Learning Excellence, and the Learning Commons/Library Services at Delaware County Community College. It showcases works submitted by College faculty related to their research interests, their innovative classroom engagement, and other intellectual pursuits that promote student success. It continues the great research and scholarship efforts of many employees at the College that the Learning Commons/Library Services division has documented at this website:

<https://learningcommons.dccc.edu/employeeresearch>.

This issue contains a wonderful assortment of articles written by an eclectic group that represent many disciplines. Topics include how to use Perusall, a social annotation tool, student engagement through art, Generation Z, Open Education Resources, and engaging students through storytelling in STEM classes. This research demonstrates the many intellectual pursuits and talents of the College's faculty.

I would like to thank everyone who submitted manuscripts for review. In addition, I would like to thank the editorial board who helped make this journal possible:

Lisa Carroll, Adjunct Faculty, Allied Health & Nursing

Jose Francisco Mazonett, Ph.D., Professor of French & Spanish, Humanities, Philosophy, and World Languages Coordinator

Tina Payne, Journal Production Editor, Carter Center for Excellence in Teaching

Alexandra Salas, Ph.D., Dean, Division of Innovation, Teaching & Digital Learning Excellence

Tina Shaffer, Ed.D., Instructional Design Specialist, Carter Center for Excellence in Teaching

Tatiana Sviridovsky, Associate Professor of Mathematics, Science, Technology, Engineering & Mathematics

Lastly, I want to thank Dr. Alexandra Salas for all her efforts in making this journal and its publication possible.

**Erica Swenson Danowitz, Ed.D.
Library Services/Learning Commons**

Foreword

It brings me great pleasure to launch the first issue of Delaware County Community College's first open access academic journal:

Journal of Innovation, Teaching & Digital Learning Excellence

In the space where websites, blogs, digital archives and search engines facilitate how we search for information, access to curated content still plays an important role in academia. It serves to showcase scholarship, introduce concepts, deliberate questions, and test ideas and engage perspectives. The intention behind this journal is to complement the celebration of scholarship at Delaware County Community College.

Disrupted by COVID-19 in 2020, production of the journal was delayed. At time of publication, this omnipresent pandemic has affected more than 20 million lives in the U.S. and taken too many, upwards of 500,000 deaths in the U.S. Higher education has most certainly been shaken, but our community at Delaware County Community College remains undeterred in its mission of excellence in teaching and learning and fully committed to student success.

Special thanks to our leadership, Dr. L. Joy Gates Black, president, and Dr. Marian McGorry, Vice President of Academic Affairs, for supporting this Delaware County Community College first, and to our editorial board, contributors, and the Carter Center for Excellence in Teaching for making it a reality.

Alexandra Salas, Ph.D.
Dean

Innovation, Teaching & Digital Learning Excellence

Journal Articles

Where Have All the Students Gone? Why College Students Drop Out

William Clifton, Ph.D.

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Abstract

DCCC, along with almost all higher education institutions, has seen a drop in enrollment over the last several years. This article discusses several of the reasons for this phenomenon and posits possible remedies at the community college level. The vast majority of reasons given for leaving college prior to degree completion are either course-related or personal reasons. Among the course-related reasons are being underprepared for college work; academic fit; lack of advising, mentoring, or guidance; instructor bonding; and instructor quality. Personal reasons include finances, employment, and peer bonding, both positive and negative.

Keywords: Student retention; student satisfaction; employment

Author Biographical Note

Dr. Rick Clifton is a retired US Army combat arms officer, former middle and high school principal, and international education consultant. He currently is an Adjunct Instructor of Psychology at Delaware County Community College at the Pennock's Bridge Campus. From 2011-2016, he worked as the Senior Advisor to the Minister of Defense in the Republic of Georgia and, concurrently, as Professor of Psychology at the Georgian National Defense Academy. He spent over two years in Baghdad, Iraq, as Senior Advisor of Combat Operations to the Commanding General of the Iraqi Army, and then as a Professor of Leadership at the Iraqi National Defense University.

He holds a PhD in Psychology with dual specializations in Educational Psychology and Developmental Psychology, a Master of School Administration degree specializing in Educational Leadership and Curriculum & Instruction, a Master of Arts degree in Political Science, and a Bachelor's degree in Political Science. He is a graduate of the US Army Command and General Staff College, US Army Ranger and Airborne schools, and the United States Department of Defense Strategy Course.

Less than 45 percent of students enrolling in a two- or four-year college or university graduate within four years (Kolodner, 2017). The impact of this matters: The longer the student spends in school, the less likely the student is to walk across the stage at graduation.

What, then, are the major obstacles to graduation? A quick literature review, taken from sources published since 2010, breaks the reasons down to course-related or personal. For this article the obstacles to graduation are synthesized into ten reasons., along with some possible remedies.

1. Financial constraints. College costs are becoming prohibitive. Public in-state tuition averages \$10,116 per year while public out-of-state tuition climbs to \$22,577 per year and private tuition averages \$36,801 (Powell & Kerr, 2019). Added to this is the growing national problem with student debt. According to the College Board, the average cumulative student debt balance in 2017 was \$26,900 for graduates of public four-year schools and \$32,600 for graduates of private nonprofit four-year schools (Hess, 2019). While community colleges remain a tremendous bargain, the costs are significant and many students either simply cannot afford them or choose to avoid substantial debt after graduation.

These costs can be ameliorated by financial aid in the form of grants or scholarships. While I have not personally researched the availability of these, I am comfortable that the financial aid advisors across the DCCC campuses are being proactive in reaching out to students in need of financial assistance. Unfortunately, many of our students rely on full or part-time employment to make ends meet. This brings us to reason #2.

2. Demands from part-time or full-time employment. One of the more common reasons for dropping out is being employed while studying. This is positively correlational: the more hours the student works each week,

the less likely s/he is to graduate on time or at all (Mestan, 2016). The number of hours the student works each week is critical: about 40 percent of undergraduates work 30 hours a week or more (Kolodner, 2017). A study by Hovdhaugen (2013), however, found that working more than 20 hours a week increases the risk of dropping out as much as full-time work. These results are the same regardless of gender, age, or socioeconomic status of the student.

For those students who do work, only 45 percent of students who work more than 20 hours a week are able to maintain a grade point average above 3.0, according to the Georgetown University Center on Education and the Workforce (Carnevale & Smith, 2018). The percentage goes down as the hours go up.

Those students who have no choice but to work must be closely monitored and dispensations may be necessary in assigning homework or other out-of-the-classroom projects. Students who work have an especially difficult time working on group projects. Working so many hours leads some students to limit the number of credits they take each semester to leave time for employment. This leads to reason #3.

3. The 12-credit fallacy. At most colleges and universities, students taking twelve credit hours a semester are considered full-time students. Doing the math, however, shows how this negatively impacts the student. Most undergraduate degrees require 120 credit hours. Assuming the academic program is designed for four years, or eight semesters, the student should be taking a minimum of 15 credit hours per semester ($120 \div 8 = 15$). Taking less than the minimum leads to students remaining in school longer, thereby incurring greater costs and possible debt.

Students, therefore, should be evaluated for their ability not to complete 12 credit hours per semester but 15. As instructors, we must identify those students and make the academic advisors aware of the ones who have demonstrated the capability of taking a full load of fifteen. We must also encourage those students to challenge themselves to take on a heavier load. This may mean taking classes over the summer or during accelerated sessions. That's fine; the goal is to complete each academic year with another 30 credits. This will require more direct instructor involvement and engagement with his/her students, and could prevent reason #4.

4. Lack of instructor bonding and mentoring. Each of us remembers that one college instructor who inspired us, who introduced us to new subject areas. Without this role model, many students fail to connect properly to the subject matter or to the institution itself. This lack of instructor bonding and mentoring leads many students either to transfer or to drop out completely (Lorenzo, 2012). This failure to achieve what Tinto (1998) called a "college as community" leads many students to feeling abandoned, isolated, or ignored (Horton, 2015). This problem is exacerbated when the student is academically underprepared for college work.

The remedy for this is more instructor engagement. We must make a sincere effort to engage all students, regardless of their level of preparation. This will require us to take a personal interest in our students and to identify early those needing extra help, whether in the form of tutoring, assistance during office hours, or accommodations. For those doing well, we must show our personal interest by encouraging the student to participate in the Honors Option and extracurricular opportunities such as the Psychology Club. To do this, however, we, as an institution, must make those opportunities available across all of our campuses. I have heard many students express an interest in the Psychology Club only to be discouraged at the idea of driving to the Marple Campus for meetings.

Failure to bond with instructors is one reason our students don't graduate on time; failure to bond with peers is another.

5. A sense of not belonging. Bernardo et al. (2016) found in their study that students who do not feel connected to their fellow students were more likely to drop out than those who reported strong feelings of comradery. This peer bonding can occur socially and academically (Melzer & Grant, 2016). At the community college level, unfortunately (or fortunately, depending on your perspective), there are fewer opportunities for social bonding such as football tail gating or Greek fraternities/sororities, so we must do what we, as instructors, can to boost

bonding within the classroom. This means doing more than simply lecturing for 90 minutes. We must reflect on how we are teaching and ask for ideas in making our content more engaging and meaningful to our students. We must look for opportunities for students to engage with each other, whether through small group instruction, group projects (keeping in mind the constraints placed on the student by the need to work), or class discussion.

As an experiment I conducted over several semesters, I asked students in the last week of class to tell me the names and one interesting fact about other students in the class. Most failed miserably, but it taught me a lesson: if we want a community of learners in the classroom, we have to work at it. This revelation changed my teaching in small, but significant, ways: I require students to make name tents and post them on their desks for the first three or four weeks of class; I use student names as examples and even on test questions (“If Rick takes two apples from five apples...”, etc.); I encourage (and sometimes require) students to sit in different seats surrounded by different people; and I often change seating arrangements from rows to circles so students can engage more easily with each other. I have even rearranged the seating during lectures to a U-formation so students can observe their peers.

6. Falling behind academically. Students today juggle more distractions than ever. They work more hours, they commute more, some have family responsibilities, and now there is social media vying for their attention. Unfortunately, time management is rarely a strong point in our student population. Students in high school spent 80 percent of their time in class and 20 percent on homework. In college, that ratio is reversed (Carnevale & Smith, 2018). For many students, it’s hard to cope.

