IJPS Interdisciplinary Journal of Partnership Studies
Volume 5, Issue 2 Spring/Summer
pubs.lib.umn.edu/ijps

IDENTIFYING THE UNDERLYING ASSUMPTIONS OF AN INTERDISCIPLINARY COLLABORATION ON CURRICULUM DEVELOPMENT

Catherine Nameth, PhD, and Korin Wheeler, PhD

Abstract

This reflective analysis focuses on a successful interdisciplinary collaboration between two academics from two different areas of expertise, chemistry and education, who worked together on a curriculum development project. The authors identify three underlying assumptions integral to their successful partnership (being ready for learning, having a commitment to collaborative learning, and seeing each other as peers) and state that their partnership led to new ways of knowing and learning. This article is framed within the field of adult learning and development, and views the authors as learners, thus offering insights into understanding the value of interdisciplinary research partnerships in higher education.

***Keywords*:** curriculum development; higher education; interdisciplinary collaboration; interdisciplinary research partnership; undergraduate education

This article briefly analyzes an interdisciplinary collaboration between two female academics from two very different epistemological backgrounds, education and chemistry. We offer this analysis with the hope that it will offer insight into how higher education professionals form and sustain interdisciplinary research partnerships related to teaching and curriculum development.

For almost eighteen months, we – an educator and a scientist - collaborated on a curriculum development project. Our shared purpose was to integrate cutting-edge scientific research into a foundational chemistry course in order to make compulsory curriculum more relevant to current undergraduate students' interests, and more inclusive of student-centered learning theories and practices. We grounded our collaboration in our complementary areas of expertise. While both of us teach in higher education, one of us is a tenure-track faculty member in the chemistry and biochemistry department at a primarily undergraduate university, while the other is a non-faculty staff member at a scientific research institute located within the context of a large research university and an adjunct faculty member in a graduate school of education. Each of us conducts research, one in laboratory-based chemistry research (quantitative), and the other in the area of adult learning (qualitative).

Looking back at the history of our partnership, two aspects make it unique. One, we found no published articles about any other similar collaboration, and two, overall, our collaborative partnership was just that from the beginning: two people acting in a complementary manner, with a shared purpose and a shared understanding (Saltiel, 1998). Based on our past experiences working on collaborative projects and group research both pre- and post-graduate school, we know that collaboration is not always easy. Some projects never get off the ground even with the best of intentions and a lot of effort; other projects start and stop according to the waxing and waning interests of those involved; while other projects come to completion but the people involved look back with frustration at the process which led to the final product. While the two of us did not always agree, we always came to consensus. Overall, our collaborative partnership was quite seamless, and we wondered why. Viewing ourselves as learners, and through the lens of adult learning and development, we identified three underlying assumptions (Mezirow, 2012) inherent in our partnership and therefore integral to understanding its seamless nature. Furthermore, we connected these assumptions to Partnership Studies, specifically to three components of a partnership system: structure, beliefs, and relations (Eisler, 2004; "The Domination/Partnership," 2018).

WE WERE READY FOR LEARNING (STRUCTURE)

Context and timing were integral to our readiness for learning (Knowles, Holton, & Swanson, 2015). Both of us are embedded in an intellectual climate wherein there is pressure to secure funding, particularly federal funding, for curriculum design and evaluation related to undergraduate science education. The initial idea for a collaboration came from a senior faculty member who knew each of us and who encouraged us to talk to each other, devise a project, and submit it for funding through a sub-award process at a federally funded interdisciplinary research center located at one of our campuses and with which we are both affiliated. Once we were notified that our project was funded for one year, we set to work immediately. We had a lot to accomplish in the given time period, and we also wanted to complete it within a year so that each of us would be eligible for career advancement opportunities the following year. Each of us came to this project ready to try something new in our respective careers, but we also entered our partnership with a habit of mind (Mezirow, 2012), or a disposition, of sharing power with each other (Eisler, 2002). This shared effort extended our respective professional learning beyond our own disciplines and into the interdisciplinary realm.

WE WERE COMMITTED TO COLLABORATIVE LEARNING (BELIEFS)

From the beginning of this project, we were committed to working together to create new knowledge in the form of new curriculum. We contributed our individual knowledge in the areas of undergraduate chemistry and learning theory, and eventually our individual knowledge gave shape to our collaborative efforts (Peters & Armstrong, 1998). We believed in having a mutually beneficial academic partnership (Eisner, 2002), and our commitment to learning was collaborative as well as mindful (Langer, 2000). We demonstrated our commitment to collaborative learning in practical ways, by scheduling our meetings on convenient dates and at times when we were unlikely to be interrupted, and we did not schedule meetings when one of us was away from her

office. As we progressed in our project, and as our relationship shifted from being collaborators to also being friends, we extended our meeting times from one hour to ninety minutes. We typically had agenda items but not a pre-set agenda. One or both of us brought specific questions to our meetings, and these questions usually led to discussion intermixed with personal anecdotes, updates about mutual acquaintances, and relevant research updates from our respective academic fields. Our commitment to learning from each other included the personal as well as the professional; we viewed designing new curriculum not as a problem to be solved or a task to be completed, but as an opportunity to establish a working relationship with a new colleague (Gilligan, 1993).

