

Technology-enhanced High Impact Practice for Authentic Learning

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Abstract

Today, most college students are steeped in technology for both academic and social activities. In their attempt to enhance student learning, higher education institutions incorporated innovative student-centered methods, such as the American Association of Colleges and University's high impact practices (HIPs), and projects that foster collaboration among students. This study explored the Students Working in Interdisciplinary Groups (SWIG), a technology-enhanced collaborative assignments and projects at Queensborough Community College, which claims that using technology engages students in authentic learning, where they asynchronously collaborate to create and disseminate products that address discipline specific learning outcomes. Analysis of student's reflections and Wiki interactions from in fall 2013, spring 2014 and spring 2015 showed that while completing the assignment using the available technology, students were engaged in authentic learning, developed media literacy, and achieved discipline specific learning outcomes. The students were also able to transfer the skills acquired from this project to their other courses and their future careers.

Keywords: Authentic Learning, Collaborative Assignments and Projects, High Impact Practices, Reflections, Technology-Enhanced Learning

Introduction

Higher education institutions are expected to engage students in broad based learning and in-depth study of a specific area of interest that empower and prepare students to deal with the complexity, diversity, and change around them. Accordingly, they have strived to fulfill the mandate to help students develop a sense of social responsibility, strong and transferable intellectual and practical skills, as well as the ability to apply knowledge and skills in real-world settings. Former U.S. Secretary of Education, Arne Duncan, urged colleges and universities to provide educational experiences that set students on a path to success; afford them the control of their future; and help them thrive, support a family, shape the world, and contribute to their communities (Duncan, 2015). Many teaching and learning approaches, methodologies, and strategies have been proposed, implemented, assessed, and researched to find effective ways to achieve the educational objectives and outcomes of the institutions. Authentic, integrative, and collaborative learning approaches have been proven to engender experiences that bring these desired learning outcomes.

In the Pew Internet and American Life Project survey of college students, Jones (2002) found that at the turn of the 21st century, college students adopted technology early and used the Internet heavily.

A recent study by Educause's Center for Analysis and Research confirmed this trend in that "technology [was] embedded into students' lives, and students are generally inclined to use and have favorable attitudes towards [it]" (2014, p. 4). The habits of these 21st century students include being digital, mobile, independent, social, and participatory (Lomas and Oblinger, 2006). Many college students today are digital natives who effortlessly navigate various social media platforms. College educators have tried to capitalize on students' digital fluency and technical dexterity to help them engage in authentic learning to acquire a level of rhetorical proficiency in preparing for their future. They explore and infuse features of Web 2.0 tools as ways to create, collaborate, and share information in their teaching that might facilitate authentic learning.

This study explored the learning and experience of students who enrolled in College Composition courses (English 101) at an urban community college and completed an interdisciplinary collaborative assignment that was enhanced by technology. Qualitative data in the form of students' interaction on the Wiki and reflections were collected and analyzed for the authentic learning and achievement of discipline-specific learning outcomes.

Literature review

Authentic learning is commonly described as a "pedagogical approach that allows students to explore, discuss, and meaningfully construct concepts and relationships in context that involve real-world problems and projects that are relevant to the learner" (Donovan, Bransford and Pellegrino, 1999 cited in Doyle, 2011). Along this line, Sorensen and Murchu (2005) suggested creating conducive processes that encourage holistic, genuine, and meaningful learning to cultivate motivation, initiative, ownership, and joyful engagement in the learning process. Such learning, they concluded, represented a "joyful, holistic, democratic, and transformative process that unfold[ed] collaboratively and genuinely, anywhere and anytime, in a framework and context that soulfully allow[ed] the learner to create or energize" (p. ix).

Authentic learning can result from integrative learning, which the American Association of Colleges and University (AAC&U) defines as "an understanding and a disposition that a student builds across the curriculum and co-curriculum, from making simple connections among ideas and experiences to synthesizing and transferring learning to new, complex situations within and beyond the campus" (2009, para 2). Both authentic and integrative learning highlight the importance of collaboration and reflections. Newmann and Wehlage (1993) emphasized that authentic instruction required students to "construct meaning and produce knowledge, inquire to construct meaning, reflect and discuss information, and create or perform tasks that have value of meaning beyond success in school" (cited in Cydis, 2015, p.69).

In their attempt to enhance student learning, higher education institutions have supplemented the instructor-centered lecture style with innovative student-centered methods and multilayered projects that foster collaboration among students, such as AAC&U's high impact practices (HIPs). HIPs—first year seminars, common intellectual experiences, learning communities, writing intensive courses, collaborative assignments and projects, undergraduate research diversity/global learning, service learning, community based learning, internships, and capstone courses and projects—correlate positively with deep and authentic learning (Kuh, 2008) because they require students to spend more time on meaningful tasks and actively communicate with faculty and peers over a sustained amount of time. These practices also expose students to other cultural backgrounds as a by-product of increased

interaction, provide more feedback to students, encourage students to apply and transfer their knowledge from one course to another course or experience, and in some cases, provide a life-changing event.

Research on some HIPs showed that they had positive impacts on student learning and higher levels of success occurred when students participated in multiple high impact practices (Brownell and Swaner, 2012; Finley, 2013). In addition, Kilgo, Sheets and Pascarella (2015) found that collaborative learning and undergraduate research were consistently significant, positive predictors for nearly all of the liberal arts educational outcomes. Brownell and Swaner (2012) and Finley (2011) also showed that five of the ten HIPs—first year seminars, learning communities, undergraduate research, service learning, and capstone experiences—had significantly improved persistence and graduation rates, particularly among minority groups.

One of the HIPs, Collaborative Assignments and Projects (CAP), implements learning which “combines two key goals: learning to work and solve problems in the company of others, and sharpening one’s own understanding by listening seriously to the insights of others, especially those with different backgrounds and life experiences” (Kuh, 2008, p.10). To put it differently, collaborative learning engages students to be active participants in a group activity toward a common goal of constructing and transforming knowledge (Dooly, 2008). Collaborative learning has also been proven to benefit students academically, psychologically, and socially (Laal and Ghodsi, 2011).

Analyses of future industry, labor, and the job market indicate high demands for people with the ability to understand, use, and integrate knowledge and methods as well as to collaborate with teams across industry sectors and cultures using technology. In its *21st Century Skills and the Workplace*, Gallup, Inc. (2013) deemed seven skills—collaboration, knowledge construction, problem solving and innovation, self-regulation, use of technology for learning, and skilled communication—necessary for youth to develop to prepare them for the challenges and demands of the future work. From this perspective, collaborative learning can be beneficial in two areas. First, it can overcome the academic silo structure within higher education (Senge, 2006), where students are conditioned to perceive the world through the narrow lens of their major after they complete their general education requirements. Engaging students in interdisciplinary collaborative assignments or projects also prepares students for the challenges and demands they face outside the classroom.

Technology has changed how knowledge is produced, acquired, and used. Incorporating technology in teaching has brought many benefits, such as providing educational opportunities for all and allowing interaction among learners, learning materials, classmates, and instructors (Khatib, 2014). And as technology becomes an integral part of college students’ life (Lenhart, 2015), higher education institutions have explored ways to help students develop in the disciplines and to harness students’ social existence and technology use—such as posting links, images, or comments in social media—into their academic setting that encourage them to collaborate and interact positively with people from different experience, values, abilities, and ways of thinking.

In the second decade of the 21st century, hundreds of Web 2.0 tools and applications exist, each featuring different functions and characteristics, such as text- or image-based, audio, video, and multimedia production, digital storytelling, website creation, knowledge organization, and assessment tools (Bower 2015; Lomas, Burke, and Page, 2008). These Web 2.0 tools enable many forms of

technology-enhanced learning that were more interactive and accessible, including instant messaging (IMs), enhanced voice communication, image sharing, document or multimedia construction, and synchronous and asynchronous interactions. One tool, the Wiki, has allowed collaboration among class or group members and it has existed as either a web-based application or an added function on a learning management system, like *Blackboard Academic Suite*. In his study, Kalin (2012) discovered that using collaborative technology helped his students develop and sharpen rhetorical awareness and socially constructed knowledge. In another study involving the use technology-enhanced collaboration tools, November and Day (2012) found that students realized the extent of the writing process, were less anxious in writing about unfamiliar subjects, and were able to utilize more formal features and concrete description in their writing.

Lomas, Burke and Page (2008) noted that a good tool for collaboration should promote communication while allowing natural interaction either via simple text, audio, and/or video; enable sharing of work including diagrams, photographs, paper, and other objects; and have an interface that would be easy to use and understand. They also advised institutions to not rush into switching tools unless the new tools would bring new features or capabilities that users need. Kalin (2012) highlighted the importance of ease-of-use because he noticed that students who regularly accessed and used technology regarded technology helpful only when it worked and easy to use. For these students, difficult-to-use technology was useless. In addition, Palladino (2007) reminded educators that the hyper-technology era also brought serious danger: information or cognitive overload and copyright infringement. Therefore, when incorporating technology, institutions must not only select the best tools that support collaboration, but also develop a mechanism to avoid information overload or copyright infringement.

