Becoming a professional: Interdisciplinary courses as sites for transforming professional identity

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Abstract

This paper highlights how interdisciplinary courses can transform professional identity and foster cross-disciplinary collaboration, using the lens of Wenger's "communities of practice." We analyzed interviews, class sessions, and journal entries from two courses: an arts education course that brought together theatre and education students and a child development course for psychology and education students. In each course, students experienced legitimate peripheral participation through hands-on, collaborative field work, and found themselves positioned as central participants in their discipline relative to students from another discipline. Analysis revealed that students embraced and clarified their professional identities and gained increased efficacy for cross-disciplinary collaboration.

Keywords: Interdisciplinary Course, Professional Identity, Community of Practice, College Students, Teacher Education, Active Learning

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Introduction

Interdisciplinary learning in college coursework is widely lauded. Scholars recognize a range of affordances provided by interdisciplinary courses, including the potential to develop higher-order thinking skills; to foster understanding from multiple perspectives; to allow students to integrate multiple areas of interest; and to provide a more holistic learning experience (Bear & Skorton, 2019; Jones, 2010; Vink et al., 2017). Although less often mentioned in the literature, another benefit of interdisciplinary courses derives from such courses' potential to bring students with different disciplinary backgrounds and/or differing professional aspirations into robust interaction with each other. When this happens, students have the opportunity to gain greater understanding of their own future professions as well as those of their peers, a feature that is especially useful to college educators who prepare students for specific professions (Arce-Trigatti et al., 2019; Crans & Rovetti, 2011; Kavanaugh & Cokley, 2011; Singer et al., 2015; Stone, 2008). Such courses may also develop students' dispositions toward cross-field collaboration (Arce-Trigatti et a., 2019; Cusack et al., 2012; Van Winkle et al., 2012). Most importantly, when designed well, courses in which students collaborate with those from other majors may also promote the development of their professional identities as members of their aspirant fields (Cusack et al., 2012).

Indeed, the development of professional identity is recognized as an important goal for college students across disciplines because it serves as the lens through which professional meaning-making and decision-making occur (Hardy & Chapman, 2022; Jackson, 2017; O'Brien & Bates, 2015; Ryan & Carmichael, 2015; Tsybulsy & Muchnik-Rozanov, 2019). Our study, therefore, examines professional identity development in two interdisciplinary college courses designed to serve students from two or more majors, including an arts education methods course for theatre and education students and a child

development course for education and psychology majors. We argue that such courses have the potential to be transformative for students because they create opportunities for students to inhabit identities within their chosen professional community. Further, students come to understand themselves as boundary-crossers, able to collaborate effectively across disciplines.

Literature Review

Interdisciplinary Courses and Professional Identity

Research on interdisciplinary college courses has primarily focused on specific content or skill outcomes, but some studies have addressed students' professional identity development, perception of other disciplines or professions, and/or willingness to collaborate across disciples. For example, Cusack et al. (2012) found that health science students who participated in an interprofessional, problem-based learning module showed increases in positive professional identity. These authors suggest that this is the result of working in small interprofessional groups, where students' unique roles within a healthcare team became more salient. Cusack et al. explain their findings in terms of self-determination theory: the program was student-centered, offering experiences of autonomy and competence, which strengthened their sense of themselves in the professional role they held during the project.

Singer et al. (2015) found that an interdisciplinary course on irrigation engineering deepened understanding of the multi-faceted nature of engineering as a field among both engineering and non-engineering students. Similarly, Stone et al. (2008) documented how a course for journalism students and social work students fostered increased understanding of both professions. Arce-Trigatti et. al (2019) found that nursing and chemical engineering students in a clinical immersion course developed specific cross-disciplinary communication strategies that ultimately led to a deepened respect for each other's profession. Lam (2005) found that bringing together students from education, social work, psychology, and counseling resulted in reduced stereotyping and increased interprofessional understanding. Likewise, studies by Crans and Rovetti (2011) and Kavanaugh and Cokley (2011) describe how courses that combine students from two different disciplines broke down stereotypes about particular majors and generated greater appreciation for the other discipline. Lindqvist et al. (2005) found that students working in interdisciplinary groups developed more positive attitudes toward diverse health professions than students in single-discipline health education. Van Winkle et al. (2012) found that an interdisciplinary course for medical and pharmacy students improved attitudes about professional collaboration, which was also a finding in Cusack et al. (2012) and Arce-Trigatti et. al (2019).

