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Building Bridges in Interdisciplinary Team-Taught Honors Seminars

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Abstract: This study presents perceived advantages of thematic, team-taught interdisciplinary seminars for first-year honors students. Two student cohorts ($n = 174$) surveyed in two subsequent years (2018, 2019) weigh in on the challenges and benefits of different team-teaching models. Three first-semester offerings on the themes “Food,” “Creativity,” and “Social Justice” are evaluated. Results indicate that most students (70.1%) recognize the understanding of multiple perspectives to be the greatest benefit of the team-taught seminar. Other perceived benefits include the acquisition of additional information (21.3), cultivation of critical thinking (13.2), and the ability to make transdisciplinary connections (10.9). Data suggest that the degree of difference between disciplines combined in a class might place restrictions on the choice of team-teaching modality. Authors conclude that while team teaching offers a varied array of benefits to students, there is no one best model.

Keywords: teaching teams; team learning approach in education; interdisciplinary collaboration; theme-based curriculum; University of Wisconsin Oshkosh (WI)—Honors College

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INTRODUCTION

The honors college at the University of Wisconsin Oshkosh requires a team-taught interdisciplinary seminar for first-semester freshmen. In the past, students in this seminar were taught by different instructors consecutively. In this format, students were exposed to the perspectives of multiple

disciplines on a common theme, but since each instructor would spend three to six weeks with one subgroup of the students and then rotate to another group, the disciplines did not truly interact with one another (see Willermet et al., 2013, for a similar point). While this structure is considered a form of team teaching (see Ford and Gray, 2011), we wanted to move further in the direction of integrated team teaching. We hoped to improve the educational experience for our students by having two instructors from different disciplines in the classroom at all times. We formed three teams of two accomplished instructors each. The three teams have now been teaching together for four years or more, and all three classes have evolved over time as the teams learned how to better integrate their disciplines.

Based on student evaluations, all three of the classes are going well, but we wanted to learn more about the benefits and challenges of team teaching in order to evaluate and further improve our practices in the honors college. While a number of articles on team teaching exist, several gaps remain in the literature. First, most studies investigate team teaching from the perspective of instructors and administrators, tending to focus on different models of team teaching or on logistical challenges such as how to budget team-taught classes (see Barisonzi & Thorn, 2003; Bell, 2008; Lacey, 2005; Werth, 2005). Very few studies are based on systematic feedback from students. Davis (1995) briefly discusses a numerical student survey designed to capture student perceptions of collaboration as opposed to, for example, student learning outcomes. Krometis et al. (2011) use first- and last-day opinion polls as well as an analysis of student essays as the basis of their study. Monson and Kenyon (2018) rely on student course evaluations and the results of end-of-semester discussion groups. Our study, by contrast, is based on a qualitative student survey specifically designed for our project.

Second, most studies focus on team teaching in a single discipline, such as marketing (Yanamandram & Noble, 2006) or computer science (Money & Coughlan, 2016), or provide examples of single-discipline, team-taught classes in a variety of disciplines (Benjamin, 2000). We are not aware of any studies that compare multiple interdisciplinary team-taught classes that combine instructors from different or similar disciplines and that use different models of team teaching.

Third, to our knowledge no studies have been published that examine multiple team-taught classes offered by instructors who have taught the class over the course of several semesters, thus improving on data from a one-time offering and providing a more reliable indicator of the potential impact of the class.

We aim to address these three gaps in the literature in our examination of how students perceive the benefits and challenges of taking an interdisciplinary team-taught class, and we do so with the hope that other instructors will benefit from our experiences and insights. Reflection on our student data leads us to argue, for example, that the degree of difference between the relevant disciplines in a team-taught class matters significantly. We argue that the degree of difference places restrictions on the choice of a team-teaching model, that all models offer a different mix of benefits, and that there is no one best model for team teaching.

BACKGROUND: THE THREE CLASSES

Because we have three teams in the honors college that have been working together for several years, we can compare three different approaches to team teaching. Food is team-taught by a professor of geography and a professor of philosophy, neither of whom has any training in the partner discipline. Both instructors are in the room during every class session, and while each week one instructor is in charge of leading the class, both actively participate in discussions and interject information from their discipline when appropriate. The class is set up so that the geography professor usually lays out a topic—i.e., population growth and food insecurity; environmental issues in food production; or child and migrant labor in agriculture—and begins to discuss them. The philosophy portion of the class takes up these issues, discusses them in more depth, and provides the broader ethical frameworks to understand how and why we think about these issues the way we do.