If we want students to take more responsibility for their own success, we must give them the tools to do so. I dedicate two lectures a semester to time management and other factors inherent in college success. It takes away from content time, certainly, but the investment in those two 90-minute lectures pays off over time. Perhaps each instructor should be required to present a week of classes on college success. These lectures could be prepared by, or if individually developed, approved by the Office of Academic Affairs.

Additionally, we must continue to identify early those students who are falling behind and report them to the academic advisors. Students who are at risk of falling behind should meet weekly with an academic “coach” (this could be an academic advisor or an instructor), who helps them prioritize their work and connects them with tutoring services. Three missed meetings with the coach would be grounds for consequences up to and including not allowing the student to register for the following semester. Three strikes...

7. Transferring without doing adequate research. A paradox exists in our colleges: most academic degrees require 120 credits for a bachelor’s degree, yet most students graduate with approximately 135 credits on average (Carnevale & Smith, 2018; Mestan, 2016). Kolodner (2017) reports that while some credits may be accepted toward graduation they may not be accepted for requirements within a major. Students must be trained not to just look at how many credits will transfer but to ask, “How many of these credits will apply to my degree?”

Moreover, while one of the great advantages of community colleges is the opportunity to explore new subject areas, we must urge our students to choose a major prior to transferring to a four-year school. This will prevent a semester or more of floundering about while trying to decide on a major thereby requiring additional semesters after an expected graduation date.

8. Academic fit. Only five percent of two-year college students complete an associate’s degree in two years (Complete College America, 2019). We must accept that college is not for everyone. For many students, this makes DCCC and other community colleges the perfect choice: they can “test drive” college to see if it fits them. It is our responsibility to showcase the advantages of a college education, but, if it is not appropriate for that particular student, to redirect their efforts within the community college sphere, whether that means certification, workforce development and skills training, or a range of noncredit programs, such as English as a second language, skills retraining, community enrichment programs and cultural activities.

9. Too much fun at the expense of classes and grades. While the number of students who fail to thrive because of a misdirected focus on their social lives is unavailable or unreliable, it is a safe assumption that the numbers are considerable. Sadly, this is beyond our control other than fulfilling our obligations as a role model, coach, and mentor. While students should be encouraged to make the most of this time of their lives, we must be vigilant for signs of overdoing it such as coming to class hungover, failing to meet specific deadlines, or a decrease in attendance. We must recognize these signs and take the time to discuss our observations with the student, and, if appropriate, refer them to the on-campus guidance counselors for assistance.

10. Family demands. Nationally, 4.8 million undergraduate students are raising dependent children. Less than one in 10 students with children complete a bachelor's degree within six years of college entry, and 61 percent of women who have children after enrolling in community college fail to finish their degree. This is 65 percent higher than the rate for those who do not have children. Finally, unplanned births account for nearly one in ten dropouts among female students at community colleges, and seven percent of dropouts among community college students overall (Institute for Women's Policy Research, 2014). While we are not expected to take on a parenting role for our students, we are, whether we like it or not, role models, coaches, and mentors. It is fundamental for our success as an institution and as instructors, not to mention as human beings, that we do everything in our power to overcome these frightening statistics through education and referral as necessary.

In sum, recent declining enrollment numbers at DCCC and across the nation have made it imperative to keep every student we can enrolled and on track for graduation. By becoming aware of the reasons students leave higher education without a degree, or at best, complete their degrees outside of the "traditional," four-year program of study, we can forestall many of these events, overcome the obstacles facing us, and experience the satisfaction we feel when we watch "our" students walk across the stage.

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Teaching Generation Z

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Abstract

This paper will profile Generation Z and explore how they communicate, learn and work and the implications for higher education.

Keywords: personal learning, Generation Z, digital natives, instructional design, digital literacy

Teaching Generation Z

There have been several generations studied and analyzed in modern history. The Greatest Generation describes those born between 1928 to 1946, the Baby Boomers born between 1946 and 1964, Generation X born between 1964 and 1980, Millennials born between 1981 and 1997, and currently Generation Z born between 1998 and now. Generation Z (Gen Z) is the first generation born into a world with ubiquitous technology. This generation is comfortable with technology and even dependent on it. The introduction and adoption of personal technology devices and advanced learning platforms and management systems has initiated new opportunities for designing and shaping student learning. In a society where everything is on demand and instant gratification is satisfied, there is an expectation that education is also responsive to learners changing needs. Web search engines use natural language to conduct searches, devices using speech recognition to perform tasks, and even self-driving cars take care of daily mundane tasks (Joshi, 2017). What will this generation need to prepare for future careers that don't exist yet? What are the learning styles and needs of Generation Z, and what can higher education do to prepare for their arrival on campus?

Literature Review

Today's students expect uncomplicated, easy to digest content at lightning speed in the palm of their hand. As we look to the future of education, we must consider how current cultural trends, advances in technology and the growing desire for immediacy are influencing how students approach learning. Methods of instruction that resonate with an audience will help drive engagement. Therefore, insight into the demographics of the next generation of college students and their attitudes and expectations is necessary to determine how best to meet their educational needs. The purpose of this literature review is to profile Generation Z and identify higher education initiatives to prepare them for the future.

Portrait of Generation Z

Demographers and researchers classify students born from the 1998 until now as Generation Z. There are several names for this cohort some of which include: Post-Millennials, the iGeneration, Digital Natives and the Internet Generation. The literature concerning Generation Z focuses on how they use technology in their personal, educational and professional lives. This profile will highlight some characteristics related to technology and education. However, an in-depth analysis of the world as they have grown up, and world events that help to shape Generation Z's beliefs and perspectives is also valuable information but beyond the scope of this review. Since Generation Z is the first generation that truly has access to ubiquitous technology since birth, they are considered the first authentic digital natives. Digital natives are people who have grown up with and used technology since the day they were born (Jackson, 2015). They expect their devices always to be on and connected to the rest of the world. In comparison, digital immigrants are those that learned to use computers and technology in their adult life. The contrast between digital natives and digital immigrants appears similar. However, Prensky (2001) proposes there are differences and that digital immigrants always retain an accent in speaking the digital language. This accent is characterized by behaviors that reveal they are not true natives such as printing something to read, calling someone instead of texting or emailing, or preferences for face-to-face communication instead of online.

Generation Z makes up one-fourth of the US population and will become one-third of the population by 2020 (Sparks & Honey, 2014). They have one device that replaces many others used by previous generations. Mobile devices are their phones, answering machines, scanner, music player, map and GPS system, calendar, calculator, and computer. Telephones, fax machines, record and CD players, paper maps, print books and magazines, personal game players, and personal digital assistants have all been replaced by smartphones. In a study conducted by Seemiller and Meghan (2016), Generation Z students described themselves as “loyal, thoughtful, compassionate, open-minded, and responsible, suggesting that this could be a mature and focused group of students who have concern for others” (Kindle Locations 727-728).

Mark McCrindle, a social researcher with McCrindle Research and author of *Grown Up Digital*, has been studying Generation Z since 2007. He summarizes Generation Z as “the most connected, educated and sophisticated generation in history. They don’t just represent the future, they are creating it” (Kingston, 2014, p. 2). Sixty percent want jobs that will have a social impact, 72% want to start their own business, 26% volunteer and 56% identified themselves as savers (Sparks & Honey, 2014).

Motivators. There are many outstanding qualities in Generation Z. Eighty-one percent of Generation Z students believe college is crucial to starting a career (Loveland, 2017). Unlike millennials, they realize that not everyone gets a trophy and they need to work hard to succeed in life. They are motivated by not wanting to let others down, by opportunities for advancement and for earning credit toward something. Just as important as knowing what motivates Generation Z students is what does not. Unlike previous generations, the need to be validated by their peers or the public is not a driving motivator. Generation Z is not as motivated by money. They are more apt to work hard on something they care about than financial incentives (Seemiller & Meghan, Kindle Location 799).

Information Literacy. According to IBM, 90% percent of online content that exists today has been created in the past two years (IBM, 2015). One of Gen Z’s weaknesses is the belief that, if it is online, it is true. Even though they have grown up with using technology these consumers of digital content have not learned how to use technology to solve problems and how to analyze the quality and validity of information (Northeastern University, 2013). Information literacy is a foundation for student achievement and student success. It is the student’s ability to collect and analyze information and make educated decisions (Hignite et al., 2009). What computer literacy was to digital immigrants, information literacy is to digital natives. Computer literacy focused on the ability to use technology such as a word processor, presentation software or spreadsheet and the Internet. Generation Z students have been using this technology all their digital lives. The competency of information literacy is the concern for this generation of learners.

Technology Preferences for Learning. Generation Z’s world view comes to them through their preferred device, their smartphone. In a 2015 Pearson poll of students in grades four through twelve, 53% of elementary school students and 66% of middle school students, and 82% high school students owned smartphones (2015b). Email is the least preferred form of communication. They associate emails with something their parents do at work. Their communication preference is texting. They prefer graphics to text (Smith, 2012). Facebook is for millennials; Generation Z is Instagram. Generation Z has grown up in a 24/7 world and believe and expect everything to be always available. Elementary and middle school students are more likely to use a tablet to complete school-related work and high school students gravitate to using laptop computers (Pearson, 2015b).

Generation Z on Education. Gen Z will not follow traditional or chronological paths for education or work. They have short attention spans, and their learning paths will be non-linear. Learning will take place anytime, anywhere and on their terms (Sparks & Honey, 2014). Future educational methodologies should include hybrid courses that combine online and face-to-face instruction, 84% thought that was a better option than an exclusively online course. Gen Z likes to actively participate in creating their learning and prefers to learn independently and at their own pace. The ideal learning environment for Generation Z students is a combination of independent and hands-on with engaging faculty and supportive peers (Seemiller & Grace, 2016, Kindle Location 4072). Seventy-five percent of teens say there are ways of getting a good education other

than by going to college yet, at the same time, 66% of them still plan to attend college (Sparks & Honey, 2014). Generation Z students desire to learn in new ways, so traditional lecture-based instructional styles will not be motivational or beneficial. The implication is traditional educational institutions will need to adapt otherwise risk becoming obsolete. In Northeastern University's 2013 Innovation Survey, 72% percent of teens anticipated starting their own business, and 63% think colleges should offer courses on starting and running a business. This self-directed generation wants to be able to design their own courses or major, 97% want more experiential learning opportunities, and 89% want increased entrepreneurship education (Northeastern University, 2013). Generation Z has been self-identified as financially conservative, and 80% are concerned about the cost of higher education (Seemiller & Grace, 2016, Kindle Locations 1364-1365). Seventy-three percent feel that a no-frills education is a good option compared to a full campus experience. A full-campus experience is defined as having a residence hall or athletic facilities (Northeastern University, 2013).