With the Internet dominating how information is created, disseminated, acquired, and consumed, it is even more important to teach students how to best navigate the myriad of sources available to them while also stressing ethical approaches to creating and using the information. The future demands critical thinkers who possess “a constellation of life skills that are necessary for full participation in our media-saturated, information rich society” (Hobbs, 2010, p. vii). These critical thinkers would be media literate and possess the communication competencies and the ability to critically access, analyze, evaluate, and communicate information in a variety of forms and media (NAMLE, National Association for Media Literacy Education, 2015). Accordingly, college faculty must teach students to evaluate information for its verity, make responsible choices, and properly attribute the sources. Students need to consider how they conduct themselves on social media knowing they are leaving a *digital footprint* behind, and develop an awareness that an audience—other than their instructor and classmates—exists and will read the information they share. Kitsantas and Dabbagh (2010) proposed that teachers develop students’ self-regulated learning habits to empower them to take responsibility for their own learning while respecting the opinions and work of other members. An example of such assignment is an interdisciplinary collaborative project developed at Queensborough Community College.

Queensborough Community College, one of seven community colleges within The City University of New York, is located in Bayside, Queens. Established in 1959, the College offers a rich liberal arts and science curriculum as well as career and pre-professional courses. Queensborough offers the Associate in Arts (A.A.), the Associate in Science (A.S.) and the Associate in Applied Science (A.A.S.) degrees, as well as non-credit Continuing Education programs. Queensborough Community College

has gained national recognition for establishing Freshman Academies—an institution-wide, student-centered learning environment to improve graduation and retention rates. All first-time, full-time students enroll in one of the five Freshman Academies: Science, Technology, Engineering and Math (STEM); Liberal Arts; Visual and Performing Arts; Health Related Sciences; and Business. Several instructors in each academy implement high impact practices.

More than 16,000 credit and 10,000 Continuing Education students are enrolled at Queensborough. The majority of the students are residents of Queens, the most diverse borough in New York City. Reflecting this diversity, 41% of the students were born in one of the 140 countries represented, more than a third speak a language other than English at home, and the ethnicity is almost evenly split among minorities. Most Queensborough students fit what the National Center for Education Statistics defines as nontraditional students, in that they delay enrollment into postsecondary education, attend college part-time, work full time, are financially independent for financial aid purposes, have dependents other than a spouse, are single parents, or do not have a traditional high school diploma (Choy, 2002). Even though roughly half of them are attending full-time, about 65% of all Queensborough students are employed, which means many of them have to juggle family, work, and college obligations.

Students Working in Interdisciplinary Groups (SWIG)

An example of an interdisciplinary assignment using technology, SWIG puts students from courses in different disciplines to collaborate and exchange ideas, often asynchronously, while learning to recognize and apply different disciplinary lenses in their thinking (Byas, Cercone, Lynch, Miller and Wentrack, 2015). SWIG grew from the Digital Storytelling (DST) project that started in 2001 (Darcy, Dupre, and Cuomo 2010). When the college adopted *Epsilon* as the e-Portfolio platform, the DST changed its students' face-to-face and e-mail interaction to asynchronous interaction using *Epsilon*'s Wiki and e-mail. The project name was also changed to Student Wiki Interdisciplinary Group project (Byas, 2011). With the news of *Epsilon* discontinuation in 2013/2014, the SWIG project migrated to *Blackboard Academic Suite*—the official learning management system of all 22 colleges within the City University of New York (CUNY) system—which had just added the Wiki function. The project's name was also modified to the current name, Students Working in Interdisciplinary Group, to maintain the acronym and at the same time allow the use of other Web tools and platforms as the space for collaboration.

On *Blackboard*, SWIG collaboration occurs within a specially designated shell outside the official course shells that are created prior to the beginning of a semester and are connected to the college's student database. Having a separate space for the SWIG collaboration preserved the integrity and privacy of the individual class's data—assignments, discussion board, quizzes, and grade book—that the faculty might not want to share with the other class. The collaborative space was generally named "SWIG + Year + Project#" and students from the participating classes self-enroll into the SWIG site before the SWIG assignment begins.

A SWIG assignment consists of the following stages: Drafting, Production, and Dissemination (Figure 1). Depending on their curricular goals, some SWIG faculty assign only the required first stage (Drafting), while others assigned the combination of stages one and two (Drafting and Production). Still, some faculty might include all three stages (Drafting, Production, and Dissemination). At the required Drafting stage, students from all participating classes collaborate on the Wiki of their SWIG

group. The Production and Dissemination stages can occur within the same SWIG site and utilize the same Wiki space, or they can take place in different platforms. The products of a SWIG collaboration come in various formats, including multimodal essays (Blake-Yancey, 2004), PowerPoint presentations, digital stories, or performances; and the students can disseminate their projects as either live performance or in electronic format posted on their Course site, SWIG site, e-Portfolio, or the Web.

In each SWIG site, members are divided into working groups consisting of representatives from the participating disciplines. Each group complete most of the tasks asynchronously in their designated group Wiki. The members engage in the *mutual gift-giving* process (Darcy, 2012) where students negotiate disciplinary boundaries as they post their work—textual or multi-media gifts—on the group Wiki for other members to review and edit. The group project evolves as members contribute gifts, which can come from their own experience and/or work (art, songs, lyrics, etc.) or materials that they borrow from other sources (books, Internet, movies, and songs). Group members are required to identify and attribute the gifts accurately and to explain their reason for offering the particular gifts to the group (Byas, 2012). In addition, SWIG engages students in critical reflections throughout the projects as a means to make them pause and think about what they are learning and how they are learning it.

Many studies have been conducted on some HIPs, especially first year seminars, learning communities, undergraduate research, service learning, and capstone experiences. Collaborative Assignments and Projects (CAP), however, has not received the same attention. This study which focused on SWIG as a non-traditional approach to CAP was conducted to contribute to the body of research on CAP.

Method

This study was conducted at Queensborough Community College and focused on examining how Student Working in Interdisciplinary Groups (SWIG) assignments in College Composition (English 101) provided opportunities for authentic learning and helped participants achieve the desired learning outcomes set by the English Department. To be specific, the study sought to examine how student's participation in a SWIG assignment benefited their learning in areas of collaboration, media literacy, and writing skills.

The participants of this study were students in the authors' College Composition (English 101) classes who completed SWIG assignments in the fall 2013, spring 2014, and spring 2015. There were a total of 92 participants comprised of about 26% male and 74% female students. Most students were in their late teens or early twenties, with less than 10% were older returning students. The participants of this study reflected the diversity of Queensborough Community College's student body, with the following ethnic groups represented: Asian (30%), Black (18%), Caucasian (12%), and Hispanics (38%).

The SWIG collaborative assignment required students to work in small group consisting of students from the English class and other students from one or two classes in different disciplines. A SWIG group could have four to eight members, depending on the number and size of the participating disciplines. The group members communicated with each other in their designated Wiki page to complete the tasks of drafting the group project, offering media gifts to enhance the project, converting the project into PowerPoint slides, recording the voice over, producing the digital video of the project,

and disseminating the product (Appendix A). In addition, students were asked to reflect on different things (their learning, their SWIG project and the course as a whole) at different times throughout the semester. Sample reflection prompts can be seen in Appendix B.

Referring to the SWIG activities described above, the data for this study came primarily in the form of documents and artifacts which included students’ (1) Wiki collaboration (2) the products of the collaboration—PowerPoint and digital projects; and (3) written reflections, as summarized below.

Table 1 Breakdown of Method and Data Collection

<i>Category</i>	<i>Location</i>	<i>Format</i>	<i>Action</i>
Interaction	<i>Epsilen</i> Wikis	pdf	Collated with the compilation
	<i>Blackboard</i> (Bb) Wikis	Online text	Copied, pasted into <i>Word</i> document, removed identifier, then converted to pdf
Digital Project	Slides	<i>Microsoft PPT</i>	Downloaded, removed identifier, saved as pdf.
	Video	mp4	Downloaded
Reflections	Bb Wikis	Online text	Copied, pasted into <i>Word</i> document, removed identifier, then converted to pdf
	Bb Assignment	<i>Microsoft Word</i>	
	Emails	document	Removed identifier, scanned to pdf.
	Handwritten		collate with other reflections pdf

The Interaction data were collected from the actual interaction on the Wiki of *Epsilen* (fall 2013) and *Blackboard* (spring 2014 and spring 2015). The student Wiki interactions on *Epsilen* were downloaded into a pdf file before they were no longer available due to the company’s bankruptcy. Students’ names were removed and the files resaved. The de-identified data of other semesters were copied from *Blackboard* and pasted into a *Word* document which was later converted into a pdf file. The *Epsilen* and *Blackboard* data were then collated into one file named *Interaction*.

The Digital Project data came in the form of *PowerPoint* slides and corresponding digital video. They were downloaded from each group’s Wiki page. After removing student’s name, they were saved into a pdf file. The reflection data were gathered from different locations and in different formats—some were handwritten, others were soft- or hard-copy of *Microsoft Word* files, and still others were written electronically in the Wiki of the SWIG site or the course site on *Blackboard*. This resulted from the fact that not all SWIG classes were scheduled in a computer classroom all the time. After scanning all handwritten reflections into pdf file, student identifiers were removed and the files resaved. All online text and typed reflections were compiled into one large *Word* document, which was then converted into a pdf file. The pdf files of the handwritten and typed reflections were compiled into one file named *Reflection*. Participant codes which contained the word *Student* and a number for all participants (Student1, Student2, . . . , Student92) were assigned to maintain participants’ confidentiality as approved by the college’s Institutional Review Board (IRB). Participant codes were handwritten on the compiled student’s work.

