

**TRAVERSING INTERDISCIPLINARY SPACES:
A PHENOMENOGRAPHIC STUDY OF HOW EDUCATIONAL
DEVELOPERS EXPERIENCE DISCIPLINARY PERSPECTIVES**

by

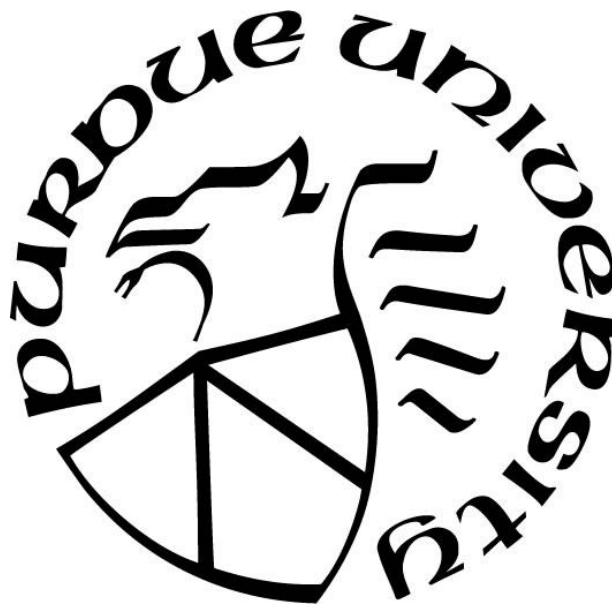
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A Dissertation

Submitted to the Faculty of Purdue University

In Partial Fulfillment of the Requirements for the degree of

Doctor of Philosophy



School of Engineering Education

West Lafayette, Indiana

August 2021

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To my parents,

Mom and Dad

who instilled in me the drive to always try my best and never give up.

ACKNOWLEDGMENTS

This journey has been one of research and self-discovery—to be and become the engineer and engineering education researcher that I am. I am grateful to my mentors, colleagues, friends, and family who have inspired, supported, shaped, and shared in this journey.

To my advisor, Dr. Robin Adams, thank you for your mentorship, support, and guidance throughout this whole process. From our very first conversation at ASEE 2012 to the many whiteboard sessions mapping out different ideas, you have taught me multiple ways of design, research, inquiry, and mentorship. You challenged me to “get out there and just ‘be’—listen to yourself in terms of what makes you happy and what you want to do”. You encouraged me to find my own green light. Thank you for providing the supportive structure and space that allowed me to “be”.

Thank you to my committee members, Dr. Brent Jesiek, Dr. Joyce Main, and Dr. Jim Borgford-Parnell who invited me into their research worlds, engaged with my ideas, shared their expertise, and provided critical feedback on my work to push my thinking.

To my professors, colleagues, and collaborators—thank you for your mentorship, collaborations, and support in broadening my training, engaging in critical conversations, and generously offering your expertise and help. Thank you to Dr. Brenda Capobianco and all members of the UPDATE Research Team. I am grateful for the experience to be part of an interdisciplinary research project throughout my graduate program and to learn from multiple perspectives. Thank you to the administrative staff in the School of Engineering Education for their continuous support, care, and community.

This study was made possible through the financial support from XRoads Research Lab and the Hugh W. and Edna M. Donnan Fellowship from the College of Engineering, Purdue University. I am grateful for this funding that provided me with the time to deeply explore my scholarly interests and engage in the writing process.

To my friends in the School of Engineering Education at Purdue University—you have all contributed to my growth as a researcher, and I am grateful for the opportunity to learn and laugh with you.

To my family, Mom, Dad, Michelle, and Nicole—you have always been a part of this journey—believing in me, listening, and cheering me on. Thank you for your continuous love and support.

To my partner and best friend, Dr. Jessica Chan—thank you for your love and patience, for inspiring me in this pursuit, and always challenging my ideas. Your interdisciplinary perspective as an educational researcher was instrumental in this research process to help test my findings and work through some very abstract ideas.

Finally, to the eighteen educational developers who participated in my study—thank you for sharing your experiences and perspectives on the work of educational development. Your stories of collaboration, vulnerability, and care have forever enriched and shaped my practice and identity as a researcher and educational developer.

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ABSTRACT

Disciplinary perspectives, as a core element of interdisciplinary work, represent the ways individuals may see and approach a situation based on their unique disciplinary background and training. Interdisciplinary collaboration requires individuals to leverage disciplinary perspectives and knowledge from diverse fields to build a shared understanding of the problem situation. However, based on the diversity of background and experiences within a team, interdisciplinary collaboration can be a challenge because collaborators must negotiate disciplinary differences, while also fundamentally experiencing the collaborative situation in different ways. Therefore, it is important to understand how individuals engage and experience disciplinary perspectives in their practice of collaboration. In this study, I investigated the nature of disciplinary perspectives in the context of educational development.

The profession of educational development broadly aims to support the teaching and learning mission of higher education institutions, where educational developers work with faculty, graduate students, and administration on teaching, instruction, curriculum, and organizational development across disciplines. As such, educational developers play a significant role in engineering education transformation and offer a unique context to investigate interdisciplinary practice. In this work, educational developers bring their diverse disciplinary perspectives to their collaborative interactions.

In this dissertation, a phenomenographic study was conducted to investigate the following research question: how do educational developers experience disciplinary perspectives in the work of educational development? Phenomenography is a qualitative research approach that focuses on the variation in how a phenomenon is experienced and conceptualized. I adopted a situative theoretical perspective to see disciplinary perspectives in relation to the contexts, social interactions, and activities through which interdisciplinary work is performed. I conducted semi-structured interviews with eighteen educational developers from Centers for Teaching and Learning across the United States and Canada. Participants were recruited from various disciplinary backgrounds and levels of experience. In the interview, participants shared general descriptions about their work, and specific descriptions of an experience where they worked with others who contributed different disciplinary perspectives. Additionally, a scenario-based elicitation exercise was used to frame participants' description of how diverse disciplinary

perspectives appear in their work. The analysis followed an iterative and generative process to discern features and qualities of disciplinary perspectives.

The findings of this study are presented as a phenomenographic outcome space consisting of five categories of description as distinct ways that disciplinary perspectives are experienced by educational developers. Additionally, the findings illustrate how disciplinary perspectives become externalized as an object that is brought forward and shaped in collaborative interactions. This research contributes to further understanding interdisciplinary collaboration in two ways. First, for interdisciplinary practice, the findings provide an integrated view of the variation in ways of experiencing disciplinary perspectives such that educational developers may attune and attend to different collaborative interactions. Second, with the situative perspective, I provide insight into the situated knowledge that constitutes how disciplinary perspectives become meaningful based on educational developers' position in relation to different disciplinary spaces. My findings highlight the situative relationships between the individual educational developer, their practice with disciplinary perspectives, and their work tasks in educational development. As educational developers continue to develop their practice to advance teaching and learning in higher education, this research contributes to the professional knowledge of educational developers in support of interdisciplinary collaboration.

1. INTRODUCTION

During my undergraduate studies in mechanical engineering, I interned at a large general contracting construction firm. For one project, I was part of a coordination meeting in preparation for pouring the concrete of an outdoor ice rink. In the meeting room, there were teams of representatives from the concrete sub-contractor, the ice rink systems manufacturer, the mechanical, electrical, and architectural consultants, the project site team, and the general contractor quality assurance department. It was our job to make sure the concrete pour went smoothly and all parties had the information and understanding that they needed to carry out their tasks. As a multidisciplinary challenge, the different teams were dependent on each other, with each team contributing their knowledge and expertise to complete their task as part of the larger group objective—creating an outdoor ice rink.

I characterize the problem of the ice rink as a multidisciplinary challenge, where the ice rink itself is a solution to a particular kind of problem. If we consider a more abstract version of the problem, we can explore features of an interdisciplinary challenge—one where the design team might ask “what should we do with this outdoor space?” This question presents an open-ended and complex problem that can be approached in many different ways, and can involve many different kinds of professional expertise to generate creative solutions. Knowledge to approach and understand this problem may come from multiple disciplines including economics, politics, environmental and sustainability studies, engineering, art, culture, and design. For example, the design team may engage diverse stakeholders to provide perspectives and information for formulating design objectives, requirements, and constraints. The design team itself may consist of diverse disciplinary professionals who may also provide different perspectives for understanding and conceptualizing the problem situation and possible solutions. When these individuals—from the design team and from multiple stakeholders—bring together their diverse disciplinary training, perspectives, experiences, and individual differences, there are challenges and opportunities for the sharing and synthesis of knowledge such that individuals learn from each other, and learn about the problem situation in unique ways. Through this learning, new insight about the problem and possible solutions may be generated. This is the phenomenon of integration—where meaning-making from multiple perspectives generates new insight about a problem situation and possible solutions (Repko et al., 2017). The phenomenon of disciplinary

perspectives, as they appear in interdisciplinary collaboration, is the focus of my dissertation. Specifically, I consider the professional field of educational development to investigate how educational developers, as interdisciplinary professionals, experience disciplinary perspectives in their work.

1.1 Interdisciplinary Research, Collaboration, and Disciplinary Perspectives

Interdisciplinary research and collaboration is an approach to knowledge production and complex problem solving that aims to leverage the diversity of perspectives and expertise from individuals and teams. The global and socio-technical challenges of contemporary society—in fields such as public health (Stokols et al., 2013), team science (see Bozeman & Boardman, 2014), and sustainability science (Lang et al., 2012)—will require a variety of stakeholders from diverse perspectives, backgrounds, and roles to come together and develop effective solutions. In academia, these complex challenges are characterized as interdisciplinary because the problems and solutions cut across multiple academic disciplines. There have been widespread national and international calls for interdisciplinary research and training in higher education (Cooke et al., 2020; National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, 2005), including an emphasis on Growing Convergence Research (National Research Council, 2014), and the Science of Team Science (National Research Council, 2015) to address socio-technical problems and foster innovation and creativity. Discipline-based educational research is a specific context where interdisciplinary research and collaboration intersect to enhance student learning (National Research Council, 2012). In engineering education, interdisciplinary learning and collaboration is a core component to engineering curriculum and practice (Beemt et al., 2020).

The need for skills development in teamwork, communication, leadership, and cross-cultural competency is well established in engineering education (Handford, Van Maele, 2017; Downey et al., 2006). However, beyond the ability to work effectively with others, individuals with diverse expertise and disciplinary perspectives are required to integrate their knowledge such that a new and comprehensive understanding of the complex situation is achieved. This work of integration may be challenging due to tension arising from individual disciplinary differences, where each academic discipline brings particular ways of knowing and engaging with phenomenon through disciplinary epistemologies, methodologies, theories, methods, and concepts (Lattuca, 2001). Repko et al. (2017) defined the elements of a discipline as

phenomena it studies, its epistemology (how one knows what is true and how one validates truth), the assumptions it makes about the natural and human world, its basic concepts, its theories about the causes and behaviours of certain phenomena, its methods (the ways it gathers, applies, and produces knowledge, and the kind of data it collects. (p. 133)

It is this notion of academic disciplines, with each representing unique disciplinary perspectives, that gives rise to the need for these differences to be reconciled into a shared understanding among collaborators—referred to as finding *common ground* (Repko, 2007). When applied to a situation, these disciplinary perspectives may reveal insight about the situation which may then be integrated into a new understanding about the situation (Boix Mansilla et al., 2000; O’Rourke et al., 2016).

Definitions of interdisciplinary from national reports emphasize the disciplinary-based nature of interdisciplinarity (emphasis added in bold), while offering ways for theorizing about interdisciplinarity:

- Interdisciplinary—An adjective describing the interaction among two or more **different disciplines**. This interaction may range from simple communication of ideas to the mutual integration of organizing concepts, methodology, procedures, epistemology, terminology, data, and organisation of research and education in a fairly large field. An interdisciplinary group consists of persons trained in different fields of knowledge (disciplines) with different concepts, methods, and data and terms organised into a common effort on a common problem with continuous intercommunication among the participants from the different disciplines. (*Interdisciplinarity: Problems of Teaching and Research in Universities*, 1972, pp. 25–26)
- “Interdisciplinary research” – “Interdisciplinary research (IDR) is a mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/or theories from **two or more disciplines or bodies of specialized knowledge** to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or field of research practice”. (National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, 2005, p. 2)
- “Convergence” – “The key message of convergence, however, is that merging ideas, approaches, and technologies **from widely diverse fields of knowledge** at a high level of integration is one crucial strategy for solving complex problems and addressing complex intellectual questions underlying emerging disciplines” (National Research Council, 2014, p. 20)

For practical purposes, it is clear that the nature of interdisciplinarity is understood in similar ways. Repko et al. (2017) defined *interdisciplinary studies* as “a cognitive process by which individuals or groups draw on disciplinary perspectives and integrate their insights and modes of thinking to

advance their understanding of a complex problem with the goal of applying the understanding to a real-world problem” (p. 65). In an engineering context, Lattuca et al. (2017) defined *interdisciplinary skills* as “the willingness and ability to think about and use different disciplinary perspectives in solving engineering problems or to make connections across academic fields” (p. 74). These conceptualizations are consistent with the framework presented by O’Rourke et al. (2016) who described cross-disciplinary integration as a goal-oriented, input/output process of transformation. Based on these definitions and conceptualizations, two salient aspects of interdisciplinarity are (Repko & Szostak, 2017):

- 1) The recognition of multiple perspectives and multiple components which may lead to situations of differences, fragmentation, complexity, specialization, which can cause tension, conflict, or incommensurability (Bergmann et al., 2012)
- 2) The need to create some holistic artifact or outcome that brings together the parts into a new whole that represents a more comprehensive and connected understanding (Boix Mansilla, 2010; Boix Mansilla et al., 2000)

For the purpose of this research project, I characterize interdisciplinarity based on the need to engage multiple perspectives such that diverse knowledge may be shared and integrated, leading to a more comprehensive understanding of a situation that would not be achieved from a single perspective (Boix Mansilla et al., 2000; Ivanitskaya et al., 2002; Sill, 1996).

1.2 Multiple Perspectives in the Process of Integration

A number of authors have offered conceptualizations of integration processes in the context of multidisciplinary, interdisciplinary, and transdisciplinary studies (Holbrook, 2013; O’Rourke et al., 2016). Godemann (2008) identified five aspects of knowledge integration: 1) exchanging of information, 2) achieving understanding, 3) creating a common knowledge base, 4) achieving awareness of the frame of reference, and 5) developing group mental models. Based on the interdisciplinary process model by Repko et al. (2017), two cognitive processes are central to integration: perspective-taking and holistic thinking. With both of these elements, individuals or teams engage with multiple perspectives to see situations in different ways, make sense of the information, and generate insight into the problem. This insight into the problem is then integrated to formulate a holistic understanding of the situation (Repko et al., 2017). For this project, I am focused on integration as a cognitive activity, and I refer to the whole process of integration as the

activity of *meaning-making from multiple perspectives*. In this way, “meaning-making from multiple perspectives” is an activity that cuts across multidisciplinary, interdisciplinary, and transdisciplinary ways of working.

I use “multiple perspectives” to acknowledge the diverse ways perspectives may form and be sourced, for example, from disciplinary perspectives, personal experiences, individual differences, perspectives based on roles and work functions, perspectives that may come from artifacts and the environment, and perspectives from stakeholders outside of the academy. I aim to broaden the view of disciplinary perspectives as the primary source of diversity in integrative work. Instead, I frame disciplinary perspectives as one source of perspectives, among many, for the different ways diverse perspectives may be considered in integrative work. Engagement with multiple perspectives also acknowledges how a situation may be viewed from varying system level perspectives which influence individuals’ attention and interaction with the situation. Where integration generally aims to resolve challenges of system fragmentation, tension (Martin, 2007), and complexity (Newell, 2001), I use the term “meaning-making” to represent the broad activity of bringing together parts into a new whole. Additionally, “meaning-making” acknowledges the goal-oriented and sense-making nature of the activity towards some new outcome, that is, the outcome achieves some goal. Boix Mansilla, Miller, and Gardner (2000) described this outcome as an *interdisciplinary understanding*: “[the integration] of knowledge and modes of thinking from two or more disciplines in order to create products, solve problems, and offer explanations of the world” (p. 18). Defila and Di Giulio (2015) defined the qualities of interdisciplinarity and transdisciplinary outcomes as having *consensus* in collaborative problem framing, *integration* in building a synthesis of knowledge towards common answers, and *diffusion* of the outcome such that dissemination of the research and process benefits the intended users and stakeholders.

With the growing calls for interdisciplinary research and work, this dissertation explores what it means to do integrative work and how practices may be supported to engage in interdisciplinary collaboration. Specifically, I consider the professional field of educational development as the interdisciplinary context of this study.

1.3 What is Educational Development?

Engineering faculty play a significant role in engineering education transformation (Jamieson & Lohmann, 2012). In addition, the professional field of educational development plays

an important role in supporting transformation initiatives. In the literature, terms such as educational development, faculty development, instructional development, and academic development may be used interchangeably. Although there may be nuanced differences between terms, influenced by geographical context and institutional culture, I broadly use the term *educational development* in this dissertation to encompass the professional field of activities directed towards the enhancement of teaching and learning in higher education (Felten et al., 2007), which include supporting faculty in developing their teaching practice. I refer to educational developers as the professional role in higher education institutions who primarily perform the activities of educational development.

The activities and work-related functions of educational developers is described by professional organizations and the research literature of the field. The US-based Professional and Organizational Development Network in Higher Education (POD Network), describes the work of educational development as consisting of three primary foci: (1) professional development of faculty, graduate students, and postdoctoral students (2) instructional development, and (3) organizational development (POD Network, 2016). The UK-based Staff and Educational Development Association (SEDA) focuses its mission around supporting educational change, the professional development of academic staff in teaching and learning, and the quality of students' educational experiences (SEDA, n.d.). These professional organizations share consistent views of educational development in the literature that recognize holistic activities and areas towards changing and enhancing teaching and learning within institutions of higher education. Bergquist and Phillips (1975) identified three dimensions of faculty development as (1) organizational, (2) instructional, and (3) personal, with each pertaining to levels of change for structures, processes, and attitudes respectively. For a successful educational development program and initiative, change must occur simultaneously at all three levels (Bergquist & Phillips, 1975). Gibbs (2013) in his reflective commentary identified a number of activities to develop a university's teaching and learning including the development of individuals and groups of teachers, learning environments, institutional systems, policies and strategies, educational evaluation and research. These perspectives highlight the multi-faceted nature of educational development work and the pivotal role educational development plays in sustaining and changing the system of higher education.

A number of external factors including constrained financial resources, demands on faculty time, and the need for accountability standards, drive change in the landscape of higher education

in terms of learning environments, students, curriculum, and learning technologies (Lieberman & Guskin, 2003). Faculty are required to lead and respond to these changing demands, and subsequently, change and transform themselves (Lieberman & Guskin, 2003). Institutions are required to rethink ways to develop faculty and institutional structures to support an education system focused on student learning (Austin & Sorcinelli, 2013; Lieberman & Guskin, 2003). Drawing on the nature of librarians as a professional learning resource, Lieberman and Guskin (2003) acknowledged these new models of teaching and learning in higher education with a call for faculty developers to adopt a professional identity as a change agent:

“Much like librarians, faculty developers will have to shift their thinking from being providers of good and important technical services to professionals whose work is critical for the transformation of the institution. Also like librarians, faculty developers will move from the periphery of the academic enterprise to the core-focusing on strategies that enable students to learn more effectively and efficiently within many different arenas and for faculty skills and expertise to be focused and used efficiently. In order to accomplish these critical functions, faculty developers must perceive themselves as institutional change agents. (Lieberman & Guskin, 2003, p. 263)

Given the call for engineering education transformation and the role of educational development in these transformation efforts, how might educational developers be prepared to support faculty and their institutions in the enhancement of teaching and learning? My research interest is focused on enhancing educational developers’ interdisciplinary practices for working across areas of personal, instructional, and organizational change (Bergquist & Phillips, 1975). As such, this dissertation brings together two professional fields: 1) interdisciplinary research and collaboration practices and 2) educational development.