On the other hand, not all researchers report positive outcomes, especially about developing appreciation for another discipline or increasing disposition toward interprofessional collaboration. Rienties and Héliot (2018) found that requiring students to work in cross-disciplinary groups in an interdisciplinary organizational behavior course was not enough to bring about a meaningful exchange of ideas among students from different disciplines. In Lewitt, et al. (2010), pre-existing stereotypes between pre-medical and biomedical students interfered with both groups' abilities to benefit from interprofessional learning. Dickey (2010), who brought together computer science and arts students for a game design course, found feelings of resentment between the two groups regarding decisions they made about their projects, along with underlying misunderstandings about each other's disciplines. Dickey describes how each group "contested for power" (p. 168) as a result of their enculturation into different disciplines with differing values and practices.

The studies reporting problematic findings differ in important ways from those documenting more desirable outcomes. In the research reported above, the courses that yielded enhanced professional identity, greater appreciation for other disciplines or professions, or increased interest in cross-disciplinary collaboration all engaged students in collaborative, authentic problem solving, using either problem-based-learning or a case-studies approach. By contrast, Rienties and Héliot (2018) examined outcomes from interdisciplinary groups charged with studying course material rather than collaborating on a project or problem. Lewitt et al. (2010) engaged students in problem solving but in a way that was inauthentic to both groups in the study (a problem that study participants pointed out). In Dickey's

(2010) study, students from differing disciplines worked independently, having been given separate tasks within a larger group project.

In sum, prior research suggests that a course that brings together students with divergent professional aspirations has the potential to foster enhanced professional identity, professional understanding, and disposition toward collaboration, especially if it includes authentic collaborative problem-solving. However, disciplinary differences and pre-existing stereotypes may serve as barriers.

Interdisciplinary Courses and "Legitimate Peripheral Participation"

Our study highlights the transformative potential of interdisciplinary courses by taking a deeper look at how such courses provide opportunities for students to inhabit their hoped-for professional identity and to experience themselves as effective cross-disciplinary collaborators. Wenger's (1998) theory of "communities of practice" offers insight into how and why interdisciplinary courses have the potential to generate highly personal, and highly transformative, forms of learning. Building on ideas he initially developed with Lave (Lave & Wenger, 1991), Wenger proposes a theory of learning as not just the acquisition of information or skills but as a socially-situated process of "becoming a certain person" (2010, p. 2). Wenger observes that most human activity is situated within communities of practice, which are groups of people bound together by mutual engagement in a shared endeavor, for example those who share a craft or a profession. Learning is conceptualized as a trajectory from newcomer to central participant (or "oldtimer") in the activities of a community of practice. As one travels this trajectory, the community, its practices, and one's relationship to both of these increasingly become part of one's identity. Wenger asserts that learning is the ongoing "production of identity," (2010, p. 2), as one's changing position within a community continuously modulates one's experience of oneself. Wenger further notes that we all participate in many different communities at any given time and that our identities reflect our experiences of this "multimembership" (Wenger, 2010, p. 6).

In order for newcomers to learn the practices of a community, the community provides opportunities for "legitimate peripheral participation," in which newer members engage in simpler tasks that require less expertise but are nonetheless productive or valuable to the community's enterprise. Legitimate peripheral participation allows newcomers to gain facility with a community's repertoire of activities, terminology, and organizing principles.