The Wiki interactions and reflections were analyzed for the indication of collaboration (communication, task setting, negotiation, reminders), critical thinking (awareness of audience, analysis, synthesis), media/information literacy (awareness of attribution), deep learning (change in attitude and knowledge), and transfer of knowledge. These analysis categories were derived from the Student Learning Outcomes for College Composition classes determined by the English Department (Appendix C) and six of the ten General Educational Objectives set by the College (Appendix D). Finally, the Digital Projects (PowerPoint presentations, digital videos) were analyzed for proofs of critical thinking (analysis and synthesis of information) and media/information literacy (appropriate attribution).

Discussion

The authors comprised the faculty teaching the SWIG classes that were included in this exploration. In 2013, Cercone was at the early stage of her participation in SWIG, and her students collaborated with other members of the class to produce a research driven group *PowerPoint*. Byas, on the other hand, was in her third year of SWIG. The project started with only two disciplines (English and Speech), but later developed into a three-discipline collaboration of English, Speech and Biology. Students from the participating classes were divided into working groups and each group produced a digital project. Both faculty also engaged their classes in another high impact practice called the Common Intellectual Experience, which at QCC is implemented as an annual Common Read. For their participation in the Common Read, students read Rebecca Skloot's *The Immortal Life of Henrietta Lacks* and attended two of 20 campus-wide events. Since both classes were designated as part of the Health Related Sciences Academy, the book provided a perfect subject matter in our English 101 courses. Byas' SWIG team also participated in a third HIP—Service Learning—whereby students created a website on Google Sites for the Common Read, featuring their digital projects and some projects produced by other Common Read participants.

Technology use

The majority of the students in the study were entrenched in their technology of social media and online gaming. Many of them were first generation virtual learners who came of age in a technology-saturated environment characterized by seamless interactions between the digital and *real* world and who used technology in seeking and building knowledge. Therefore, the faculty attempted to capitalize on the skills they already honed from these social digital worlds and turn these skills toward the academic realm.

A SWIG assignment used the Wiki feature on *Blackboard*, a platform familiar to most faculty, who automatically get course shells for any course they are scheduled to teach, though not all faculty utilize it. The majority of the students were also familiar with using a learning management system because many of the New York City high schools from which most of our students come have adopted and used this type of technology. Such familiarity to the technology helped ease both faculty and students into the challenge of SWIG: having to navigate two course sites and using the Wiki. Even though most students knew about and consumed information from Wikipedia, they were not as well versed in utilizing Wiki collaborative capability. At the beginning, students had difficulty navigating the Wiki, especially since only one member could edit the Wiki post at a time. After a few practice sessions and discussion among members, the groups were able to use the Wiki relatively well. In the end, the Wiki on *Blackboard* met what Lomas, Burke and Page (2008) called an appropriate collaboration tool,

in that it was relatively easy for both the faculty and the students; it promoted communication while allowing natural interaction via simple text, audio, and video; and it allowed users to share diagrams, photographs, paper and other objects (Figures 2 and 3).

When asked to reflect on using technology for the class, most students wrote positive comments, while others, such as those who were not as fluent with technology, did not enjoy the technology activities, especially at the beginning, as shown in the excerpts below:

- Wikis proved to be somewhat a monotonous task; not being very tech savvy, I was forced to rely on written instructions, whatever my classmates and Professor showed me. (Student4)
- I was aware that a lot of time has passed since I had attended any academic institution, and so my development gap was wide. I had to deal with the changes in terminology, technology, and culture. ... Technology! Maybe I should just call it [English 101]. (Student10)
- The workgroup collaboration was interesting to work with. I [faced] some challenges for it was my first time using this kind of technology and also because I am not so familiar with 'browsing and internet' materials . . . , I prefer to get my information or whatever resources I may need the 'hard' way rather than by technology. (Which is weird for people in my generation, but that's just the way I was brought up). (Student13)

However, with step-by-step practice and support, they were able to learn and use the technology and reinforce their skills by collaborating with their peers. By engaging in frequent reflections, students also learned to assess their learning, identify the challenges, and resolve problems that might stall them from progressing. Despite some challenges students experienced at the beginning, most students wrote positive reactions in their end of semester reflection, as can be seen in the following excerpts:

- During the Wiki collaboration and digital project, there were some difficulties I had to overcome, such as figuring out how to use the website, getting used to using [it]. Although the Wiki collaboration was meant for sharing work, I knew people weren't going to commit to it, so communicating through the Wiki took time. (Student1)
- The software for the project was a bit confusing but it got fun and cool that we could make these kinds of presentations now. I never thought that this project was going to be fun and interesting. Now knowing how to navigate through the software and properly [c]ite our sources I can now use this in future classes or life. (Student21)
- I was able to accomplish the first step of my overall goal by identifying the two most paralyzing challenges I was facing by putting them in their proper perspective. ... I told myself that my fear of technology was really my ignorance of it. I acknowledged the fact and embraced each opportunity I had to learn more. (Student10)
- The Wiki collaboration was a great asset for this English class. . . . I liked the collaboration on Wiki because it was a great location to keep all the class work organized. (Student11)
- I absolutely love doing the blogs and Wiki posts because it's like giving our opinion on someone and writing your thoughts out loud. (Student55)

As described earlier, most Queensborough students were juggling multiple responsibilities, in addition to focusing on the academic tasks, which often resulted in a feeling of alienation. With family and work responsibilities, many students did not have the time to engage in campus activities. Therefore, it was heartwarming to find that some students developed a sense of community with their in-class

group members and their entire SWIG team even though they did not necessarily meet face to face, as stated in the following reflections:

- . . . [G]etting to know my classmates helped me feel less ‘alone’ on and off the campus. We were able to help each other and I was grateful for that. (Student4)
- I learned . . . that it takes longer to complete a task if one of the members in the group doesn’t complete their part on time. To overcome this in my group we met up and talked about how the work is almost due that way the person could be reminded [to] finish their part. (Student9)
- Another challenge . . . we lost track and totally forgot about [our project] until a couple of days before it was due. We resolved [it] by contacting each other and knowing how much we had to do and giving ourselves a specific time range as to when we had to complete the task. (Student15)

Working together and interacting with students in the same class or from other classes, whether it was in person or asynchronously via technology, seemed to help them develop a sense of community, which may contribute to keeping them focused on school.

Digital projects

Some SWIG faculty assigned students the Production and Dissemination stages of SWIG. Students produced different types of digital projects—multimodal essays, *PowerPoint* presentations, digital stories, acting or dance performances, videos, and websites—which they disseminated in either live events or electronically via the course or SWIG *Blackboard* site, their e-Portfolios, a website, or YouTube. Throughout the production and dissemination stages, students were asked to reflect on the process and the product (Figure 4). As described earlier, Cercone’s students began with producing a group *PowerPoint* presentation. In the second iteration of the project, her students partnered with students in a nursing class and produced digital videos. In so doing, the students created slides and script of the draft they developed in the Wiki using *Microsoft PowerPoint*. When the slides and script were ready, they voice recorded the script using *Audacity*. Finally, they combined the slides and audio, and converted it into a video using *Camtasia Studio*. Figure 5 is a sample video produced by a group working on *Stem Cells*.

The students in Byas’ class took on another challenge: to create a website on Google Sites to feature the videos they produced. They worked in teams to design the layout of the website (Art and Design team), to ensure all uploaded materials met the legal criteria (Legal team), and to check all projects uploaded would work (Technology team). For example, when they wanted to use a picture from the Henrietta Lacks’ family website, the legal team wrote an email requesting permission from the Lack’s family. The students launched their website at one of the Common Read events (Figure 6), during which they also invited other Common Read participants, including Cercone’s students, to submit their work to the website.

As expected, at the beginning of the collaboration, some students expressed concerns about the many steps of the SWIG assignment. They complained about navigating three different spaces—the course *Blackboard* site, the SWIG *Epsilon* or *Blackboard* site, and the SWIG Library Guide—to complete the assignment. They also complained about the challenges in communicating and collaborating with group members. Then they criticized the non-intuitive interface of *Audacity* and *Camtasia* when they worked on the digital project initially. These complaints were normal considering the complexity of a SWIG project, especially ones that include all the three stages. Koszalka and Wang (2002) reminded

us to provide technology support for students and faculty when integrating technology into learning. The strict adherence to utilizing only the technology platforms supported by the college's Academic Computing Center (ACC), SWIG assignments might look very rigid. However, such limit also assured students that they would have the necessary support in completing their assignments, including the use of the ACC's multi-media room which was equipped with all the software used in SWIG and the assistance of ACC's trained full-time and part-time staffs. As faculty became more comfortable with the technology, they would allow their students to use other technology they were familiar with to produce the digital project, on the condition that the final products were submitted in a particular format (currently mp4 video file) so they could be uploaded to the College's media server.

In SWIG assignments, the Wiki collaboration and production of digital project shifted students from consumers to *prosumers* of information and knowledge. Through their interaction with their group members, students simultaneously consumed and produced information and knowledge related to their group project, while also expanding their use of technology as academic tools (McLoughlin and Lee, 2008, p. 11). The assignments immediately placed the students as active participants in their learning where the end result was a tangible product. At times the finished project they produced helped many students gain admission to their desired four-year college or even obtain employment. For example, a student in one of Cercone's classes included her SWIG project in her application and was subsequently admitted to a nursing program. At the time of the study, the ACC hired a student who participated in earlier version of SWIG as a technology specialist to assist students in producing their digital projects.

