



PROJECT
REPORT

Using the SENCER Approach in Collaborating Across Disciplines: Participating in Do Now U

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Introduction

This project report details a pilot venture that paired two undergraduate courses at the University of Wisconsin-Whitewater: (a) Environmental Geology, an upper-division general education science course, and (b) College Writing in English as a Second Language (ESL), a first-year composition course for international students whose second language is North American English. Students enrolled in these two courses collaborated in writing blog posts on scientific topics with societal repercussions as part of the Do Now U project, a joint initiative between the National Center for Science and Civic Engagement (NCSCE) and the education division of KQED Public Media. Collaborating in this project enabled students to

use the discourse of science in authentic communication with an identified audience while conducting a group project. Evaluation shows that students enjoyed this self-directed learning experience, using digital media to communicate and to create a digital document on a scientific and social issue.

NCSCE sent a call for participation (<http://ncsce.net/donowu-spring-2017-ncsce-kqed-now-accepting-applications-for-new-do-now-u-creators/>) to college educators in fall semester 2016. In early January 2017, interested participants attended a webinar on project participation guidelines. Instructors also selected a date for submitting their posts during spring semester 2017. They

then formed student teams, each of which proposed and decided on a topic, formulated a discussion question, and ultimately composed a blog post for the KQED Do Now U website. KQED furnished a template for blog posts, which required background information and explanation of both positive and negative implications of the topic at issue. Posts also included links to relevant videos, images, and other reliable online resources. KQED education staff selected one blog post per participating institution. Once published to the web, the posts were open for public discussion and comments.

Collaborating on a Do Now U Post at the University of Wisconsin-Whitewater

Naturally, Environmental Geology and College Writing in ESL, although both undergraduate courses, differed in several ways. The two sections of Environmental Geology, taught by Bhattacharyya, each enrolled 24 students and met twice a week in 75-minute blocks. The course follows the SENCER approach to inquiry, encouraging students to investigate unsolved problems relevant to today's society, so that they not only develop content knowledge, but also improve critical thinking skills (Burns, 2002). Environmental Geology is a hands-on, experiential course, required for environmental science majors with an emphasis in the geosciences, but open as an elective to non-majors. Therefore, the students enrolled in the course represented a variety of academic backgrounds and interests. The course is thematically organized to inspire further exploration of topics chosen by students.

College Writing in ESL, team-taught by Huss-Lederman and Deering, enrolled 13 students and met four days a week in 75-minute blocks. The majority of the students who enroll in this course are international students, new to the United States and to university study. They represent a broad range of English proficiency and, like most first-year college students, are novice academic writers. Typically, this writing course has been organized thematically, often with human rights or social responsibility as broad topics, and so developing a semester-long environmental theme for the course was a natural fit. One goal of this composition course is to be an onramp to academic success at the university. Largely, this means providing opportunities for students to improve academic English proficiency, while simultaneously helping students to access programs that position them for success. Participating

in this project enabled international students to interact with native English speakers; both groups completed an academic research project, using the SENCER approach to inquiry to enhance college-level, academic literacy in English. By the end of the project, Deering and Huss-Lederman had become advocates for the SENCER approach, continuing to develop project-based learning opportunities for their students throughout the semester even after the collaborative project ended.

In each course, the Do Now U project served a different purpose. In Environmental Geology, the assignment took on a minor role. Participation gave students the opportunity to engage in both writing to learn and writing for an audience beyond their teacher through a novel, small-stakes assignment. It also simulated an increasingly common professional situation— asynchronous collaborative writing in a medium less commonly used in a course assignment, an academic blog post to a website external to the university. Students were placed in groups based on their topic of interest, so students from both sections were required to work together, and in some cases with international students from the writing course. Students developed blog posts outside of class, but incorporated their research into class discussions. Geology students received feedback on topics along with possible questions from Bhattacharyya as comments on homework, and they were free to contact any instructor with questions concerning the posting assignments.