Creativity is set up in a similar way. The class is team-taught by a professor of English and a professor of math and is organized in a way similar to the Food class, with instructors alternating in leading a particular class session. One difference, however, is that both math and English are core subjects in middle and high school, so both instructors have some familiarity with each other's disciplines, and students also have been exposed to both disciplines before. In the Food class, by contrast, fewer than half of the students have ever had a geography class and fewer than ten percent have had a philosophy class. In the Creativity class, students investigate different definitions and models of creativity, how creativity can be measured and studied, and the lives and work of a variety of creative people in the humanities and sciences. The students also work on and present their own creative projects. In other words, the class

looks at creativity in a number of different disciplines but does not explicitly tie the two participating disciplines together.

Social Justice is team-taught by a professor of social justice and a professor of history, two disciplines that are more closely connected than those in the other teams, and the class is set up differently: in every class session, both instructors teach together, disseminate content, and facilitate discussions. The history professor provides the foundations and background about issues such as racism, classism, sexism, discrimination, and LGBTQ issues, and the social justice professor, who is engaged in a variety of social justice issues on campus and in the community, helps students make connections to contemporary social justice issues and discusses actions students might take to address them. The instructors have expertise in similar issues, but most students have formal background only in history although they may have encountered social justice topics in a number of different classes or settings.

Having three team-taught classes with somewhat different constraints and approaches allows us not only to investigate the benefits and challenges of team-taught classes more generally but also to explore differences among the various team-teaching models. For the convenience of the reader, the basic information about the three classes is summarized in Table 1.

RESEARCH METHOD

To learn how students perceive these team-taught classes, we administered a survey to two cohorts of students (fall 2018 and fall 2019) in all three classes after obtaining Institutional Review Board approval (protocol number 974048) for our study. The survey asked the students about some basic background information such as their majors and their previous experiences with classes in the disciplines partnered in their honors class. To avoid leading students in a particular direction, we then asked open-ended questions about the benefits they saw and challenges they faced in their team-taught class and how well they thought the two disciplines fit together. We coded the responses according to categories that emerged from the data set. We also asked students to provide concrete examples of cases where the two-discipline approach was particularly valuable. In total, we received 174 completed surveys. Below we report the data in percentages of respondents and through quotations from the answers to the open-ended questions. We minimally edited the quotations by removing the names of the professors involved and writing out abbreviations.

Since all students in the honors college must take a team-taught interdisciplinary honors seminar, a wide range of majors was represented in our classes. As is typical for honors students on our campus, almost a quarter of the students were nursing majors and a fifth were business majors. Other common majors included natural sciences (especially biology and pre-med) with over 16 percent and education with over 12 percent of the students. Some differences occurred among the classes: for instance, a higher percentage of students in the Food class were in business than in the others, and the Creativity class had almost twice as many education students as the others. We do not know, however, if the students chose their honors seminar based on the topic, the combination of disciplines, or simply the time slot in which it was offered. The number of students who majored in one of the disciplines

TABLE 1. OVERVIEW OF TEAM-TAUGHT CLASSES IN THE HONORS COLLEGE

| | Food | Creativity | Social Justice |
|--------------------------------------|---|--|--|
| Disciplines | Geography and philosophy | English and math | History and social justice |
| Closeness of Disciplines | Very different | Very different | Quite similar |
| Format | Week by week rotation with one professor in charge each week and the other supporting | Week by week rotation with one professor in charge each week and the other supporting | Both professors teaching together in every class session |
| Approach | Common theme and largely integrated: geography lays out the issues; philosophy discusses ethical implications | Common theme, but less integrated: one week on English, one week on math focused on different understandings of creativity | Common theme and fully integrated: topics discussed from a historical and contemporary perspective |
| Student Familiarity with Disciplines | <i>Low</i> —Geography is sometimes taught in high schools, philosophy rarely | <i>High</i> —Both disciplines are core subjects in high schools | <i>Medium</i> —History is a core subject in high schools, but social justice is rarely taught |

taught in their class was small; in other words, the large majority of students engaged in two disciplines with which they had no particular connection.