Almost half of the students reported that the digital project process was a good experience in terms of managing a workload and interacting with one another in a respectful way. When asked to reflect on creating a digital project and using technology, students wrote the following excerpts:

- I actually enjoyed doing the digital projects because it was creative and hands on project. I admired putting my essays and projects in visual form because it turned out exactly how I wanted. And because I put all my time, work and effort into creating the digital projects, being able to see [the] final outcome of it is satisfying. (Student1).
- This digital project represents all my challenges working with the computer... I never thought of myself as being creative, but the job had to be done and I did it! (Student6)
- I think the production in both visual and auditory form influenced both producers and viewers positively. It had a professional appeal and hard the work that was put into the production created a sense of pride and meaning. When I was finished with the digital project I realized I could make any presentation in this format ... I could make my portfolio a digital presentation and I could sell myself to prospective employers. (Student10)
- The digital project gave me the chance to finally produce a video I wanted to do for a while. (Student14)

SWIG and Authentic Learning

Our SWIG assignments fostered authentic learning by engaging students in an interdisciplinary collaboration, the production of multilayered digital products, and in recursive reflections. On their Wiki interactions, students constantly negotiated with peers from other disciplinary background and offered textual or multimedia gifts to form meaning and knowledge related to their group's topic. Throughout the process, the faculty served as mediators to help students handle the workflow and as

models for those who experienced difficulties in communicating with their group members and in completing some tasks. Early in the project, students realized the prospect of a real audience to their work, which made them very mindful of their own work ethic toward the project which enhanced students' learning experience and created more authentic communication and learning.

Collaboration

Rott and Weber (2013) argued that “Wiki-based writing projects also len[t] themselves to student collaboration and thereby provide[d] additional opportunities for learning” (p. 179). Our SWIG collaborative activities that occurred in the Wiki spaces within a specially designated course site on *Blackboard* supported their argument (Figure 7). Cercone's students started with creating group *PowerPoint* presentations on topics associated with *The Immortal Life of Henrietta Lacks* within the English class only. In the following semesters, this project evolved into a fully collaborative endeavor with students from a Nursing 201 (Safe and Effective Nursing Care of Clients) course. The *PowerPoint* presentations were posted on the Wiki where the nursing students offered feedback on the content and accuracy of the information from a nursing perspective.

Byas' SWIG collaboration started with only English 101 and Speech 201 classes. After two semesters, the project evolved into three-discipline collaboration: English, Speech, and Biology. In the first semester of using *Blackboard*, Byas' SWIG assignments had 20 students in the English class, 19 in Speech, and 14 in Biology. The 53 students were divided into ten working groups according to topic they selected from the book. Each group was assigned a Wiki page as their collaboration space (Figure 8). The tasks were divided among the three disciplines: the English members led the drafting process, the Speech members led the digital production stage, and the Biology members led in providing and checking the accuracy of scientific gifts.

Each group created a few threads—draft, draft revised, *PowerPoint* (slides and script), recording, and video—in their group Wiki page. For example, Group 1 who worked on the topic of *Teen Pregnancy* started the collaboration when one member from the English class created a thread entitled *Project Draft* which other members later reviewed and edited. Members used their assigned font color when editing the group Wiki: English used brown, Speech used green, and Biology used purple (Figure 2). During the drafting process, group members posted information that constituted the Project Draft (the brown and purple text) as well as comments directed at other members of the group (the green text).

When all members already contributed ideas and the draft started to take shape, the English members created another thread entitled *Draft Revised* and posted a clean revised draft for the members to review and finalize. In finalizing the draft, members also offered media gifts (pictures, statistics, audio/video) which they searched using the SWIG Library Guide, which will be discussed in more details in the section on media literacy. Once the draft was finalized, the Speech members used the draft and the suggested media to create the *PowerPoint* slides and script. Thus, all phases of the writing process were covered in most SWIG projects. Students played the role of editors in the production of their project, where they “pool[ed] their linguistic resources as well as their insights and knowledge about the content throughout all phases of writing, from brainstorming and drafting to the final proofreading stages.” (Rott and Weber, 2013, p. 179).

The SWIG collaboration process proved to be textured and demanded careful attention from the students. While engaging in their task, students became aware of what they posted because they had a real audience who would review the information. Throughout the collaboration, members learned and practiced negotiating meaning and ideas to reach a consensus as to how the group project should be developed. Successful groups communicated and negotiated meaning often and regularly. They reminded each other of what needed to be done, as can be seen in the following excerpts occurring during the drafting process.

- We could maybe try to add in some statistics about teen pregnancy we have right now in this country. Teen pregnancy can lead to abortion or lead to dropping out of school which can lead to unemployment and or minimum wage job like at fast food places. Also homelessness if parents aren't as acceptable to the pregnancy, they might kick her out of the house. (Student37)
- All the information here great to use for a presentation. Maybe talk about anything personally like someone you may know who got pregnant as a teenager... I like the picture with the statistics on them. It is really informative. Tell me if you would like to see this picture on the PowerPoint. (Student38)

Successful groups were also more likely to offer constructive and specific comments about the project. Besides, they pointed to specific part in the project in their comments, as demonstrated in the following excerpt that took place while drafting the PowerPoint slides.

- ... Double check there are some words spelled wrong with additional weird letters, and put picture citation under each slide. Who is doing the recording, have you guys chose[n] yet? (Student37)

When offering gifts, they also provided specific details so that the other members would understand what each gift added to the project and what they needed to do with the project.

- Hi, the [P]ower[P]oint is good it is just you have to add the citation. It's organized well, in slide 6 you might have to either change the topic to Deborah's pregnancy or separate that information from Henrietta's part. Make sure each picture has citation in the bottom and in last slide ... (Student37)
- Notes to make the PowerPoint stronger:
 - Add our names to the PowerPoint Presentation (English and Biology)
 - Add our research. It seems that there're little to none of our findings (English and Biology)
 - If blank, at least have a title to the slide(s)-- so we know what information can be looked for, for that [particular] slide if there isn't any. (Student62)

Groups that were not as successful generally lacked communication. They were often late in responding to questions or suggestions, which could frustrate other members. When giving a gift, they often used vague language and scathing details.

- At the beginning I thought my group wasn't going anywhere. There was no plan about who's doing what? Everyone was confused and didn't talk. (Student96)
- Last week I was beginning to get frustrated by how much work there was to be done and how much was actually done. (Student19)

- Progress with this PowerPoint is at a stand still until I know who is going to send what information so that I can pick up the slack for the other group members. (Student98)
- Hi (name) this is (name), thank you so much, I think it's perfect. (Student58)

The excerpts above showed students were often confused and frustrated when other members did not complete their tasks as agreed or did not offer useful comments/gifts, which might result from not spending sufficient time in reviewing the group work, searching for appropriate gifts, or formulating the comments. Comments that were too general, such as the last one in the above excerpt, were vague and did not help the group in making improvement to the project.

Nearly all students reported that the group members provided constructive and specific comments about the project's content and development. However, this was not without a few pitfalls. About one-fourth of the students reported that they had a hard time keeping up with the workload or were off put by other students' lack of urgency when accomplishing tasks. When students did not complete the task as outlined, a SWIG project could fail and the entire group had the potential to fall apart. In one of Byas' classes, one group completely dissolved when several members withdrew from their class, thus the remaining members had to be reassigned to other groups. In light of the frustration and challenges in the group dynamic represented above, the faculty constantly demonstrated and shared how they communicated with their collaborators, managed their time by carefully planning the project steps, and emphasized accountability. Faculty also tried other strategies to ensure that group members complete their tasks in a timely manner to avoid delay in producing the group's final product. Utilizing *Blackboard's Tasks* function, sending reminder emails, and posting semi-weekly announcements helped abet issues with timeliness in Cercone's class. Byas applied another strategy of awarding points for each task. When students see a numerical value associated with their work, they seemed more accountable to those in their group. Both faculty also reminded the students that working on the project helped them practice the skills that they would need for their future education and career.

Media literacy

SWIG projects also helped the students develop media literacy with the help of the SWIG library guide (Figure 9). The SWIG library guide provided important information related to the concept of copyrights and fair use, reliable websites to search for appropriate information and gifts of different types, the importance of keeping track of the gifts they gathered, and the strategies to identify and document the gifts they offered to their group or collaborators.

During the drafting phase, students learned to find information pertaining to the topic their group were exploring from sources beyond Google and Wikipedia, websites that students tend to overuse. While revising the draft and having to offer media gifts for the group's *PowerPoint*, they learned to set appropriate filters so their search would yield materials they could legally use. Figure 3 shows two examples of students offering media gifts. When told they had to offer media gifts, students were often too eager to find media gifts and subsequently copied and pasted what they got from Google or Bing (picture on left). But after the media literacy workshop, they learned to include the necessary attribution or citation information (picture on right). In the workshop, they also learned to keep track of their research process and results using the Media Tracker template that was available on the SWIG Library Guide. When they found gifts that were appropriate for the project, they noted their gifts in the group's Media Tracker (Figure 10).