Since the college composition course is devoted to argumentative writing that synthesizes information from external sources, the Do Now U project took on a major role because it required international students to practice these academic skills. Reference librarians offered students a weeklong seminar in identifying and evaluating web-based resources. Students read and wrote short essays, utilizing cause and effect and problem/solution structures. Reading assignments also emphasized summarizing, paraphrasing, and identifying and interpreting quotations—all skills essential to academic writing. Generally, two international students were assigned to Do Now U project groups of two or three geology students, although international students with stronger English proficiency or a more autonomous learning style could decide not to have a composition classmate as a partner. However, for many international students, having a

classmate as a partner in this project gave them confidence in the research and collaborative writing process. In fact, the international students continued to develop their English academic writing skills after this project was finished, either by continuing with their original ideas or examining a related environmental topic, which they then presented as posters during the campus Sustainability Day in April.

Although the goals of the geology and English courses were not the same and incorporated the Do Now U project differently, courses had to follow the same timeline for preparing posts. To facilitate the online writing process, instructors also assigned students roles, such as background writer, pro argument or con argument writer, editor, and media finder. Three common collaborative face-to-face sessions were held for students to complete the post together. Ultimately, UW-Whitewater submitted 16 blog posts for consideration. On March 15, 2017 the entry, "Do the Benefits of Aquaculture Outweigh Its Negative Impacts?" (<http://ncsce.net/do-now-u-do-the-benefits-of-aquaculture-outweigh-its-negative-impacts/>) was posted.

Evaluating the Project

An online evaluation with questions targeted to each course was sent to all students in March, 2017. There was nearly a 100% response rate by geology students. Thirteen students were enrolled in English 162 when the project started, but only eleven completed the course, and six completed the survey. The findings are summarized below.

Geology Students

In the environmental geology course, collaborating on a blog post for a public media outlet was a novel experience, from determining a topic and refining a discussion question to writing a backgrounder that included links to further information.

1. 95% indicated that they had learned something new about an environmental topic that they had chosen and researched themselves, with some commenting that they had come to understand new perspectives and to identify their own biases.
2. Many students indicated that working in a group offered them new perspectives on how to work with

others; those who worked with international students appreciated the opportunity to do so.

3. Students enjoyed working with multimedia resources and developing a blog post, as opposed to writing a traditional research paper.
4. Some students found group work to be frustrating when group members did not contribute to the team effort.

International Students

Collaborating to write a blog post for a public media outlet was also a novel experience for the international students. The emphasis in this assignment, as well as in others in the course, was to develop and strengthen collegiate writing proficiency in English. Students were asked to reflect on their development.

1. On a scale of "not confident" to "very confident," international students were asked to reflect on their growth as academic writers in English. All students indicated that they felt "somewhat" to "very confident" in their ability to locate appropriate academic resources and to evaluate their reliability.
2. On a scale of "not confident" to "very confident," students indicated that they felt confident providing academic summaries of resources and preparing counterarguments.
3. All students reported that their academic vocabulary had improved.

None of the students indicated disappointment if their team's work was not chosen for publication. Overall, the experience was positive for students enrolled in both courses.

What the Instructors Learned

This pilot was the first time that these three instructors collaborated on a public writing project, let alone one that paired upper-level students with novice academic writers who communicate through ESL. Observations of students throughout the project, as well as student survey results, led to the following conclusions:

1. Using the template provided by KQED and reviewing past posts to understand how to complete the assignment from the beginning focused the writing process

for all students and made assigning writing roles to students easier. Furthermore, the template's structural guidelines freed students to focus on refining their questions and finding relevant resources instead of wondering how to organize the information.

2. Making the theme of the English course environmental sustainability and registering for a blog posting date mid-semester gave the first-year international students time to build background knowledge in order to be strong partners to the geology students. All students ultimately shared common content knowledge, which leveled the playing field for the assignment.
3. Assigning international students to write the negative position on a topic helped them to conceptualize counterarguments, an important skill in argumentative writing.
4. Geology students in groups with international students enjoyed the opportunity to meet and work with students from other countries.
5. All students appreciated the chance to share information with a broader audience outside of their courses.
6. Although many students liked building a document by communicating online, they also appreciated the face-to-face work. Face-to-face meeting in the university library allowed all students to review work together.