Discussion

The Pew Research Center's Internet & American Life Project conducted a survey and found that 60% of digital stakeholders agreed with the following scenario about what universities will look like in the year 2020.

By 2020, higher education will be quite different from the way it is today. There will be mass adoption of teleconferencing and distance learning to leverage expert resources. Significant numbers of learning activities will move to individualized, just-in-time learning approaches. There will be a transition to "hybrid" classes that combine online learning components with less-frequent on-campus, in-person class meetings. Most universities' assessment of learning will take into account more individually-oriented outcomes and capacities that are relevant to subject mastery. Requirements for graduation will be significantly shifted to customized outcomes (Anderson et al., 2012, p. 4).

The previous statement makes several references to individualized learning, personalization and customization, and anytime-anywhere delivery. Higher education must adapt to the needs and expectations of a tech-savvy generation otherwise risk becoming obsolete. A technology infrastructure capable of providing personalized, anytime-anywhere education will be essential. The year 2020 is not far off and the first wave of Generation Z students are applying to and ready for college. What are colleges and universities doing now and what is planned for the future?

There are certain characteristics evident in the Generation Z profile that college and university leaders can leverage immediately, and others will require long-term planning and study for implementation.

Now. Colleges should expand offerings of hybrid courses since a large percentage of Gen Z students indicated were preferred over an exclusively online or traditional classroom course. This provides the opportunity to work independently but still within a structured framework. It also gives students the face-to-face time for social interaction, networking and time with an instructor. Unlike Millennials, Generation Z face-to-face conversations and communications are desired.

Higher education institutions should evaluate non-traditional pathways to offer credit for expanded alternative forms of education. Currently options are available for life and work experience, certification exams and advanced placement tests. Generation Z has had access to massive open online courses (MOOCs), TED Talks, YouTube videos, online just-in-time learning sources such as Lynda.com, Khan Academy, Code Academy (Anderson et al., 2012) just to name a few. Colleges could evaluate and convert these non-traditional educational experiences into college credit. Institutions should consider developing a course designed to assess and evaluate a student's prior learning that would in turn help them equate it to specific courses and competencies within their overall educational plan. As previously noted, the competency of information literacy is the concern for this generation of learners. The information literacy skills that are needed to support and promote critical thinking skills could be incorporated into an existing freshman course or student orientation course.

Faculty can further integrate technology into the curriculum by using educational apps available through textbook publishers and other app developers. These can replace or enhance other activities and make the experience more personalized and engaging. Well-known educational philosopher John Dewey believed that students thrive in an environment where they can experience and interact with the curriculum and take part in their own learning. He also maintained the theory that learning and education are social and interactive processes (Dewey, 2005). If listening to lectures and watching PowerPoint presentations is the only instructional technique in the classroom, it does not promote an interactive and social experience. Games can allow for “ongoing evaluation and feedback create opportunities for students to plan, iterate, and reflect on their own learning” (Salen, 2011, p. 12). Researchers, game-development executives, and education leaders at the 2006 Summit on Educational Games—a national conference convened by the Federation of American Scientists, the Entertainment Software Association, and the National Science Foundation—described video games as “able to teach higher-order thinking skills such as strategic thinking, interpretative analysis, problem solving, plan formulation and execution, and adaptation to rapid change” (Federation of American Scientists 2006, p. 3). Gamification would appeal to Generation Z since they are motivated by earning credit toward a larger achievement. At a minimum, professors can use gamification tools such as badges students can collect and share on social media (Seemiller & Grace, 2016, Kindle Location 4502).

Leverage learning management systems (LMS) and college apps to keep students informed is another opportunity. On average Gen Z students reach for a smart device every 7 minutes (Purcell et al., 2012). It makes sense to use this form of technology to interact with students. Generation Z does not use emails as a primary communication tool. However, they do respond to notifications almost the same way they would a text message. Most LMS communication tools offer students the option to opt in or out of notifications. Using push notifications college-wide or on a course-by-course basis will help students stay well-informed.

Future. Alternative forms of education should be adopted. Personalization and adaptive learning technologies are on the horizon for educational implementation. As these become mainstream, courses can be available on-demand and just-in-time. Students can direct the development of their own knowledge and the teachers can spend more time acting as a facilitator or mentor and less time in a traditional lecture environment. A study by Tullis and Benjamin (2011) found that when subjects could study at their own speed, they performed better than those who were required to keep a regimented pace.

A technology infrastructure capable of providing personalized, anytime-anywhere education will be essential. Artificial intelligence and machine learning can provide the platform for personalized learning. The terms artificial intelligence (AI) and machine learning are often used together when describing a computer that can work independently of humans. Artificial intelligence is a way to make machines think and behave intelligently. It is the technology that helps machines understand the world and react to situations the same as humans. Machine learning is a branch of AI, and it is the science of getting computers to act without being explicitly programmed. There are many examples of these technologies used every day. Web search engines use natural language to conduct searches, devices using speech recognition to perform tasks, and even self-driving cars are a result of the improvements made in machine learning algorithms and artificial intelligence technology (Joshi, 2017). “Google or Facebook use algorithms to estimate what users are looking for, or like how Netflix makes suggestions on what users may like to watch based on viewing habits” (Shaw et al., 2014, p. 25). Similar algorithms can be used for education to customize content.

Limitations

Pew Research Center respondents in both The Future of Higher Education and Big Data surveys were non-random and invited or recruited. Therefore, a margin of error cannot be computed, and the results cannot be projected to other populations. It would not be possible to replicate this study and expect to get similar results.

Demographic limitations. The Generation Z Goes to College Study by Seemiller and Grace (2016) partnered with 15 public and private educational institutions, only two were two-year institutions. They did have one participant from a community college that was an anomaly. It was noted that the respondent probably got the

link forwarded from someone else. Most the partners were four-year institutions. The demographic data did not identify the numbers or percentages of respondents from two-year or four-year colleges, so it cannot be ascertained if there was equal representation. The study also disclosed they did not have any single-gender, or historically black, for-profit or religious institutions. Seemiller and Grace also acknowledge the number of students in the study may not reflect the exact demographics of Generation Z.

These limitations result in inconsistencies in logic. Seemiller and Grace (2016) identify Generation Z as not being entitlement driven (Kindle Location 1330), but Northeastern University's Innovation Imperative Poll statistics show they want free education for everybody (53%) and free healthcare for everyone (64%). There are conflicting indicators within Northeastern's survey. Students indicate they are not motivated by money but feel that the gap between rich and poor Americans is harmful to their generation (61%). Seventy-five percent believe a higher education will let them earn the income they want, compared to an education making them a more well-rounded person (58%) (Northeastern University, 2013).

Conclusion

The first Generation Z students are arriving on college campuses and will most likely be the catalyst for changes that will need to be made in higher educational institutions. Faculty will either try to make students fit into their traditional lecture-style courses with some limited success or learn how to adapt to the educational needs of this cohort. They number over 60 million and the number continues to grow and are projected to outnumber the Millennials and Baby Boomers. The last time the U.S. saw such an influx of students that changed the learning environment was after the Servicemen's Readjustment Act (G.I. Bill) was enacted in post-World War II America. This quote from LIFE magazine captures similarities colleges of today will face.

Teachers find themselves dealing with a new kind of student, who is having a real and sobering effect on higher education. The veteran student is poor and hard-working. He has been around enough to make subjects like geography tough to teach. He wants a fast, business-like education and is doing his best to see that he gets it. He is getting better grades than the non-veteran and has forced higher standards on everyone else (Berman, 2015).

College professors will be dealing with a new kind of student who will have a profound effect on higher education. Generation Z students have only known a time of war and terrorism, and their parents have dealt with job losses and recessions. As a result, they are a hardworking and driven to succeed. While Gen Z students may not have been around the world, they have been virtually. It is likely these changes on the horizon will bring education to a new level of excellence.

Future Research

The results from the studies conducted at the college-level were from two-year and four-year colleges but none targeted community colleges. Community colleges differ in their student populations and their profiles may be dramatically different. They tend to have higher numbers of students from low-income areas and they often don't have the college-ready skills.

Quantitative Research: Is there a correlation between community college student success and use of mobile devices for schoolwork?

Qualitative Research: What are community college student's profiles for Generation Z? Do they share the same characteristics?

Mixed-Method Research: How does the use of personalized learning systems relate to course completion, student engagement and student satisfaction?

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Open Educational Resources: An OER Refresh

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Keywords: Creative Commons, Open Educational Resources, OER

Introduction

For too long, our educational systems have operated with a fundamental disconnect between practices left over from the analog world, and the vast potential of technology and the Internet to support more affordable, effective teaching and learning. The movement for Open Education seeks to close this gap. (SPARC, 2019)

The Open Educational Resources (OER) movement began in 2002, when the United Nations Educational, Scientific and Cultural Organisation (UNESCO) introduced the term at its Forum on the Impact of Open Courseware for Higher Education in Developing Countries (UNESCO, 2019). Much of the driving force behind OER efforts at higher education institutions has been driven by a desire to cut students' textbook costs, which have risen exponentially over the past few years (Peet, 2019; Senack & Donoghue, 2016). This paper reintroduces OER to the Delaware County Community College community by defining Open Educational Resources, the role of Creative Commons (CC), and providing a brief overview of the movement's issues and resources.

OER Definition and Creative Commons

OERs are learning objects, including textbooks, that are freely available, easily accessible, and have liberal licenses allowing for a variety of uses. These resources are available to be retained, reused, revised, remixed, and redistributed, what are commonly called the 5R permissions of OER (Lumen, 2017; Wiley, 2013).