College students are often newcomers in their disciplinary communities when compared to their professors or to practicing professionals, and college courses often serve as sources of legitimate peripheral participation for disciplinary practices, especially when they engage students in the authentic practices and problems of the field. At the same time, in an interdisciplinary college course, students who have prior experience in a discipline are positioned as more "central" participants relative to their peers who have no such experience. This experience as a more central participant may serve to strengthen students' identification with their chosen disciplines (Wenger, 2010). In our study, we examine courses that engaged students in legitimate peripheral participation in both a familiar discipline and a new one. We are interested in the ways these courses allow student to inhabit their professional identities and in the ways such courses invite students to revise their identities to include the new discipline, which in turn may allow them to explicitly understand themselves as "multimembers" who can productively engage with multiple disciplines.

Communities of practice and transformative learning

In an effort to characterize the relationship between Wenger's (1998) communities-of-practice theory and Mezirow's (2000) theory of transformative learning, Hodge (2014) proposes the concept of a "transformative trajectory" (p. 174) as a common element in both theories. As Hodge points out, Mezirow's phases of transformative learning can be understood as a journey out of one set of social practices, including practices via which one makes meaning and understands one's self, into another. He notes that this aligns with Wenger's description of identity changes that come about as learners move from the periphery of a community toward its center or move between differing communities. While Hodge acknowledges important discontinuities between Wenger and Mezirow, he emphasizes that the

two theories are complementary, and that taken together they allow us to understand that transformative learning is necessarily an "inter-practice" phenomenon (p. 167).

Hodge (2014) further explains that the "transformative trajectory" is driven, in both theories, by incompatibilities between prior understandings or practices and those the learner is newly taking on. He also notes that in many educational situations, learners are moving from the lay-person's utilization of "large scale practices," or generalized ways of making meaning in a given domain as practiced in the society-at-large (p. 176-177), toward employment of the more specific and considered understandings/practices of a professional community. So, for example, if the aim of an educational endeavor is for students to adopt professional identities within their disciplines, as it is in the professional education literature cited above, the "incompatibility" that drives learning will be between lay theories and disciplinary knowledge. Further, learners successfully engaging in their first authentic or "legitimate" professional activities may experience incompatibility between viewing oneself as a newcomer lacking competence and experiencing oneself as a capable practitioner. If the aim is for students to become effective and willing cross-disciplinary collaborators, the driving incompatibility is one between feeling siloed within one's primary discipline and experiencing efficacy in collaboration across disciplines. In our study, we follow Hodge in understanding that students' movements toward the center of a community of practice and their shift to being "multimembers" are forms of transformative learning in which students take on new understandings of themselves and embrace new identities.

Methods

Data

Our data is drawn from two upper-level undergraduate courses taught at a small liberal arts college in southeastern U.S.

- *Practicum in Arts Education* brought together theatre majors and education majors/minors including teacher licensure candidates and students interested in non-profit human services work. As a class, the students designed and implemented a creative dramatics course for children at a local non-profit. The disciplinary homes of the eleven course participants are listed in Appendix A.
- *Child Development in Context* brought together psychology majors and elementary education majors to work with teachers at a local elementary school in developing strategies to foster children's self-regulation. There were three education majors and three psychology majors in the course.

Our data includes field journals, transcripts of class sessions, and transcripts of interviews conducted mid-semester and after the course concluded. For the child development course, we also used students' on-line discussion board posts. Approval from the Human Subjects Review Committee at the first author's institution was secured before data collection began.