1.4 Research Problem

The work of educational development is inherently interdisciplinary. Educational developers come from diverse disciplinary backgrounds and work with faculty across disciplines to support teaching and learning (McAlpine & Harris, 1999; Taylor, 2010). In this interdisciplinary work, educational developers broadly engage in activities of integration to bring together multiple perspectives into new ways of understanding a situation. The work of integration may be challenging due to diverse disciplinary perspectives and because of the different ways that educational developers might engage with disciplinary perspectives. Therefore, there is a need to

understand the nature of disciplinary perspectives as an object that educational developers engage with in interdisciplinary interactions to perform their work.

1.5 Research Question

Based on the importance of understanding and engaging with diverse disciplines in educational development, this dissertation asks the following research question:

How do educational developers experience disciplinary perspectives in the work of educational development?

1.6 Research Goals and Significance

To support educational developers' practice and efforts in engineering education transformation, my research focuses on understanding the nature of disciplinary perspectives as they are situated in interdisciplinary collaboration practices for educational developers. This dissertation employed phenomenography, as a particular qualitative approach to investigate the variation in ways that educational developers experience disciplinary perspectives in their work. The significance of this research lies in (1) its interdisciplinary approach to educational development and (2) the exploration of situated knowledge to inform the development of practices and competencies of integration.

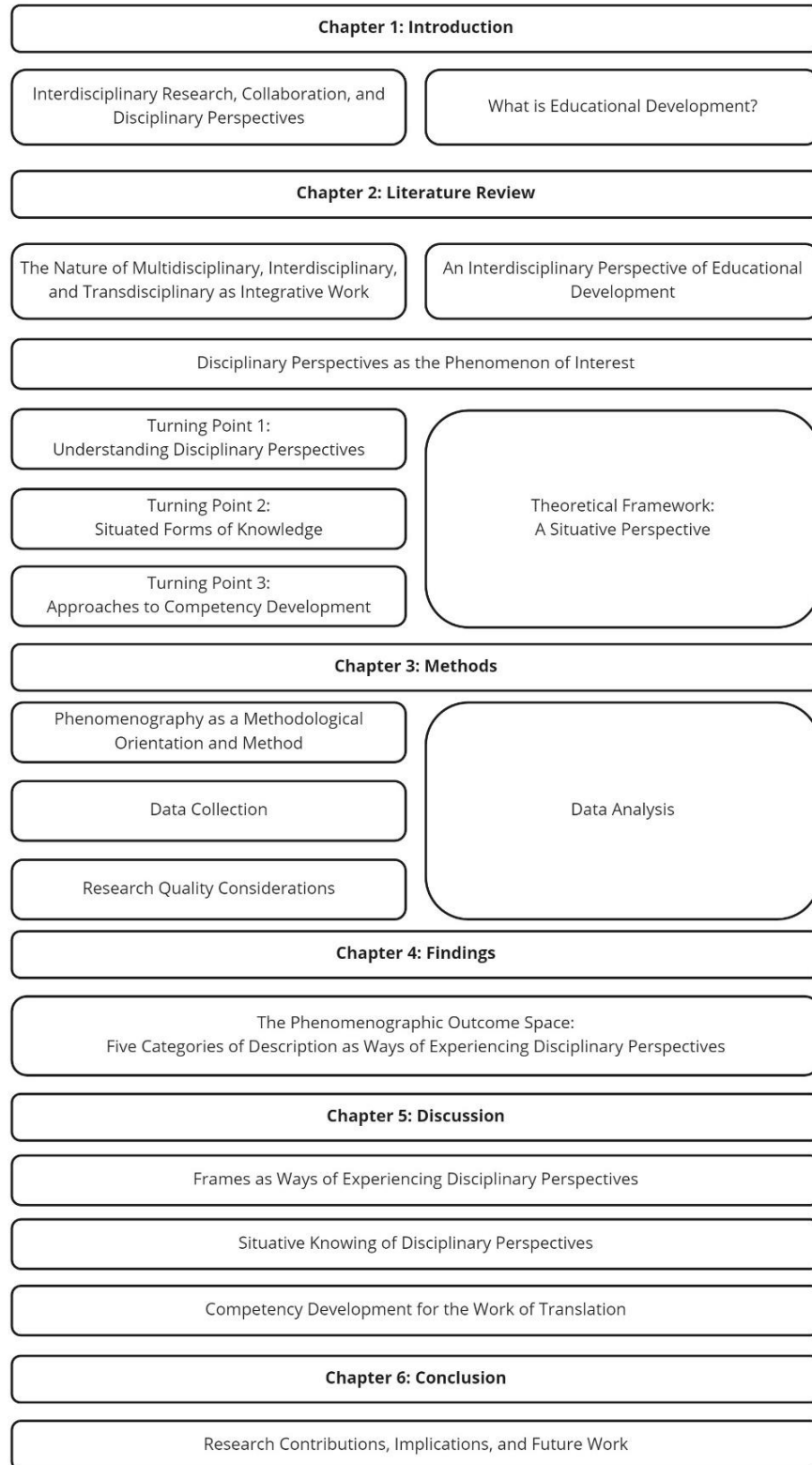
I adopt an interdisciplinary lens for two reasons. First, an interdisciplinary approach provides a way to resolve tensions faced by educational developers in terms of their professional roles and identity in higher education that may not be conducive to advancing the field. Second, the work of educational development is inherently interdisciplinary involving educational developers to collaborate with faculty from multiple disciplines to create integrated educational solutions. Therefore, an interdisciplinary approach is appropriate to support educational developers in their work. I draw on the variation in multidisciplinary, interdisciplinary, and transdisciplinary ways of working to offer insight into integrative practices and work.

The theoretical underpinnings from the situative perspective holds the view of knowledge as being learned in particular contexts, through social interactions with others and artifacts, and as it is applied to perform some authentic work task. By applying a situative perspective to explore the ways educational developers experience engagement with disciplinary perspectives, the

research aims to offer an understanding of the situated knowledge that encompasses integration practices in the context of educational development. Additionally, a situative perspective expands how collaborators might make sense of disciplinary perspectives based on a situated view of knowledge and knowing.

The overarching research goal of this dissertation is to support the development and practice of integration as a cross-cutting and situated competency in the work of educational development. An understanding of the relationship that educational developers have with disciplinary perspectives will support the professional development of educational developers, and broadly, contribute to the conceptualization of professional practices for interdisciplinary collaboration. Towards this goal, I apply an interdisciplinary lens and a situative perspective to investigate the ways that educational developers experience disciplinary perspectives.

1.7 Overview of Dissertation Chapters



2. LITERATURE REVIEW

This literature review serves to establish the context of my study, the phenomenon of interest, and the research gap that motivates this investigation. First, I synthesize similarities and differences between the concepts of multidisciplinary, interdisciplinary, and transdisciplinary to establish a shared understanding of integrative work. Based on this understanding, I present educational development as the context of this study, where educational developers engage in integrative work with multiple disciplinary perspectives. I establish how disciplinary perspectives, as the phenomenon of interest in this study, may be experienced in different ways. I further identify three turning points in the literature that capture different ways of conceptualizing knowledge, knowing, and practices, to inform how disciplinary perspectives may be utilized in interdisciplinary collaboration and professional development. I use these turning points to build up to my theoretical framework that informs the design of my research methods and analysis.

2.1 The Nature of Multidisciplinarity, Interdisciplinarity, and Transdisciplinarity as Integrative Work

Multidisciplinary, interdisciplinary, and transdisciplinary are three concepts to describe collaborative knowledge production, research, and problem solving. However, in the literature, each concept may be characterized by specific differences that provide insight into how these concepts may be enacted in practice (Rosenfield, 1992). Adams and Forin (2013) synthesized a comparison of how multidisciplinary, interdisciplinary, and transdisciplinary situations are structured, pointing to critical differences in the way these situations are described in terms of problem orientations, modes of knowledge production, outcomes of knowledge production, interaction and communication structures, and impact on participants. I conceptualize multidisciplinary, interdisciplinary, and transdisciplinary as particular ways of working in particular situations, consistent with views of these terms as particular transformation activities with inputs, outputs, and transformation processes (O'Rourke et al., 2016). I have synthesized the critical differences of multidisciplinary, interdisciplinary, and transdisciplinary across three dimensions of variation corresponding to the nature of the situation, the nature of the process, and the nature of the outcome respectively (see also Adams & Forin, 2013; Lattuca, 2001): variation of system level scales, variation of methods, and variation of integration (Figure 2.1). In the

following sections, I outline how multidisciplinary, interdisciplinary, and transdisciplinary ways of working vary along these dimensions. A summary of each of the variations is outlined in Table 2.1.

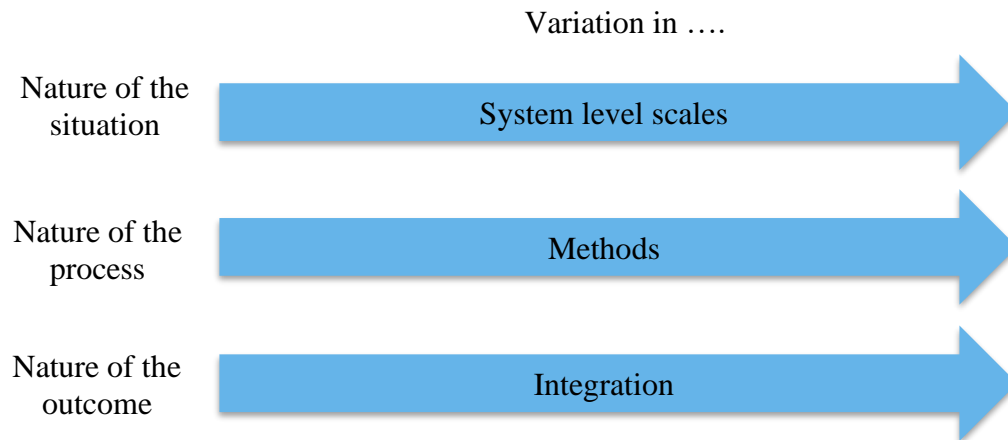


Figure 2.1 Variation in multidisciplinary, interdisciplinary, and transdisciplinary ways of working along dimensions of the situation, process, and outcome of the work.

Variation of system level scales

The fields of complexity science and systems thinking posit that systems may be analyzed at varying scales. Often, increasing levels of complexity are introduced as the scale of analysis increases and more parts are added to the system for analysis, although the number of parts is not the only factor that determines the level of complexity of a system. Therefore, it is possible to analyze a small-scale system that holds a high degree of complexity (e.g., neuroscience). The perspective of scale that one adopts to view a system directly influences where the boundaries of the system may be drawn. These boundaries determine what elements of the system are considered in the analysis and the number of components that make up the system. For example, the design of a passenger chair, is part of the design of a commercial airplane, and that airplane is in turn part of a larger, global transportation system. Here, I use systems thinking to conceptualize how multidisciplinary, interdisciplinarity, and transdisciplinarity, vary based on the problems and situations that each approach targets at increasing system level scales.

As a starting point, Newell (2001) posited the role that system complexity plays as driving force for interdisciplinarity. If disciplinary knowledge is viewed as the basic premise from which to engage in multidisciplinary, interdisciplinary, and transdisciplinary approaches (Repko &

Szostak, 2017), then as the scale and complexity of problems and situations increase, disciplinary knowledge alone will be insufficient to address problems and situations at higher system scales and with greater system complexity. Multidisciplinarity involves disciplines coming together toward shared goals but does not involve the exchange of knowledge such that new knowledge is created within or between the disciplines. In contrast, interdisciplinarity may be described as a knowledge production process within the academy in response to the separate and fragmented academic disciplines (*Interdisciplinarity: Problems of Teaching and Research in Universities*, 1972). Transdisciplinary situations are centered around particular problems or themes such as sustainability studies and global health (Repko & Szostak, 2017). Here, the complexity of the problem or theme of interest is such that it does not belong to any particular disciplinary home, and therefore the subsequent knowledge required to address the problem transcends any disciplinary boundaries. Therefore, situations that call for a transdisciplinary approach occur across types of systems and at a high level of system scale. The dimension of variation across system level scale draws attention to the way that the context of the problem and situation matter when thinking about the most productive approaches to multidisciplinary, interdisciplinarity, and transdisciplinary problems. Multidisciplinary problems exist across disciplinary homes, interdisciplinarity problems are located between disciplinary homes, and transdisciplinary problems may have no disciplinary home at all. As such, the knowledge and methods required to address these problems at varying scales may reside in the disciplines, be produced between the disciplines, or transcend disciplinary organization.

Variation of methods

In response to particular problems and situations found at varying levels of system scale and complexity, various methods may be employed to achieve particular goals. Since multidisciplinarity involves different disciplines without the expectation that these disciplines will share or integrate their disciplinary knowledge, multidisciplinarity methods are often concerned with general ways of working as a collaborative team member. For example, Heikkinen and Isomöttönen (2015) described a multidisciplinary project course where the learning objectives focused on students' ability to "recognize their own expertise and strengths,...apply the theoretical knowledge of their discipline,...work as a responsible member of a project team,...know the basic concepts of project work" (p. 656).

With the goals of integration central in interdisciplinarity and transdisciplinarity, one difference between interdisciplinarity and transdisciplinarity is in the way that insights and shared conceptual frameworks are generated and used. Repko (2017) pointed out how “interdisciplinary studies relies primarily on the disciplines for their perspectives, insights, data, concepts, theories, and methods in the process of developing an interdisciplinary understanding of a particular problem” (p. 15). Here, interdisciplinarity is focused on bringing perspectives and approaches to knowledge production and inquiry into specific academic situations. Individuals are starting from their disciplinary perspectives to understand the situation, and then these insights are integrated into a new understanding (Repko & Szostak, 2017). Transdisciplinarity on the other hand, seeks to bring in theories, concepts, and methods that “transcend disciplines and are therefore applicable to many fields” (Repko & Szostak, 2017, p. 15), to address applied and complex problem situations at a high level of system scale. Since these transdisciplinary situations operate at the highest level of complexity involving global society and socio-technical systems, participatory methods of inquiry—that engage people affected by the problem as co-inquirers (Jahn et al., 2012; Mobjörk, 2010; Stokols, 2006)—are often employed to challenge dominant approaches and bring different voices into the research process that may not otherwise be involved. As such, transdisciplinary approaches often invoke critical perspectives that acknowledge and challenge existing power structures with different actors (Mobjörk, 2010). This process acknowledges the expertise of diverse stakeholders, from researchers, community members, and organizations, across sectors and outside the boundaries of academic institutions (Stokols, 2006). In transdisciplinary work, a shared conceptual framework is created first, and then used to address the situation. As Rosenfield (1992) described, “representatives of different disciplines are encouraged to transcend their separate conceptual, theoretical, and methodological orientations in order to develop a shared approach to the research, building on a common conceptual framework. Such a framework can be used to define and analyze the research problem...” (p. 1351). Therefore, transdisciplinarity is characterized by the type of knowledge being brought in to address the situation leading to a transdisciplinary approach to the problem, as well as the kind of solution produced in the form of a transdisciplinary outcome.

Variation of integration

Integration as an activity aims to make meaning from differences and is directed to achieve desirable outcomes in the form of a new understanding or integrated solution. The variation of how integration may be implemented and realized is often the most cited defining feature between multidisciplinary, interdisciplinarity and transdisciplinarity, with each one progressing towards higher degrees of integration (O'Rourke et al., 2016; Rosenfield, 1992; Rossini & Porter, 1979). As Klein (1990) described, multidisciplinary is concerned with the juxtaposition of disciplines, where disciplinary analyses occur separately and each discipline maintains their disciplinary approach and methods. In comparison to interdisciplinarity, multidisciplinary is additive, not integrative (Klein, 1990, p. 56). At the interdisciplinarity level of integration, disciplinary contributions are integrated together such that new insight into the situation is achieved. Transdisciplinarity aims for an “overarching synthesis” (Lattuca, 2001, p. 83) or fusion of new knowledge such that disciplinary perspectives are indistinguishable from any disciplinary base. Stokols et al. (2013) presented a transdisciplinary approach as “not only the integration of approaches but also the creation of fundamentally new conceptual frameworks, hypotheses, and research strategies that synthesize diverse approaches and ultimately extend beyond them to transcend pre-existing disciplinary boundaries” (p. 5).

Table 2.1 Variation in multidisciplinary, interdisciplinary, and transdisciplinary ways of working.

	Multidisciplinary	Interdisciplinary	Transdisciplinary
Variation of system level scales (<i>Nature of the situation</i>)	The scale of the problem/situation warrants the use of multiple disciplinary expertise. Each discipline offers their contribution/perspective to address the situation, however, each perspective remains separate and distinct.	The scale of the problem/situation requires the combination of disciplinary expertise to explore new ways of thinking about the situation.	The scale of the problem/situation requires disciplinary expertise and involvement from diverse stakeholders that cross disciplinary boundaries and sectors of society outside of academia.
Variation of methods (<i>Nature of the process</i>)	Methods focus on collaboration and teamwork skills to effectively work together. Relationships between disciplines are not made explicit.	Methods seek connections and relationships between disciplines. Different disciplinary perspectives are adopted to generate new insight into the situation, with the goal of knowledge production and inquiry.	Participatory methods to engage stakeholders from academia and society. Integration of knowledge occurs to establish approach to the problem, and in formulating appropriate outcomes.
Variation of integration (<i>Nature of outcome</i>)	Juxtaposition of separate disciplinary contributions	Integration of disciplinary contributions results in a new understanding of the situation.	Fusion of knowledge and perspectives such that the disciplinary contributions are indistinguishable in the new whole and transcend disciplinary boundaries.
Example	The design of a new bicycle.	The design of a new university campus bicycle sharing program.	The design of a sustainable university campus.

For an example of multidisciplinary, interdisciplinary, and transdisciplinary approaches, I consider the design of a bicycle (multidisciplinary) for use in a campus bike sharing program (interdisciplinarity) that is part of a larger sustainable university campus initiative (transdisciplinarity). This example shows the nested nature of how multidisciplinary, interdisciplinary, and transdisciplinary situations are operating at different system scales. Each approach is appropriate for addressing challenges at different scales, and as the complexity of the situation increases, different methods are evoked to achieve different outcomes. However, the new

outcome is not necessarily judged or based on the extent of integration, as the outcome is dependent on the nature of the situation and the goal to be achieved. As such, the variation of system level scales, methods, and integration across multidisciplinary, interdisciplinary, and transdisciplinary offer salient differences in ways of integrative work. The intent here is not to characterize types of problems or situations as multidisciplinary, interdisciplinary, or transdisciplinary, but to highlight how multi/inter/transdisciplinary ways of working may be used towards different goals.

Each of these dimensions of variation offers ways to make distinctions between the concepts of multidisciplinary, interdisciplinary, and transdisciplinary. As Lattuca (2001) stated “to understand interdisciplinarity fully, processes, contexts, and outcomes must be examined together and in relation to one another” (p. 20). Pragmatically, the dimensions of variation highlight how different situations (variation of system level complexity), call for different methods (variation of methods) to achieve different outcomes (variation of integration). My intent to distinguish these features of multidisciplinary, interdisciplinary, and transdisciplinary is not to argue for the approaches as being better than any other, but to position multidisciplinary, interdisciplinary, and transdisciplinary as concepts that offer unique perspectives into different research situations. These perspectives shape and inform the practices used to achieve multi/inter/transdisciplinary outcomes, including the way individuals engage in collaborative work and their interactions with others. With an understanding of these practices, it is possible to develop competencies to support the training and development of individuals in multi/inter/transdisciplinary ways.