Typically OER textbooks are licensed using Creative Commons that, depending on the license, allows for variations of the 5R permissions.

What is Creative Commons (CC)? First introduced in 2002, Creative Commons (CC) licenses are designed to address what are viewed as flaws in the existing United States Copyright Act when considering how information is created, used, and distributed in the current digital world. In the United States, copyright protections are automatic at the point a work is "fixed in a tangible format" (U.S. Copyright Office, n.d.). This is the case in many countries, which have signed onto the Berne Convention (WIPO, n.d.). The Berne Convention is an international treaty which sets minimum standards of copyright protection for those member countries (WIPO, n.d.). Typically, the restrictions that copyright protection provides creators is such that it inhibits the use of important material especially in the educational environment. Creative Commons licenses allows for this information to be retained, revised, remixed, reused, and redistributed. Creators are able to control how their work is used using four basic license elements with a total of six options of how they can work together:

Attribution License – CC BY

Attribution-ShareALike License – BY-SA

Attribution-NonCommercial License – BY NC

Attribution-NonCommercial-ShareALike – BY-NC-SA

Attribution-NoDerivates License – BY-ND

Attribution-NonCommercial-NoDerivatives License – BY-NC-ND (Creative Commons, n.d.)

It is important to understand what each of these elements allows. For works with the NonCommercial element, users are limited in reusing the work only for noncommercial purposes. This offers some limitations on the use of the work. NoDerivatives restrict users from sharing any adaptations of a work but does not prevent a person from creating the adaptation. Finally, ShareALike allows for adaptations of a work as long as it is made available under the same CC license as the original work. For those who would like their work to be freely available to all without any restrictions, CC does offer a Public Domain license option.

Regardless of the CC license, all require attribution in the use of the works. This is no different than providing attribution of scholarly works in a References or Works Cited page. The goal is to make it easy for those to know who created the work you are using. There are four elements for this attribution, which include the Title, Author, Source, and License (TASL) (Creative Commons, n.d.). Ultimately, CC licenses fit within the OER movement as they are designed to make information more freely available for anyone to use, revise, remix, and redistribute.

Evolution

The OER movement has grown significantly since 2002 with efforts varying by institution and state. Some institutions have implemented zero-textbook-cost degree programs such as the [California Virtual Campus](#) and [Northern Virginia Community College](#) while several states and larger higher ed systems have implemented OER initiatives such as [Open Oregon](#), [Open Washington](#), and the [California Community College](#) system.

In addition to institutions and state efforts, many organizations have arisen to support and promote OER such as the [Open Textbook Network](#), [OpenStax](#), [Lumen Learning](#), [SPARC](#), and [CCOER](#). OER conferences are numerous and include the Open Education Conference, Open Education Global Conference, and numerous regional conferences across the country and in Pennsylvania, such as the recent [OpenCon Philly](#). Furthermore, in Pennsylvania, PALCI's [Affordable Learning PA](#) supports OER in campuses across the state with training.

As the movement continues to grow, numerous tools have arisen to assist faculty in finding OER resources such as the [Mason OER Metafinder](#) from George Mason University and [OASIS](#) from SUNY Geneseo. Publishers such as [Cengage OpenNow](#) and [EBSCO Faculty Select](#) are taking note of the growing movement and starting to offer tools for finding OER, although for a fee and not without controversy (Bell, 2017). At some institutions, OER work has expanded beyond the strict definition of OER to include other affordable course content and library resources (NYU Libraries, 2019). Institutions that have broadened their work to include these affordable educational resources usually specify that these items be under a certain amount; for example, \$35 at the University of Colorado Boulder Libraries (2019) and \$50 at Penn State (Young & Johnson, 2019).

Benefits and Barriers

OER has both its advocates and critics. OER benefits include student savings, global good will in sharing educational materials, open licenses that allow for faculty to creatively remix educational materials, and equity of access to course materials (Lumen, 2017, Wong, 2019). The benefits dominate OER advocates' conversations and initiatives, but there are barriers that include both global and institutional issues. On a global scale, problems include access to technology and the global north dominating OER authorship (de los Arcos & Weller, 2018). Faculty barriers include misunderstanding of just what OER is, faculty time to adopt and/or develop OER, and difficulty finding suitable resources or textbooks in particular subject areas (Belikov & Bodily, 2016; McCrea, 2013; Phillips, 2018). Institutions and organizations are working to overcome these hurdles. Some institutions offer their faculty small grants to incentivize the creation of OER materials. Organizations such as [OpenStax](#) work with institutional leaders to implement OER and provide training and support. Additionally, organizations, institutions, and government agencies have provided grants to promote and support OER efforts. One such example is the Department of Education's [Open Textbooks Pilot Program](#) that recently awarded a \$4.9 million grant to U.C. Davis to fund their [LibreText](#) initiative (Lieberman, 2018; U.S. Department of Education, 2018). To further lend legitimacy to OER textbooks, organizations such as the [Open Textbook Network](#) (OTN) offer stipends for member institutions' faculty to peer review their open textbooks.

OER at DCCC

OER efforts at DCCC began in 2012, with the creation of the Alt Text Committee, led by Dr. Michael LaMagna. This group developed a strategic plan to align with the college's and began pursuing grants. Due to administrative changes, the committee went dormant, but open textbooks have been adopted in several courses and are being considered by faculty in others. Additionally, a new effort is underway to create an OER interest

group in order to bring together those working with and interested in OER to further build awareness, provide support, and facilitate professional development opportunities at DCCC.

Conclusion

The intent of this article is to provide DCCC faculty and staff with a brief overview of Open Educational Resources. OER and the Open movement is a growing trend in higher education and, as such, warrants educators to stay current with the issues, resources, and conversations surrounding this trend.

Select Resources

Below are a few resources that can help you jump into OER and stay current. Please see the DCCC [OER LibGuide](#) for more information and links to additional resources.

DCCC is a member of the Community College Consortium for Open Educational Resources ([CCOER](#)) and a campus partner of the [PALCI Affordable Learning group](#). Both offer excellent professional development opportunities throughout the year.

The Open Education Group is tracking all known empirical OER research in The Review Project (<https://openedgroup.org/review>).

[OER Digest](#) from [SPARC](#) provides a bi-weekly overview of OER news and efforts across the country and is a good way to stay up-to-date on this rapidly growing movement.

OER textbook providers include [OpenStax](#) and the [Open Textbook Library](#). Mega-search tools to find OER materials include [OASIS](#) and the [Mason OER Metafinder](#).

Connect OER provides a directory of North American OER initiatives and activities

<https://sparcopen.org/our-work/connect-oer/>

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Book Review

Generation Z Goes to College

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About the Authors

Corey Seemiller, Ph.D. has an extensive background in higher education and has served as both faculty and administration. Seemiller is an expert in leadership, civic engagement, career development and social justice. Currently, she is the assistant director in the organizational leadership program at Wright State University, Dayton, Ohio. Dr. Seemiller cofounded the Sonoran Center for Leadership Development in 2008. Seemiller previously authored *The Student Leadership Competencies Guidebook*, which was designed to guide educators in designing curricula to develop students' leadership competencies. Dr. Seemiller was honored to present "Generation Z: Making a Difference Their Way" at a TED Talk at TEDxDayton for an audience of nearly 1200. Her talk featured insight on Generation Z's views, attitudes, and behaviors around social change. Dr. Seemiller is a member of Generation X.

Meghan Grace earned an undergraduate degree in communication studies from Chapman University and a master's degree in higher education from the University of Arizona where she served as the coordinator for leadership programs. She currently works as the new member orientation director for Sigma Phi Epsilon fraternity. Grace is a Millennial.

While at the University of Arizona, Grace and Seemiller began their research and independent study on Generation Z, which became the foundation of the book., *Generation Z goes to college*.

Introduction

There have been several generations studied and analyzed in modern history. The Greatest Generation describes those born between 1928 to 1946, the Baby Boomers born between 1946 and 1964, Generation X born between 1964 and 1980, Millennials born between 1981 and 1997 and currently Generation Z born between 1998 and now. Generation Z (Gen Z) is the first generation born into a world with ubiquitous technology. This generation is comfortable with technology and even dependent on it. The introduction and adoption of personal technology devices and advanced learning platforms, and management systems have initiated new opportunities for designing and shaping student learning. In a society where everything is on demand and instant gratification is satisfied, there is an expectation that education is also responsive to learners changing needs. What will this generation need to prepare for future careers that don't exist yet? What are the learning styles of Generation Z and what can higher education do to prepare for their arrival on campus?

Generation Z Goes to College was written so educators, parents, employers, and students could gain a better understanding of Generation Z. Seemiller and Grace conducted the *Generation Z Goes to College* study and incorporated their results along with 295 sources to develop their comprehensive look at the newest generation reaching college age. The authors recognized that the Millennials had huge impacts on many areas of society including higher education. To be competitive and meet the needs of Gen Z, educators must understand them to prepare and adapt. The goal was to answer questions about how this cohort thinks, what is important to them, learning styles and preferences, motivations and strategies for working with Generation Z.

Overview

Generation Z Goes to College presents a detailed profile of the next largest generation, which is projected to grow to one-third of the U.S. population by 2020.

Chapter 1, "Who is Generation Z?" provides a brief history and characteristics of the generations preceding Generation Z. The chapter provides an overview of the previous generations and the events and influences that shaped each. The end of the chapter reveals some general traits and values of Generation Z that provide contrast and comparison.

The themes in Chapter 2 “Beliefs and Perspectives” details on technology use, trends to participate in religion, and their political ideologies.

In Chapter 3 “Communication Platforms and Preferences” and chapter four “Social Media Use,” Generation Z’s preferred methods of interaction are summarized.

Chapter 5 “Friends, Family and Romance” describes Generation Z’s relationships, and how social media and the digital world are influential.

Chapter 6 “Cares and Concerns” highlights issues that Generation Z identifies are most important. Employment, racial equality are at the top of the list, followed by war and violence, human rights, and political dysfunction.