BENEFITS OF INTERDISCIPLINARY TEAM-TAUGHT CLASSES

When designing our courses, we had particular learning goals in mind for the interdisciplinary nature of the classes. One program goal for all honors classes at our institution concerns interdisciplinary learning:

Interdisciplinary Learning: Honors students will understand the relationships between existing knowledge in multiple disciplines by engaging works and cultural events from the perspective of various disciplines. (The Honors College at the University of Wisconsin Oshkosh Assessment Plan)

It was therefore important to see whether the benefits students perceived matched our stated learning goals of understanding the relationships between multiple disciplines. Over two thirds of our students listed getting multiple perspectives as a major advantage of participating in an interdisciplinary class (see Table 2). The following is a fairly representative statement from a student: “You get more than one side of each story—it is interesting how differently two different disciplines may react to or interpret the same exact information. It makes for a more rounded understanding of the issues covered in class!” (business major in the Food class). Many students realized the importance of learning to see an issue from different perspectives:

In our class we talked a lot about the “danger of a single story” which is an idea from a TED Talk and basically means that when we have access to or are provided with only one perspective our own personal perception of that thing becomes warped. By having two different lenses through which this course has been taught, we have been able

TABLE 2. PERCENTAGE OF STUDENTS LISTING BENEFITS OF INTERDISCIPLINARY TEAM TEACHING

| Benefit | Food (N = 60) | Creativity (N = 57) | Social Justice (N = 57) | Total (N = 174) |
|-----------------------|------------------|------------------------|----------------------------|--------------------|
| Multiple Perspectives | 75.0 | 75.4 | 59.6 | 70.1 |
| More Information | 6.7 | 17.5 | 40.4 | 21.3 |
| Critical Thinking | 20.0 | 8.8 | 10.5 | 13.2 |
| Seeing Connections | 10.0 | 8.8 | 14.0 | 10.9 |

to understand the topics and materials on a deeper level because we are not getting a single story. (nursing major in the Social Justice class)

In some cases, the students provided specific information about how the two disciplines in their class worked together. For example, one student explained that “[t]he learning of information of facts, primarily the geography side of the equation, is something I have done all my life, but having a second discipline (in this case philosophy) added a critical aspect to the lectures that allowed me to truly evaluate the issues in their fullest complexities” (social science major in the Food class); this student reveals how the two disciplines not only vary in their approaches and methods but also complement one another and allow for a deeper understanding. Similarly, another student said, “The history professor is able to provide the greater historical context of what happens around certain issues. Likewise, the social justice professor can bring a more human perspective to the history professor’s cold historical facts” (humanities major in the Social Justice class). These remarks suggest not merely that the students were learning about two different perspectives but that they understood the relationships between the two disciplines and how they worked together to provide a fuller picture, yielding a deeper analysis.

The percentage of responses we coded as expressing the benefit of multiple perspectives was almost identical in the Food and Creativity classes, which both combine two very different disciplines, and somewhat lower in the Social Justice class, where two relatively similar disciplines are partnered (Table 2), suggesting a connection between the degree of dissimilarity of disciplines and the perceived benefit of being exposed to multiple perspectives.

The second most cited benefit, mentioned by one fifth of the students, was getting more information from a team-taught interdisciplinary class, a benefit especially emphasized in the Social Justice class, where two fifths of the students felt that they received more information than they otherwise would. This benefit was mentioned least often in the Food class, where about 13 percent of the students reported critical thinking as a benefit, a substantially higher percentage than in the other two classes. In the words of one student, taking a class combining two different disciplines “definitely increases critical thinking of a subject and forces you to put yourself in someone else’s shoes. The broad, two-sided knowledge also encourages more free and self-guided thinking” (social science major in the Creativity class).

Finally, roughly one tenth of the students listed the advantage of seeing connections that they otherwise might not have noticed. While closely related to the first benefit of having multiple perspectives, we chose to list this

one separately for two reasons: those who mentioned “seeing connections” did not always mention multiple perspectives, and one can appreciate having multiple perspectives while not seeing the connections between them. Consider what one student wrote: “I thought they were very different on the surface but once you learned more they became very connected which is cool” (natural science major in the Creativity class). This comment suggests that students, although exposed to multiple perspectives, often do not at first see the connections between them. One student suggested that learning about such connections is a benefit that overcomes a hazard of a strictly disciplinary curriculum: “You get to see how related different fields are; in college, everything feels so segregated or isolated based on your major. . . . This shows that something like food actually touches on many subjects and disciplines” (humanities major in the Food class). Perhaps if the relevant disciplines are very different from one another, students will not at first see the connections between them and thus will find value in the “light bulb” moments that reveal the connections.