Multidisciplinary, interdisciplinary, and transdisciplinary ways of working are all concerned with bringing together parts to create a new whole. In this dissertation, I use the term *integrative work* to collectively refer to multidisciplinary, interdisciplinary, and transdisciplinary ways of working.

2.2 The Challenges of Integration

Integration, as a core quality of integrative work, has been widely explored across broad fields of literature including interdisciplinary studies (O’Rourke et al., 2016; Repko, 2007), sustainability studies (Pennington, 2016), and the science of team science (Fiore, 2008). Cooke et al. (2020) provided an overview and conceptual understanding of interdisciplinarity in terms of the work, institutional structures, benefits, risks, and challenges. These areas provide an

understanding of what integration entails, the processes and activities involved in integration, and details of particular outcomes of integration. In the literature, there are also a number of methods, models, and processes for performing integrative work, described as joint problem framing (Bijl-Brouwer, 2019; Pearce & Ejderyan, 2020), building shared research vision and mental models (Pennington, 2016), transdisciplinary knowledge integration (Hoffmann et al., 2017; Lang et al., 2012; Pohl et al., 2017; Polk, 2015), transdisciplinary co-production (Polk, 2015), and knowledge integration mechanisms (Canonico et al., 2017). Other research has also considered various methods as tools to support the activities of integrative work (*Toolbox Dialogue Initiative*, 2021). Taken together, this literature presents various activities, tools, and resources for conducting integrative work. However, despite methods, procedures, and models, the nature of interdisciplinary collaboration and integration as a social and situated activity brings about unique challenges for collaborators.

As a social activity, integration requires the negotiation and navigation between social actors and objects. For example, Enengel et al. (2012) considered the role of different actor groups in contributing different kinds of knowledge throughout the transdisciplinary research process. Nicolini et al. (2011) also described the role of objects in collaboration, pointing to ways that objects take on different meanings as they motivate collaboration, facilitate work across boundaries, and provide infrastructural support throughout collaboration. In design practice, Bucciarelli (2008) posited how designers may experience a single object of design in different ways as they are operating in their own *object worlds*, based on their unique backgrounds:

Generally engineers work in teams, in groups large and small. Different participants bring different expertise to a task. Each has his or her own disciplinary perspective; their own ways of abstracting and modelling. Each can rely upon an infrastructure with its own special instruments and tools, prototypical bits of hardware, reference texts, suppliers' catalogues, codes, and regulations. I say that different participants work within different *object worlds*. Each participant, with different competencies, responsibilities, and interests sees the object of design differently. The *one object* of design presents *multiple object worlds* to different participants. (p. 142)

In these object worlds, design becomes a social process that is situated in context and requires the designer to negotiate different meanings (L. Bucciarelli, 2003; Dorst, 2006). Dorst (2006) referred to this phenomenon as a designer's ability to construct a design that "transcends or connects the different discourses" (p. 15).

As a situated activity, integration is a process of collaborative learning and knowledge co-production, where individuals communicate across differences to build knowledge and

understanding about a problem situation. In this way, integration becomes meaningful through interactive systems and relationships that encompass the situation and contextual factors. In contrast to a cognitivist view of knowledge (see G. Rowland, 2004), the activity of integration does not see knowledge “as a possession of individuals or groups” (Rowland, 2004, p. 34) and the outcome of integration is not an acquisition of knowledge and skills (see also Putnam & Borko, 2000). Instead, from a social constructionist view, integration requires individuals to contribute and share their perspectives to make meaning of a situation together. As Rossini and Porter (1979) pointed out,

... interdisciplinary research is team research entailing social interaction among the research team in order that the disciplinary perspectives may interact, the process of actually achieving integration involves both social and cognitive elements. (p. 72)

Therefore, the knowledge required for integration is *distributed* among people, objects, activities, and interactions (Putnam & Borko, 2000). Rossini and Porter (1979) presented four socio-cognitive frameworks to describe how integration may occur: 1) common group learning, 2) modelling, 3) negotiation among experts, and 4) integration by leader. Each of these frameworks highlighted different interactions between collaborators leading to research outputs. For example, “common group learning” emphasizes the work to build common group knowledge, “modelling” focuses on how a model may be constructed by certain individuals and used to establish findings, “negotiation among experts” captures interaction at boundaries between experts to inform analysis, and “integration by leader” emphasizes interaction between the leader and other individuals, but the leader is solely responsible for synthesizing findings (Rossini & Porter, 1979). In a more recent study, Panther et al. (2017) took a situative approach to investigate the knowledge systems of practicing engineers in the context of a technical design review. Their work highlighted the role that negotiation of epistemological tensions related to uncertainty of knowledge and knowledge systems boundaries has in the design process. As another example of integration as a situated activity, Morse (2014) highlighted the use of systems concept mapping to facilitate dialogue among collaborators and integrate varying research frameworks and theories.

Based on this literature, I have established what interdisciplinary work is and how disciplinary perspectives are involved. Among these methodological approaches, models, and tools, I have shown how disciplinary perspectives are used to bring disciplinary expertise to support collaboration. I have highlighted the challenges with integration as a social and situated

activity. In the next section, I will consider the professional field of educational development, from an interdisciplinary perspective, to establish the research context for my study.

2.3 An Interdisciplinary Perspective of Educational Development

Although educational development has played an important role in shaping teaching and learning in higher education since the 1960s (Bland & Risbey, 2006; Clegg, 2009), the field continues to be challenged with establishing professional identities and roles in ways that support educational developers to perform their best work in the institution (Clegg, 2009; Debowski, 2014; Lee & McWilliam, 2008). In this section, I point to the tensions of professional identity and roles that challenge educational developers. I demonstrate how an interdisciplinary perspective is relevant and appropriate to respond to these tensions.

Several authors have pointed to the vague and contested landscape of higher education in which the educational developer searches for their role and identity (Andresen, 1996; S. Rowland, 2002). Harland and Staniforth (2008) described the nature of educational development as fragmented due to structural and operational differences of educational development units and due to the contested nature of knowledge required for the work of educational development. The challenges of fragmentation in this context pose challenges for educational developers who come from multiple backgrounds and bring their disciplinary training to inform their work (Little et al., 2018). For example, the perspective of educational development as non-academic work influences how faculty see educational developers and may lead to marginalization of educational development work (Harland & Staniforth, 2008). Bath and Smith (2004) argued for the recognition of educational development as its own “disciplinary tribe” focused on the academic study of higher education itself. This view is presented as a way to bring specificity and boundaries to the field of educational development such that respect, credibility, and value propositions may be further established and emphasized (Bath & Smith, 2004). In this way, the struggle for professional identity is associated with the challenge for establishing educational development as legitimate academic work (Clegg, 2009, 2012; Harland & Staniforth, 2003; see also Sorcinelli et al., 2006).

While research into career paths and the establishment of professional identity offers important insight into the nature of the individual educational developer, the organizational context in which educational developers perform their work also poses tensions, that is, between institutional needs and individual practices (Healey, 2012). The work of educational development

in higher education is primarily based out of educational development centers that hold strategic roles within their institutions (Gosling, 2009). This structure is due to the way educational development centers and programs historically originated in response to the institutional need for enhanced teaching and learning within their institutions (Lewis, 1996). With these organizational positions, Gosling (2009) identified how these educational development centers face pressure from institutional administration and management to meet institutional requirements, while balancing and justifying their academic autonomy for scholarship, the values and purpose of their work, and the personal values of individual developers. As Gosling (2010) further stated,

The question that haunts educational development at the present time is whether the institutional positioning of educational development, serving the goals set by their institutions, is compatible with the integrity of individual developers. The values that are closest to the hearts of developers, notably the value of teaching and improvement of student learning, are in danger of being expropriated by the demands of marketing and income generation. (p. 100-101)

Although Gosling's (2009) research is based in the UK context, other literature suggests that similar tensions between institutional values and the values of individual developers exists across the US (Green & Little, 2017; Hattum-Janssen et al., 2012; Lewis, 1996) and other geographic contexts (Debowski, 2014)

To address these tensions of identity and roles in educational development, I adopt an interdisciplinary perspective that views the work of educational development as fundamentally interdisciplinary. As Klein (1990) identified, an interdisciplinary perspective is especially useful "to explore disciplinary and professional relations, and to solve problems that are beyond the scope of any one discipline. (p. 11). At its core, interdisciplinary is "an attempt or desire to integrate different perspectives" (p. 15). Applied to educational development, an interdisciplinary perspective acknowledges how educational developers (1) bring multiple disciplinary backgrounds to their professional roles, (2) how these varied professional backgrounds may be leveraged in the work of educational development, and (3) how this work may be aligned and integrated across systems levels of the individual, courses and programs, and the organization. An interdisciplinary perspective is appropriate and relevant because interdisciplinarity is aligned with the kind of integrative work educational developers do. That is, they engage with multiple perspectives from diverse stakeholders (faculty, administrators, graduate students) to create educational solutions, such as programs, curriculum, and policies for teaching and learning.

2.4 Educational Development as Integrative Work

With an understanding of interdisciplinarity, I frame the work of educational development as integrative work, where my study aims to offer insight into integrative ways of working in educational development. In the previous sections, I have pointed to the tensions of professional identity and roles in educational development and adopted an interdisciplinary perspective to explore these tensions. With this interdisciplinary perspective, I will describe the work of educational development as integrative work and show how the professional identities and roles of educational developers may be reframed with a focus on integration. I argue that educational development is characteristic of integrative work because educational developers work with stakeholders from multiple disciplines with the aim of generating integrative educational solutions for teaching and learning. Here, I will show how this interdisciplinary perspective is aligned with the goals and nature of educational development work. This view of educational development as integrative work offers new opportunities for enhancing the practices and competencies of educational developers.

Educational developers may be involved in a variety of activities to support teaching and learning, including curriculum development, designing and facilitating graduate workshops with students from multiple disciplines, and providing one-on-one consultation with faculty. Amundsen and Wilson (2012) performed a literature review of educational development initiatives and identified six clusters that capture the kinds of educational development initiatives and their motivations: (1) *skills cluster* focuses on the acquisition or enhancement of observable teaching skills and techniques (2) *method cluster* focuses on “mastery of a particular teaching method” (3) *reflection cluster* focuses on “change in individual teacher conceptions of teaching and learning”, (4) *institutional cluster* focuses on “coordinated institutional plans to support teaching improvement” (5) *disciplinary cluster* focuses on “disciplinary understanding to develop pedagogical knowledge” and (6) *action research or inquiry cluster* focus on “individuals or groups of faculty investigating teaching and learning questions of interest to them” (p. 97). These six clusters, each with varying contexts, goals, and activities, provides insight into the landscape of educational development as a scholarly academic activity (Harland & Staniforth, 2003), and the ways educational developers contribute to the integration of educational solutions in higher education.

Healey and Jenkins (2003) called for a discipline-based approach to educational development that acknowledges the culture of higher education that is structured around academic disciplines, each with unique disciplinary identities, theories, and methods. Taylor (2010) also emphasized how “the nature of disciplinary expertise and how an understanding of the diversity of knowledge structures, processes, and cultures across disciplines can optimize educational development practice” (p. 60). These disciplinary perspectives transfer into knowledge, conceptions, and approaches to teaching and learning that are unique to disciplinary contexts (Taylor, 2010). For example, within academic disciplines, students learn disciplinary ways of thinking (Donald, 2002) and disciplines affect how faculty construct the meaning of teaching (Lindblom-Ylänne et al., 2006). Yeo & Boman (2019) showed how disciplinary conceptions shape decisions and practices around assessment. In professional-based education, Shulman (2005) described *signature pedagogies* as “types of teaching that organize the fundamental ways in which future practitioners are educated for their new professions” (p. 52).

A number of research articles demonstrated how this disciplinary-based approach manifests in educational development. In their work as faculty development colleagues, McAlpine and Harris (1999) used metaphors of “bridging cultures” and “crossing borders” to describe what it was like for a faculty developer to work with an engineer and resolve their disciplinary differences. In one study of six educational developers, O’Neill (2010) highlighted how educational developers adopted a “dialogic approach” and diverse starting points in the curriculum revision process. These practices allowed educational developers to listen and pose questions to understand the motivation and context of the curriculum project, and to be flexible in the initial steps of the revision process. In a similar way, Ellis (2018) described the practice of reframing in educational development as “seeing things from a different perspective” (“Defining Reframing”, para. 1) and that it “provides a way to invite different thinking...honors multiple perspectives, promotes transparency, and helps to uncover insights” (“Final Thoughts”, para. 1). To demonstrate the application of reframing, Ellis (2018) provided examples where reframing is used across educational development work at the individual, departmental, and institutional levels, as well as work that extends beyond the institution. Reframing may be used in a wide range of activities: one-on-one consultations with faculty to review course evaluations from the student perspective, facilitating workshops where faculty assumptions are challenged, and broadening conceptualizations of academic jargon to find common frames of reference (Ellis, 2018). The

diversity in approaches supports how educational development practices may vary based on context, individual differences, roles, and the desired goals of different stakeholders (Taylor, 2005; Taylor & Rege Colet, 2001).

At the course and program level, Armstrong (1980) argued for interdisciplinary faculty development that “brings a team of faculty members (two or more), typically from different disciplines, together around a common intellectual task such as development of a course or sequence of courses” (p. 53). Armstrong (1980) identified four increasing levels of academic integration and synthesis of knowledge in interdisciplinary curriculum: 1) students may take a number of different courses that count towards a single major, 2) the degree program may provide some structure for integration such as a capstone seminar, 3) courses that address interdisciplinary topics are developed with the participation of more than one faculty member with each member bringing their disciplinary perspective, and 4) material from various fields are fully integrated into a new single entity. These four ways of interdisciplinary curriculum hold similar characteristics to the dimensions of variation of multidisciplinary, interdisciplinary, and transdisciplinary work that was previously presented.

Bath and Smith (2004) proposed a model for thinking about how disciplinary academics and educational developers operate as communities of practice (Lave & Wenger, 1991), with each community crossing boundaries of legitimate peripheral participation. They argued that studies in the disciplines are core to disciplinary academics, and studies in higher education are core to educational developers. Therefore, disciplinary-based academics enter into the communities of practice of educational developers when disciplinary-based academics perform the scholarship of teaching in the discipline of higher education. Educational developers enter the communities of practice of academic disciplines when they collaborate in the scholarship of teaching in the disciplines (Bath & Smith, 2004).

In this section, I have shown the interdisciplinary nature of educational development. Educational developers are positioned to bring their own disciplinary backgrounds, values, and discourses to their roles (Little et al., 2018; McAlpine & Harris, 1999; Taylor, 2010; Timmermans, 2014) and collaborate with others who bring their own disciplinary expertise (Healey & Jenkins, 2003; Jenkins, 1996). I have established 1) educational development as integrative work, 2) educational developers as interdisciplinary professionals, and 3) how educational development operates in an interdisciplinary context within higher education. In the next section, I will establish

the need to investigate the features of disciplinary perspectives by showing how disciplinary perspectives, as an object and phenomenon of integrative work, may be experienced in different ways.

2.5 Disciplinary Perspectives as a Phenomenon of Integrative Work

In the previous section, I have highlighted how integrative work requires disciplinary perspectives as a way to engage with different experiences and expertise relevant to the work. Based on this integrative work, I will show how disciplinary perspectives may be experienced in various ways as collaborators engage in integrative work. Disciplinary perspectives may be experienced in different ways depending on the nature of the work, how that work is performed, and the nature of the intended outcome.

As previously described, disciplinary perspectives are described as “a discipline’s view of reality that include....phenomena, epistemology, assumptions, concepts, theories, and methods” (Repko et al., 2017, p. 217). Disciplines hold different epistemologies (i.e., ways of thinking about knowledge and what it means to know), ontologies (i.e., ways of thinking about being in the world, which informs how we are able to know), and methodologies (i.e., ways of thinking about inquiry, evidence, and validity of knowledge claims) (see Crotty, 1998). Individuals bring diverse perspectives to see and approach problems based on diverse backgrounds and experiences stemming from their disciplinary training, individual differences and experiences, and social and cultural differences. Taken together, these different experiences provide multiple perspectives for seeing and approaching problems. It is important to engage in multiple perspectives as this diversity serves as a source for developing a number of professional learning benefits. For example, engaging with diversity is important for increasing capacity for creativity and innovation (Sill, 1996), empathy (Walther et al., 2017), and interdisciplinary learning (Boix Mansilla, 2010). Various research efforts in engineering education emphasize the importance of diversity through targeted training in cultural competence, global engineering skills, and communication across cultures (Downey et al., 2006). For the purpose of this dissertation, I focus on disciplinary perspectives as a core perspective of integrative work. Disciplinary perspectives represent just one perspective among the many perspectives that individuals may bring to collaborations based on their diverse personal, cultural, social, and professional backgrounds. I define disciplinary perspectives as the ways of understanding, seeing, and approaching situations in the world based

on one's disciplinary training and culture. While there are inherent differences among disciplines and that of subsequent disciplinary perspectives, the purpose of this section is to show the qualities of disciplinary perspectives that lead to variation in the way disciplinary perspectives may be experienced in the world.

For illustration purposes, I provide a thought experiment that considers three different cups used for drinking purposes by a user. Each cup has different product features in the way that it is made, its materials, its shape, its size, its color. While these three cups are inherently different, these differences do not necessarily point to how a user of any one of the cups might experience these three cups in different ways. That is, how a user experiences a cup is characterized by the relationship that the user has with the cup and the meaning of the cup for the user. This relationship and meaning is formed when the user interacts with the cup. So therefore, to show that cups may be experienced in different ways requires arguments for variation in the way that the meaning of cups may be constructed. First, I can show different elements that point to the way users make-meaning of these cups. For example, cups may play different roles in different cultures, pointing to qualities in the way we make meaning of cups, not a quality of the cup itself. Second, I can show that cups can be used in different ways. For example, cups can be held differently depending on their shape, handle, or grip. Finally, I can show variation in the context in which these cups are found, which leads to the cups taking on different meaning depending on the situation. For example, cups can be found in an office setting, at home, or in recreational activities.

Through this illustration, I have shown how cups may be experienced in different ways by the user, irrespective of the cups themselves being different. By considering differences in the ways that a user may construct the meaning of the cup, I have pointed to the quality of the situation in which cups are found—not the quality of the cup—that influences a different experience. I have also pointed to the way that cups may be used in different ways which also influences the way a user may experience the cup, again, pointing to a quality that is not inherent to differences in the cup itself. Finally, I have pointed to how the context in which a user finds these cups may vary, through which the cup takes on a different meaning.

In the following sections, I establish the basis for understanding how disciplinary perspectives may be experienced in different ways. Based on the illustration of the cup, I highlight three aspects of the nature of disciplines to show how disciplinary perspectives within integrative work are 1) constructed as a social practice, 2) shaped based on their engagement in

multidisciplinary, interdisciplinary, and transdisciplinary work, and 3) made meaningful when they are used in integration to achieve different outcomes.

2.5.1 Disciplines and disciplinary perspectives as a social practice

To understand how disciplines may be experienced in different ways, I first turn to an understanding of disciplines as a social practice. To see disciplines as a social practice is to see how meaning and knowledge is constructed and negotiated in different ways between social actors and social settings. That is, disciplinary perspectives take shape and form in socially constructed ways. As previously described, disciplines provide ways for thinking about and making sense of phenomenon in the world. As evidence of disciplines as a social practice, I turn to the literature that describes disciplines as different cultures each with different epistemologies.