Chapter 7 “Engagement and Social Change” provides insight on how Generation Z consumes the news and predicts how they will participate in politics and voting. Changing the world is a recurrent theme and this cohort.

Seemiller and Grace discuss how Generation Z defines leadership and what they look for in a leader in Chapter 8 “Leadership Styles and Capacities.”

Chapter 9 “Maximizing Learning” takes a look at the role technology and learning preferences, and other factors play in designing learning environments for Generation Z.

Chapter 10 “Working with Generation Z” pulls together the trends, experiences, perceptions, and styles of Generation Z and suggests six strategies helpful for working with this group.

Strengths and Weaknesses

Generation Z Goes to College is based on data from an in-depth study of over 1,100 Generation Z college students from 15 different U.S. higher education institutions as well as additional studies from youth, marketing, and education research related to this generation. Both Seemiller and Grace are former student affairs professionals who have studied and worked directly with Generation Z. This gives them insight on how to interpret the findings and apply them to higher education settings. After reading several other studies, articles and excerpts from other books, the authors’ depiction of Generation Z are comparable and validated. The authors translate the study data into an easily consumable book that contains strategies and recommendations for the higher education workforce.

The main weakness is the interpretation and application of the results were from the independent assessment of Seemiller and Grace. Gaining the viewpoint of other higher education professionals can give a broader lens to consider the implications of the data and offer more ideas on how to anticipate the needs of Generation Z students.

Conclusion

The goal was to answer questions about how this cohort thinks, what is important to them, what are their learning styles and motivations, and strategies for working with Generation Z. The authors met and exceeded their objective. *Generation Z Goes to College* is the first book to document how this next generation of students will affect higher education. It contains an in-depth profile of the generation born between 1998 and now. As we look to the future of education, we must consider how current cultural trends, advances in technology and the growing desire for immediacy are influencing how students approach learning. Methods of instruction that resonate with an audience will help drive engagement. Therefore, insight into the demographics of the next generation of college students and their attitudes and expectations is necessary to determine how best to meet their educational needs.

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Reflection Essays

Cultural Difference v. Intellectual Deficiency

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Why did I feel so confused during my law school torts exam that included an essay question on the malfunction of a crop duster? Was my understanding of tort law, after many hours of studying the night before, not enough to formulate an analytical response to the legal issue presented? By the way, what exactly is a “crop duster”? Frustrated by the situation, I would not discover the reason for my confusion until I became a professor years later. At the time, I would have never guessed that it was related to a cultural difference rather than an intellectual deficiency or unpreparedness.

During the exam, I felt defeated sitting in the stillness of the classroom watching the clock race by. I read and kept rereading the question. Occasionally, I would look to my right and to my left and would immediately feel overwhelmed with jealousy that the other students wrote their answers with more ease and confidence. Moreover, I was disappointed that my professor was not available for questions during the exam. After much time had passed, I analyzed the legal issue, still not knowing what a crop duster was. I wrote my best answer and submitted the exam. To my surprise, the grade that I received did not reflect the long hours spent studying for the exam. Analyzing and answering the exam question correctly assumed that the student was familiar with the way a crop duster should function.

By way of background, I grew up in Philadelphia, one of the most common metropolitan cities in the country. My childhood was filled with playing ball on the sidewalk, riding my bike down the street, and playing “tag” with my friends. My chores outside consisted of cutting the grass, raking the leaves, and washing the house windows. There was no farm, no crops to tend, and definitely no crop dusters. My cultural environment was a typical metropolitan-living experience.

Looking back at the law school exam experience, I readily see that there was a cultural disconnect that prevented me from analyzing the legal issue and thus, receiving a higher grade on the exam. Relieved by this epiphany, it wasn't until I became a professor of legal studies that I realized the importance of teaching the law through the lens of multiple cultures represented in the classroom. This approach, also referred to as Culturally Responsive Teaching (CRT), helps students from multiple backgrounds and cultures to grasp complex topics and succeed in an academic setting.

As a professor of legal studies for the past five years, I practice CRT, which has been at the forefront of my teaching strategies. There is no better setting than the classroom to use cultural diversity as a tool for helping students master rigorous content and creative thinking. Recognizing and appreciating different cultures in a classroom can help students feel more empowered to learn, feel connected to the material, and thrive in the classroom. The specific CRT strategies that I employ are:

Awareness: Information is placed in a relevant social political lens that increases student confidence.

Partnership: Trust and respect is built among students who have different cultural backgrounds that encourages more participation.

Analysis: Student intellectual capacity is strengthened which increases independent learning.

Community: The classroom becomes a safe space for learning because no culture is dominant.

At times, practicing culturally responsive teaching can feel challenging, but it is worth the effort when my students experience the positive outcomes. My law school experience during that torts exam continues to provide motivation for me to be intentional about infusing multicultural perspectives within a legal topic. It is my goal to continue helping students reach their academic potential by presenting the material in a culturally responsive way so that they don't have to question whether they are intellectually capable.

How Can We Get Students to Do the Reading? Perusall May Help

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I was first introduced to [Perusall](#) in an article called “The Fall, and Rise, of Reading” by Steven Johnson, published on the Chronicle of Higher Education. I was also quickly sent the link by several thoughtful colleagues around campus who associate me with the College-wide Reading program at Delaware County Community College. When I clicked on this article, I was looking for secrets on how to engage students for that program, but I found a discussion of this tool (Perusall) and its origin story. I was intrigued enough to investigate it over the summer and to begin using it in my own Writing About Literature (ENG 112) classes during fall 2019.

The question that this tool sought to answer is, “how do you know that students are doing the reading?” It was designed by a Physics professor at Harvard, so it is relevant in any course where readings are assigned. I have often moderated “class discussions” that are basically powered by a handful of students, and it is unclear whether those who are silent did not do the reading or if they are just shy. I’ve been told that professors attempt to solve this problem in a variety of ways, but the most common English professor solution seems to be a brief reading quiz given at the beginning of the period to attempt to tie the completion of the reading to a grade. (Of course, this only checks whether a student did or did not do the reading; it does not add to comprehension in any way, and it is an extra assignment for me to review and grade.) While I don’t personally subscribe to the belief that only things that are graded matter, our students are often motivated by grades. I’d like to make the case that, while Perusall offers an option to tie a grade to the completion of the reading, its advantages go far beyond that.

[Perusall](#) is a social annotation tool for readings that deeply integrates with Canvas. What this means is that students access Perusall through Canvas and use Perusall-linked assignments as the environment to read and engage with the assigned readings (that are uploaded or linked by the professor). Their comments are public—although they do have an option to make private notes for their own benefit, these are not graded—to the rest of the class, and professors can encourage interaction among students by assigning a scaled value to responses and “up-voting.” Think of this as the marginalia one might add in a book as one actively reads, but it is done digitally and shared with the rest of the class. Students are graded by Perusall on their engagement and “thoughtfulness,” but professors have a lot of freedom in terms of setting what counts toward the grade. (I’ve included more explanation of this concept below.)

The social aspect of this tool is important because we know that peer-to-peer teaching can often be even more effective than traditional pedagogy. In addition, many students of the incoming generations are pretty used to living their lives in public view. As a result, this environment is quite natural for them. When they first sign in, there’s a quick tour to introduce them to the layout of the tool, but past that, they find it quite easy to use.

How it works

If students want to comment on something, they highlight it in the main part of the screen and a text box pops up. The standard text editing tools are already available there, and they can use emojis (which they enjoy), paste in links or add pictures. When they are done creating their comment, they hit enter, and it appears for the rest of the class. To reply to an existing comment (which is shown in a column on the right next to any highlighted portion), they hit “reply” and repeat the same process. If a student’s comment ends with a question mark—or if the author clicks on the question icon inside their comment before posting it—other students can say “I have that question too” by also clicking on the question mark icon. The total question mark clicks are tallied and visible. If someone agrees with a particular comment, they can “up-vote” it by clicking on an exclamation point icon inside of the comment and this also becomes visible. (Oftentimes, I found myself highlighting particularly insightful comments from students in place of restating something in my own words. A note appears that it was “upvoted by instructor” for other users to see.)

One of the things that first drew me to Perusall over other tools—once I knew that Canvas integration was

possible—is the promise of something called a “[Confusion Report](#),” referenced in the original Chronicle article. This Confusion Report is generated for the professor after the deadline. It is supposed to show a summary of the passages that most confounded students.

I used Perusall in my English 112 courses, which are capped at 19 students per section due to the writing intensive nature of the course. I found that when I went to access the Confusion Report, the system told me that “not enough students had participated” for it to be generated. Since this tool began in a university setting, I have the sense that the minimum student count is fairly high and probably more reflective of the population of a lecture course. I don’t know what the magic number is that causes a Confusion Report to be generated, but someone in my Division mentioned that perhaps this could be worked around by cross-listing sections in Canvas. (The suggestion was to speak to Distance Learning about this option.)

The only consideration that might give me pause is that then all sections would have access to all of the public comments. This might not seem like a big deal, but I work very hard to foster a supportive environment inside each section, and it is possible—although, I would hope, improbable—that putting two different sections together might lead to some awkwardness or even bullying. (As we know with the rise of cyberbullying, it much easier to put someone down when you do not have to look them in the eye.) Of course, this is something that I would try to preempt by emphasizing etiquette for the online academic environment, but it is something worth considering if you decide to go this route.

Another point of consideration is Perusall’s accessibility. The designers have an accessibility statement that implies that it can be used with tools like screen readers, but DCCC’s Office of Disability Services shared that they have heard some negative feedback from colleagues at other institutions who are attempting to use Perusall with assistive devices. I made an alternate plan for my courses: I used to have an assignment called Notebook Pages that was basically marginalia/annotation for the pieces of literature I assigned. I still had that assignment in my Canvas course (just unpublished) and planned to offer it as a replacement to any student who might request it. Of course, the Notebook Pages assignment loses the social aspect that makes Perusall so powerful, but it does ask the student to engage deeply with the literature and produces a gradable result. This semester, I did not have any students who required this particular type of accommodation.

I also mentioned to students that Perusall would not work via the Canvas app (as many external tools will not, including Turnitin.com) and was probably not easily completed on a phone. In the introduction to Perusall SoftChalk lesson I first encountered—linked from the Canvas Community answers—professor Dallas Hulseley mentioned that he used it regularly on an iPad and he recommended this screen size or larger (Hulseley 2019). In the survey I sent them, no one reported difficulty with access.