Educause's *The 2009 Horizon Report* pinpointed the need to formally teach information, visual and technological literacies in preparing students for the sophisticated global technology-rich culture (Johnson, Levine and Smith, 2009). The SWIG assignments in this study helped students develop media literacy and critical thinking. In addition, they also made the research process visible to students. Spending at least one class session for the information literacy workshops proved very beneficial in that they "bridge[d] unperceived gaps in knowledge, not least because they create[d] a space for students to participate, and practice[d] the necessary skills" (Higgs, Kilcommins, and Ryan 2010, p. 6). The students were not only responsible for producing an informative presentation but they were also learning the importance of good research skills and proper attribution. Despite the challenges with formatting and spacing, the students mastered the format of a *Works Cited* page with all appropriate information, as shown in one of the projects from Cercone's class (Figure 11).

In their reflections students confirmed that they learned the importance of attribution when borrowing information for their work, be it a paper or a digital project.

- Professor Cercone made several appointments for us to attend the school library, all these visits to the library we learned so much, like how to make proper citations, how to use databases, and basically how to create a well-written power point. (Student17)
- I never thought that this project was going to be fun and interesting. Now knowing how to navigate through the software and properly [c]ite our sources I can now use this in future classes or life. (Student21)
- I have learned to choose an argument and research it thoroughly using the Library resources taught by Prof. Amaral. I never knew citing pictures was equally important. (Student3)

Discipline

As members of the English Department, the authors' main responsibility is to help students develop their writing skills and gain rhetorical proficiency, which includes conducting research while meeting the learning outcomes defined by the English Department (Appendix C). One-third of the students claimed that the project enhanced their learning of discipline specific skills such as citation style, proper attribution, along with a better understanding of what was considered fair use. As students prepared for, engaged in, and completed the SWIG collaboration, they met the learning outcomes of the English Department not only by reading large quantities of material in the Composition classes but also by intensive reading. One student noted the fact that she read the book cover to cover in her reflections "Before I took this class, I never read a book's preface or after words" (Student4). The extensive and intensive reading of the book *The Immortal Life of Henrietta Lacks* was followed by students brainstorming topics for further exploration; then, as a group, they communicated their ideas in writing and collaboratively explored their group's topic. During the collaboration, they refined their thinking based on the research they conducted and the information other members provided. In addition, they practiced media literacy skills to search for, select, and use evidence (textual and multimedia) appropriate to the topic at hand. Throughout the process, students brainstormed, generated ideas, drafted, revised, edited, and proofread their group project to fit the structures and styles of the project they had decided. Student2 aptly captured the writing process when he wrote, "One important fact I have learned is that it is impossible to produce a masterpiece within a day; one must take time and revise several different times in order to ensure that their writing is of the best quality."

The SWIG collaboration tasks and activities on the Wiki helped visualize the research process for students where they practiced the research process and documented both text and multimedia sources they used in their project in the required format. After visualizing the research process and proper attribution, most students transitioned easily to working on a traditional research paper. At this point in the semester, students were actively engaged in learning the MLA style for research in the humanities thereby meeting the discipline specific outcomes as students in English Composition courses. Some students wrote in their reflections the following:

- Throughout the entire SWIG project I have learned so much in regards to my group topic and look forward to expanding my knowledge from the other group presentations. (Student17)
- But it wasn't until I came to English 101 that I got my voice. ... My voice has entered the discussion that the world is having. (Student14)
- I think my project gives me the advantage to learn about being a good parent and learning ways to hand[le] a child when I become a mother, ... This class give me [opportunity] to work on my writing skills, it also helps me brainstorm better. SWIG assignment have [given] me a chance to communicate with others outside my class also giv[e] others the chance to read and revise my work . . . and giv[e] me positive feedback for a better outcome. (Student38)

The SWIG project helped the students develop media literacy in that they were “able to apply critical thinking to evaluate information in the general context of problem solving; to reveal the complexity of things; to value intellectual honesty and to foster critical awareness about all types of authority” (Cronin, 2010, p. 98).

The students developed critical thinking skills that they later transferred to working on their major research paper in the English 101 class. The SWIG collaboration assisted students with the research paper in that they were able to develop a thesis statement, conduct research while determining which information was valid, and develop an outline so that they could write a first draft. In doing so, the students were able to meet not only the English department learning outcomes but also the college's first, second, third and fifth General Education Objectives (Appendix 5). Nearly all Wiki collaborations in this study showed evidence of information analysis and synthesis.

SWIG's other benefits

Many higher education institutions frequently use student pass, retention, graduation, and transfer rates as a measure of students' success. At the college level, the result of an in-depth Freshman Academies study on students' involvement in courses that participated in HIPs from 2007 to 2012 conducted by the college Office of Institutional Research and Assessment (OIRA) confirmed our findings. The OIRA (2013) data showed students who took English 101 classes that participated in SWIG had a higher pass rate (92%) than those who took English 101 classes without any HIP (83%). Students participating in SWIG also showed slightly higher pass rates than those participating in other HIPs: Service Learning (87%), Learning Communities (88%), and ePortfolio (90%). Furthermore, Queensborough Community College's institutional data from 2012/2013 indicated that students who participated in SWIG showed higher rates of retention, graduation, and transfer (91.3%) compared to students who did not (77.9%) (Ferdenzi and Abbott, n.d.). In the spring of 2015, Queensborough Community College conducted a college-wide assessment of all the HIPs using a Likert scale survey that asked students to indicate and rate their agreement to fourteen statements about activities and experiences that engaged deep learning. A section of the assessment report make a comparison between students who took a course that participated in SWIG and those who did not participate in any HIPs.

The assessment results showed that SWIG students indicated higher agreement that their course engaged them in deep learning experiences in regards to reflection, knowledge transfer, personal experience, collaboration with classmates, and involvement in campus activities compared to non-SWIG students (Lackner and Fichera, 2016).

Authentic learning also includes the ability to transfer the skills learned in one setting to a different setting. Over the course of several semesters, students have reported that they transferred the skills acquired from completing the SWIG project to their other courses and future workplace. One-third of the students said that the collaborative project contributed to their overall knowledge on the subject and gave them experience for the *real world* and gave them skills that they would use in the future. On their Integrative Learning VALUE Rubric the AAC&U defines Integrative Learning as “an understanding and a disposition that a student builds across the curriculum and co-curriculum, from making simple connections among ideas and experiences to synthesizing and transferring learning to new, complex situations within and beyond the campus” (2010, 2). Towards the end of the semester, some students wrote how they would transfer the knowledge they learned in the course, especially from the SWIG assignment, as expressed in the following excerpts:

- All these things that I have learned from doing this project is going to help me later in the future, and I am so glad that I had the opportunity to work on this project and learn about these great things. (Student30)
- The research [for] information is what I'll use in the future because working way up to the medical field, I know I will be doing a lot of research and gathering information . . . this class has helped me learn exactly what to do. (Student1)
- All three of these important things I've learned are going to be useful in any of my next classes not necessarily only for English but also maybe a speech class. (Student8)
- EN-101 has set the foundation for me to be successful in every other course. (Student10)
- I learned proper citation and how to work together as a group. I can use these lessons in other situations such as writing other essay for the classes I'm going to take later in my life. (Student11)

Referring to the institutional assessment results and above excerpts, it is evident that participation in the SWIG assignments provided an authentic learning experience by helping students prepare for real world problems, which include teamwork, collaboration and a polished finished product. In completing their SWIG project, students engaged with the problems of teamwork, collaboration, and producing a polished group product, as well as saw how what they learned might work in different settings, on and off campus. Therefore, it is safe to say that SWIG assignments provided students with the opportunities “to integrate, synthesize, and apply knowledge are essential to deep, meaningful learning experiences” (Kuh, 2008, p.17).

When asked to reflect on their SWIG activities after they completed the project, many students wrote positive remarks about what they learned, such as the following reflections:

- The Wiki . . . was interesting because not only did I get what other people thought, but they also go to see what I thought as well. I think having a more public and computer-based assignment was an interesting new twist on things and helped me to become more aware of my grades and assignments. (Student19)
- Overall, I think the EN101 course was extremely necessary. I learned from all the components involved. The research method helped me to broaden my research skills, extended from Google

only to specific database and articles. The library sessions helped to inform us about various things such as citing photo sources, audio, using the library database, etc. The Wiki taught me to respond in a way that is appropriate for others to view and make criticism as well. (Student 16).

SWIG had also offered an opportunity to the students to build a sense of community through working together and interacting with students in the same class or from other classes, whether in person or asynchronously. Along this line, it might not be too far-fetched to consider that SWIG serves as a *virtual learning community* (Darcy, Dupre, and Cuomo, 2010). SWIG is different from the traditional Learning Communities within the CUNY system, where the same cohort of 20 students would take two classes in a block schedule. Without the administrative complications of block scheduling, SWIG becomes a *virtual learning community* when students and their group members collaborate and learn together, mostly asynchronously, to complete their tasks and projects.

Challenges and the Future of SWIG

This study is small in scale, with only six College Composition classes in three semesters or only two classes per semester. As a comparison, the English Department at QCC generally offers more than 100 College Composition classes per semester. Hence, it might be difficult to claim that the results discussed here can be generalized to all College Composition classes.

Even though both researchers are members of the English Department, eight years after SWIG started, only about fifteen percent of the English Department faculty members participated in SWIG. At the college level, the number is even lower. At its peak in 2012, SWIG had 22 faculty participants and currently there are 14 faculty members participating. Considering the benefits that the students in this study gained via their participation in SWIG, it is unfortunate that not many faculty participate in SWIG.