Disciplines as different cultures

In the context of academic communities, Becher and Trowler (2001) described cultures as “sets of taken-for-granted values, attitudes, and ways of behaving, which are articulated through and reinforced by recurrent practices among a group of people in a given context” (p. 23). Interdisciplinary work has been described as different cultures (see Reich & Reich, 2006), which leads to differences in the ways academic communities construct the meaning of disciplines. Huutoniemi, Klein, Bruun, Hukkinen (2010) rightly pointed out that the nature of interdisciplinarity and what interdisciplinary means is ambiguous. Drawing on the perspectives of early career researchers, Bridle et al. (2013) and Moore et al. (2018) point to the need to understand how faculty conceptualize and experience interdisciplinary experiences. In a similar way, other authors have explored the importance of interdisciplinary identities and socialization for building supportive interdisciplinary research cultures (Boden et al., 2011; McNair et al., 2011). Research into the different ways faculty experience their interdisciplinary work highlights how disciplines as a social practice shapes the way we engage with our work.

Disciplines as different epistemologies

Disciplines also bring different epistemologies for seeing and approaching particular problems of interest, methods of inquiry, and teaching within disciplines (see Donald, 2002).

Miller and Mansilla (2004) identified how disciplines offer “differing units of analysis, differing languages, different standards of acceptability” (p. 7). A team of researchers with the Toolbox Dialogue Initiative have taken a philosophical approach to develop dialogue tools to support the exploration of different epistemologies and philosophical underpinnings in collaboration (Eigenbrode et al., 2007; Looney et al., 2014; *Toolbox Dialogue Initiative*, 2021). Jones (2009) argued for disciplines as a social practice by showing how disciplines conceptualize generic skills differently. For example, problem solving in the disciplinary context of law is different than problem solving in the disciplinary context of history (Jones, 2009). In this section, I have argued that disciplines, constructed as social practices, shape how we make meaning of phenomenon and influence how we do our work. This understanding of social practice leads to diverse ways of experiencing disciplinary perspectives.

2.5.2 Disciplinary perspectives are situated in the context of integrative work

In previous sections of the literature review, I have pointed to the extent that integration varies across multi/inter/transdisciplinary work. In this section, I will show how disciplinary perspectives are situated in the context of integrative work and therefore, the nature and meaning of disciplines and disciplinary perspectives varies depending on the nature and context of integrative work (O’Rourke et al., 2016).

Drawing on the variation between multi/inter/transdisciplinary that I presented previously, variation in the ways of experiencing disciplinary perspectives is also based on the nature of multi/inter/transdisciplinary work, the nature of the outcome of this work and extent of integration, and the nature of the process itself. For example, through the ways that transdisciplinary research is framed to respond to complex challenges, the methods and approaches to conduct transdisciplinary research are different from other collaboration activities. While disciplines are value-laden, Horlick-Jones and Sime (2004) argued that “transdisciplinary working (‘border-work’) is necessary in order to address the generalising, decontextualising and reductionist tendencies of discipline-based inquiry” (p. 442). Transdisciplinary research emphasizes qualities of transcending knowledge across disciplines and fields, and taking a critical perspective that challenges existing power structures in knowledge production. Since transdisciplinary work emphasizes the collaboration between academic and societal actors, there is inherent power differences and biases that transdisciplinary methods aim to address (Rosendahl et al., 2015).

Lattuca's (2001) typology for interdisciplinarity in teaching and research presents another example of disciplinary perspectives taking on different meaning depending on the work context. Lattuca (2001) found how "different kinds of questions led to different kinds of interdisciplinarity" (p. 79) and identified four different types of interdisciplinary work: 1) informed disciplinary, 2) synthetic interdisciplinarity 3) transdisciplinary and 4) conceptual interdisciplinarity. While differences of interdisciplinarity are often based on varying levels of integration, these four types of interdisciplinarity are distinguished by different types of questions and issues that drive educators and researchers to engage in interdisciplinary teaching and research (Lattuca, 2001). For example, informed disciplinary considers the way that courses and research questions are informed by other disciplines, while synthetic interdisciplinarity considers the way that courses and questions link disciplines. Transdisciplinary focuses on crossing disciplines, and conceptual interdisciplinarity describes courses or questions "without a compelling disciplinary basis" (Lattuca, 2001, p. 81). Therefore, this typology of interdisciplinarity addresses different types of integrative work and subsequently, different ways of engagement with disciplinary perspectives.

By showing different ways of thinking about the work that involves disciplines and disciplinary perspectives, that is, the variation in multi/inter/transdisciplinary ways of working, I have shown how different work situations present different problems that result in different engagements with disciplinary perspectives. In other words, variation in experiencing and engaging with disciplinary perspectives is based on variation in multi/inter/transdisciplinary ways of working (i.e., what kind of work are we doing here?).

2.5.3 Disciplinary perspectives are situated in integration to achieve desired outcomes

The previous section has considered the broad context of disciplinary perspectives in relation to multi, inter, and transdisciplinary work. In this section, I will consider how disciplinary perspectives might show up in the specific tasks and functions related to the act of integration. Here, I highlight how disciplinary perspectives may be used and applied in different ways to achieve desirable outcomes for integration. These differences in use result in different ways of thinking and experiencing disciplinary perspectives in relation to the activities of integration.

Previous literature provides examples of different ways disciplinary perspectives and integration may be used in work activities. Holbrook (2013) offered three different views of conceptualizing interdisciplinary communication grounded in the perspectives of different

philosophers and interdisciplinary research scholars. With this approach, Holbrook (2013) offered a critique of views that hold integration as the defining element of interdisciplinary work, and provided ways of broadening an understanding of interdisciplinary communication. The first view is characterized as *consensus* in the way that collaborative work strives to achieve integration between different disciplines. The second view is characterized as *incommensurability* in the way that “different disciplines are in principle and often in fact incommensurable, and so [interdisciplinary] communication can only happen if one first learns the language of another discipline from within as a second-first language” (Holbrook, 2013, p. 1871). The third view is characterized as *invention* that posits how “incommensurability only reveals itself when attempts at communication fail (they often succeed), at which point further communication is possible only through a process of inventing a new language” (Holbrook, 2013, p. 1874). Each of these views influences how collaborators may engage in interdisciplinary work to achieve particular goals.

Miller and Boix Mansilla (2004) emphasized how integration operates at different system levels, with different methods, and to varying degrees. Specifically, Miller and Mansilla (2004) described four different *degrees of integration*, representing how individuals may engage with disciplinary perspectives towards integration: 1) Mutual ignorance of other disciplinary perspectives 2) Stereotyping that may have significant misconceptions about the other’s approach 3) Perspective-taking where individuals can play the role of, sympathize with, and anticipate the other’s way of thinking 4) Merging of perspectives has been mutually revised to create a new hybrid way of thinking. These varying degrees of integration highlight the role of disciplinary perspectives to achieve integration outcomes. Therefore, since disciplinary perspectives may be used in different ways, one’s experience with disciplinary perspectives may also vary depending on one’s interaction.

Across this literature, the emphasis is on the act of doing integration and I have highlighted different ways that disciplinary perspectives appear throughout these activities. In my research, I do not subscribe to a single view of integration or interdisciplinary work, but instead, present these views as different ways that disciplinary perspectives may be conceptualized based on how collaborators may approach the nature of their interdisciplinary interactions. Since there are different ways of doing integration, and different ways of defining integration outcomes, disciplinary perspectives may take on different meaning in integrative work.

In this section, I have argued that disciplines in and of themselves are not just different, but that the inherent nature and qualities of disciplinary perspectives in integration activities, result in various ways of experiencing disciplinary perspectives. I have shown how and why variation in disciplinary perspectives may be experienced based on the nature of disciplines as 1) social practices that inform disciplinary perspectives, 2) situated in the context of integrative work and 3) situated in activities of integration. By establishing the basis for variation through which disciplinary perspectives may be experienced, I have positioned my study to investigate the ways that disciplinary perspectives are experienced.

So far, I have reviewed literature that establishes an understanding of what integration is, its aims, processes that are involved (i.e, what integration looks like), and ways practitioners may engage in the activity of integration (i.e., at a high activity system level). I have highlighted the importance of disciplinary perspectives in integrative work, and how these disciplinary perspectives may be experienced in a number of ways based on the nature of the disciplines, processes, and approaches that individuals take in integrative work.

With an understanding of integrative work and disciplinary perspectives, (i.e., what this work is and how to do it), I turn to three challenges that exist in advancing ways to support engagement in integrative work. I present these challenges as three turning points in my research that inform and support the theoretical framework and methodological approach of my research. The first turning point is described as the challenge of how collaborators come to understand each other. The second turning point is described as the challenge of seeing different forms of knowledge to support the development of professional practices. The third turning point is described as the challenge of integrating knowledge and practices into professional competencies for accomplishing work tasks.

2.6 Turning Point 1: How Collaborators Come to Understand Each Other

In the previous section, I have presented an understanding of what integration is and the activities involved in integration. Based on the interactions with diverse perspectives, one challenge of integrative work is in how collaborators come to understand each other such that they can produce new knowledge. This challenge can be broken down into two different levels of meaning, with each level revealing a different aspect of the challenge. On one level, this challenge requires collaborators to understand each other's perspectives of the problem situation, as they see

it, to generate insight about the problem. Miller and Boix Mansilla (2004) identified three different senses of “perspectives”, referring to the way that the term “perspectives” may be interpreted based on three different types of perspectives: 1) individual 2) role and 3) disciplinary. The individual perspective stems from “one’s subjective outlook, opinion, beliefs, or knowledge,” the role perspective is “based on one’s situational or enduring role, actor category, or relative position” and a disciplinary perspective is “based on commitments to a theory system, profession, disciplinary, or discourse community” (p. 4). Dominant approaches in collaboration emphasize perspective-taking (Pennington, 2016), development of shared mental models (Godemann, 2008), and building common ground (Repko, 2007), such that collaborators can understand each other’s perspective of a situation. This first level considers what a collaborator sees in a particular situation. On a second level, collaborators are challenged to explore the underlying qualities of perspectives that give rise to different perspectives as ways of seeing the situation. This second level considers how and why a collaborator sees a particular situation in a particular way. In this way, collaborators may explore the aspects and nature of the perspectives, including biases and assumptions, that inform how collaborators see a situation. For example, Kreber (2009) posited how disciplinary perspectives afford “what is looked at” and “what is looked through and with” (p. 10). Questions at this second level may consider what is underlying one’s perspective and where does this perspective come from. These elements speak to the frame that collaborators bring, use, or construct, to see a situation.

Other researchers have also pointed to the importance of understanding how and why perspectives are formed, as a way to ground collaborative interactions. For example, Fortuin and van Koppen (2016) referred to “reflexive skills” as “the ability of researchers to question the different sorts of knowledge used, to recognize the epistemological and normative aspects involved, and to reflect on their own and others’ roles in these knowledge processes” (p. 698). Eigenbrode et al., (2007) developed a set of questions to facilitate philosophical dialogue that prompt exploration of different views on philosophical aspects of research such as epistemology, methodology, objectivity, and values. Stone (2014) offered a transdisciplinary ontological approach that extends the view of epistemological differences to also consider ontological differences in ways of experiencing the world. This focus on being and ‘ways of experiencing’ sets the foundation for understanding how and why individuals engage in activities in the way that they do. For example, perspective taking may not only consider epistemological perspectives from

disciplinary differences, but may also be prompted by questions such as “how are we such that we have come to know?” and “where are you coming from?” (Stone, 2014). That is, what are the elements of our being that also contribute to our understanding of who we are and our way of knowing. Through these approaches, the integrative dialogue between collaborators moves from “tell me about your perspective” to “tell me about the aspects in which your perspective is situated”.

Through turning point 1, I have shown the importance for collaborators to attend to two levels when working to understand each other: 1) what each collaborator sees in the particular situation, and 2) how the collaborator sees the situation, which speaks to the qualities of their perspective that inform what they see. Ultimately, how collaborators come to understand each other is a learning process of integration and both levels are required for collaborators to build a shared understanding about the problem situation. As I have previously discussed, integration occurs through social and situated interactions. Therefore, the practical question of “how collaborators come to understand the disciplinary perspectives of others?” can be reframed as an epistemological question that asks: what are ways of knowing disciplinary perspectives as they are situated in collaborative interactions with others? In the next section, the second turning point of my research characterizes ways of understanding disciplinary perspectives through different forms of knowledge and ways of knowing.

2.7 Turning Point 2: Characterizing Forms of Knowledge and Knowing

In the previous section, I identified the challenge of coming to understand the disciplinary perspectives of others as involving two levels. Engaging with disciplinary perspectives in collaboration involves building understanding on one level of 1) the insight based on the disciplinary perspective and on a second level of 2) the frame that is afforded by the disciplinary perspective. How might collaborators think about the knowledge that would support these interactions? The second turning point in my research recognizes how different forms of knowledge can contribute to understanding disciplinary perspectives on both levels. This turning point explores the knowledge that constitutes an ability to see how disciplinary perspectives become meaningful in integrative work. First, I characterize this form of knowledge as *situated knowing*. Then, I will show how situated knowing is important 1) in professional practice and 2) for developing competencies that effectively capture the variation of practices.

To understand how different forms of knowledge can support a broadening understanding of engagement with disciplinary perspectives, the second turning point in my research takes an epistemological approach to consider two different ways of thinking about knowledge—what Cook and Brown (1999) referred to as an *epistemology of possession*, and an *epistemology of practice*, and what Rowland (2004) similarly presented as the cognitivist view and the social constructionist view. First, the epistemology of possession and the cognitivist view sees knowledge “as a possession of individuals or groups—as an object that can be separated from an owner, and, if so desired, represented and shared with others” (G. Rowland, 2004, p. 34). In contrast, the epistemology of practice and social constructionist view sees knowledge as a process, where knowledge is “a social construction embedded in practice and context of application” (G. Rowland, 2004, p. 34). Cook and Brown (1999) argued that the act of doing, what they refer to as *knowing*, is distinct from *knowledge*, and contributes to understanding the ability to perform activities. Specifically, Cook and Brown (1999) described “knowing is an aspect of our interaction with the social and physical world” (p. 381), where knowing emphasizes elements that are part of action and the ways individuals interact with the world such that they are able to perform activities. These two views of knowledge establish an epistemological basis for seeing different forms of knowledge that support an individual’s ability to perform activities. Furthermore, these perspectives on the nature of knowledge provide a way of conceptualizing how knowledge becomes meaningful in learning and collaboration.

Situated knowing in professional practice

As previously discussed, engagement with disciplinary perspectives in integrative work is a social and situated activity. For the purpose of this research, I adopt the social constructionist view, and refer to situated knowing as a way of seeing knowledge as it is developed and used through activities, contexts, and cultures (Brown et al., 1989). Situated knowing in professional contexts offers a way of understanding how professional practices become meaningful based on the situation and applicable under certain conditions. For example, consider two practices that are core to engineering design: iteration and prototyping. Iteration as a practice of designers and design strategy involves the act of improving ideas through continuous feedback (Crismond & Adams, 2012). Understanding iteration as a practice means to see the act of iteration as it is situated in open-ended problems. Because open-ended situations present multiple possibilities for solutions,

designers engage in iteration in response to open-ended situations as a means to scope the space of possibilities, test ideas, improve designs and converge on possible paths to move forward. This relationship between iteration and open-ended problems represents a situated understanding of iteration as iteration takes on meaning in relation to open-ended problems. With the practice of prototyping to represent ideas, informed designers “use multiple representations to explore and investigate design ideas and support deeper inquiry into how a system works.” (Crismond & Adams, 2012, p. 748). Seeing prototyping as a situated practice means to see prototyping in relation to the need to experiment, test, and manipulate artifacts as representations of potential solutions. This situated way of knowing iteration and prototyping, as practices of design, illustrates how knowledge is not just applied in action, but that knowing is a part of action (Cook & Brown, 1999).

Other examples of situated knowledge and knowing for enacting practices can be found in a number of different professional education settings. In science education, Cunningham and Kelly (2017) refer to knowledge for epistemic practices as the knowledge for how to build and evaluate knowledge claims. In teacher education, responsive teaching (Wendell et al., 2016), teacher discourse patterns (Guzey & Aranda, 2017), and teacher noticing (Benedict-Chambers & Aram, 2017), are all different ways of describing the knowledge and practices through which teachers notice, attend to, guide, and respond to students’ thinking. In design education, Zahedi and Heaton (2017) utilized a set of “designerly actions” to consider the ways that engineering students engage in collaborative design activities.

This literature emphasizes situated knowledge as the ways that professional practices become meaningful in particular work activities. In other words, an understanding of situated knowing highlights the aspects of work activities that professionals might notice and pay attention to when they engage in particular practices. With turning point 2, I have so far pointed to the way of conceptualizing knowledge and knowing from a social constructionist view which leads to expanded ways of understanding how practices may be supported in achieving work tasks. Now, I will consider the importance of situated knowing as it relates to holistic professional competency development.

2.8 Turning Point 3: Critique of Current Approaches to Competency Development

With turning point 1, I have shown the importance of understanding the qualities of disciplinary perspectives that inform how collaborators see a particular situation. With turning point 2, I pointed to situated knowing to show how different forms of knowledge may support an understanding of engaging with disciplinary perspectives. Building from these two turning points, I consider a third turning point in how knowledge and practices may be developed to support professional competencies for performing integrative work. Since the purpose of this dissertation is to provide insight into the ways that educational developers, as interdisciplinary professionals, may engage with disciplinary perspectives, it is helpful to consider ways of thinking about professional competencies in the work of educational development.

Sandberg and Pinnington (2009) organized and critiqued dominant approaches to professional competencies around two perspectives: (1) an entity-based perspective and (2) a relational perspective. These two perspectives are similar to the two different ways of thinking about knowledge, from a cognitivist perspective and social constructionist perspective, as previously presented in turning point 2. In the following sections, I will review the entity-based perspective and the relational perspective, and what these perspectives mean for competency development in the context of interdisciplinary education and educational development. Finally, each of these perspectives presents limitations for competency development and so Sandberg and Pinnington (2009) offered *professional ways of being* as an integrative and holistic framework to conceptualize competency development. I will conclude this section with a discussion of how professional ways of being informs my research into educational development competencies.

Entity-based perspective

First, an entity-based perspective sees competencies as the development of knowledge, skills, and attitudes to improve individuals' abilities to engage in their work. These knowledge, skills, and attitudes may be tacit or explicit and are viewed as entities or attributes that individuals have within themselves (Sandberg & Pinnington, 2009). The entity-based perspective is consistent with a cognitivist perspective of learning that views knowledge as representations that exist in the knower's mind (Sfard, 1998). As a representation, this knowledge is therefore available to be transferred to and acquired by learners (McMurtry & McMurtry, 2016; Sfard, 1998). Therefore,

knowledge, skills, and attitudes are seen as traits or qualities that individuals acquire through learning. This cognitivist approach and entity-based perspective extends to the way individuals engage in integration activities. For example, literature on training and development for interdisciplinary and transdisciplinary work identify personal qualities and dispositions (Barnett, 2009; Fam et al., 2017) for one's willingness and readiness to engage in interdisciplinary inquiry. In a study of fourteen transdisciplinary researchers, Fam et al. (2017) described how participants emphasized the need to consider other capacities beyond skills development. Such capacities were referred to as attitudes, orientations, temperaments, dispositions, and predispositions, and organized into categories as the Six C's for quality transdisciplinary research and practice: curiosity, commitment, critical awareness, creativity, communication, connectedness (Fam et al., 2017). In a similar way, Stokols (2014) referred to a *transdisciplinary (TD) intellectual orientation* that is developed over time and comprised of five categories of personal attributes: 1) TD Values, 2) TD Attitudes, 3) TD Beliefs, 4) TD Conceptual Skills and Knowledge, and 5) TD Behaviors. However, these elements are framed as characteristics of the individual and particular actions or behaviors that an individual can exhibit.