Changes for Future Projects

Overall this pilot worked well; however, certain modifications would improve the structure of future collaborative writing projects. For example, scheduling the English course and the geology courses at the same time of day would allow for more convenient face-to-face collaboration among all students as a learning community. Although most students enjoyed this assignment, some were frustrated when not all group members pulled their weight. Because this also happens in the workplace, students need to know how to manage such situations and how to take responsibility for their specific roles on a team project. Restructuring the course assignments to emphasize individual accountability to the group would help students to develop this skill. Students would benefit from reflecting on the experience of working in groups and learning how individual actions affect the team.

Discussion

Both collaboration and open-ended research-based projects are high-impact practices (HIPs), noted for promoting strong learning outcomes in higher education that translate to participation in a globalizing society (Kuh, 2008). Indeed, an analysis by Kilgo, Sheets, and Pascarella on the effectiveness of HIPs on the goals of liberal arts education indicates that these two practices are “. . . significant, positive predictors for a variety of liberal arts learning outcomes” (2015, p. 522). Students participating in the Do Now U project worked together to research issues in which society affects the environment. Such learning practices fall within the domains of cognitive and interpersonal competence, integral to 21st-century skills (National Research Council, 2012). Project-based learning is also a natural fit in the SENCER paradigm, as it promotes student-centered, self-directed, deep examination of issues.

Additionally, students participating in groups composed of both U.S. and international students experienced working with individuals from a culture other than their own, an important component of intercultural competence (Kuh, 2008). Although students enrolled in Environmental Geology would have been able to carry out this project on their own, sharing the project with first-year international students enabled all students to improve intercultural competence within an international academic community. The ability to work as a team, not only face-to-face but also online, is an important competency in the global workforce (Moore, 2016).

In the English course, working with unsimplified, authentic texts and communicating with native speakers in English allowed students to conduct research and to write for a specific purpose and audience far beyond their ESL class. Such practice helped them to focus on the intellectual purpose of researched writing rather than on the mechanical aspects of citation and reference, which, although important, should not occupy the forefront of writing to learn (Howard and Jamieson, 2014). Collaborating with students in the geology course on this project required ESL students to become knowledgeable about an environmental concern and to communicate with others using both academically and socially appropriate language in speech and writing. Furthermore, project-based learning naturally promotes the use and development of the four language skills (speaking, reading, writing,

and listening) and subskills (vocabulary, grammar, and pronunciation) in an integrated way and fosters learner autonomy (Beckett and Slater, 2005). The sustained opportunity to use academic language beyond the English composition classroom in a scientific theme put these international students on track for academic language development and learning that would serve them in courses beyond this one. Such educational practices may become increasingly important as the number of ESL students enrolled in English-medium institutions of higher education around the world grows (Fenton-Smith, Humphreys, Walkinshaw, Michael, and Lobo, 2017).

For the geology students, the experience of asynchronous, collaborative writing was a gateway into an increasingly common mode of professional communication in both academia and the workplace. Students were also placed in the novel situation of sharing information that they had learned independently with a wider audience. Although the project was a low-stakes assignment in terms of the effect on the course grade, students engaged in several HIPs—collaborative group work, working across cultures, and a writing-intensive assignment, while engaging in self-identified, open-ended questions where science and social responsibility came together.

Conclusion

A SENCER course in the sciences is different from a composition course that uses science topics as a springboard to academic writing, yet the opportunity to communicate about science can reach beyond science courses. Collaborating on Do Now U demonstrated how this type of bridge worked—bringing group writing to a science course and introducing SENCER practices into a composition course for international students. Further, it exemplifies how collaboration between the humanities and natural sciences, using a SENCER approach, benefitted students at different stages of university education.

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