Analysis

Analysis proceeded using standard grounded theory technique (Glaser & Strauss, 1967) in which iterative passes were made through the data using *a priori* codes based on our initial research question, allowing as well for open (*in vivo*) coding when interesting, unanticipated themes occurred. Several constructed codes (codes that combine multiple *in vivo* codes into one larger group) emerged as we observed commonalities across *in vivo* codes. Initially, we were interested in understanding student experience in interdisciplinary courses in which one of the disciplines was education; we were especially interested in how majors' and non-majors' perceptions of education as an academic discipline evolved as a result of the experience. After several rounds of coding, we observed multiple occurrences of a code we called "effects of students from other majors in the course" and we became interested in whether interaction between students from differing majors had specific learning benefits. We turned to literature on interdisciplinary and interprofessional college courses to develop a new set of *a priori* codes, reported in Appendix B. We then made further iterative passes through the data, during which additional *in vivo*

codes emerged and evolved into new constructed codes. Once coding stabilized, we looked across the coded segments to identify patterns and themes related to our new research question: what effect, if any, does interacting with students from another major have on student learning in an interdisciplinary course?

Trustworthiness

The first author, Stacy DeZutter, holds advanced degrees in the learning sciences and theatre and was the instructor for both courses under study. The second author, Tara Johnston, now holds advanced degrees in elementary education and literacy and was an undergraduate student in the self-regulation course and a research assistant on the project at the time of the study. Our awareness that our positionality influenced our analysis led us to engage in member checks, in which several participants from each course reviewed the results reported here and verified that we had assembled an accurate representation of their experiences. We also attempted to find counter-examples to our conclusions, instances in the data in which participants described negative effects of any kind from interacting with students from another major. Apart from some instances of personal insecurity among the students early in the course, we did not find anything in the data that suggested that working with students from another major negatively impacted student experience or professional growth. We did find some examples of stereotyping specific disciplines, and those are reported below.

Findings

Legitimate Peripheral Participation: Engaging with Disciplinary Terms, Practices, and Values

Both courses engaged students in real-world problem solving at the intersection of two disciplines, providing opportunities for legitimate peripheral participation in a student's home discipline and in a newer one. We, therefore, were not surprised to observe that, as each course unfolded, students adopted the terminology and practices of their new disciplines as they taught each other the terminology and practices of their home discipline (Arce-Trigatti et al., 2019).

In the arts education course, participants taught a drama enrichment class which included teaching children games and exercises that actors use to hone performance skills. Implicit in these games are certain values and priorities of the theatre community, for example the idea that one should always be fully accepting of one's acting partner's contributions (the principle of "yes, and"). In teaching theatre games to their classmates and to the children, the theatre majors necessarily articulated such values. As the semester progressed, field journals and class session transcripts revealed that participants without prior theatre training began to use theatre terms such as "in the moment" and "actor's neutral" that represented the values and practices of the theatre community. At the same time, participants drew on the resources of the education community to address issues such as creating an effective learning environment and providing developmentally appropriate feedback. Consequently, the theatre majors began to employ strategies they observed among the education majors, such as clearly defining procedures for group work and giving specific, informative praise.

In the child development course, field journals and class session transcripts showed that the education majors became conversant in concepts from cognitive and developmental psychology, such as "emotion regulation," "inhibitory control," and "metacognition," since they were tasked with designing activities that foster the development of these capacities. At the same time, the psychology majors began to use terms they heard the education majors use, such as "classroom management" and "attention-grabber;" and to employ common teacher strategies, including a clapping pattern as a means for regaining a class's attention and several techniques from the "Whole Brain Teaching" method (https://wholebrainteaching.com/) that the education majors introduced.

"Becoming a Certain Person": Embracing professional identity by working alongside newcomers

The reciprocal teaching-learning relationship among the students in the course had two clear effects: it allowed students to actively embody identities within the home discipline and it enhanced efficacy for the new discipline. With great frequency, students pointed to instances in which they were

able to translate prior classroom learning in their home discipline into actual practice. For example, Charlotte, an education student in the arts education course, noted in her journal,

> This experience . . . helped me put into practice some of the things I had learned in [Classroom] Management [a previous education course], such as fixing problems before they become an issue, rather than trying to correct them afterwards.