Although competencies described in terms of the entity perspective (i.e., as knowledge, skills, and attitudes) is valuable to provide insight into the personal abilities required of individuals to engage in integration (Lattuca et al., 2017; for an example of knowledge, skills, and attitudes of integration see Lattuca & Knight, 2010), it is argued that the entity perspective does not account for how knowledge, skills, and attitudes may be shaped and applied in the context of work (Sandberg & Pinnington, 2009). That is, the entity-based perspectives do not consider the situatedness of competency development in relation to the context in which competencies may be learned and applied (Lave & Wenger, 1991). Other authors have also challenged the cognitivist approach and argued for more productive ways of conceptualizing learning that account for the relational, dynamic, social, material, and contextual nature of learning (Fenwick et al., 2012; Lattuca, 2002; McMurtry, 2013; McMurtry & McMurtry, 2016; Walther & Radcliffe, 2007; Walther, Kellam, Sochacka, and Radcliffe, 2011).

Relational perspective

The view of competency development from the relational perspective extends the entity perspective to consider competencies as relational with regards to what someone does (Sandberg

& Pinnington, 2009). With a relational perspective, competency development can be viewed within one of three approaches: (1) action-based, (2) understanding-based, and (3) practice-based (Sandberg & Pinnington, 2009). These three approaches capture how competency consists of knowing-in-action (see Schön, 1983), is a function of professionals' understanding of their work, and is practice-centered within a social relational system (Sandberg & Pinnington, 2009). Therefore, these approaches expand an understanding of the kind of knowledge that contributes to competencies for work performance. The relational perspective emphasizes the view of knowledge "as a tool at the service of knowing not as something that, once possessed, is all that is needed to enable action or practice" (Cook & Brown, 1999, p. 388).

Integrating Practices for Professional Work

The entity and relational perspectives are not mutually exclusive and each approach offers important insight into aspects of knowing and practice that contribute to the development of competencies for professional work (Sandberg & Pinnington, 2009). However, there is a gap between how "aspects of professional practice become integrated into and form specific competence in work performance" (Sandberg & Pinnington, 2009, p. 1143). That is, the underdeveloped area lies in describing and translating elements of knowledge and practices into specific abilities for accomplishing work tasks. For example, Shulman (2005) identified "three fundamental dimensions of professional work—to *think*, to *perform*, and to *act with integrity*" (p. 52). These dimensions emphasize that "professional education is not education for understanding alone; it is preparation for accomplished and responsible practice in the service of others" (Shulman, 2005, p. 53). In alignment with this view, Sandberg and Pinnington (2009) posited an integrative and holistic approach to consider competencies as *professional ways of being*. Professional ways of being posits competencies as comprised of knowledge across four interconnected spaces: one's understanding of *self*, *others*, *work*, and *tools* (Sandberg & Pinnington, 2009). These four spaces capture the kind of knowledge that contribute to specific competencies directed at specific work tasks. For example, in the context of corporate law, Sandberg and Pinnington (2009) identified four ways lawyers handle legal risks, with each way representing specific self-understandings, interactions with other people, work activities, and tools: (1) minimizing legal risks, (2) managing legal risks, (3) managing commercially important legal risks, and (4) identifying clients' level of risk tolerance and managing it (Sandberg & Pinnington,

2009). These different ways of being make up distinct competencies for handling legal risks in corporate law.

Professional ways of being also appear in work by Walther, Miller, & Sochaka (2017) who proposed a three dimensional framework of *skills, practice orientations, and ways of being* to holistically capture competency development for empathy in engineering education. In this framework, the skills dimension speaks to learnable and teachable skills through which empathy may be enacted. The practice orientation dimension captures “aspects of worldviews, epistemologies, and habits of mind that inform how engineers act in and respond to situations in practice – in other words, how engineers choose to utilize their various skill sets, and what course of thought or action they are predisposed to take” (Walther et al., 2017, p. 135). The dimension of ways of being points to the broader professional value commitments that contextualize empathic skills and practice orientations in the profession of engineering. As such, empathy as a professional way of being illuminates how competencies are situated in relation to professional identity and what it means to be an engineer (Walther et al., 2017).

Up to this point, I have described the entity-based perspective (i.e., a cognitivist approach to learning) and the relational perspective to show how these perspectives inform approaches to professional competency development. I presented the perspective of professional ways of being that situate practices in the context of performing specific work tasks related to the profession. For example, in the work of integration, collaborators may engage in the specific practice of “asking questions”, directed towards the broader work task of “building a deep understanding of a problem situation”. The work task of “building a deep understanding of a problem situation” may be achieved in any number and combination of different practices and activities. Therefore, depending on the professional context, this work task may contribute to a professional competency, such as “the ability to integrate multiple perspectives of a problem situation”. While a focus on the knowledge, skills, and attitudes that enable individuals to perform their tasks is important, knowledge, skills, and attitudes, in and of themselves do not constitute professional competencies (Sandberg & Pinnington, 2009). For this dissertation, I utilize Sandberg & Pinnington’s (2009) definition of professional competencies as “capability exercised in accomplishing specific work tasks” (p. 1139).

Despite an understanding of the work and practices of educational developers, an understanding of the professional competencies required for educational developers to perform

their work effectively is limited, especially since there is no clear or defined path to the profession of educational development (Harland & Staniforth, 2008; McDonald, 2010; Timmermans, 2014). Dawson (2010) argued that “defining competencies is a first step in creating the faculty developer’s occupational identity” (p. 20), and offered competency models for entry level developers, senior developers, and directors/administers, with a focus on “identifying the knowledge, skills, abilities, and experiences” required for each of these positions. However, the elements within these models are described as “acquired” attributes and presented in terms of topics of abilities (e.g., “Strategic Planning and Prioritizing”, “Teaching Skills”, “Trust”) and roles (e.g., “Facilitator”, “Coach of Staff and Faculty”, “Negotiator”, Effective Consultant). Timmermans (2014) identified twenty-one threshold concepts in the careers of five experienced Canadian educational developers, that provide insight into what it means to be an educational developer working towards change. These threshold concepts, described as concepts that evoke a transformation in understanding, were organized into three categories: (1) ways of knowing and being that facilitate change in individuals and in groups, (2) ways of knowing and being that facilitate systemic change, and (3) core ways of knowing and being (Timmermans, 2014). By organizing threshold concepts around ways of knowing and being, Timmermans (2014) identified how “ways of knowing and being will provide the foundation upon which knowledge, skills, and values will be built” (p. 315). The organization of threshold concepts by Timmermans (2014), which are situated in support of change (as an activity) in higher education, is aligned with the notion of practices directed towards achieving professional work tasks. With an identification of these threshold concepts in the professional formation and transformation of educational developers, there is an opportunity for further research to understand how these concepts may be translated into professional competencies.

For my research, I have outlined how disciplinary perspectives are situated in the work of integration. For competency development in educational development, the research gap lies in understanding how practices may be situated and integrated in work activities to accomplish work tasks. In the following Theoretical Framework section, I will present the situative perspective as the theoretical framework for my study and show how this theory is aligned with integration practice.

2.9 Theoretical Framework: A Situative Perspective of Learning

Building from the three turning points previously presented, the theoretical framework that grounds this work is based on a situative perspective of cognition and learning (Anderson et al., 2000). Like other authors, I use a situative perspective to encompass related concepts and theories of situated cognition (Brown et al., 1989), situated learning, situated knowing, and socio-materialism (McMurtry et al., 2016). The situative perspective views knowledge as socially constructed and shaped between interactions of people, the environment, culture, and artifacts while existing in cultural and social contexts (Brown et al., 1989; Johri & Olds, 2011; Lattuca, 2002). Based on situated cognition, learning is dependent on social and material interactions, is situated in particular contexts, and shaped through the application of knowledge to accomplish an authentic task (Johri & Olds, 2011). In contrast to a cognitivist view of learning, that sees learning as individualistic and separated from the context in which it takes place, the situative perspective draws direct attention to how knowledge develops in specific learning contexts and through its use—that is, its focus on “interactive systems that are larger than the behavior and cognitive process of an individual agent” (Greeno, 1998, p. 6). A situative perspective of learning informs the approaches and pedagogies that are enacted to support learning. For example, the situated perspective calls for learning to take place in authentic contexts, in communities of practice (Lave & Wenger, 1991) where the participation and identity of learners is shaped (Johri & Olds, 2011), and through the use of mediated artifacts and application of tools (Lattuca, 2002).

While the situate perspective offers insight into how learning takes place and ways that learning can be supported, it also illuminates different kinds of knowledge and meaning for engaging in particular professional practices. The situative perspective is applied in professional learning settings for teacher education (Mulcahy, 2012; Putnam & Borko, 2000), engineering education (Johri & Olds, 2011), and interprofessional healthcare education (McMurtry & McMurtry, 2016). Other authors have also described three elements of situated cognition for learning in varied contexts. In engineering, Johri and Olds (2011) characterized three elements as (1) social and material context, (2) activities and interactions, and (3) participation and identity. For adult education, Stein (1998) referred to components of situated cognition as actors, actions, and situations. In teacher education, Putnam and Borko (2000) described cognition as situated, social, and distributed. All of these perspectives share the view of knowledge as situated in relation to the context and activity in which it is learned and used, while being shaped through the social

interactions with others and artifacts. Based on the theory of situated cognition and learning, three components of the situative perspective are most salient for this study: *context of learning, social interactions, and action and activities*.

Context of learning

The context of learning plays an important role in shaping what and how learning takes places, and in turn, the ability for learning to be transferred to new contexts. The context of learning includes “the social, cultural, and historical settings in which a particular social interaction takes place” (Lattuca, 2002). As Rogoff (1984) described, “context includes the problem’s physical and conceptual structure as well as the purpose of the activity and the social milieu in which it is embedded” (p. 2). The context of learning matters because it influences the content of learning, how one learns, and the motivation behind learning (i.e., what, how, and why one learns). For example, in engineering education, the application of technical subject matter in authentic contexts of engineering design has become a signature pedagogy throughout the engineering curriculum (Dym et al., 2005).

Social interactions

The component of social interactions highlight how learning is mediated through social processes with others, artifacts and materials, and the environment. These artifacts, interactions, and relationships become mediating tools that shape the way individuals engage with the world (Lattuca, 2002). That is, learning involves meaning-making and negotiation between people and objects such that knowledge is co-developed (Johri & Olds, 2011; Lave & Wenger, 1991). Therefore, learning and knowledge is distributed (Putnam & Borko, 2000), embedded, and shaped throughout these social interactions and relationships (McMurtry et al., 2016).

Actions and activities

The situative perspective emphasizes how knowledge exists through its use and learning occurs through constant meaning-making between actors and agents (Brown et al., 1989). Therefore, through actions and activities, knowledge is applied in use and subsequently influences how knowledge is developed and learned such that it may be applied in future situations. The

component of *actions and activities* is connected to the component of *social interactions*, where learning through actions and activities is mediated through the use of artifacts and tools (Brown et al., 1989; Lattuca, 2002). As Brown et al. (1989) stated,

people who use tools actively rather than just acquire them, by contrast, build an increasingly rich implicit understanding of the world in which they use the tools and of the tools themselves. The understanding, both of the world and of the tool, continually changes as a result of their interaction. Learning and acting are interestingly indistinct, learning being a continuous, life-long process resulting from acting in situations. (p. 33)

Additionally, within actions and activities, the participatory nature of learning is emphasized, where learners participate in social practice and develop personal identities (Greeno, 1998; Lattuca, 2002). Lave and Wenger (1991) emphasized the social nature of learning in their description of communities of practice, where newcomers to the community are navigating relations with more expert practitioners as they move from the periphery of the community to the active center.

I posit that the three components of the situative perspective point to ways of knowing integration that informs engagement with particular practices for integration. Therefore, the situative perspective offers insight into two avenues for research to support the learning and practice of integration. First, the situative perspective is aligned with professional ways of being which is helpful for thinking about how competencies may be translated from knowledge, skills, attitudes, and practices. Second, the situative perspective offers new opportunities for meaning making by illuminating ways that integration is situated in particular contexts, social interactions, and activities.

I have used professional *ways of being* to offer a critical perspective of competency development (Sandberg & Pinnington, 2009; Walther et al., 2017). As a form of professional knowledge, ways of being as an understanding of self, others, tools, and work, is also aligned with the situative perspective that sees this knowledge as it is situated in context, social interactions, and activities. Therefore, in relation to my research interest, ways of being can be used to broaden conceptualizations of what it means to be interdisciplinary, beyond competency development for knowledge skills, and attitudes. Professional ways of being focuses attention to the relational quality of competency, that is, the ways of being in relation to others, oneself, one's work, and one's tools (Sandberg & Pinnington, 2009). In this way, professional ways of being is situated in particular values, behaviors, practices, skills, and activities (Walther et al., 2017). Therefore, an

understanding of professional ways of being will provide important insight into the domain of knowledge that guides actions in integration activities.

The situative perspective provides insight into the kind of knowledge and knowing that underlies and informs the perspectives one might bring to integration activities. For example, Pennington (2016) offered a conceptual model of a distributed cognitive system to show how collaborators developed shared mental models through knowledge exchange. Dominant approaches to practices of integration are based on the premise that integration is possible through the recognition and reconciliation of epistemological differences (Stone, 2014). Based on differences in disciplinary training, researchers not only have different expertise in knowledge and skills that are relevant to the task, but also hold different views on what counts as reliable and valid knowledge (i.e., concepts and theories), ways of evaluating knowledge (i.e., warrants of quality), and ways of investigating and building knowledge (i.e., methodologies and methods) (Stone, 2014). Therefore, a major aspect of the integration process is to develop a *common ground* (Repko, 2007) that resolves these differences and allows individuals to build shared understanding.

Stone (2014) offered a *transdisciplinary ontological approach* that extends the view of epistemological differences to also consider ontological differences in ways of experiencing the world. This focus on being and ‘ways of experiencing’ sets the foundation for understanding how and why individuals engage in activities in the way that they do. For example, perspective taking may not only consider epistemological perspectives from disciplinary differences, but may also be prompted by questions such as “how are we such that we have come to know?” and “where are you coming from?” (Stone, 2014). That is, what are the elements of our being that also contribute to our understanding of who we are and our way of knowing. The integrative dialogue between collaborators moves from “tell me about your perspective” to “tell me about the aspects in which your perspective is situated”. The intent of perspective-taking is not only to understand “what are the perspectives?” but also, “where are these perspectives coming from?” As Stone (2014) described, methods and approaches that focus on the ontological approach allow collaborators to become “aware that there is not one object on the table seen from different perspectives, but rather, that each participant brings his or her own version of “the same” object, which arises for each of them from their individual preunderstandings and thematizations.” (p. 99).

Similarly, Marton (2015) posed the question: “Are there different ways of seeing the same thing, or are there different things only” (p. 118)? This question is important when it comes to

understanding how epistemological differences may hinder integration, and how a situative perspective offers insight to resolve these kinds of tensions. Depending on one's epistemological position, possible ways for addressing the question include a social constructivist view that sees things as social constructions, or from a subject-object dualism perspective that views an independent reality to be discovered and made meaningful in different ways (Marton, 2015). In contrast to these perspectives, Marton (2015) asserted that "there are no facts, principles or concepts, neutral with regard to how the phenomenon that they refer to are seen and how they are named. Their meaning is embedded in the system of distinctions and in the variation in ways of seeing and naming them" (p. 118). In contrast to the subject-object dualism, this perspective holds that "there are not two worlds, a subjective one and an objective one; there is one world only, and that is both subjective and objective. The world we live in is an experienced world, a world that we are dealing with, that we try to understand, that we make sense of in many different ways" (Marton, 2015, p. 108). Therefore, like the transdisciplinary ontological approach (Stone, 2014), this approach highlights the importance of recognizing and understanding the different ways individuals may experience the world, and how these experiences underlie, inform, and shape their perspectives when it comes to interdisciplinary collaboration. Therefore, the nature of being (Sandberg & Pinnington, 2009) and the situative experiences of team members may be utilized as a resource (Ylirisku et al., 2017) for identifying new conceptual connections and perspectives in collaborative activities towards integration.

The focus of my inquiry is to apply a situative perspective to illuminate knowledge and ways of knowing disciplinary perspectives, to support the practices of educational developers. With a situative perspective, researchers, interdisciplinary practitioners, and educational developers may understand new ways for communicating and engaging with others in the process of integration.

2.10 Summary of Literature Review

The literature of interdisciplinary research and collaboration has established the meaning of multidisciplinary, interdisciplinary, and transdisciplinary work, pointing to an understanding of what these concepts mean and the variation in the work that is involved. In this dissertation, I characterize multidisciplinary, interdisciplinary, and transdisciplinary as varying degrees of performing integration which may be done individually or collaboratively. I use the term

integrative work to refer to any form of multidisciplinary, interdisciplinary, and transdisciplinary work or collaboration. My literature review established integration as a social and situated activity. Within this activity, I identified disciplinary perspectives as the phenomenon of interest. With the research goal of understanding various ways of experiencing disciplinary perspectives, I presented the aspects of disciplines and disciplinary perspectives that provide the basis for how and why disciplinary perspectives may be experienced in various ways (i.e., how disciplinary perspectives appear, how collaborators interact with disciplinary perspectives, and what collaborators see when they see disciplinary perspectives). I addressed three turning points that set up my research motivation for understanding disciplinary perspectives to support the practice of interdisciplinary collaboration. Turning point 1 addressed the importance of understanding the qualities of perspectives that point to how and why collaborators might make sense of a situation in a particular way. Turning point 2 addressed the importance of situative knowing to see how knowledge becomes meaningful in relation to interactions, context, and activities in which knowledge is used. Turning point 3 considered the development of professional competencies that integrate knowledge, skills, attitudes, and practices to perform work tasks. Taken together, these turning points establish the research gap in understanding disciplinary perspectives from a situative perspective such that this knowledge may be integrated to form practices and ways of being to accomplish interdisciplinary collaboration. The situative perspective, as my theoretical framework, is appropriate and relevant for this research as it aligns with theory of competency development, the practice of integration, and the research objective to investigate how disciplinary perspectives become meaningful in educational development. Since educational developers bring diverse disciplinary backgrounds and training to their work, the field of educational development provides a rich research context for examining the role and meaning of disciplinary perspectives. In the next Chapter, I will present the research design and methods I used to investigate how educational developers experience disciplinary perspectives in the work of educational development.

3. METHODS

In this section, I present my data collection methods, my participants and recruitment process, and the phenomenographic analysis process. First, I provide an overview of phenomenography as a form of inquiry to establish the methodological, theoretical, and pragmatic alignment of my study.

3.1 Phenomenography as Methodological Orientation and Method

This study aims to understand how educational developers conceptualize their engagement with disciplinary perspectives as an object in interdisciplinary interactions. Therefore, I have framed disciplinary perspectives as the phenomenon of interest. Phenomenography as a form of inquiry is focused on how we experience and conceptualize aspects of the world around us (Marton, 1981). To understand how phenomenon are experienced means to understand how the phenomenon appears to the observer. This means to explore the qualities of the phenomenon that characterize the relationship between the observer and the phenomenon being observed (Marton, 1986). Based on turning points 1 and 2, first introduced in my literature review, I will show the methodological, theoretical, and pragmatic alignment between phenomenography as my method of inquiry, the situative perspective as my theoretical framework, and integrative work as the context and practice that this research aims to support. Through this alignment, I provide the rationale for using phenomenography as an approach to understand how one aspect of integrative practice, that of engaging with disciplinary perspectives, is experienced. I will show how phenomenography is the most appropriate form of inquiry to achieve my research objective.