WE SAW EACH OTHER AS PEERS (RELATIONS)

An important aspect of our collaborative partnership is that we viewed each other as peers with a shared goal, and we respected each other's areas of expertise (Eisler, 2002). We are of the same generation, each of us has lived in multiple regions of the United States, and each of us works full-time while maintaining a marriage to another working professional and managing a household which includes a young child. Professionally, we belong to two disciplines in higher education, chemistry and education, which traditionally have held very different views on the nature, types, and limits of knowledge (epistemology), yet our different professional disciplines never interfered with our ability to see the other as a professional peer. In fact, because we saw each other as peers and because we were committed to learning while working on our project, our two different disciplines helped each of us act as a critical friend (Costa & Kallick, 1993) to the other. We acted as critical friends by posing thoughtful questions, such as asking for further explanation of a discipline-specific term or a pedagogical practice. Our question-posing strategy enhanced our understanding of each other, another academic discipline, and our collaborative partnership as a whole. It is important to note that we were able to act in this way because our partnership was based on trust and mutual respect (Peters & Armstrong, 1998) and because we also

shared another underlying premise (Mezirow, 2012) in our collaboration: that compulsory undergraduate chemistry curriculum should focus on discovering knowledge and engaging with content rather than receiving content knowledge (Friere, 2014) exclusively through lectures.

In this commentary, two academics analyzed our professional collaboration on a curriculum development project, a project which brought the two of us from two different disciplines, chemistry and education, together to create an interdisciplinary work product (Amaris et al., 2017). We found that the context and timing of this project aligned with our interests in furthering our professional development, and as such we entered our collaboration with a readiness to learn, a commitment to collaborative learning, and a professional respect for each other such that we saw each other as peers. The underlying premises of our collaborative relationship were aligned, and it included components of a partnership system - equitable structure, aligned beliefs, and a relationship of mutual respect - and we were able to work together with trust and ease. We hope this analysis of our unique partnership encourages other higher education professionals to reflect on their current interdisciplinary collaborations or to establish similar collaborative endeavors in order to contribute new knowledge in their respective fields as well as across disciplines.

References

Amaris, Z. N., Freitas, D. N., Mac, K., Gerner, K. T., Nameth, C., & Wheeler, K. E. (2017, November 13). Nanoparticle synthesis, characterization, and ecotoxicity: A research-based set of laboratory experiments for a general chemistry course. *Journal of Chemical Education*, *94*(12), 1939-1945. doi:10.1021/acs.jchemed.7b00369

Clark, M. C. & Watson, D. B. (1998). Women's experience of academic collaboration. *New Directions for Adult and Continuing Education, 79*(Fall), 63-74.

Eisler, R. (2002). *The power of partnership: Seven relationships that will change your life*. Novato, CA: New World Library.

Friere, P. (2014). *Pedagogy of the Oppressed.* New York, NY: Bloomsbury.

Gilligan, C. (1993).*In a different voice*. Cambridge, MA: Harvard University Press.

Knowles, M.S, Holton, E.F., and Swanson, R.A. (2015). *The adult learner*. New York, NY: Routledge.

Langer, E.J. (2000). Mindful learning. *Current Directions in Psychological Science, 9*(6), 220-223.

Mezirow, J. (2012). Learning to think like an adult: Core concepts of transformation theory. In E. W. Taylor, P. Cranton & Associates (Eds.), *The handbook of transformative learning:Theory, research, and practice* (pp. 73–96). San Francisco, CA: Jossey-Bass.

Peters, J.M. & Armstrong, J.L. (1998). Collaborative Learning: People laboring together to construct knowledge *New Directions for Adult and Continuing Education, 79*(Fall), 75-85.

Saltiel, I.M. (1998). Defining collaborative partnerships. *New Directions for Adult and Continuing Education, 79*(Fall), 5-11.

Swartz, A.L. & Triscari, J.S. (2011). A model of transformative collaboration. *Adult Education Quarterly, 61*(4), 324-340.

The Domination/Partnership Systems Continuum. (8 April 18). Retrieved from: https://centerforpartnership.org/shifting-from-domination-to-partnership/

This work was supported by the National Science Foundation (NSF DBI-1266377) and was conducted within the University of California Center for Environmental Implications of Nanotechnology (UC-CEIN) at the University of California- Los Angeles (UCLA).

Catherine Nameth, PhD, is the Director of Faculty Development & Evaluation at the David Geffen School of Medicine at UCLA, and she is an Adjunct Professor in the Graduate School of Education and Psychology at Pepperdine University. Her professional interests relate to teaching, learning, assessment, and evaluation in higher education, and her research has focused on using narrative inquiry to understand how educators develop intercultural competency. She received her PhD in educational studies with a specialization in adult learning and development from Lesley University.

Korin Wheeler, PhD, is an Associate Professor in the Department of Chemistry and Biochemistry at Santa Clara University. In the classroom and laboratory, Korin focuses upon improving undergraduate education through research experiences. She leads a research group focused upon improvement of nanomaterials for human health and environmental applications by using biochemical tools. This research has been funded by the National Science Foundation, the National Institutes of Health, and the Research Corporation for Science Advancement. She received her PhD in chemistry at Northwestern University and was a postdoctoral researcher at Lawrence Livermore National Laboratory.

Correspondence about this article should be addressed to Catherine Nameth at nameth@ucla.edu.