To add to our understanding of the benefits of an interdisciplinary team-taught class, we also asked our students to provide concrete examples of when this approach was most valuable. In the Food class, the most frequently listed examples included food insecurity/food aid, corporate farming/environment, and child/migrant workers in food production; in the Social Justice class they were racism and LGBTQ issues. These topics are among the “hot topics” of our times, and students realized that understanding and addressing these complex issues requires us to look at them from multiple perspectives and to come up with holistic solutions (see also Willermet et al., 2013, on this point). In the Creativity class, the large majority of students indicated that they now understood that creativity is not limited to the arts but exists in all disciplines and also that people in different disciplines go through a similar creative process. In other words, all three classes accomplished learning goals related to interdisciplinarity, but other learning outcomes varied, e.g., the Food and Social Justice classes were more problem-oriented than the Creativity class, resulting perhaps in a greater focus on critical thinking.

In summary, the data obtained from the six sections of the three classes suggest that students’ perceived benefits of being exposed to multiple perspectives, improving critical thinking skills, and making connections broadly match our learning goals. The reported benefits vary somewhat by class, which possibly reflects different priorities in the classes, but it seems likely that the combination of disciplines and approaches to team teaching play a role as well.

CHALLENGES IN INTERDISCIPLINARY TEAM-TAUGHT CLASSES

Since one of our goals was to critically evaluate our own classes and continue to improve them, we also asked our students to explain the challenges they encountered in the interdisciplinary team-taught classes. The differences among the three classes were much more pronounced here (see Table 3). The most cited challenge was the switching of the lead professors. In the Social Justice class, the two professors taught almost all class sessions together, so there was no switching. In the Food and Creativity classes, the switching was difficult for about two fifths of the students. Many student responses centered on the “logistical difficulties” of switching, such as forgetting material from one discipline while the other was taught.

While quite a few students found the process of switching difficult regardless of the disciplines involved, the issue is clearly connected to the difference between the disciplines. Some students elaborated that the switching was challenging because the disciplines functioned in different ways, making the class less cohesive: “A challenge I’ve found in this class is my brain switching from two different ideas every few days. Although they are centered around the same topic, the two disciplines take you into different directions, which can make the class seem less cohesive” (natural sciences major in the Food class). A few students went so far as to question whether disciplines that are very different can be combined successfully: “If the disciplines are too dissimilar or the professors do not combine the disciplines well, it essentially becomes two different classes that have a similar topic instead of a variety of ways to teach an issue” (education major in the Creativity class).

The second major challenge mentioned by the students, also alluded to in the above quotation, was not always seeing the connections between the two disciplines (see also Barisonzi and Thorn (2003)), a concern expressed by one fifth of the students in the Food class but far fewer in the other two

TABLE 3. PERCENTAGES OF STUDENTS LISTING CHALLENGES OF INTERDISCIPLINARY TEAM TEACHING

| Challenge | Food (N = 60) | Creativity (N = 57) | Social Justice (N = 57) | Total (N = 174) |
|---------------------------|------------------|------------------------|----------------------------|--------------------|
| Switching | 41.7 | 36.8 | 0.0 | 26.4 |
| Not Seeing Connections | 18.3 | 5.3 | 3.5 | 9.2 |
| Different Teaching Styles | 8.3 | 7.0 | 21.1 | 12.1 |

classes. Our data do not allow us to establish how frequently students experienced this issue; for example, we do not know if some students in the Food class frequently did not see the connections between the disciplines or if some class segments were less successful in making the connections than others. Overall, however, students judged the fit of the disciplines to be good or very good in all three classes, with Social Justice receiving the highest rating. In the two classes combining the more disparate disciplines, a number of students expressed surprise at how well the two disciplines worked together: “At first I didn’t see how they fit together and it was annoying, but they actually work pretty well” (education major in the Creativity class).

The final issue mentioned by more than a few students was the challenge of dealing with two different teaching styles in the same class. This issue was reported by more than twice as many students in the Social Justice class, where otherwise few challenges related to team teaching were reported, and by many fewer students in the two other classes, where we would have expected differences in teaching style to be compounded by the very different disciplinary approaches. Instead, our data indicate that having different teaching styles was more challenging in the fully integrated team-teaching model, perhaps suggesting that the “lead instructor” model makes it easier for students to adjust to varying teaching styles. If so, it appears there are advantages and disadvantages to each team-teaching model.

A few less frequently mentioned issues varied quite a bit between the classes depending on the difference between the disciplines and the format. Several students reported that for both the Food and Creativity classes they liked one discipline but not the other, a danger much reduced when the two disciplines are more like one another. About the Social Justice class, several students remarked that they felt that one discipline dominated or that the “instructors were not always on the same page,” issues never mentioned for the two other classes where instructors alternated according to a schedule. Once again, it seems that no class format is clearly superior but that each one comes with specific benefits and challenges.