Many faculty are often inhibited by the heavy reliance on technology and the logistics to coordinate with the library and academic computing center on campus. In this era of technology ubiquity, Mishra and Koehler (2005) argued that good teaching with technology requires faculty to create proper interplay of the three knowledge bases—technological, pedagogical, and content knowledge (TPCK). They asserted that TPCK framework emphasizes “the connections, interactions, affordances, and constraints between and among content, pedagogy, and technology” (p.1025). Teaching assignments or projects such as SWIG require time and support from the institution at large and are, without a doubt, an undertaking. Many students face various challenges in completing their SWIG assignments; but the learning curve can be even steeper for faculty when designing and implementing a project of this scope and magnitude. One major component of success in SWIG is faculty’s willingness and positive attitude in incorporating technology in their teaching. Faculty participants have to learn the technology to design their assignment, to deliver it, and then to monitor its progress. They must feel comfortable in using the technology, in this case the Wikis on *Blackboard*, since they often have to demonstrate to students how to complete a task. In short, faculty need sufficient technology support, especially at the beginning of their participation in SWIG, to be successful with their SWIG assignment.

In order to mitigate the low participation rate, the SWIG leadership team might request permission other department heads to attend departmental meetings to share about SWIG and hopefully increase

faculty participation. In addition they also must unpack the TPCK of SWIG in order to demystify and change the perception of SWIG technology challenges for faculty who are inhibited by the many arms of a SWIG project. In addition, SWIG leadership team may also add the time to design and implement the assignment for new participants. They can adapt the eLearning strategy of allocating a development site on *Blackboard* for the new faculty to not only practice using the technology but also in designing and refining their SWIG assignment. When faculty are ready to run their course, they can copy what they have developed into their actual course.

Another concern faculty had is the longevity of the technology platform that the college adopted to house SWIG and other HIPs. After using *Epsilen* for over three years, SWIG faculty could no longer access any of the student work and data stored within *Epsilen* when the company behind *Epsilen* went bankrupt. In addition, they had to discard all assessment and improvement plans that had been developed within that platform. The SWIG leadership team then adopted *Blackboard Academic Suite*—the official Learning Management System of the whole university—as the new platform. Currently, SWIG received consistent and sufficient support for *Blackboard* from the college; they also feel more confident with the longevity of this platform moving forward. Nevertheless, the leadership team needs to ensure continued access to the information stored on *Blackboard* for future use, including research.

As discussed earlier, the data collection and analysis of the current study were complicated by the variety in the data. Due to variations in the assignments and prompts, the data came in different formats, and often yielded different information, even though they proportionally contained similar positive and negative feedback. The challenge was exacerbated by the technology platform change. Learning from this challenge, the SWIG leadership team should develop SWIG study procedures and to utilize the technology platform to systematically collect the data. Alternatives can include multiple, more rigorous, and more systematic reflections within the SWIG assignment in addition to end-of-semester reflections. Also, they can explore *Blackboard Wiki* as a repository for student work which can be easily de-identified or its survey function to collect anonymous reflections data, much like SurveyMonkey. The leadership team must also ensure that no matter where the data are collected and stored as per the institutional IRB protocol, they must all be easily accessible.

Having such a procedure might interest faculty currently participating in SWIG to conduct research. The authors of this study have already considered developing a more organized research plan and inviting other English faculty participating in SWIG to join the exploration. Similar research can be conducted by the SWIG leadership team on all the SWIG classes, or by other SWIG faculty focusing on other aspects of SWIG. With more studies involving more student samples, SWIG may be able to contribute to the College's institutional data with regard to HIPs and success.

This study has shown that students participating in SWIG invested time and effort, interacted with peers and faculty about substantive matters, experienced diversity, responded to more frequent feedback, as well as reflected and integrated learning that lead to what Bass (2012) called learning gains. A SWIG assignment and project is innovative and exemplifies the *post course* era that is characterized by a paradigm shift from instructional to learning where “learning is the center of its development” (Bass, 2012, p. 24).

Conclusion

Queensborough's institutional assessment data indicated that students who participated in a SWIG assignment showed positive impacts on retention, graduation, and transfer rates as well as students' perception of engaging in deeper learning. Students' reflections and wiki interaction analyzed in this study corroborated these positive outcomes, in addition to findings that SWIG assignments helped students incorporate *academic* technology in their learning, collaborate with peers, develop media literacy, and engage in authentic learning. Furthermore, students participated in SWIG also showed higher pass rate in English 101 class. Our data showed that students became prosumers of information and knowledge when they simultaneously produced and consumed knowledge while engaged in all aspects of the SWIG project.

Despite the many complaints and confusion at the beginning of their SWIG assignment, most students learned the skills that assisted them with writing and research in addition to group dynamics, time management, accountability, and self-regulated learning. They also gained a sense of accomplishment and pride in the collaboration and the digital project they produced.

Even though SWIG assignments posed many challenges, they also helped faculty to break out the academic silos and helped students learn to engage in interdisciplinary collaboration, develop media literacy and improve their writing and research skills. Future improvement to SWIG include modification in the faculty development to include the TCPK framework, technology platform and tools selection, as well as development of research procedure and data bank.

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Appendix A: wiki instructions

Exploring health issue(s) in a community

Description

In this project, we will apply what we have learned so far while also learn about a community of our interest. We will take the role of an ethnographer, a detective, or a CSI (Community Setting Investigation) agent. What community and issue(s) are important to explore? What part of the issue(s) and community do we already know? What information regarding the issue(s) and community do we need to research?

This paper contains two parts: description and argument. *Part 1 –Informative* requires you to work as a group to work on a topic from the book we read for the Common Intellectual Experience. As a group we will develop a draft for the topic (Drafts 1 and 2). We then share this draft with our SWIG partner class(es) to work on the topic further. Eventually, the SWIG group will convert the work into a digital project.

Part 2- Argument is an individual paper. You will need to take a position on an issue then find reliable, valid, and strong supports of our position. You can work on similar topic that you work for Part 1 of this project, but you must take a position on an issue related to the topic. But you are free to pick any health-related topic for Part 2. But you need at least two Primary (observation and interview) sources and five Secondary Sources (books, academic journals, newspaper/magazines, and organization) which can be accessed physically or electronically. We will need to keep copies of ALL sources (print-out or photocopy of secondary sources, interview and observation notes) we use for this paper. We will credit and document ALL our sources carefully and appropriately.

In drafting your paper, you will apply and combine many writing strategies: description (a lot of this), narration, examples, cause-effect analysis, classification, definition, comparison and contrast, and explanation. We will cite our sources accurately using either the MLA or APA style in the essay and as a list at the end of our paper. We must include copies of all supports when we submit Paper.

Procedure

Part 1:

1. Decide the community, and reason for choosing this particular community. Describe what health-related issue(s) is (are) prevalent in the community. → (Draft 0)
2. Observe (take pictures of) and take notes about the community. Incorporate information from the observation to the description of the community. → (Draft 1)

3. Interview one member of the community once and take notes. Add relevant information from the interview to your Draft 1. → (Draft 2)
4. Wiki Collaboration with peers from other class(es). See next page for more information.

Part 2:

5. Write a short rationale of what you plan to explore as your argumentative essay.
6. Gather, read and analyze at least three secondary sources. → Write Reaction 8
7. Incorporate information from secondary sources to Draft → (Draft 3)
8. Conduct fieldwork and interview of at least TWO community members. → Write Reaction 9
9. Incorporate information from interviews and other secondary sources to Draft → (Draft 4)
10. Check documentation of information from sources and finalize your Paper.

Due date: _____

Student Working in Interdisciplinary Group (SWIG)

Assignment

Your group (in English class) will share your Project draft by uploading it to the Group Wiki (in SWIG site) for the members from other classes to review. Your SWIG group will then develop it into a digital project. To help you navigate the collaboration, refer to the Technology Handout. As a group, you will collaborate and complete the following tasks.

Table 2 Role and Tasks:

Components	Biology	English	Speech
1 Disciplinary Contribution	Scientific fact check	Write & Finalize Project Draft	Check Citation
	Explain graphs/ charts	Check all spellings and punctuations on slides	Create PowerPoint & script
	logic of information	Produce Digital Project	Mentor Voice Over
2 Font Color	Purple	Brown	Green
	first member: regular	first member: regular	first member: regular
	second member: <u>underlined</u>	second member: bold	second member: <i>italicized</i>
3 Font Color	Purple	Brown	Green
	first member: regular	first member: regular	first member: regular
	second member: <u>underlined</u>	second member: bold	second member: <i>italicized</i>

Your SWIG group will follow this **timeline** to complete your project.

1. Develop our Project draft in English class (date – date)
2. Posting project draft on SWIG group Wiki (date – date)
 - a. Reformat the work for the Wiki.
 - b. Post project draft to the SWIG group Wiki.
3. Reading and offering gifts to the work posted by our partners from Biology and Speech classes (date – date)
 - a. Read the work.

- b. Offer textual and multimedia gifts according to the schedule
 - c. Revising our work for production of Resource material for CIE website. (date – date)
 - d. Respond to the partners for their gifts and indicate reasons for including/excluding their gifts in revising our draft and in producing our digital project.
 - e. Revise the work
 - f. Create the digital format of the Project
4. Uploading Digital Project to the CIE Website (date – date)
 5. Launch the Website
 6. Write a reflection on the SWIG Collaboration experience

Appendix B: Sample reflection prompts

First/Pre-Reflection Prompt

In a Word Document, write a reflective essay to prepare you to begin this project. You might consider the following questions when you write your essay, do not write in a ‘Question: ... / Answer’ format. Write your reflections in an essay format.