3.1.1 Methodological Alignment between Phenomenography and Research Objective

Phenomenography is a research approach that aims to understand the various *ways of experiencing* a phenomenon by looking at the relational nature of the phenomenon under investigation (Marton, 1986). Here, the phenomenon as a way of experiencing something, is held in relation to the “experiencer and the experienced” (p. 133), what Marton and Booth (1997) referred to as an *internal relationship*. Phenomenography is concerned with the “different meanings of the same things (or about ways of seeing, experiencing, conceptualizing them)”

(Marton, 2015, p. 106). More specifically, this entails an understanding of how things appear to others, “what things or beings look like to others” (p. 107), or the “qualitatively different ways in which this particular phenomenon might be seen?” (p. 114).

In this study, educational developers may have different ways of practicing their craft and engaging in their work, based on individual differences, educational backgrounds and training, and institutional influences. Therefore, they experience their engagement with disciplinary perspectives in different ways. Phenomenography is based on the premise that individuals react and respond to situations in different ways based on how they experience the situation (Marton & Booth, 1997). Marton and Booth (1997) proposed:

in order to make sense of how people handle problems, situations, the world, we have to understand the way in which they experience the problems, the situations, the world, that they are handling or in relation to which they are acting. Accordingly, a capability for acting in a certain way reflects a capability [of] experiencing something in a certain way (p. 111).

Marton and Booth (1997) claimed that “differences in how [people] deal with situations and phenomena imply differences in how they experience them” (p. 126). Since the overarching goal of this study is to explore and understand ways to support educational developers in their practice of integration (i.e., acting), it is appropriate to direct attention to the experiences of educational developers. This connection between *experiencing* a situation and *acting* in response to that experience is aligned with the situative perspective that sees engagement with multiple perspectives in integration as situated in particular contexts, social interactions, and activities.

3.1.2 Theoretical Alignment between Phenomenography and the Situative Perspective

Phenomenography and the situative perspective hold the view of knowledge and reality as existing through one’s experiences with the world. This view is described as the non-dualistic ontology of phenomenography through which inquiry is focused on the relationship between the subject and some aspect of the world. The nondualistic ontology is described by Marton and Booth (1997) as follows:

There is not a real world ‘out there’ and a subjective world ‘in here’. The world [as experienced] is not constructed by the learner, nor is it imposed upon her; it is constituted as an internal relation between them. (p. 13)

Therefore, “the meanings emerge as relationships between person and world” (Marton, 2015, p. 108). In line with this nondualistic ontology, the phenomenographic approach adopts a second-

order perspective to understand participants' relationship with the phenomenon of interest (Marton, 1981). Where a first-order perspective seeks to describe some aspect of the world, a second-order perspective considers participants' varied experiences with some aspect of the world (Marton, 1981). The distinction between first- and second-order perspectives lies in where the focus on the relationships of a subject (i.e., observer) and object are placed. As Marton (2015) described "a statement made from a first-order perspective is a statement about what things are like...a statement made from a second-order perspective is a statement about what things appear to be (to someone)" (p. 106). With the first-order perspective, relationships about an object (i.e., what the object is doing) are described. With the second-order perspective, the focus is on the relationship between a subject and an object (i.e., what an observer is seeing, saying, and doing with an object) (Marton, 2015).

Sandberg (1997) emphasized that reliability in phenomenography aims to demonstrate "the extent to which categories of description are faithful to the individuals' conceptions of reality" (p. 206). In this study, individuals' conception of reality is viewed with a situative perspective as the theoretical framework. This theoretical framework informed the design of the research interview protocol for data collection and provided the analytical lens for discerning elements of the data. This study does not take a first-order perspective to investigate the practices or disciplinary perspectives of educational developers who engage in integrative work. Rather, from a second-order perspective, this study aims to explore the relationship between educational developers and the object of disciplinary perspectives, and how this object shows up in their work. Therefore, the phenomenographic methodology, that holds a second-order perspective and nondualistic ontology, is aligned with the theoretical framework of the situative perspective.

3.1.3 Pragmatic Alignment with Phenomenography and the Nature of Integration

Phenomenography is also aligned with the purpose and process of integration. Specifically, understanding variation is at the core of integration, where different viewpoints are purposefully sought to bring new perspectives to a problem. According to the interdisciplinary inquiry process proposed by Repko & Szostak (2017), Based on these diverse perspectives, insight into the problem is generated, and this insight is integrated into a new, meaningful, and holistic understanding. In alignment with the goals of integrative work that aims to bring forward collaborators' perspectives to generate insight into a problem situation, collaborators are

navigating and negotiating differences in perspectives and knowledge to build a shared understanding (Godemann, 2008). In the same way, the phenomenographic approach considers how observers of a phenomenon discern differences in the features that make up the phenomenon (Marton, 2015). Marton (2015) characterized these features as structural features, consisting of the internal horizon and external horizon, and referential features. The internal horizon consists of the elements of the phenomenon that make up the phenomenon itself (i.e., the parts that make up the whole), the external horizon consists of the elements that distinguish the phenomenon from the contextual environment (i.e, the things that allow an observer to see the phenomenon in some context), and the relational features consists of the elements that give meaning to see the phenomenon as the phenomenon (Marton, 2015; Marton & Pang, 2006).

Therefore, variations in experience may occur in two different ways based on the discernment of features. As Marton and Pang (2006) stated “discernment of a feature amounts to experiencing a difference between two things or between two parts of the same thing” (p. 199). In the first way, observers may see different structural features of a phenomenon leading to a different experience. In a second way, if observers were presented with the same structural features, they may hold a varying awareness of these features leading them to different relational features and different meaning from the phenomenon (Han & Ellis, 2019; Yates et al., 2012). As a methodology, phenomenography explicitly accounts for variation in participants’ experiences and offers a new integrative conceptual understanding in terms of “an outcome space” (Marton & Booth, 1997). Specifically, the research outcome of phenomenography represents “categories of description” and “structural relationships” that describe the various ways of experiencing the phenomenon of interest (Marton & Booth, 1997). Therefore, integrative work that aims to see multiple perspectives as variation in experiencing a problem situation and to generate an integrated outcome and comprehensive understanding, is aligned with phenomenographic methods and goals.

In this section, I have presented the methodological underpinnings of phenomenography to justify the appropriateness of a phenomenographic inquiry as it is aligned with my theoretical framework and the pragmatic goals of interdisciplinary work. The non-dualistic ontology of phenomenography that recognizes how individuals experience phenomenon in the world in different ways is consistent with the situative perspective from my theoretical framework. The phenomenographic focus on variation in ways of experiencing phenomenon is consistent with

integrative work and practice. Therefore, my study is theoretically, methodologically, and pragmatically aligned.

3.2 Data Collection

In this section, I outline my data collection methods involving participant recruitment to maximize variation, the participants of my study, and the design of my interview protocol.

3.2.1 Participant Recruitment

Eighteen educational developers across the United States and Canada participated in a one-time, semi-structured personal interview. Data collection occurred during Fall 2019 over the span of 4 weeks. All interviews were conducted over a virtual platform or by phone, voice-recorded, and were approximately 60 to 90 minutes in duration. A \$35 gift card was provided to participants who participated in an interview.

First, a pre-recruitment email was distributed to four email lists associated with educational development organizations in the United States and Canada: 1) POD Network google group (US), 2) Educational Development Caucus (Canada), 3) Council of Ontario Educational Development (Canada), and 4) a google group targeted for educational developers in STEM settings (US-based). This email invited all interested participants to submit their contact information and responses to pre-screening questions about their disciplinary background, academic unit, job title, description of experience, work activities, and other demographic information that was used as screening information (see Appendix B for pre-recruitment protocols). The pre-recruitment survey resulted in a total of 54 responses. Information from this pre-recruitment survey was used to identify potential participants in alignment with the recruitment strategy for maximizing variation of participants.

3.2.2 Recruitment Strategy to Maximize Variation

Core to phenomenographic research is the purposeful selection of participants to ensure variation in the way that participants may experience the phenomenon. While this study was interested in reaching educational developers who engaged in broad activities of educational development, the focus was to identify participants who would have an appropriate level of

background experience with the research phenomenon. Therefore, related fields and associated professions of educational development, such as instructional/curriculum designers, instructional technologists, and learning consultants, were not the primary target for this research. Additionally, faculty members with experience in an educational development capacity were not targeted. Variation of participants selected for the study was considered along three dimensions, as outlined in Table 3.1 below: 1) variation in disciplinary background 2) variation in experiences and educational development activities, and 3) variation in work role, context, and demographic information.

Table 3.1 Dimensions of participant variation.

Variable Dimension	Description	Evidence Collected
Disciplinary background	<p>Representation of diverse disciplines across levels of training (i.e., bachelor's, master's, doctoral) with disciplinary variation across degrees and/or singular disciplinary background across degrees. At individual participant level, variation in degrees offers one indicator of exposure to multiple disciplinary training.</p> <p>Variation in this dimension includes:</p> <ul style="list-style-type: none"> - Extent of working with others from different disciplinary backgrounds - Variation in disciplinary backgrounds other than STEM disciplines 	Pre-recruitment survey collected information on disciplinary background and other relevant work experiences.
Experiences and educational development activities	<p>Description of their work to demonstrate alignment with interdisciplinary educational development work (i.e., strong interactions with others from diverse disciplines) and opportunities to see educational development as a scholarly discipline</p> <p>Variation in this dimension includes:</p> <ul style="list-style-type: none"> - Diversity in work, job functions, and experiences that engage multiple disciplines (e.g., engagement in SoTL, research-based activities, cross-disciplinary curriculum development - Experiences to apply their disciplinary background in their work 	Pre-recruitment survey asked respondents to provide a brief description of their work activities in relation to educational development and to rank the top 3 activities that they engage with in their work.
Work Role, Context, and Demographics	<p>The type of educational development unit where they work, the type of institution, and their position title, as an indicator of general work duties and level of experience.</p> <p>Variation in this dimension includes:</p> <ul style="list-style-type: none"> - Self-identified level of experience/career level in educational development (i.e., junior (0-5 years), mid-level (6-10 years), senior (10+ years), and director/administrator/leadership position. - Social diversity based on demographic information 	Pre-survey recruitment collected information on level of experience and social demographic information.

In making the final selection for participants priority was given to balance the final participant list with variation of disciplinary difference, work experience, level of experience, context of employment, and demographic information. Based on the pre-recruitment list and the variation dimensions aligned with the purposeful selection strategy, five different variation groups were formed with three participants in each group and six participants in one group, resulting in a total of 18 participants who participated in this study. The full list of participants (pseudonyms) and their background information is provided in Table 3.2. The participant demographic information is provided in Table 3.3. For protection of participants' privacy, only general categories of disciplinary backgrounds are used (i.e., Science, Technology, Engineering, Math (STEM), Humanities, Education). While all participants worked in an educational development capacity, the work titles and roles varied among participants and included, for example, assistant, associate, and center directors (7), associate deans (2), educational developers (2), teaching and learning specialists (4), and educational researchers (3). Specialists were characterized if their work title or work duties primarily focused on a specific portfolio or specialized topic within educational development (e.g., assessment, e-learning, or curriculum development). Level of experience, specific to an educational development role, was categorized as early career (e.g., 1-4 years experience), mid-career, (e.g., 5-9 years experience), and senior career (e.g., 10+ years experience) in an educational development. The educational development work setting categorized the type of educational development unit based on a discipline-based center/academic unit or an institution-wide center/academic unit.

Table 3.2 Participant list and background information.

Participant Name (pseudonym)	Pronouns	Disciplinary Background	Educational Development Role	Level of Experience (self-identified)	Educational Development Context
Brooke	she/her/hers	Psychology, Education	Leadership	Senior career	Institution-wide
Yvette	she/her/hers	Education	Leadership	Senior career	Institution-wide
Iris	she/her/hers	STEM	Leadership	Senior career	Institution-wide
Sawyer	he/him/his	STEM	Leadership	Senior career	Discipline-specific
Deron	he/him/his	STEM, Education	Leadership	Senior career	Discipline-specific
Tracie	she/her/hers	Languages, Education	Leadership	Mid-career	Discipline-specific
Hudson	he/him/his	Education	Leadership	Mid-career	Institution-wide
Clara	she/her/hers	Sociology, Social Work	Leadership	Early career	Institution-wide
Carleigh	she/her/hers	STEM	Leadership	Early career	Discipline-specific
Morgan	they/them/theirs	Languages, Arts and Humanities	Generalist	Mid-career	Institution-wide
Finn	he/him/his	Psychology, Social Work, Education	Generalist	Early career	Institution-wide
Gabi	she/her/hers	Sociology, Education	Generalist	Early career	Discipline-specific
Allie	she/her/hers	Health Science, Education	Specialist	Mid-career	Institution-wide
Peyton	he/him/his	Philosophy	Specialist	Mid-career	Institution-wide
Charlotte	she/her/hers	STEM, Education	Specialist	Mid-career	Discipline-specific
Mack	he/him/his	Psychology	Research	Senior career	Institution-wide
Wendy	she/her/hers	Languages, Business, Education	Research	Mid-career	Institution-wide
Harper	they/them/theirs	Arts and Humanities, Education	Research	Early career	Institution-wide

Table 3.3 Participant demographic information.

Demographic Information	Number of Participants
Gender Identity	
Woman	10
Man	6
Genderqueer	1
An identity not listed here	1
Ethnicity	
Black or African American	2
East Asian	2
Middle Eastern or North African	1
White or Caucasian	13
Geographic Location	
United States	9
Canada	9

3.2.3 Interview Protocol Design and Implementation

The interview consisted of a semi-structured protocol with three main parts, each with accompanying probing questions. The final protocol is included in Appendix C. Overall, the purpose of the interview was to interrogate the phenomenon of “disciplinary perspectives” as an object that educational developers engage with in their work. In this way, questions were designed to elicit the ways that disciplinary perspectives appear to participants, referring to elements of the structural (internal and external horizon as elements that make up the phenomenon) and referential features of disciplinary perspectives (i.e., what it means to discern a phenomenon (Marton, 2015). To achieve the goals of the phenomenographic analysis, consideration was made to design the interview protocol with elements that would support the development of a phenomenographic outcome space. Therefore, consideration was made to target ways participants describe features of the phenomenon, how the phenomenon appears to them, and descriptions of their experience with the phenomenon. Overall, the goal was not to have participants describe their disciplinary background (first-order), but to describe how the concept of disciplinary background and training appears to them (second-order). The following questions helped frame the design of the interview protocol and the purpose of probing questions: What is the meaning of this object? What are the qualities of this object? How do participants experience this object?

The first part of the protocol asked participants to describe their disciplinary background and work in educational development. This part served to establish rapport and a foundation with the participant from which to build on, before going deeper into descriptions of their specific experiences.

The second part of the protocol asked participants to describe an experience in their work that involved disciplinary perspectives. The nature of this second part was for participants to bring forward a specific experience that involved disciplinary perspectives and describe elements of that experience. The interview protocol used the language of “disciplinary background and training” to focus attention on this phenomenon as an object and to interrogate the meaning of this object. In this way, the second part aimed to move the participant into seeing the object of “disciplinary background and training” from the second-order perspective to describe both “what is this object” (first-order) and what is their experience with this object (second-order) (i.e., how does this object appear to the participant?). To achieve this goal, interview questions were framed from a situative perspective, in alignment with the theoretical framework, that focused on aspects of the context, social interactions, and activities of the situation. For example, probing questions considered aspects of the ways of being as knowing self, others, work, and tools (Sandberg) in the way that disciplinary perspectives may appear or be used in work activities.

The third part focused on a scenario-based elicitation. Participants were presented with a common educational development scenario related to interdisciplinary collaboration and asked to describe the things they might notice and do in the situation. This scenario-based elicitation was not designed to be a performance-based task but aimed to serve as a common launching point and prompt for participants’ reflection of experiences related to the scenario and for exploring conceptions of the phenomenon. The purpose was to involve participants in a common scenario that would require engagement with the phenomenon of interest (i.e., disciplinary perspectives) and to encourage them to express and describe conceptual tools that they bring to make sense of this specific interaction. As Marton stated, the focus of phenomenography is to see how “participants are bringing in concepts to deal with a specific example” (Marton, 2015, Footnote #12), as compared to participants drawing on examples from their experiences to describe the phenomenon. This approach emphasizes the distinct aim of phenomenography: to tell a story about the relationship with a phenomenon, from the perspectives of the participants. In comparison, other qualitative approaches may aim to tell a story about participants’ varied experiences and examples

with a phenomenon. The scenario offered a common setting to frame “disciplinary backgrounds and training” as an object at the center of the work required in the situation. The scenario aimed to be familiar to educational developers based on the activity, people involved, and expected outcomes. By having participants describe a shared phenomenon, this approach focused on eliciting the meaning of disciplinary perspectives as a shared experience among participants.

Pilot Protocol Insights

The interview protocol was piloted with individuals who were not part of the study including one educational developer, one engineering faculty member with experience in an educational development role, and other engineering education researchers with qualitative research experience. Insight from the pilot process led to protocol revisions to support 1) refined clarity of disciplines and disciplinary perspectives based on different interpretations to these concepts 2) elicitation of participant voices and concepts using their language, and 3) room to navigate and steer the conversation that would allow for participant critique and surprise. For example, through the pilot process, questions that targeted the meaning, use, and the work surrounding disciplinary perspectives were brought into focus (i.e., what is it about the work that requires disciplinary perspectives?), as opposed to using very broad and abstract questions that were difficult to understand or open to too much variation in interpretation. One challenge that became evident through the pilot process was the researcher’s continuous monitoring for moving the participant to the second-order perspective for describing their relationship with the phenomenon. Although methods were built into the protocol to support the second-order perspective, part of the pilot process also helped the researcher practice the ability to approach the interview from a first-order and second-order perspective. These revisions emphasized the fluid and dynamic nature of the phenomenographic interview. The full and final interview protocol is found in Appendix C.

3.3 Research Quality Considerations

In this section, I describe specific data analysis features to achieve the phenomenographic results of this study and how I addressed research quality considerations throughout my data collection and analysis methods. I outline my researcher positionality as a way for me to engage in reflexivity of the perspectives that I bring to the research process (Sandberg, 1997).

3.3.1 Features of Phenomenographic Analysis and Research Quality Strategies

In the following sections, I present my synthesis of principles that I employed throughout my phenomenographic analysis. Taken together, these principles offer perspectives for conceptualizing the unique features of a phenomenographic analysis with strategies for implementation in the analysis process. Throughout data collection and analysis, these principles offered guidelines for thinking about my analysis process to ensure research quality that is consistent with phenomenographic approaches. However, these principles are not strict rules for conducting a phenomenographic study. Instead, I draw on multiple methods and strategies employed across general phenomenographic approaches (see Åkerlind, 2005; Barnard et al., 1999; Han & Ellis, 2019; Stenfors-Hayes et al., 2013).

Principle 1: Consideration of the whole transcript and whole data set as a collective experience.

Phenomenography views participants' descriptions as a whole data set representing a collective experience. Therefore, analysis involved finding a balance between seeing data "contextualized within the transcript" and "decontextualized from the transcript" (Åkerlind, 2005, p. 327). As Åkerlind (2005) described, "the set of categories of description are based on an analysis of the set of interview transcripts as a group, not an individual transcript basis" (p. 332). That is, the focus is not on the meaning of individual participants, but to use the data from each participant as a collection that describes aspects of the phenomenon (Åkerlind, 2005). This principle highlights the goal to "explore the range of meanings within a sample group, as a group, not the range of meanings for each individual within the group" (Åkerlind, 2005, p. 323). The implementation of this principle was iterative, moving back and forth between building up the parts of data (coded data and meaning units) and building up to see the whole picture (pools of meaning and categories of description). For example, questions like "what does this data mean

here, for this participant, in this instance?”, “what does this data mean in comparison to other conceptions from *this* participant?”, and “what does this data mean in comparison to other conceptions from *other* participants?” helped to operationalize this principle when looking at excerpts within individual transcripts and as a whole data set across participants.