The task for us as the instructors is now to work out how we can address these challenges. For example, we need to consider whether we can make the connections between the different disciplines more explicit. One student, for instance, said that “[b]oth professors, while accomplished in their field, rarely would reference their course material to the other” (education major in the Creativity class), suggesting that connections could be more clearly explained and coordination improved. We also need to consider whether adjusting the

class format, in particular the lead professor model, could alleviate these issues in the two classes that are set up this way.

We should consider several other points in light of these challenges. First, logistical obstacles impose some constraints. For example, it takes a significant amount of time (and perhaps training) to plan all class sessions together (see Letterman and Dugan, 2004), a luxury that few in the academy enjoy. Second, in cases where the two disciplines are very dissimilar and the instructors have no formal training in each other's discipline, there may be a limit to how fully the two disciplines can be integrated. Third, every issue seems to have two sides. For example, combining two very different disciplines using the lead professor model comes at the cost of students' facing the challenges brought about by switching between instructors and sometimes failing to see connections. However, in a lead instructor set-up, students gain from being exposed to very different points of view in depth, learning valuable critical thinking skills, and not having to fully integrate two different teaching styles. Trade-offs have to be made, and no model is clearly superior.

Our overall conclusion that the different models of team teaching offer different benefits and challenges is based on our study of the three interdisciplinary team-taught honors classes currently taught at the University of Wisconsin Oshkosh. Like any study in a classroom setting, our study has a number of limitations. First, while all six professors teaching in these classes are accomplished and experienced instructors, all have particular strengths and weaknesses as well as different approaches to teaching. For example, the outcomes might be different if another team consisting of a geography and philosophy professor taught the Food class. Second, we do not know how the students chose their class: whether they were interested in the topic, liked the disciplines combined in the class, or simply needed the time slot in which the class was offered. Students' responses may also have been colored by how they ended up in a particular class and how well they liked the instructors' approach to teaching. Limitations such as these are inherent in any study that compares different classes and students' experiences, but we believe that the insights we gained from studying the three different classes on our campus can guide other instructors' decisions when setting up their own interdisciplinary team-taught classes.

DISCUSSION AND CONCLUSION

Several authors have used metaphors to describe team teaching. For example, Shibley (2006) likens interdisciplinary team teaching to whitewater

rafting, arguing that this form of teaching involves pedagogical thrills as one tries to negotiate the whitewater segments of the course but also offers a great sense of accomplishment when the rapids have been successfully negotiated. We agree that interdisciplinary team teaching is sometimes treacherous as it combines not only two different teaching styles in one class but also two different disciplines. To stretch the metaphor further, especially if the two disciplines are very different from one another, building a very sturdy boat and staffing it with a highly skilled, well-coordinated crew is important. In other words, creating a successful interdisciplinary team-taught class takes a lot of work, reflection, adjustment, and flexibility but provides both instructors and students with a great experience and educational adventure.

To stick with metaphors, Monson and Kenyon (2018) describe the process of designing an interdisciplinary team-taught class as building a suspension bridge, with both instructors first surveying the site (getting to know one another and exchanging ideas), building the support pylons on both sides (preparing material from their disciplines), and then connecting the two with suspension cables (creating a syllabus and teaching the class). We would like to expand on this metaphor. As the geographer in this interdisciplinary team of authors would say, we also have to study the geography of the building site, e.g., how narrow or wide is the body of water that the bridge needs to span. If the river is narrow (the disciplines are somewhat similar), a different bridge type can be built than when the waterway is wide (the disciplines are very different from one another). It seems to us that fully integrated team teaching, with both instructors contributing to each class session in roughly equal ways, is somewhat easier when the distance between the two disciplines is not great. Combining two very different disciplines in the same class is likely to result in more alternations of the instructors' responsibilities, resulting in some challenges that fully integrated team teaching does not have but also offering different rewards. Unlike some other authors (Ford and Gray, 2011; Willermet et al., 2013), we do not see one method as inherently better than the other but as having different mixtures of challenges and benefits.

In the suspension bridge metaphor, we need to consider not only the width of the body of water (different disciplines) but also the wind loads (complications, struggles, challenges) that the bridge has to withstand. We need to make sure that the towers (the disciplinary material) and their anchors (grounding in the respective disciplines) are strong, but we also have to have strong suspension cables (connections between the disciplines). As in any building project, there are trade-offs among different components like

costs, benefits, and dangers, so there is no one single best solution. What is important is that we do build the bridges among academic disciplines and that we intellectually challenge our students. The more bridges we build, the better prepared we are to defend against the shortcomings of a strictly disciplinary curriculum.

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