Statements like this one, in which a student refers to actively employing specific ideas she had learned "academically" in a previous course, were plentiful. Students also found themselves speaking as representatives of their disciplines. For example, in discussing differences between her own teacher preparation and the approaches employed at the field site, Sandra offered this observation to her classmates on the child development discussion board:

> I find that it is common sense in the [college's] educational department that things like self-regulation, authoritative student and teacher relationships, differentiated learning, collaboration, parent involvement, and other "non-prescribed" teaching techniques are what make a classroom run.

With this comment, Sandra articulates some of the priorities within the community of practice she has been working in and directs her non-education-major classmates' attention to these practices as they, too, begin to participate in this community. In doing so, Sandra acts as a knowledgeable practitioner of her own discipline.

Participant comments document that they were well aware of the value classmates from another discipline provided to their efforts at their field sites. Near the start of the child development course, Kim, a psychology major, expressed excitement in her journal about working across the disciplines of psychology and education:

> I . . . think maybe since each student [in the course] has different experiences in working with children that maybe it will be a more interesting dialogue about some education topics than I have had the opportunity to participate in before.

A few weeks later, Kim reassured another psychology major on the discussion board by noting, "I think just being there and also learning from others . . . plus hearing other success stories/ideas from more education-focused people in our class will help [with challenges in classroom management]." Katherine, a psychology major in the child development course, described in her journal how working with an education major helped her gain confidence in an area she had been uncertain about.

> I've been wondering about what "classroom management" entails. . . . Today in class, as part of an activity, we had to talk about what classroom management means. I was paired with Sandra, and I told her that she was going to have to explain to me what it meant. She said, "Well, how about you tell me what it means to you." She is a great teacher. I have been feeling out of my element and she helped me engage with something that I am uncomfortable with. After I answered, she told me that I actually know what I'm talking about after all; the education world just has different words to describe it. It was really just a little thing, but it made me feel like I may have more to offer than I realize, despite my lack of education background.

In the arts education course, Maya, a theatre major noted in her journal, "Annie [an education major] is really good about explaining the games, which I think is excellent and very beneficial for me to watch and learn from." Also in that course, several students stated in their journals that they became more comfortable with their cross-disciplinary endeavors because they were partnered with a peer from the other discipline. For example, Annie explains, "I'm especially glad that [the instructor] assigned me to work with Lillian who has a background in theater. I think that will make me more comfortable, and I will be able to learn much from her." Similarly, Jane noted,

> Luckily, I have a great partner who loves theater and knows a lot about it as well. I think we'll be a great group, because I can practically talk to anyone and anything and I love kids, and she has done a lot of theater programs with kids.

Jane's teaching partner, Sarah, made the same observation at the end of the course:

I was more familiar with the games and how to play them and what we were looking for in the games whereas Jane wasn't always as sure as to what we were actually supposed to be doing but she understood kids really well and especially the younger kids, because I didn't really understand young kids so she could deal with that and I could deal with the theatre stuff.

As Jane's and Sarah's comments suggest, awareness that students from another discipline have value to one's own efforts entails a concomitant awareness that one's own disciplinary background may be of value to others. Sandra explained in her journal how this worked in the child development class:

I think Brooke and I together, since we have both been through the whole elementary education [program] have just more of the education aspect to offer, but I think in turn that the psych people have more developmental [understanding] to offer us.

In many cases, student comments reflected intentional sharing of one's disciplinary knowledge in order to assist classmates. For example, during a class discussion in which the arts education class was trying to decide how to manage a group of children who began doing handstands during an activity about character emotions, Molly proposed a technique she learned in a prior field experience at a preschool:

. . . one thing that I learned that the teacher I worked with taught me about was like when a kid misbehaves—if all of them are doing, like the handstand thing, we kinda shifted the focus to that. So maybe for instance, if they were all doing handstands, you would say okay, so make an excited face while you're in a handstand, then calm down. Make a sad face . . .. maybe turn that [misbehavior] into something in the game that we're already doing.