Principle 2: Maintaining a second-order perspective to focus on the qualities of the experience.

Participants’ descriptions include what they experience (i.e., description of the object itself) and how this object appears to them (i.e., description of their experience with the object). The second-order perspective of phenomenography focuses on the relationship between the participant and the phenomenon, in terms of how they experience the phenomenon. In this study, the object of research (i.e., the phenomenon) was disciplinary perspectives as a concept, form of engagement, and object in collaborative interactions. Therefore, this principle holds the object of disciplinary perspectives at the center of inquiry—aimed at understanding the features of disciplinary perspectives as it shows up in participants’ descriptions. Analysis as part of this principle involved testing data from a second-order perspective, to ensure that the analysis targeted the relationship that participants have with disciplinary perspectives, versus a description of their disciplinary perspectives.

Principle 3: Discernment of features.

Features of the phenomenon consist of structural features as the internal horizon (i.e., parts of the object) and external horizon (i.e., seeing the object in relation to its surrounding context) and referential features relating to the meaning of the phenomenon (i.e., to see the phenomenon as a thing) (Marton & Booth, 1997). The discernment of these features involved comparing similarities and differences between features to distinguish the parts of the object and its meaning in different contexts. In addition, methods for identifying relevant data and sorting of data were employed in the overall process of discerning features of the phenomenon. With this principle, it was important to distinguish and keep the analytical focus on relationships between participants and the phenomenon, not on practices of the participants (i.e., the things that they do). That is, the research story is not about participants or about participants’ experiences that involve the

phenomenon of disciplinary perspectives. The research story is about the object of disciplinary perspectives as it is grounded in participants' ways of experiencing the object.

Principle 4: Openness to multiple perspectives, interpretations, and suspending judgement.

Since the analysis process is highly iterative and interpretative, the goal of this principle is to “embrace all forms of knowledge production systems and not misconceive one particular mode of producing knowledge as being more valid than another” (Chitakunye & Takhar-Lail, 2015, p. 136). This principle acknowledges the variation that participants bring to the way they might describe their experiences, and so it is important to see and hold the whole context and possible meaning of their descriptions in the analysis. Appropriate variation in participants was sought through variation in participants' demographics, backgrounds, and work contexts, as well as variation in experiences with the phenomenon of disciplinary perspectives (achieved by considering different work activities of participants). In alignment with Principle 3: Discernment of features, one analysis practice for being open to multiple perspectives involved focusing on particular aspects of the phenomenon while suspending or setting aside other aspects, so that the different parts of the phenomenon can be seen on their own (Marton & Booth, 1997, p. 133, as cited in Åkerlind, 2005, p. 326). In my analysis, I viewed the data in different ways using analytical prototypes, data sense-making tools, and critical conversations.

Principle 5: Consideration of relationships between categories to form an integrated whole.

This principle highlights the phenomenographic goal “to constitute not just a set of different meanings, but a logically inclusive structure relating the different meanings” (Åkerlind, 2005, p. 323). In this way, the phenomenographic outcome space offers a way of seeing variation in the conceptions of the phenomenon, and how these conceptions are related to make up a comprehensive understanding of the phenomenon. Throughout the analysis process, I considered both aspects of the phenomenographic outcome space simultaneously to ensure that my analysis was scaffolded in ways that would allow me to see elements and build the categories and the relationships.

3.3.2 Researcher Reflexivity and Critical Awareness

In this section, I detail my researcher background and positionality to frame my perspectives that I bring as the research instrument to analyze the data. It is important for the researcher to be mindful of how their values and interpretations that they bring to the analysis are shaped by social and historical factors (Webb, 1997). Sandberg (1997) emphasized the importance of reflexivity in phenomenographic research as an *interpretive awareness* by the researcher throughout the research process that aims to make explicit researcher subjectivity and how their interpretations influence the research process. This awareness involves a constant and consistent search for meaning within the researcher's own views and approaches towards the research process. As E. Smith (2011) described, reflexive skills enable a person "to question processes of knowledge creation and to examine how personal and epistemological influences are interwoven in the research" (p. 214). Reflexivity, as "paying attention to the interrelationship between self and knowledge creation" (E. Smith, 2011, p. 214), also helps me be aware of my own first-order perspective and the first-order perspectives that participants may describe. Particularly for phenomenography, Marton and Booth (1997) stated,

adopting the second-order perspective in phenomenography means "taking the place of the respondent, trying to see the phenomenon and the situation through her eyes, and live her experience vicariously. At every stage of the phenomenographic project, the researcher has to step back consciously from her own experience of the phenomenon and use it only to illuminate the ways in which others are talking of it, handling it, experiencing it, and understanding it (p. 121).

My researcher positionality statement describes my perspective as a research-practitioner in the dual role of conducting educational research and working in educational development. The purpose of this reflexivity statement is to identify ways that my positionality as the researcher, with an interest in interdisciplinary practice and experiences in educational development, may influence, shape, and bias my perspective towards my research analysis. In this way, I reflect "on the process of knowledge production itself" (Fortuin & van Koppen, 2016, p. 698). This statement consists of three sections in which I consider the influence of my position as an interdisciplinary researcher, as an educational developer, and as a designer of learning systems. By acknowledging my position in this work, I identify my experiences and perspectives that I bring to the interpretation of the data throughout the analysis process (see Fischer, 2009).

My position as an interdisciplinary researcher. As part of my professional development and graduate studies, I aimed to design a dissertation study that would provide me with the

opportunity to learn more about interdisciplinary practice so that I would be able to support the work of integration through practice and research. For me, disciplinary perspectives offer a way of seeing, thinking, and being in the world, based on ones' disciplinary background and training. My research training fosters a particular interest, sensitivity, and awareness to certain phenomenon, concepts, questions, challenges, and methods, particularly in the interdisciplinary fields of engineering education, higher education, learning, and design. I have previously engaged in an autoethnographic study (Aleong, 2012) that explored the development of my own interdisciplinary research identity. As an interdisciplinary researcher, I aim to bring multiple perspectives to see the connections between diverse areas of knowledge and understanding. My interdisciplinary perspective towards this dissertation research has shaped how I think about the goals and processes of integration, collaborative practice, disciplines, and knowledge co-production.

My position as an educational developer. I frame educational development as a scholarly activity that aims to advance the teaching and learning mission of higher education. I adopt the model of educational development from the POD Network that focuses on three core areas of educational development: 1) the development of graduate students and faculty, 2) instructional development, and 3) organizational change (Professional and Organizational Development Network in Higher Education (POD Network), 2016). Although I do not hold a position as a formal educational developer, I identify with the work and practices of educational development as core to who I am. My involvement in educational development work began during my master's graduate students when I attended seminars, courses, and workshops offered by my institution's Center for Teaching and Learning. I have completed four certificate programs on teaching, learning, and leadership development, as well as participating in the Summer Course Design Institute (Purdue University, Center for Instructional Excellence) and ongoing professional development opportunities within the educational development communities. As a graduate research assistant, I have been involved in a longitudinal multidisciplinary curriculum development project to support science faculty in integrating design-based learning into their science curriculum. In this work with faculty, I was attuned to understanding where faculty were coming from and what matters to them as instructors of the course. Through my work in an educational development capacity, I have gained an awareness of the work context of educational development, challenges that educational developers face, and the kind of abilities that educational developers bring to their role.

My position as a designer of learning systems. With my formal disciplinary training in mechanical and materials engineering and engineering education, I am interested in the design of learning systems, such as tools and experiences, that support students' learning and growth. My training in curriculum and instructional design and systems thinking contributes to this human-centered design perspective. For example, with a focus on tools, I initially framed disciplinary perspectives as a tool that individuals can engage with through the work of interdisciplinary collaboration. However, through the interview protocol pilot, I realized that the way I was framing my research phenomenon of interest may actually be a phenomenographic category of description on its own. Specifically, I was framing disciplinary perspectives as a tool to be used in collaboration, and as a tool, we are able to investigate its qualities and relationship with other actors.

Across all three of my positions and identities as an interdisciplinary researcher, educational developer, and designer of learning systems, I am focused on ways to support interdisciplinary collaboration through the professional development of faculty and educational developers. This focus has led to the investigation of ways of experiencing disciplinary perspectives to understand practices and work that constitute collaboration activities.

3.4 Data Analysis

As previously discussed, a phenomenographic analysis results in the identification of distinct categories of description which represent the ways of experiencing the phenomenon. These categories of description are organized and presented as a comprehensive outcome space (Marton & Booth, 1997). For this study, the analysis process was highly iterative, generative, and exploratory. The process was iterative as it involved movement between multiple stages to make meaning of the data, and continuous testing and revising of the analysis process. The process was generative in that multiple prototypes of ideas were generated to formulate possible pathways for interpreting the data. The process was exploratory in the way that multiple analysis strategies were employed to experiment and test the data analysis. As shown in Figure 3.1, the overall analysis process was iterative in two ways: 1) iterations on the data processing (on the left) and 2) iterations on the analysis process (on the right). As the analysis progressed, continuous revisions were made to data processing to reduce data, test ideas, and converge on findings. At the same time, iterations

on the analysis process resulted in different ways of analyzing the data and continuous refinement of the process to test different outcomes.

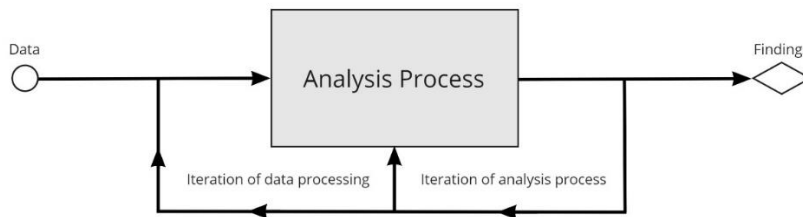


Figure 3.1 Feedback loop showing continuous iterations of the analysis process.

The overall process, shown in Figure 3.2, consisted of seven stages, with Stages 3, 4, and 5 occurring as an iterative cycle, and further feedback and iterations occurring between Stages 5 and 6. Table 3.4 below provides a brief description of each stage of analysis.

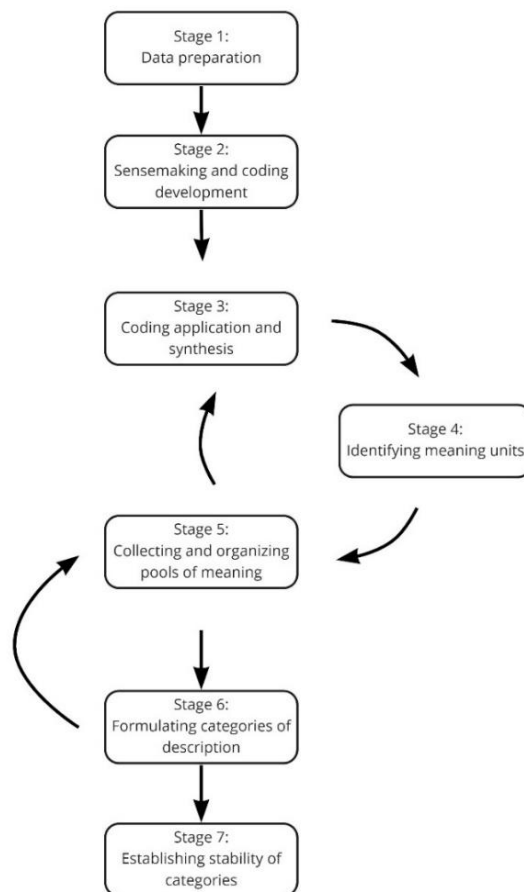


Figure 3.2 Overview of seven stage phenomenographic analysis process.

Table 3.4 Summary of data analysis stages.

Stage	Description and Summary
Stage 1: Data Preparation	Initial review and first pass of data, listening to audio transcription, highlighting initial surprises and interesting excerpts, and removing identifying information.
Stage 2: Data Sensemaking and Coding Development	Open-coding process to capture ideas and excerpts, sensitizing to overall structure and flow of ideas throughout the interview, noticing general topics,
Stage 3: Coding Application and Synthesis	Applying codes to transcripts, synthesizing meaning of excerpts, grouping of codes under similar topics and describing codes.
Stage 4: Conceptualizing and Identifying Meaning Units	Organizing codes, identifying relevant and meaningful data
Stage 5: Collecting and Organizing Pools of Meaning	Organizing meaningful excerpts within and across participants, describing different groupings of data, comparing data in different groups
Stage 6: Formulating Categories of Description	Identifying features of the phenomenon, discerning similarities and differences of features and qualities of the categories, generating descriptive names of the categories
Stage 7: Establishing stability of categories	Testing excerpts in different categories, building relationships between categories.

As shown in Figure 3.3, the overall qualitative analysis process involved reading the transcripts, identifying excerpts within the transcripts, making meaning of the excerpts, and then seeing how meaning across participants is integrated together. A combination of analysis tools, including memos and journaling, coding synthesis, and participant pile sorting, were used to identify meaningful data, interpret participants' descriptions, and synthesize and identify relationships.

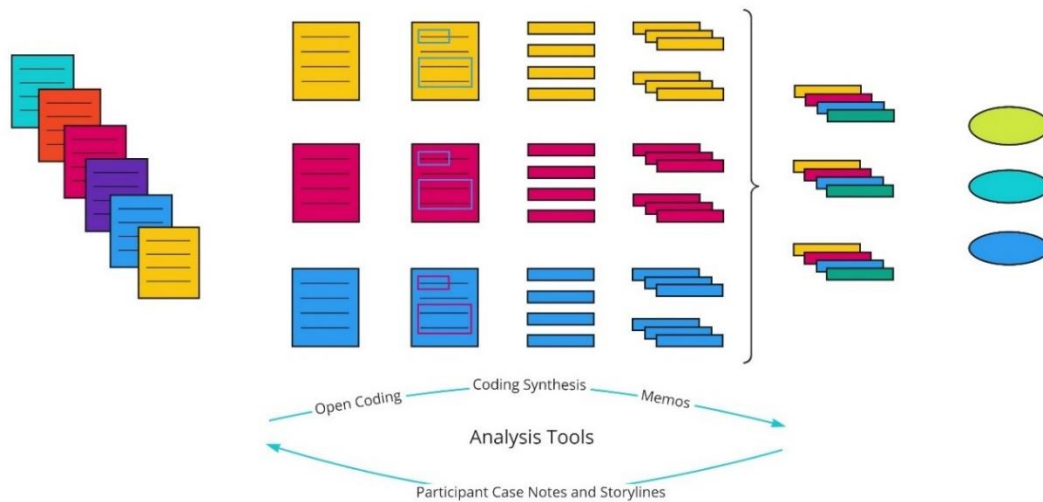


Figure 3.3 Visual organization of qualitative approach to data analysis and synthesis.

3.4.1 Stage 1: Data Preparation

In this first initial stage, the data was organized and prepared for analysis. Audio recordings of participant interviews were transcribed by a professional transcription service. Once transcribed, data cleaning involved listening to the audio recording while tracking words in the transcript, to check for accuracy, and remove identifying and sensitive information to protect participants' privacy. Transcripts were deidentified by replacing participant names with pseudonyms and removing and/or renaming any identifying information such as references to people, institutions, places, and special topics. Quotes were edited using [...] to indicate deleted digressions. A deidentified transcript was shared with each participant for their review to ensure they were comfortable with the data shared and to provide an opportunity to clarify any information.

During initial readings of complete transcripts, the researcher flagged interesting and surprising passages, where participants were describing unique experiences or particularly meaningful descriptions. In addition, any relevant participant descriptive data was captured for documenting background information. To facilitate iterative improvements on the analysis process, the first three participants were used to formalize the process of making participant summaries that captured broad ideas and topics as well as the overall flow of the interview.

3.4.2 Stage 2: Data Sensemaking and Coding Development

At this stage, qualitative analysis and coding was inspired by general thematic analysis procedures (see Braun & Clarke, 2006), as an initial sensemaking process and as a way to become familiar and sensitized with the data. Qualitative data analysis software (Dedoose®) was used to organize and facilitate the coding process. First, open coding was conducted with three pilot transcripts. Open coding consisted of reading through the transcript as a whole and coding excerpts to capture the ideas and topics the participant described. Using the first three participants, a candidate list of codes was organized into a coding structure. This resulted in renaming or adding codes that captured similar elements from the initial list. These new named codes were then organized into larger parent code groups. This coding structure was then applied to another five interviews. Afterwards, another self-check was conducted to determine if the coding structure sufficiently captured the data. At this point, it was determined that a combination of open-descriptive coding and application of codes from the coding structure would be appropriate to highlight aspects within larger excerpts. The coding structure used to capture participants' description is provided in Table 3.5 below. The table includes the parent code group (first column), example codes organized within that group (second column), and a general description of the code group.

Table 3.5 List of parent code groups with example and description.

Parent Code Group	Example Codes	Description
Approaches to Work of Educational Development	generative/explorative; service; supportive; partnership; social and cultural; translation	How faculty developers conceptualize their approach to their work.
Self-Awareness (Understanding FD disciplinary perspective)	Expertise; identity; transferable training; background; professional development	Faculty developer's own self-awareness of their perspective
Contexts of Ed Dev. Work	Structure of ed. Development; work descriptions; cultural change; institutional level; faculty development leadership	Descriptions of elements related to the work context
Disciplines and Teaching/Learning	Discipline specific teaching requirements; teaching challenges, seeing commonalities and differences; teaching practices (of faculty); crossing disciplinary understanding	Descriptions of elements related to disciplines and teaching and learning issues.
Interdisciplinary (What is)	Structure of disciplines; nature of problem; disciplinary tradeoffs and benefits; recognizing need for integration;	Elements that capture descriptions of interdisciplinarity as a concept
Practices of Interdisciplinarity	Recognizing constraints; abstraction; openness to new learning; systems thinking; engaging multiple perspectives and voices; reflection; goal and vision setting; facilitation;	Description of practices as things educational developers do in their work.
Understanding Disciplinary Perspective (as a concept)	Seeing different things; differences in scholarship; disciplinary cultures; social situated knowledge of disciplines; connections across disciplines; epistemologies of disciplines	Descriptions of disciplinary perspectives as a concept
Working with Faculty	Disciplinary differences; personal differences; power and politics; building relationships; disciplinary contexts; disciplines as users; knowing your faculty; learning from others;	Descriptions of educational developer's working with faculty and others
Connecting codes	Critical reflection, great quotes, tensions, interesting flag	This code group was used for researcher analysis purposes to track relevant and surprising excerpts, such as participants' tensions and critical reflections.

3.4.3 Stage 3: Coding Application and Synthesis

This stage of analysis focused on continuous learning, sensitizing, and gaining familiarity with the data. The coding structure was applied to the remaining ten transcripts as reference points to map the landscape of the data. The emphasis for this stage of analysis was generating participant case notes as a synthesis tool for collecting and highlighting parts of the interview that were surprising, rich in description, and had potential for being connected to other parts of the transcript. Case notes also served as a place to make memos about the individual participants. Building participant case notes involved particular attention to participants' description (i.e., what the

participant is saying, as compared to what the researcher perceives is being said) and the relationship between their description and the phenomenon (i.e., the meaning of what the participant is saying in terms of how they experience the phenomenon). Furthermore, using the participant case notes helped generate participant storylines as a technique to gain a sense of participants' work and activities and their overall story as an educational developer. Generating participant storylines involved writing a short sentence or phrase that best captured the broad essence or critical moments (e.g., deep description of a meaningful experience) of the participants' transcript. For example, one participant storyline was captured as "being open to multiple ways of doing", to reflect how this participant described multiple experiences where he recognized and benefited from different ways of doing. Participant storylines offered ways to succinctly capture a sense of the participant, to assist with the learning and processing of the data, and to identify similarity and differences across participant storylines. Therefore, the participant case notes, as a form of data, became a data artifact generated from the initial analysis and coding of participants transcripts.