1. The first paragraph should be about your experience with working with groups.
 - a. Have you ever worked with a group/team at school or at work before?
 - b. Have you ever worked on a project in a group consisting of people from different disciplines/specialty? Have you ever preformed with a musical or theatre group?
 - c. How did it work out?
 - d. What lessons have you learned from working with others?
2. Second paragraph should be about your strengths and weakness doing group work?
 - a. Are you able to negotiate with others to accomplish a task? (don’t forget siblings, friends, etc.)
 - b. How are your time management skills?
 - c. Can you take responsibility for getting things handed in in a timely manner?
 - d. How do you feel when other people depend on you to get a job done?
 - e. Have you experienced problems when working in a group? How do you resolve the problem?
3. Third paragraph should be about your relationship to technology and social media.
 - a. How comfortable are you using the computer to complete projects?
 - b. If you use social media, which platforms/apps do you use? Why do you use them?
 - c. Have you ever used social media to plan an activity or school-/work- related project?
 - d. Do you think social media will help or hinder working relationships?

Second/ Post-Reflection Prompt

In a Word Document, write a **reflective essay** to prepare you to begin this project. Do not write in a ‘Question: ... / Answer’ format. Write your reflections in an essay format.

- Draft your answer to the questions listed below. Then open your own Wiki Page, and click “Edit Wiki Content”.
- On the top line, type “SWIG Collaboration Process” and today’s date.
- Hit Enter twice. On a new line, paste your Reflections (form the Word document you typed earlier).
- Review your post and then click “Submit”

Address the following in your reflections:

1. How did your group Wiki Collaboration go?
2. What is the outcome of your collaboration?
3. What successes/challenges did your group experience?
4. What are the most difficult challenges of working with people that you do not meet in person and how did your group resolved it?
5. How can the teachers prepare you (and future students) better in working in a Wiki Collaboration?

Appendix C: English Department Learning Outcomes

- Identify an intellectual question or problem worthy of further study;
- Use reading and writing for inquiry, thinking, learning, listening and communicating;
- Articulate a focused argument or line of thinking appropriate to the particular genre or form the writer is working in;
- Utilize relevant evidence throughout all their writing tasks, including written texts, visual images, electronic media and such primary sources as observations, interviews, and surveys;
- Use a variety of writing and revision strategies for generating, revising, editing and proofreading their own and others' writing;
- Utilize appropriate logical structures and stylistic approaches appropriate to form or genre of writing (transitional language, progressive development of ideas, etc.)

Appendix D: Queensborough Community College General Education Objectives

To achieve these goals, students graduating with an Associate degree will:

1. Communicate effectively through reading, writing, listening and speaking
2. Use analytical reasoning to identify issues or problems and evaluate evidence in order to make informed decisions
3. Reason quantitatively and mathematically as required in their fields of interest and in everyday life
4. Use information management and technology skills effectively for academic research and lifelong learning
5. Integrate knowledge and skills in their program of study
6. Differentiate and make informed decisions about issues based on multiple value systems
7. Work collaboratively in diverse groups directed at accomplishing learning objectives
8. Use historical or social sciences perspectives to examine formation of ideas, human behavior, social institutions, or social processes
9. Employ concepts and methods of the natural and physical sciences to make informed judgments
10. Apply aesthetic and intellectual criteria in the evaluation or creation of works in the humanities or the arts

Appendix E: Figures

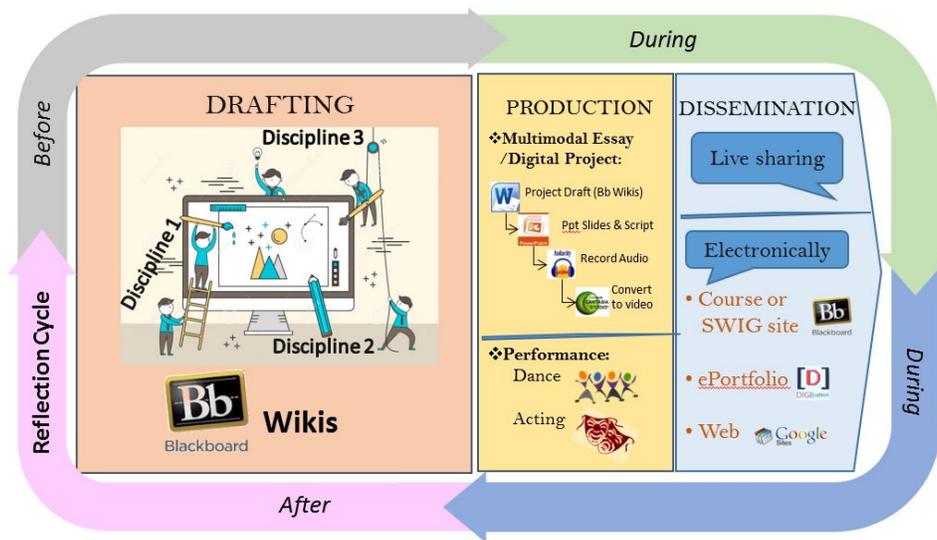


Figure 1 SWIG group process

The Student Working in Interdisciplinary Group Process. A SWIG assignment could include the following three stages: Drafting, Production, and Dissemination.

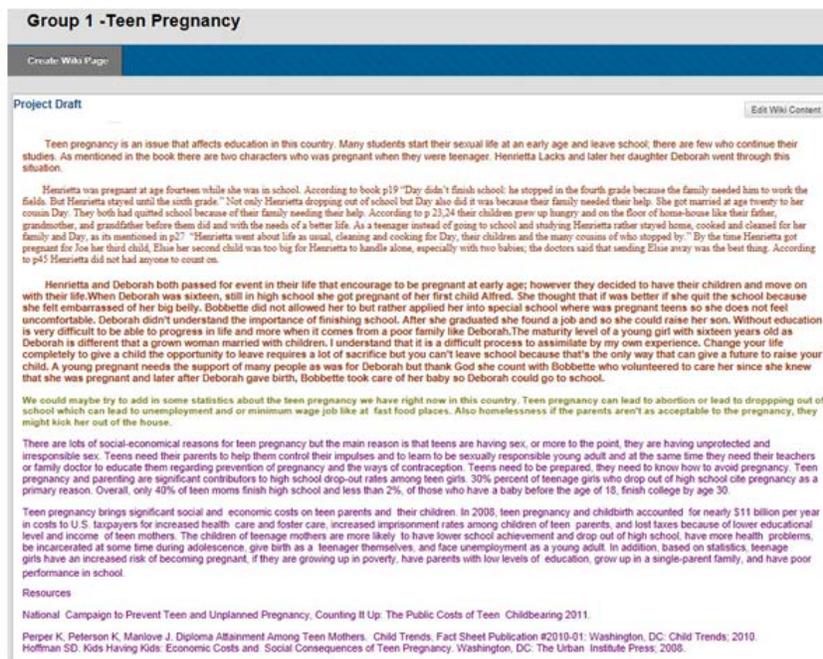


Figure 2 Group wiki interaction

Group Wiki interaction on Teen Pregnancy shows some parts of the group’s Draft (in brown and purple) while others were comments that members offer to the group (in green).

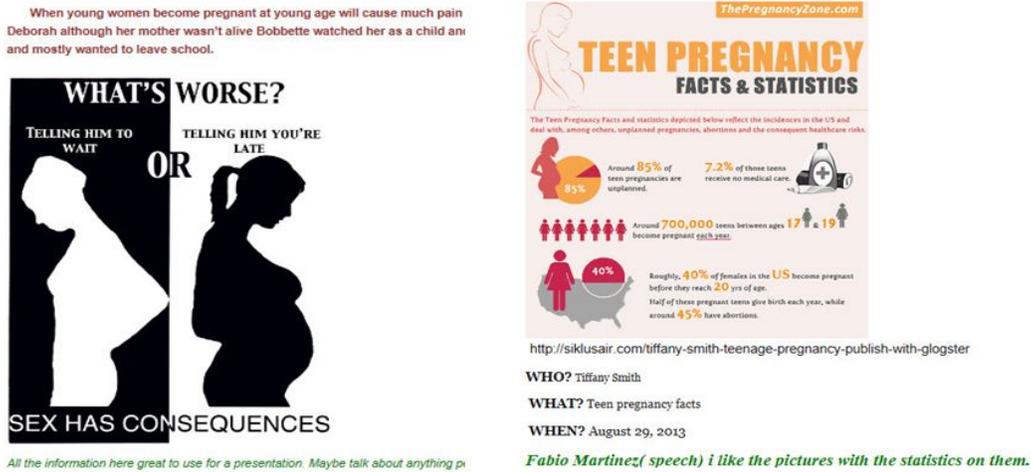


Figure 3 Media on Teen Pregnancy

Sample media gifts on Teen Pregnancy, before the media literacy workshop without attribution (picture on left), after the workshop with attribution (picture on right)

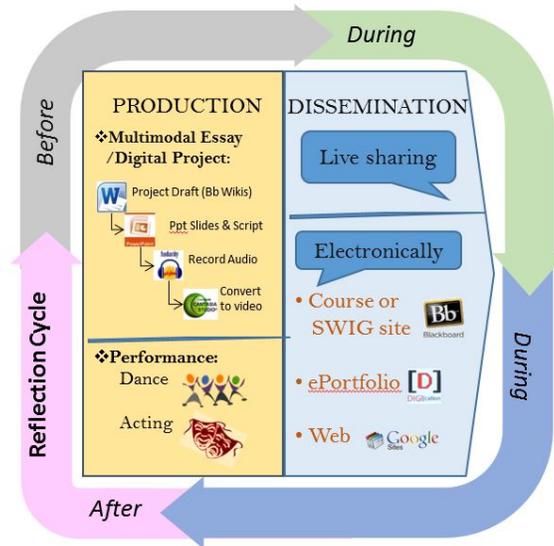


Figure 4 Another SWIG graphic

Some SWIG classes assigned students the second and third stages of SWIG process. They produced different types of digital projects—multimodal essays, PowerPoint presentations, digital stories, acting or dance performances, or websites—which they disseminated in either live events or electronically via the course’s Blackboard site, or their SWIG Blackboard site, their ePortfolios, or on the Web, such as a website and YouTube.