Student Reactions to Perusall

So, what was the student reaction to this tool? It was mixed. I compare this to the common student reaction to the “flipped classroom.” Students sometimes have the impression that it is the teacher’s job to summarize readings for them, to show them what’s important, and to basically do the heavy lifting analytically. In the past, I’ve had students raise their hands halfway through a discussion and openly admit, “I didn’t do the reading, but…” and offer their thoughts based on what others have already said. I suppose each professor has to decide for themselves how they might react to this situation. Some might count this admission as “engagement,” and move on, but I’m teaching Writing About Literature courses, and I don’t think that one can effectively write about something that one has not read.

Despite informal student complaints, I decided pretty early on in the semester that this tool had some major advantages. Within a few class periods, I could tell that the level of the discussion in class was much higher, since we didn’t have to spend precious minutes (in just a 55-minute meeting slot) recapping what had happened in the reading. I also found some unexpected benefits in terms of new voices being added to the digital discussion. For example, I had one student who was on the spectrum. For our Frankenstein reading, he chose to link definitions for every word he did not recognize in this early 19th century text. Other students started

reading his definitions, and then I did not have to spend time in class explaining what a “valise” looks like. In class, they publicly credited him with adding to their knowledge base.

In general, I found that many of the comments I upvoted online belonged to students whom I barely ever heard from in the physical classroom environment. Sometimes it’s easy to see these quiet students as “checked out” of the class, but it became clear that they might have just been introverts. Since study after study of the American classroom tells us that our educational system privileges extroverts, this is one way to help balance things out.

I surveyed my students at the end of the semester asking them to reflect on their experience of the tool. I wanted to see if they sensed the same advantages and disadvantages to this tool that I had seen, so I gave them suggested answers as checkboxes to select. I also included a separate, non-required question where they could enter general feedback. I found that, despite their initial hesitation, many students eventually acknowledged the value of the learning they were doing in Perusall. The most popular response to the advantage of using Perusall was “...I felt that I was able to aid other students’ understanding of the text by contributing my unique voice.” Close behind that answer were the responses that suggested, “I felt more comfortable offering my feedback digitally...” and “I understood that the questions I had were not unique to me. It helped to know that others had my same questions.” No one marked that they did not see any advantages at all.

In disadvantages, the most popular answer with respondents was that they felt distracted by “the ‘presence’ of others in the text.” The process of reading both a text and the accompanying comments is something that each reader must learn to manage on their own, but I found that offering the ‘no comments’ option to students from the pulldown menu at the top helped students who wanted to read the text first on their own without seeing what others had marked. (This way, you can view the document unannotated inside of Perusall.) I also stored an unmarked PDF version of each of our texts in Canvas in case someone wanted to print the entire text to annotate by hand at any point. I only discovered this halfway through the semester—at the prompting of a student—so I will plan to integrate this into my Introduction to Perusall talk next semester. In general, the takeaway here is that each student must decide on their own what their preferred method is: is it to read the text multiple times (which I would encourage but rarely seems to happen), once for themselves and once for engaging with the class? ...Or are they able to manage this all at once?

Most of the open-ended feedback was positive. One person did complain that they would often put in “like 30 comments” and still get a low grade. I suspect these were short “that’s interesting!”-type of comments, which the algorithm does not consider high on the “thoughtfulness” scale. I mention more on grading below, but one complaint here does not seem like a good reason to stop using this tool. Another student mentioned that they wished there were still some more robust in-class discussions of the literature, and I generally agree with that point. There were several days this semester when I had to cancel class for personal issues, so I might have preferred more in-class discussion as well. This is something I hope to resolve next semester.

Accessing Perusall and Setting up Grades

You can experiment with Perusall if you’re using Canvas already. It is available under “Settings,” and “Navigation”—just drag it upward from the unused tools menu. To create a Perusall classroom for a particular course, add this tab initially and click on it to link Perusall with your course. Create assignments inside of Perusall and copy them back into the Canvas gradebook identically to ease the automatic transfer of grades. After that, remove the Perusall tab from your classroom and ask students to access individual assignments via those links. (I found that if students accessed the Perusall classroom through the tab, their grades would not transfer later on and I had to add them manually.)

In terms of how to set up grading, you have a lot of leeway. I do not recommend relying on the default settings for grading. If you’re interested in experimenting with Perusall, please reach out and I can take you through the combinations that I settled on. As a quick overview, the Perusall designers recommend you make it possible to receive 100% on an assignment in a variety of ways. In this course, I ended up making the students’ annotations 60% of the overall grade and additional behaviors I wanted to encourage (active reading, engagement with

others' posts, writing engaging posts that encouraged others to respond, upvoting, question-marking etc.) were worth something.

The Perusall designers encourage you to be vague about what is graded, so I never gave my students a direct “this many annotations means this grade,” even though they asked. Instead, I allowed them to see their grades—which refresh every hour, as long as the assignment window is open—and work until they were happy with the grade they received. There’s an error message inside of Perusall that says that this may encourage “gaming the system,” but I didn’t think of it that way. I thought of it as transparency: yes, I expect you to engage, and no, I won’t give you a minimum standard for what “engagement” means, but I will allow you to put in the effort to receive the grade you want. Generally, my assignments were open over the weekend, beginning on Friday morning, so anyone who wasn’t waiting until Monday morning to make all of their annotations could use this method.

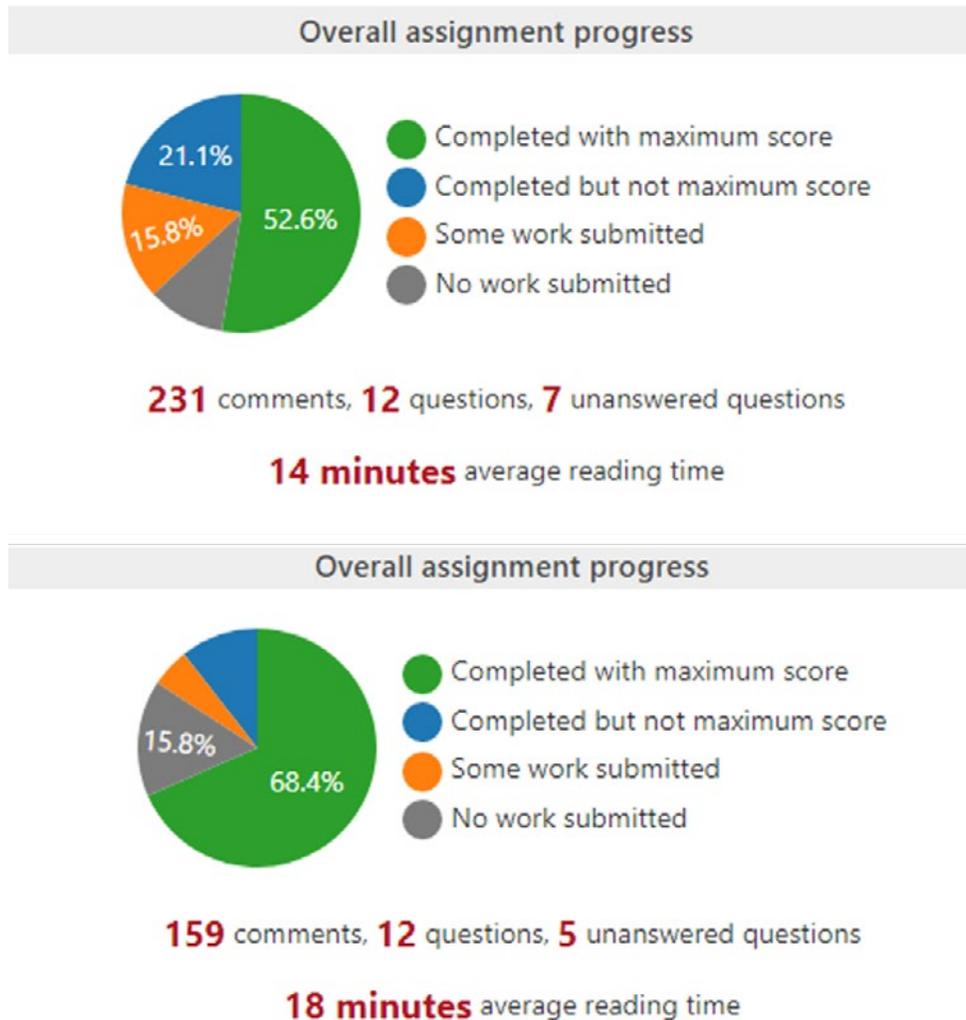


Figure 1. These two pictures give an overview of the engagement with a 12-page poetry reading over two different sections this semester.

If you are thinking of using Perusall in your course, I encourage you to experiment on a small scale. In my classes, I introduced a “practice” assignment first that was worth only a few points. I told students to try out the tool and ask me questions and then—afterward and without advance notice—revised all of the grades up to full credit. (Please note that overriding grades has to be done in Perusall by manually editing grades in their gradebook, otherwise—as I found—Canvas will refresh them back to the original value after a few hours.)

From then on, students understood that all system-calculated grades would stick. It is worth noting that there were no questions about how to use the tool, just about how the grades were calculated. Allowing them to see interim grades helped to combat this reliance on grades, and the questions petered out on later assignments.

If you are only using Perusall on some readings, you can upload .PDF files directly into the system as your assignment. (I'd guess that this is how they get around copyright issues, since the professor assumes the responsibility for copyright in the case of a PDF.) You may also assign websites, but I did not use this function this semester. (This is probably how I would assign Open Educational Resources, if you're interested in pursuing that route. My guess is that students annotate what is essentially a screenshot of the website.)

You can buy Perusall-enabled textbooks directly through their website, but I decided not to go this route, even though the textbook I'd already adopted for my course was available in this format. I decided this because their website makes it clear that Perusall cannot be "added on" after someone purchases the book through another supplier. I thought the headache of having students navigate this (with the complication of funds coming from various sources, used copies and older editions) would be overwhelming and provide an additional challenge for the bookstore. In my class, I used Perusall for the literature exclusively; I did not use it on the assigned textbook readings.