As another example, Tessa, a psychology major, made the following contribution on the child development discussion board on whether or not to give children material rewards for good behavior.

I ventured back to my social psychology textbook and flipped back to the chapter on "the self". Here it discusses intrinsic versus extrinsic motivation. To sum it up, there is no doubt that rewards are powerful motivators, but you have to consider the effects of rewards on people's thoughts about themselves, their self-concept, and their motivation to complete tasks in the future.

When the child development class was trying to address problems with feelings of excessive frustration among both teachers and children, psychology major Katherine offered, "I have experience in emotion regulation training…. I think that this may be a reasonable plan to implement in the future." Indeed, the class agreed that this would be valuable, and Katherine led a session on emotion regulation the following week.

When a student offers ideas to classmates based on her prior training in a discipline, it positions her as a relative expert, or, to use Wenger's terms, an "oldtimer," and a more central participant as compared to those without prior experience in that discipline. Occasionally, participants directly asserted their relative expertise, as Sandra did in her comments above, and as Lillian did when she exclaimed in her journal, "I'm excited about sharing my passion and love for children's theater with my [teaching] partner who doesn't have any experience with it." These statements often ring with pride in one's capability. For example, in the child development course journal, Tessa recounted, "Last week in class we discussed some of the psychological barriers that can be found for teachers. As a psychology major, I immediately began listing them off." Statements like these suggest that the course is allowing a student to experience herself as someone with competence in her home discipline.

More common than direct assertions of expertise were statements in which participants referenced their prior experience as a warrant for their insights. For example, on the discussion board in the child development class, Sandra offers some thoughts about teachers who are under-prepared in classroom management techniques, and begins her comment by locating the source of her understanding in her prior experiences in education:

I've read, and observed in various classrooms I have worked in, that one of the [sources] of the dilemma of a lack of these skills comes from lack of teacher education on the subject, which in turn comes from a lack of time for them to be educated.

Similarly, when Sarah offers the following thoughts to her arts education classmates, who were debating in class whether to let children use ready-made material from television shows in their improvisations, she notes her prior experiences at drama camp:

> I've played that game at summer camps and we'll have that happen a lot, they start to tell a real story, like they'll tell Hannah Montana or whatever and the women who ran the camp really didn't like them to do that, but I thought it worked because it was still them all working together to do it and it was still them not blocking each other's ideas . . . I don't think the purpose [of the exercise] is to be creative and make something up, it's to work together.

In moments like these, in which a student is able to draw on a relatively more developed understanding of disciplinary problems than her newcomer peers, that student experiences herself as a central member of her chosen community.

Comments from students in both courses indicated that course experiences created an opportunity for them to embrace identities in their chosen profession. For example, Kevin, a student in the child development course, noted a new commitment to being a teacher, explaining in his journal that by providing challenges and opportunities to learn within his chosen discipline of education, the course "has refocused me on what I want from my life." Kim, a psychology student in the child development course describes in her journal how the course crystallized her commitment to enter the field of school counselling:

> I feel like what I have learned from this class has helped me understand children's behavior/emotions (and teachers' as well) better than I did before. I think developing this understanding and building skills in dealing with knowledge about these issues has grounded me in my decision to pursue more work in this field.

Kristen, an education major in the arts education course, described how the course helped her understand the impact she could make as a teacher, noting in an interview, "It is a very powerful moment to witness a child learn a new skill or have a better understanding of a storyline because of the lesson I have designed."

Additional comments demonstrate that, at least for some students, working at the intersection of two disciplines made the value of their own disciplinary knowledge more salient. For example, Sandra, a student in the child development course, reflected on the exuberance she had displayed during a class discussion in which she shared several valuable education concepts with her non-education-based peers.