Figure 5 Sample digital project

A sample digital project in a video format produced by one group in Cercone’s class.

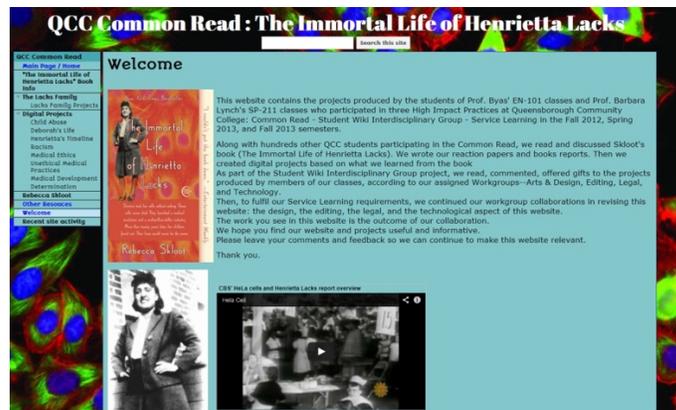


Figure 6 SWIG website

The website designed by Byas’ SWIG team for the Common Read, another high impact practice at Queensborough Community College, to fulfil the requirements for their participation in a third high impact practice—Service Learning.

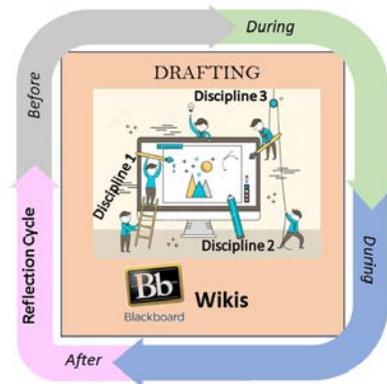


Figure 7. SWIG drafting stage

All SWIG projects require the first stage—Drafting—in the Wiki on the group *Blackboard* site.

Group #	Topic	Members					
		English	English	Speech	Speech	Biology	Biology
1	Teen Pregnancy	Eng 1	Eng 11	Spe 1	Spe 11	Bio 1	Bio 11
2	Cancer	Eng 2	Eng 12	Spe 2	Spe 12	Bio 2	Bio 12
3	Cervical Cancer	Eng 3	Eng 13	Spe 3	Spe 13	Bio 3	
4	Child Abuse	Eng 4	Eng 14	Spe 4	Spe 14	Bio 4	
5	HeLa in Medical Development	Eng 5	Eng 15	Spe 5	Spe 15	Bio 5	Bio 13
6	Religion & Faith	Eng 6	Eng 16	Spe 6		Bio 6	
7	Racism & Research	Eng 7	Eng 17	Spe 7	Spe 16	Bio 7	Bio 14
8	Racism & Patient Care	Eng 8	Eng 18	Spe 8	Spe 17	Bio 8	
9	Patient Confidentiality	Eng 9	Eng 19	Spe 9	Spe 18	Bio 9	
10	Incest	Eng 10	Eng 20	Spe 10	Spe 20	Bio 10	

Wikis
A Wiki is a collaborative tool that allows Students to contribute c

Create Wiki

Delete Availability Student Access Student Commer

Name

- Brainstorm
- Group 10 - Incest
- Group 1 - Teen Pregnancy
- Group 2 - Cancer
- Group 3 - Cervical Cancer
- Group 4 - Child Abuse
- Group 5 - HeLa cells in Medical Development
- Group 6 - Religion
- Group 7 - Racism & Research
- Group 8 - Racism & Patient Care
- Group 9 - Patient Confidentiality

Figure 8 Group assignment and their topics in three-discipline SWIG collaboration

The students were divided into ten working groups based on the topic they selected. Each group was assigned a Wiki Page as their collaboration space.

QUEENSBOROUGH COMMUNITY COLLEGE

SWIG Classes: Welcome

QCC Library / Library Guides / Course Guides / SWIG Classes

SWIG Classes: Welcome

Welcome Copyright & More Find & Use Media Find Information Cite Your Sources MLA Style

Figure 9 SWIG Library Guide

The SWIG Library Guide on QCC website offered important details related to the concept of copyright, fair use, as well as research and citation tools.

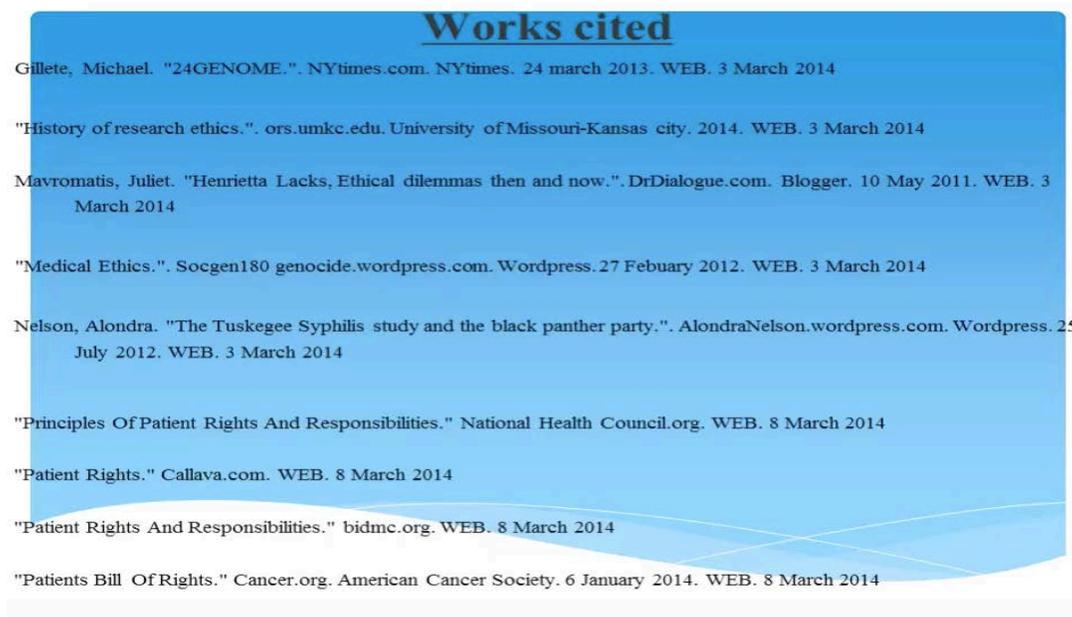
The screenshot shows the Queensborough Community College library website. At the top, there is a navigation bar with links for 'Login', 'Directory', 'Register', 'TigerMedia', 'Ask a Lib', and 'A-Z Index'. Below this is the library's name and logo. A search bar is present with the text 'Enter keywords' and a 'Search' button. A menu bar includes 'Welcome', 'Copyright & More', 'Find & Use Media', 'Find Information', 'Cite Your Sources', and 'MLA Style'. The main content area is divided into two columns. The left column is titled 'Can I Use It? Yes You Can!' and contains three bullet points: 'Your own stuff', 'Material in the public domain', and 'Material you have permission to use'. The right column is titled 'Keeping Track of and Citing Photos' and contains two bullet points: 'Keep Track of Your Photos' and 'Photo Citation Examples'. A large blue arrow points from the right column towards the 'MEDIA TRACKER' table below.

MEDIA TRACKER

No	Keyword:	Reason:	Citation
1	teen pregnancy		
			<p>WHO? Robo27</p> <p>WHAT? Teen Pregnancy</p> <p>WHEN? unknown</p> <p>WHERE?</p> <p>http://3219a2-medialib.glogster.com/media/de/dede9f7a-e4d6460b2873c6554e71db7735e06ec7d8a8e81598a10b5d033391b/teen-births-in-washington-county-prevention-may-2009.jpg</p>
1	cervical cancer	<i>I like the pictures with the statistics on them. It is really informative. Tell me if you would like to see this pictures in the power point</i>	
			<p>WHO? Tiffany Smith</p> <p>WHAT? Teen Pregnancy facts</p> <p>WHEN? August 29, 2013</p> <p>WHERE?</p> <p>http://sikulair.com/tiffany-smith-teenage-pregnancy-publish-with-glogster</p>

Figure 10 Sample media tracker

This is a sample Media Tracker that was created by the group working on *Teen Pregnancy*.



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Figure 11 Sample works cited slide

This is a sample Works Cited slide created by a group working on the topic of *Patient Rights*.