Please feel free to reach out if you have any questions or would like further information about my Grand Perusall Experiment: egray6@dccc.edu.

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Students Telling STEM Stories in their Own Voice

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In an increasingly complex and online world, many people have largely lost touch with the oral traditions of our ancestors-- the simple telling of a story. Audio provides a form of engagement different from visual media in that it requires the listener to engage their imagination to visualize what is being told. Being on the receiving end of audible information has an effect that is limited by the attention span of the receiver; however, being the producer of the narrative requires the full commitment of the mind.

For nearly a decade I have assigned a project to students in my introduction to Earth Sciences courses to complete a project such as a PowerPoint presentation or a term paper. Producing an audio narrative is a different process, however. It requires mastering the topic to the point that you can explain or relate it to others, then produce a coherent recording of the topic in a creative fashion. Albert Einstein once said, "If you can't explain it simply, then you don't understand it well enough."

For two years, I have been assigning my students to produce an audio narrative relating to the Earth Sciences. We use the software "Audacity" because it is free, easy to use, and works cross-platform on both Windows and Mac. I begin the process by playing professionally produced audios for the students to illustrate the range of possibilities. Next, in a laboratory exercise I introduce them to the software, give a short tutorial and ask them to make a quick recording, edit it in a few ways and submit it. In a subsequent lab we discuss strategies assure that data sources are accurate. The students are then, over the course of a month, required to first develop a team of one to three people to work on the project, then propose a topic, develop an outline, then a draft script, a draft audio narrative, then a final narrative.

I have left the format of the audio narrative as wide open as possible to encourage creativity. The results so far have been varied and range from interesting to absolutely stellar. The amount of creativity shown by the students is incredible. The final products include interviews, voicemails, mock newscasts, science fiction stories and lectures, to name a few. One student did a dramatization of a volcanic eruption from the point of view of the volcano, another produced a mock newscast, and another a futuristic audio diary of the aftermath of an eruption of the Yellowstone super-volcano.

Production of an audio narrative has the effect of introducing an element of creativity into a science course, something that most students don't expect. Most of my students are taking my class to fulfill their single science requirement for graduation. Many of them are expecting a boring class filled with dry facts and equations. The creation of an audio narrative allows the students to have fun with science.

The use of audio technology that is freely available makes this a project that seems to be inclusive for all students and allows them to further develop an essential skill for their future careers – the ability to communicate, especially to listen.

Having students produce audio narratives provides a unique classroom experience that gives students ownership of their learning and expression of what they learned. From my observations, it appears that student enthusiasm has risen, and enrollment has increased in my classes since implementing this strategy.

Community-Engaged Learning in the History of Graphic Design: Training Agile Art Historians

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Primary sources play a central role in Art History classrooms, where our discussions revolve around student encounters with works of art. At the introductory level, we train students to slowly and systematically view objects and develop specialized vocabulary to articulate the significance of their observations. We practice this in class conversations about reproductions projected upon a screen, and we require students to produce written analysis of the canonical artworks that appear in their textbook. However, the ultimate goal is for students to engage with works of art in person, particularly within cultural institutions whose mission it is to educate the public in the history of visual art. As a result, a cornerstone summative assessment within all introductory art history courses is the “Museum Paper,” an assignment built on a student’s independent visit to a local museum. Following the visit, students produce their own original visual analysis of an object they saw, which becomes the primary evidence within a short paper.

This assignment proves difficult for the History of Graphic Design. Most museums possess limited holdings of Graphic Design artworks, in part because these objects hold relatively little value within the hierarchy of media. Designed to be mass-produced and ephemeral, a poster often holds a far lower market value than a painting or sculpture. The fragile nature of the medium presents an additional challenge: works of art on paper are not stable enough to be exhibited more than once a decade at best. These problems compound within the community college setting, where economic and time constraints limit students’ ability to visit the museum at all outside of their academic, professional, and family commitments.

The inaccessibility of museums for community college students reflects a nationwide trend of inequitable representation within the fine arts industry. A 2019 study of 18 major United States museums revealed that 85.4% of the works in those collections are attributed to white artists, and 87.4% are male (Topaz, Klingenberg, Turek, Heggeseth, Harris, Blackwood, Chavoya, Nelson, Murphy). African Americans represent only 1.2% of the works, Asian artists a total of 9%, and Hispanic and Latino artists only 2.8%. The demographics of arts administrators, curators, and critics exhibit this same lack of diversity. Even in cities with diverse populations like New York City, a study conducted by Southern Methodist University discovered that 66% of workers in New York’s art institutions were white, despite the fact that only 32% of the city’s population is white (SMU Data Arts, 2019).

In order to transform those statistics, educators must engage fine arts students from underrepresented groups in museum activities early within their education. At Delaware County Community College, the Office of Community Engaged Learning funds curricular field trips that accomplish just this purpose. With financial support from this office, I developed an assignment that does more than simply place our students in the museum’s public galleries. Rather, the revised History of Graphic Design Museum Paper revolves around a visit to the Philadelphia Museum of Art’s Print Study Room and Library. Any museum that collects works of art on paper has a print study room; embedded within a curatorial department, these spaces grant access to objects that rarely appear on museum walls. Museum libraries and print study rooms are free and open to the public by appointment, yet few undergraduates are aware of this resource. Placing these unadvertised channels of art historical research into their hands, students experience museums as spaces designed to support their intellectual activity. No longer passive visitors to the gallery, my students are now contributors to the scholarship surrounding the History of Graphic Design.

Designing the Museum Paper around a visit to a print study room required a significant revision of the assignment. In the traditional “Museum Paper,” the writing process begins after the student views the object, but this is not the way an art historian would encounter artworks within a study room. Rather, the visit to the study room occurs after significant preliminary analysis of the artwork. Accordingly, I restructured the assignment

to be a scaffolded research paper with the museum visit placed at the middle of the assignment timeline rather than the outset. This shift repositions the museum visit as a testing ground for their existing research hypothesis rather than a point of departure for the overall project. For students, the study room visit is a moment of reckoning:

Do my ideas about an object continue to hold upon closer examination of the primary source?

What additional information emerges now that I have seen it in person?

In compelling them to adapt their ideas throughout the assignment, the museum visit engages what future-of-work strategist Heather McGowan calls the Agile Learning Mindset (2019). This pedagogical approach emphasizes four qualities in learners: agility, adaptability, awareness, and agency. Rooted in predictions about the Fourth Industrial Revolution, McGowan argues that humans will have to continuously learn new skills throughout their careers. Consequently, this mindset trains learners to produce agile responses to new situations, adaptable solutions to these circumstances, awareness of the arenas most likely to experience change, and agency in the construction of new learning. Such a worldview is familiar to any practitioner of humanities research, as we must adapt our hypotheses to new information provided by our encounters with primary resources. This flexibility is essential for our students, thereby positioning the History of Graphic Design project as a space for the development of both art historical and critical thinking skills.

The project depends upon student engagement from the outset, beginning with the selection of a research object. While typical “Museum Papers” give students a list of five objects, I collaborated with curatorial fellows at the Philadelphia Museum of Art to assemble a list of thirty potential research objects. Some of the artworks have never appeared in the public galleries, which means there is almost no secondary research available to students. While the lack of scholarship presents an opportunity for the student to make a major contribution to the field, it is also intimidating for introductory students to navigate a line of research in such uncharted spaces. To alleviate these nerves, I encourage students to trust their emotional responses to the artworks. This advice comes from material culture analysis developed by Jules Prown. Prown (1989) writes that selecting a research object “depend[s] on a linkage – formal, iconographic, functional – between the object and some fundamental human experience” (p. 2). Prown emphasizes that our own experiences enable us to recognize significant patterns and disruptions within visual art; in trusting our instincts about an artwork, we can identify research questions that we are uniquely suited to answer.

The next step is a close narrative description of the object. This translation of material object into narrative description is central to the work of an art historian, because it establishes the scholar’s voice as the driving force behind the overall analysis. I assign the written description before students even begin research, as it trains them to place their own analysis of the object at the outset of the process. It also encourages continuous writing across the entire semester, not just during the writing of the final paper. After this submission, I dedicate a week of class time to one-on-one meetings with each student during which we discuss their narrative description as a databank from which to form research questions. I also schedule a class session in the Learning Commons; here, students participate in a workshop on research practices and the identification of materials available within the Museum Library. For my students, accessing its specialized books and databases are an essential step in acquiring the secondary sources necessary to build their arguments. The Learning Commons session helps them to compile a list of specific books to request at the Museum Library, along with electronic journal articles to download from the Museum’s discipline-specific databases.

The final step before the visit is to submit a research prospectus and annotated bibliography. The research prospectus features a tentative thesis, along with the elements of visual analysis that the student believes will be most relevant for the argument. The annotated bibliography includes four sources along with what information the student expects to find there. This assignment is the framework for the museum visit, as it is this tentative thesis that comes under scrutiny when the actual work of art appears.

At the museum, we spend an hour in the print study room and an hour in the Museum Library. Students spend

the first twenty minutes of the study room visit simply looking at the object and recreating the experience of the original analysis. This time, however, they have to try to see it with fresh eyes and think about what is different about the object in person rather than in reproduction. Following the twenty minutes of silence, we take turns walking around the room and looking at each other's objects. The students describe their new observations about their subjects, and I encourage them to comment on each other's work. This activity serves two purposes. Primarily, students gain immediate feedback on their visual analysis and assemble new evidence for their research. However, it also builds community among the students themselves, as they all become intimately familiar with each other's artworks and research questions. This leads to greater student engagement in the research presentations in the latter part of the semester.

After the study room visit concludes, we move as a group to the Museum Library, where the librarian has already pulled all the books requested. The hour-long library session becomes a mad dash to photocopy and download as much material as possible. There are only four computers available, which means that students need to come to the library prepared with exactly which articles they wish to access and which databases they need to accomplish these goals. As a result, they become comfortable with the resources available to them at the library and proficient at immediately accessing those materials.