> I am getting so excited this year as a senior education major and I am finding this incredible passion for education. I guess I feel excited when I realize how much I know and that my education has paid off but I am also so passionate about making change [through field placement in the course]. I think sometimes it might come off as boastful but I get so excited I feel like I could burst!

In some cases, working at the intersection between their own discipline and another allowed participants to gain a new perspective on their chosen discipline. For example, by witnessing the effects on children of participating in theatre in an educational setting, Maya, a theatre major, gained a concrete understanding of how theatre can enrich lives. After noticing that her students were beginning to function less as separate individuals and more as a collective ensemble, she observed in her journal,

> Theatre connects people on a deeper level than just being in a classroom or playing "pattycake" It's a collaborative art, and in schools today, if kids aren't involved in theatre or any form of arts education, they aren't going to know the joy of that experience. . . . [Our students] will have felt a deeper connection to a group of people after having worked with them [in the theatre class] for a whole semester.

Elementary education major Brooke, through her experiences in the child development course in which the role of socio-economic context on developmental outcomes for children was emphasized, began to understand the importance of working where the need is greatest. She wrote in her journal, "I am starting to shift my view about staying to teach in [the local area] . . . I really see now that

unprepared/apathetic teachers combined with a low SES urban area is purely detrimental for students."
She further reflected,

> I had a grand plan to attend graduate school and maybe start with non-profit work, but I am starting to realize that I can make a direct impact in at least some students' lives starting in less than a year from now [as an elementary teacher].

Brooke did indeed become a local elementary teacher the next year.

Becoming a Multimember

Both courses provided students with legitimate peripheral participation (Lave & Wenger 1991) in a new field, which allowed them to understand that field in a more sophisticated way. In many cases, this involved students from outside education expressing greater awareness of the complexity of the field and its robust knowledge base. Psychology major Katherine noted in her journal, "As someone without any background in education studies, I am struck by the multitude of factors that are critical to successful teaching." She further noted, "I've been really impressed with the education program here and it seems so rich, I don't know of a better way to describe it, just very rich with knowledge." Another psychology major, Kim, expressed in her journal admiration for the sophistication of her education-major classmates: "It's clear that Sandra and Brooke have backgrounds rich with education theory and instruction-focused classroom experience and have spent a lot of time developing their own classroom philosophies." Sarah, in the arts education class, developed a changed understanding of the value of the teaching profession, so much so that she shifted her career goal from being a theatre director to being an educator. She explained in her journal,

> I wasn't sure I wanted to be a teacher [before taking the course] because I just kind of wanted to do more with my life, but I feel like this class has helped me to see that just being a teacher is a good thing to be.

In contrast to the Lewitt et al. (2010) study reported above, we did not see any examples in which a course led students to stereotype their own or each other's disciplines. We did see one example, however, of a student re-thinking a stereotype that she had at the beginning of the course. This was Sarah's statement, quoted above, that before the course she "just kind of wanted to do more with [her] life" than be a teacher, implying that teaching was less than a worthwhile profession. Sarah explained that through the course she began to understand the value of the teaching profession. In fact, after graduation, Sarah became a sixth-grade reading, math, and science teacher.

We also found evidence that the courses helped participants discover their abilities to collaborate across disciplines. Although at the beginning of each course some students expressed apprehension about engaging with another discipline, these concerns were alleviated by the end of the semester. In the child development course, both psychology majors and education majors expressed an increased sense of efficacy for working in the other discipline. In the arts education course, students not only felt more confident working in the other discipline, but they also began to see cross-disciplinary collaboration as a viable pursuit. Dorothea, a Human Services major, explained in a journal entry at the start of the course that although she was experienced and comfortable working with children, "Unlike many members of the class, I have no theater experience which might put me at a disadvantage. . . ." By the end of the course, however, Dorothea exclaimed, "As we all know, I had never done anything involving theatre, but by being willing to give it a try, I was pleasantly surprised that I was able to teach it!" She further explained,

> I've always thought that you had to be an expert at a subject to be a good teacher; however, with a strong support group of people who are willing to work with you, it is possible to be inexperienced and still do a good job.

Jane, also in the arts education course, noted in her journal, "The most important thing I have learned in this class has been to [be] open minded about trying new things." Stated more broadly, these students began to see themselves as multimembers, as professionals who are capable of crossing boundaries into other professional communities.

Discussion: Interdisciplinary Courses as Sites for Professional Identity Development

Our analysis revealed a form of learning that is much more transformational than the mere acquisition of information about, or basic skills within, a new discipline. Our data suggests that these cross-disciplinary experiences helped to change the way students understand themselves in relation to their chosen field as well as in relation to a new one. Not only did students learn from each other, they were aware of doing so, and they were aware of their own role in their classmates' learning. In this way, these courses positioned students as relative experts in their field, or, to use Wenger's (1998) term, as more "central" participants. This positioning, along with experiences of legitimate peripheral participation in one's chosen community served to alter student's understandings of themselves within their fields and allowed them to embrace an identity as knowledgeable, capable practitioners. At the same time, legitimate peripheral participation in a new community allowed students to experience themselves as effective collaborators across disciplines.

Based on our findings, we assert that interdisciplinary courses have the potential to be of great value to disciplines that are preparing students to enter particular professional communities. Because students in such courses have the opportunity to function as relative experts, helping their peers learn the practices of a community to which they are more central, interdisciplinary courses can serve to solidify students' identities as future professionals within that community. By providing an opportunity to see their chosen community through a new lens, such courses can also deepen students' understanding of the aims and importance of that community and can clarify their role within it. In addition, by engaging students in participation in a new community, interdisciplinary courses offer students a foundation for future cross-professional collaboration.

We would note that both courses in this study were community-engaged learning courses that involved students in collaborative problem solving. As such, they were highly interactive, which provided many opportunities for students to share ideas and knowledge and thereby experience themselves as knowledgeable. Further, problem solving in the real world has real consequences, and therefore, the legitimate peripheral participation the courses provided was saliently "legitimate" – in the arts education course, students were doing real teaching, and they were teaching real performance techniques used in the theatre community; in the child development course, students were supporting the development of actual children in actual classrooms. We suspect that, at least in part, it was students' experience of real success, as they collaborated to address deeply felt challenges, that drove the "transformative trajectory (Hodge, 2014), in which an identity as a newcomer or "academic" learner yielded to an identity as an active, impactful, and committed participant. By contrast, although most of the interdisciplinary courses reported in the research described earlier involved students in collaborative problem solving authentic to the relevant disciplines, only in Lam's (2005) study did students engage collaboratively in the world outside the classroom. Future research might investigate the best ways to design interdisciplinary courses with high levels of student interaction while offering participation at the right level of "legitimacy" for students to experience both the challenge and the success that our study suggests is necessary for deeply transformative learning.

Conclusion

By offering entrée into a new community of practice while positioning students as relative "old-timers" in their own disciplinary communities, interdisciplinary courses transform students' professional identities and boost their efficacy for collaboration across disciplines. Our findings offer insights that may inform interdisciplinary courses across the college campus, particularly when there is interest in developing students' sense of themselves as future practitioners of a particular discipline or in developing an understanding of how two disciplines may synergistically serve each other's aims.

Further research should examine the specific components of interdisciplinary course design that are most important for fostering the transformative outcomes we describe. Such research may fruitfully engaged Mezirow's (2000) concepts of the "disorienting dilemma" and "critical reflection" as key components of the transformation process. For the present, we note that our findings, in combination with existing research on interdisciplinary courses, suggest the importance of high levels of student-student

interaction, which offers students opportunities to teach each other, and of engaging students in real-world collaborative problem solving, which creates a context in which they can experience their own expertise as well as find value in each other's disciplines.

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