After the museum visit, I assign a response paper that requires students to reflect upon their visit to the print room and how it challenged their research questions. To grade the paper, I developed a rubric in collaboration with Krishna Dunston, Director of Outcomes Assessment, Institutional Effectiveness, that incorporates specific aspects from McGowan's agility mindset. I measure how effectively students responded to what they observed rather than what they expected or assumed about the object. Successful students were able to identify changes in their own perspective and link these observations to new questions about the object. These new questions form the basis for subsequent steps in the research project, which culminates in a class presentation and research paper.

At its most basic level, this assignment brings community college students to the Philadelphia Museum of Art, a space that many students have neither the time nor financial resources to visit on their own. However, by embedding them within a curatorial department, the assignment grants them inside access to the workings of this institution, thereby demystifying its impressive façade and encouraging them to produce scholarship on its collections. Such an experience during an introductory course is a vital strategy if we are to correct the biased representation within the fine arts industry. Additionally, the agile critical thinking methods emphasized within the structure of the assignment trains them to respond to changes within their workspaces and adapt to new challenges they may encounter in any professional situation.

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An Incan Flute and Blue-Footed Boobies: The Case for Quality Online Course Design

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Abstract

Quality Matters (QM) is a faculty-centered, peer review process that is designed to certify the quality of online and hybrid courses. With the goal of fostering a culture committed to creating and maintaining quality online courses, the author discusses three compelling reasons to be involved in the QM program at Delaware County Community College. Namely, that involvement benefits students, instructors, and the college.

Keywords: online, Quality Matters, course design, peer review

Author Biographical Note

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An Incan Flute and Blue-Footed Boobies: The Case for Quality Online Course Design

When I was in sixth grade, my Latin American history teacher, Mrs. Bridgeman, would walk around the room playing an Incan flute and sing songs that would help us to remember important information. To this day, I still know the refrain of her song about Maracaibo oil and that blue-footed boobies live in the Galapagos Islands. Like Mrs. Bridgeman, as educators, we desire for our students to have a meaningful and enriching educational experience. One way to accomplish this in the online classroom is to apply the benchmark standards used by Quality Matters. Quality Matters (QM) is a faculty-centered, peer review process that is designed to certify the quality of online and hybrid courses. With the goal of fostering a culture committed to creating and maintaining quality online courses, there are three compelling reasons to participate in the QM program at Delaware County Community College (DCCC).

First, the QM program is beneficial for students. They are presented with a course that has met national benchmark standards for a quality online course including, but not limited to, clear expectations, intentional active learning, and purposeful content. For example, one of the QM standards focuses on introducing students to the course, which includes making it clear to students how to begin the course. Something as small as including a “start here” title in a module can make a huge difference for a student logging into a course for the very first time. Additionally, providing active learning opportunities such as interactive quizzes and learning objects moves students from passively engaging with content to participating more fully in the learning process. Students who have taken a QM certified course at DCCC often comment on how the design of the course makes a difference in their learning experience:

“I think the whole design of the course was intuitive and definitely focused from my lens vs. the teacher’s.”

“This was the first online course I took that I didn’t feel that I was paying to read the textbook and take an exam.”

“I appreciate that all work, videos, etc. are clearly organized and easily accessible.”

Second, the QM program is beneficial for instructors. QM provides faculty with the opportunity to participate in a collegial peer review process that strengthens their online course design skill set. Understandably, some instructors might be hesitant to have their course peer reviewed because receiving peer feedback may feel

vulnerable. QM recognizes this hesitancy and has purposefully created a program based on collegiality. All peer feedback is written with an encouraging tone based on QM's philosophy of continual improvement. It's not uncommon for an instructor to wait to submit a course for review until they have accomplished a list of changes they'd like to make. An educator who is committed to quality course design is likely never to feel like their course is ready for a review as they are always working to improve it. The benefit of submitting a course for review without waiting for the perfect moment in its design is that an instructor is able to receive targeted feedback that can provide a roadmap for how to proceed with the course design according to QM standards. Reflecting on her experience having her course peer reviewed, one DCCC faculty member shared, "Although I had good success rates in my online courses, students seemed to struggle at the start of the course. They were not sure how to get started. During my internal review, I was told I have all the information in my course, but the reviewer helped me reorganize that course. This reorganization of information has led to less questions at the beginning of the course." Perhaps most importantly, submitting a course for peer review ensures that students are being presented with a quality course based on national benchmark standards. Such course design promotes student success.

Third, the QM program is beneficial for the college. QM provides evidence of its commitment to offering quality online courses that follow national benchmark standards. The QM program at DCCC aims to establish a systematic assessment of the structure, formatting, and curricular integrity of online courses. To this end, the College has established a formal orientation program required for faculty teaching online courses. Additionally, online course design support is provided as well as the opportunity to have online courses peer reviewed. Courses which receive certification are recognized publicly by QM in their online directory and faculty who have designed QM certified courses are recognized at the annual DCCC faculty awards ceremony. By supporting the QM program, the college joins more than 1,500 other institutions who recognize the benefit of providing quality online courses for students.

When I was in the sixth grade, I dreamed of visiting the Galapagos Islands. In 2014, that dream became a reality. While seeing a blue footed booby in person was amazing, the best part of the trip was being able to share the photos of the trip with Mrs. Bridgeman upon my return. In that moment, I was reminded all over again about why quality course design matters. Designing courses using QM benchmark standards and having a course peer reviewed is like playing an Incan flute and singing songs about Maracaibo oil—it's an act of courage and vulnerability that benefits students, instructors, and the college.

A Reflection on Adapting Teaching to Adaptive Learning

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Abstract

When faced with using adaptive learning technology instead of a textbook as the main material for a course, how does teaching need to be adapted? Reading assignments and lectures need to be re-thought. Connecting class time and traditional assessments to the adaptively learned material requires a clear understanding of the course's focus on the topics. Overall, teaching a course that uses adaptive learning technology presents challenges for instructors, but students seem to benefit from the tailored learning experience.

Keywords: adaptive learning, learning technology

About the Author

Juliet C.B. Christopher, Ph.D. (jchristopher4@dccc.edu) is an adjunct instructor for the Computing (Data Processing Reports / Computer Information Systems) department in the Business, Computing & Social Science division. Before starting at DCCC Exton Center in the fall of 2011, she taught at DePaul University in Chicago as a Visiting Assistant Professor from 1999 to 2002. Although she focuses on teaching computer programming courses, she started teaching Introduction to Information Technology (DPR 100) sections in the fall of 2012 and will be teaching her fifteenth DPR 100 section in the spring of 2020.

My first practical introduction to adaptive learning was an accelerated section of DPR 100, Introduction to Information Technology, in the fall of 2018. The newly chosen textbook for the course was McGraw-Hill Education's Connect Master: Investigating Technology which uses adaptive learning technology to teach students the course topics. The idea behind adaptive learning is to tailor the length and depth of exposure of topics based on each individual student's prior knowledge and demonstrated learning of the topics. (McGraw-Hill, 2020) Using an adaptive learning tool as the textbook necessarily and fundamentally changed the way I approached teaching the course, from reading assignments to lecturing to assessing student performance.

Replacing Traditional Reading Assignments

My first task was to experience the online textbook platform material for myself. The introductory material covers how the adaptive learning technology works. As I discovered, learning the material involves answering questions without first being introduced to the material. I found myself wanting to read up on it, but this was not a traditional textbook experience. I learned that, along with questions about the material being taught, the adaptive learning technology asks for the students' level of confidence in their answers and uses that information, along with whether a question was answered correctly or incorrectly, to decide whether to present more questions on the same topic. Instead of traditional reading assignments, therefore, I realized that I would need to consider what topics and what depth of those topics to assign in order to meet the course's learning objectives (or focus).

Reflecting the Course's Focus

Based on the DPR 100 Master Course Outline, choosing the major topics, which I still think of as "chapters", was straightforward. However, when assigning a "LearnSmart Achieve" assignment (the "Investigating Technology" equivalent of a chapter of reading), I discovered the opportunity to choose which subtopics to include as well as the overall depth of coverage. I feel that these choices can be used to reflect the course's focus, as interpreted by the instructor.

The fine-grained nature of choosing the subtopics lets the instructor tailor the material the students should be learning in the course. Setting the depth of coverage, measured as the average amount of time students will spend learning the material, enables me to emphasize what I feel is important in the course topics. Over the

course of teaching that online accelerated session in Fall 2018 plus two traditional full semesters since then, I have tweaked the “LearnSmart Achieve” assignments in a way that reflects my focus on the course as well as the course’s learning objectives.

Encouraging and Assessing Student Learning

One challenge when teaching the in-person DPR 100 classes using the new adaptive learning technology approach is how to engage students in learning the material in class. Since the point of adaptive learning is to tailor each student’s learning experience, a traditional lecture format covering each topic and subtopic in depth feels counterproductive. In addition to some in-class activities and group discussions, I have opted for covering highlights from each chapter when students are in the early stages of the “LearnSmart Achieve” assignment, and then having a review and Q&A session before the formal assessment on the chapter.

The formal assessments on chapters are online quizzes with multiple-choice, check-all-that-apply, matching, fill-in-the-blank, etc., questions from the publisher’s test banks, similar to the previous textbook publisher’s quiz tool. These are not adaptive assessments, but they provide a measure of each student’s overall grasp of the material. Students review for the chapter quizzes, as well as exams, which cover multiple chapters, by using the “Recharge” option on the “LearnSmart Achieve” assignments. Instead of having to review well-known subtopics in depth, the adaptive learning technology tailors the review to each student’s demonstrated understanding of the material. This adaptive learning review capability eliminates the need to have extensive in-class reviews to ensure the students’ understanding of the topics.

Final Reflection

Anecdotally, students have appreciated the adaptive learning experience. In the DPR 100 capstone project that I assign, an e-portfolio that calls for reflection of the student’s educational journey, one student this past semester (Fall 2019) commented on feeling better able to retain information about unfamiliar topics using the adaptive learning technology. I aim to have an anonymous survey to gauge the students’ experiences with the “LearnSmart Achieve” assignments as well as the formal assessments ready for future semesters, which will hopefully inform my future use of adaptive learning technology tools.

Reference

McGraw-Hill. (2020). *Connect Master*. <https://www.mheducation.com/highered/connect/master.computer-concepts.html>