3.4.4 Stage 4: Conceptualizing and Identifying Meaning Units

Phenomenographic analysis involves bringing important elements into the foreground of awareness while temporarily holding other elements in the background (Marton & Booth, 1997). This approach requires the researcher to build sensitivity for simultaneously balancing two views of the data: 1) seeing elements to focus on and 2) seeing elements that may be temporarily set aside or suspended (Marton & Booth, 1997). To identify relevant data to focus on, this stage focused on establishing the meaning of the core phenomenon of disciplinary perspectives to be able to identify meaning units within the data. Meaning units represent the units of data that are relevant and related to the core phenomenon for analysis. Identifying meaning units serves as one data reduction technique because it involves narrowing the focus of relevant data.

The focus of this research is on the core phenomenon of disciplinary perspectives, which was framed as *different ways of seeing, understanding, and approaching problems to support the engagement with others that advances the teaching and learning mission of the institution*. The context of this research is disciplinary perspectives as they are situated in performing the work of educational development. That is, how disciplinary perspectives may be shaped and experienced as a social practice in the context and use of educational development.

Establishing the core phenomenon as disciplinary perspectives revealed core ideas related to the work of educational development, which then converged on *translation* as a common work theme across participants. This enabled data reduction by operationalizing what represents relevant data in terms of core ideas and activities of educational developers' practices (i.e., what they do and how they engage with their work), and the nature of their work (i.e., their conceptions of educational development work). As another overarching characteristic of the phenomenon, educational developers work in various capacities and activities to advance the teaching and learning mission of their institutions. Core ideas of translation, co-creation, facilitation, and change emerged as core ideas of educational developer's work. Other overarching ideas considered how participants experience disciplinary perspectives in relation to their personal identity development and broader academic culture.

Based on these core ideas, the analysis process converged on a common theme of *translation* that related meaning units with the core phenomenon of disciplinary perspectives. The act of translation consists of making connections and building relationships, sense-making, navigation and facilitation in unknown settings, and seeing similarities and differences. For the purpose of this research, translation is defined as *making sense of ideas and situations to build understanding and move people forward in their teaching and learning development*. Table 3.6 below provides examples of the type of work participants described in relation to the activity of translation.

Table 3.6 Examples of translation in educational development.

Translation activity	Example Quote
Transferring knowledge to different contexts	I think one of my challenges is to take things that work well in one [discipline]....and try to have somebody do that in a different type of discipline. And even though they may not see the translation, I have to look at ... how that transfers between one situation and another. [Finn]
Making meaning of disciplinary expertise for others	So I find myself day-in and day-out helping people understand the idea of finding signal in noise, which is how I define statistics. [Iris]
Facilitating knowledge sharing	So then what I'm helping [faculty] do is understand one another, right? And to be kind of.... I think sometimes they need help translating what the other ones are saying, you know what I mean? And help them to be open minded and understand that.... Because they don't have the same opportunity that I do to talk to people from different disciplines every day. [Yvette]

An understanding of translation as the common theme served to operationalize and capture the meaning of disciplinary perspectives in the work of educational development. Specifically, the

act of translation provides the context for understanding the ways of experiencing disciplinary perspectives. Furthermore, the common theme of translation served as an integrative thread to connect the data and initially form categories of description.

Based on the core conception of disciplinary perspectives, and an understanding of translation as the common theme of educational development work, a structure for identifying meaning units was established. As shown in Table 3.7 below, meaning units were identified based on three characteristics and this structure was applied to three transcripts as an initial pilot analysis. This exercise helped to determine ways of seeing meaning units as relevant data and building a deeper understanding of 1) the phenomenon of disciplinary perspectives and 2) translation as the common theme of educational development work.

Table 3.7 Characteristics of meaning units.

Meaning Unit Characteristic	Description
Relation to common theme of translation	The meaning unit holds a connection to the activity of translation through description of the context, work, interactions, or activities.
Part of situated understanding of disciplinary perspective	The meaning unit offers descriptions of disciplinary perspectives as social practice, in use or as part of activities, and/or in context of educational development.
Contributing to participant storyline and/or related elements of disciplinary perspectives	The meaning unit helps to understand the participants' overall storyline and/or describing aspects connected to the phenomenon of disciplinary perspectives.

3.4.5 Stage 5: Collecting and Organizing Pools of Meaning

As Åkerlind (2005) described, the goal of the phenomenographic analysis is to “explore the range of meanings within a sample group, as a group, not the range of meanings for each individual within the group” (p. 323). Pools of meaning represent the “structured pool of ideas, conceptions, and beliefs underlying the possible interpretations (or possible constructions) of reality” (Marton, 1981, p. 198). As illustrated in Figure 3.2, the iterative cycle between Stage 3, 4, and 5, was a continuous analysis moving from coded data (Stage 3), to meaning units (Stage 4), to pools of meaning (Stage 5). The organization of meaning units offered initial insights into the situated aspects of disciplinary perspectives based on the collection of participants descriptions. In this stage of analysis, the identification of pools of meaning sought to see individual excerpts within a collection of data as a group, not within an individual participant (Marton, 1986). Therefore, the collection of data was analyzed for how participants described activities of translation. As this analysis progressed, pools of meaning were formulated with consideration to

three elements: 1) the relation to the core phenomenon of translation 2) the goals of educational developers in their work, (i.e., what are they doing and trying to achieve?) and 3) the aspects of the situative perspective of disciplinary perspectives (i.e., social interactions, context, and activities). Seven pools of meaning were identified (see Table 3.8) and each represents different settings where disciplinary perspectives appear.

Table 3.8 Grouping pools of meaning.

Pools of Meaning Groups	Description	Examples
Me as FD	Faculty Developers' own sense of self and identity, self-awareness about who they are and their approach/practice,	FD reflecting on their own discipline.
Me supporting other's work (i.e., instruction, curriculum, research)	FD providing resources, consultations, expertise to help faculty in their teaching, curriculum development, and SoTL research	FD helping a faculty make sense of their teaching evaluations.
Me building relationships with others	FD connecting with faculty, knowing their faculty, and forming relationships with them. (i.e., as its own kind of work that supports other tasks), building communities,	Being aware of assumptions we might make of certain disciplines, that can hinder how we come to understand each other.
Me creating for others	FD understanding their faculty's needs, contexts, background, as users of their service, to provide solutions and service for their faculty.	FD as a designer to create a disciplinary focused pedagogy.
Me (and others) learning from/with each other	FD promoting knowledge sharing, exchange, and adoption between Faculty.	Seeing disciplinary perspectives in diverse contexts, (e.g., what can physics learn from english?)
Me developing others	FD developing faculty's identities, ways of thinking, personal development	Development focused on the individual as a learner and human.
Me driving system (organizational) change	Recognition of disciplinary cultures, system levels, institutional and environment factors that affect work. (including qualities of transcending concepts across system levels and individual transformation)	Changing culture and value systems around teaching and learning

Notes: Abbreviations in table are Faculty developer (FD) and Scholarship of Teaching and Learning (SoTL).

At this stage, a full data review was performed to revisit and review all codes and accompanying excerpts, code groupings, participant memos and case notes, targeted and connecting codes used to highlight important elements with the data set, and the researcher's analysis journal. Full transcripts were reviewed to ensure that all relevant information was sufficiently coded and captured in the pools of meaning.

3.4.6 Stage 6: Formulating Categories of Description

Categories of description represent distinct ways that participants experience the phenomenon (i.e., how the phenomenon appears to them), where each category of description “represents a relationship between the experiencer and the phenomenon being experienced” (Åkerlind, 2005, p. 322). Core to this stage of analysis was the ability to discern between participants’ descriptions of their practices and activities, from a first-order perspective, and what this description means for their way of experiencing the phenomenon of disciplinary perspectives, from a second-order perspective. Three different analysis strategies were employed throughout the process to focus attention on different parts of the data: reflective analysis, abstraction, and prototyping.

Reflective analysis. This strategy involved the researcher’s reflection to step-back from seeing what the participant was describing and explore—from the second-order perspective—what a participant’s description indicates about the relationship between the participant and the phenomenon. I asked myself questions such as: Is this participant describing an activity, practice, or something about their work context? What does this description say about their relationship with the phenomenon (i.e., what is the feature of disciplinary perspectives that affords this experience?).

Abstraction. Similar to reflective analysis, this analysis strategy involved abstracting out from what the participant was describing (e.g., the activity, work setting, or practice) to see what it means in terms of their relationship with the phenomenon. With abstraction, the focus is on seeing the broader idea to be able to see connections among codes, and synthesize these codes into broader themes. As a reminder, this research study is not aimed at telling a story about the participants. Rather, this research aims to tell a story about a phenomenon, as seen from the perspective of the participants. Therefore, abstraction of coded elements to broader themes involves seeing different planes of analysis (i.e., is this a practice or a feature?), and zooming in and out of excerpts and larger passages of the transcript to search for integrative threads that connect participants’ data together.

Prototyping. This analysis technique involved creating and testing ideas in a generative and exploratory manner. In this sense, each prototype acknowledges that the analysis is not fixed. Rather, the analysis is a continuous process to learn how ideas may operate in authentic conditions. For example, categories of description were generated with the intention that they would be

formative (i.e., incomplete and flexible), and used in such a way that would allow the researcher to test ideas and learn more about possible features of that category and to explore different analysis pathways. A number of prototypes were created to focus on connections between the phenomenon of interest (i.e., disciplinary perspectives) and the features for what it means to experience the phenomenon in a particular way. This prototyping strategy included describing the pool of meaning in relation to the core phenomenon of translation.

Building the categories of description contributed to the most significant part of the analysis process and is broken down into three major iterations. While the overall analysis process was highly iterative and abductive, consisting of idea generation, building and testing ideas, exploring multiple paths, and then evaluating the outcomes, these iterations capture three major shifts in the analysis process based on new ways of thinking about the analysis process and new ways of seeing the data.

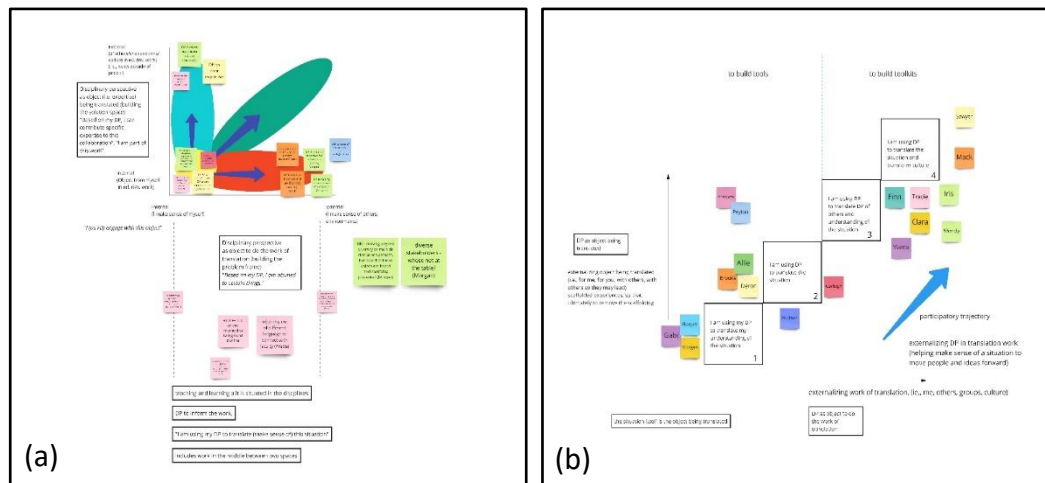
Iteration 1: Initial generation of categories from pools of meaning

This iteration focused on proposing categories of description as categories of educational development work based on each pool of meaning summarized in Table 3.8. This involved looking at the pools of meaning as the context for how disciplinary perspectives appear to participants in relation to the work of educational development. Questions guiding this process included: What is the frame of the educational developer for seeing and describing this activity? What are the features of this object (i.e., disciplinary perspectives) within this setting (i.e., pools of meaning)? How are disciplinary perspectives involved in translation (i.e., making sense or moving ideas forward) through particular settings? These questions prompted iterative cycles identifying data, using data to test, creating ideas, prototyping concepts and meaning, and organizing and reorganizing data elements.

Prototypes of possible outcome spaces were used to interrogate the perspectives involved and the approach to analysis and creation of the categories of description, and to adopt different perspectives to generate new meaning of the categories.

Figure 3.4 below shows two examples of prototypes created. Initially, four different conceptual spaces were generated along a two-dimensional axis to represent a possible outcome space (Figure 3.4a). Along one axis, the dimension was titled “disciplinary perspectives as object (i.e., expertise) being translated (building the solution space)”, to represent how faculty developers

can contribute specific expertise to a collaboration. Along the second axis, the dimension was titled “disciplinary perspectives as object to do the work of translation (building the problem frame)”, to represent how faculty developers use their disciplinary perspectives to attune to certain things. Along each of these dimensions, a shift from internal to external is displayed. Using these dimensions, participant data was mapped onto the figure to learn about the dimensions and the data. Based on this first prototype, four different spaces emerged that captured how disciplinary perspectives were used in the work of translation.



This iteration also involved the use of different data display techniques as organization, synthesis, and analysis tools (Miles et al., 2014). One data display was used to focus attention on the features of disciplinary perspectives revealed through participants' descriptions, as a way to move between the first-order and second-order perspective. To show this abstraction, Table 3.9 presents this data display using the phenomenon of an electronic screen. This data display illustrates a series of hypotheses suggesting relationships between the object and different settings and activities, to show how an electronic screen appears and becomes meaningful in different settings and activities (i.e., I experience an electronic screen as a family tv when it shows up in this context).

Table 3.9 Example of features of an electronic display representing context, activities, and features of the phenomenon.

Object	Electronic screen	Electronic screen	Electronic screen	Electronic screen
Shows up in...	Family room	Home Office	Living room	Bedroom
Used ...	As a device for family and social entertainment	As a tool to increase work productivity	As a frame to display pictures	For personal viewing of nightly news
Shows up as ... (category of description)	Family TV	Computer monitor	Digital picture frame	Personal entertainment device
Description	Set on a shelf stand, sits 6 feet away from multiple users on a couch	Set on a desk, sits 1 foot away from single user in a task chair	Mounted on a wall, above a couch, not in a direct view of a single user	Set on a dresser, 8 feet away, user who lies in bed.

In Table 3.10 below, the same reasoning and approach was applied to participant data with the phenomenon of disciplinary perspectives to capture how the participant may be describing their engagement and practice in a particular setting. This data display supported the analysis and identification of distinct features that appear to participants, as a step to build up to the formulation of categories of description. For example, this logical structure offered a way to see how disciplinary perspectives appear as an object, with some features, in this setting of translation work.

Table 3.10 Examples of discerning features of disciplinary perspectives from a second-order perspective.

Object	Disciplinary perspectives	Disciplinary perspectives	Disciplinary perspectives	Disciplinary perspectives	Disciplinary perspectives	Disciplinary perspectives	Disciplinary perspectives
Shows up in...	DP allows me to situate myself and directly contribute in meaningful ways	instructional support for faculty	sharing teaching practices	supporting understanding of teaching evaluation	understanding faculty's teaching challenges	supporting SoTL development	working with others who expand FD disciplinary perspective
Used ...	To be a creative and collaborative agent who brings their expertise (Morgan)	creating authentic pedagogy aligned with the discipline (Allie)	using DP to bring in examples to "make concrete" - Disciplines provide context (i.e., examples, connection points) (Deron, Sawyer)	translation of research to support faculty teaching (Hudson)	to make sense of the teaching situation/challenges that faculty may be faced with (Tracie)	to help others learn in this new space (Yvette)	to complement the expertise of the team (Gabi)
Shows up as ... (category of description)	Translation of my (FD) expertise (translation of my DP to contribute to work)	DP is the object of translation (the thing being translated) (translation of DP)	DP is the tool for translation (translation with my DP)	Translation of FD background to be applicable and helpful in new context (translation to support faculty's understanding)	translation of the situation	translation of concepts/object in the work	translation of other's DP to learn from each other

Iteration 2: Abstract Naming of Categories. This iteration is characterized as a process of naming initial categories found within the pools of meaning. This iteration followed a general process of 1) relating pools of meaning to the core phenomenon of disciplinary perspectives 2) naming categories that represent what the pools of meaning capture and 3) looking for integrating concepts and features within the pool of meaning. The focus here was on analyzing themes within activities of educational development work and what educational developers are trying to achieve (i.e., their goals and work activities), the role of disciplinary perspectives, and their practices.

In this iteration, different pathways for the analysis emerged. For example, one pathway focused on translation that led to the development of categories as ways of experiencing translation activities. However, in alignment with the phenomenographic nature of this study, the aim was to establish ways of experiencing disciplinary perspectives in the context of translation activities. Therefore, with a refined focus on disciplinary perspectives as an object in collaborative interactions, four distinct features of disciplinary perspectives in the context of translation activities emerged. Building from Iteration 1, the major shift here was in the identification of features of disciplinary perspectives which formed the basis for seeing relationships and interactions with disciplinary perspectives. The features of disciplinary perspectives emerged as shared, distinct, multiple, and transcendent ways of working (Table 3.11).

Table 3.11 Ways of working as distinct, shared, multiple, and transcendent.

Ways of Working as Features of Disciplinary Perspectives	Description
Distinct	Recognition of distinct disciplinary perspectives arising from unique ways of disciplinary knowing, methods, approaches, and cultures.
Shared	Recognition of similar disciplinary perspectives and/or elements that are shared between disciplines as ways of disciplinary knowing, methods, approaches, and cultures intersect and overlap.
Multiple	Recognition of multiple disciplinary perspectives as different disciplinary perspectives come together in collaboration and inquiry.
Transcendent	Recognition of broader disciplinary perspectives that transcend spaces of inquiry and extend beyond distinct ways of disciplinary knowing.

These four features established a way of conceptualizing disciplinary perspectives as an object that offered particular affordances for collaborative interactions. Along this analysis pathway, the analysis focused on the ways that participants described their engagement with disciplinary perspectives as distinct, shared, multiple, and/or transcendent ways of working. This stage also considered the emergence of integrating concepts that hold the categories together as a

comprehensive outcome space. For example, ideas of co-creation as mutual building and development, externalization of disciplinary perspectives to bring forward ideas, distinguishing between objects and activities in the work of translation, context-centered perspectives that highlight the environment and situation, and educational developer-centered perspectives that focus on seeing disciplinary perspectives from the educational developer's point of view, emerged as different ways of interpreting the meaning of disciplinary perspectives across categories.

Iteration 3: Looking at features that led to variation in ways of experiencing the phenomenon. A major part of a phenomenographic analysis is to discern the critical features and qualities of the phenomenon within each pool of meaning. This discernment is based on the structural (i.e., internal and external horizon) and referential features of the phenomenon that make each category distinct (Marton & Booth, 1997). Building from Iteration 1 and 2, this process of discernment first involved sorting excerpts into the categories to identify key qualities within each category and compare across categories. Excerpts were sorted to align with the features of disciplinary perspectives as distinct, shared, multiple, and transcendent ways of working. Once the excerpts were sorted, the analysis process considered how the participants described their experiences: Is this a description of participants' activity, work context where their activities happen, or practice of what they do? Then, based on their description, a reflective analysis considered how this description translates into what they experience (i.e., what are the features of the object that afford this way of experiencing the object?). Figure 3.5 below illustrates the questions used in this reflective analysis to build up from the meaning units of the data to the way of experiencing the phenomenon.

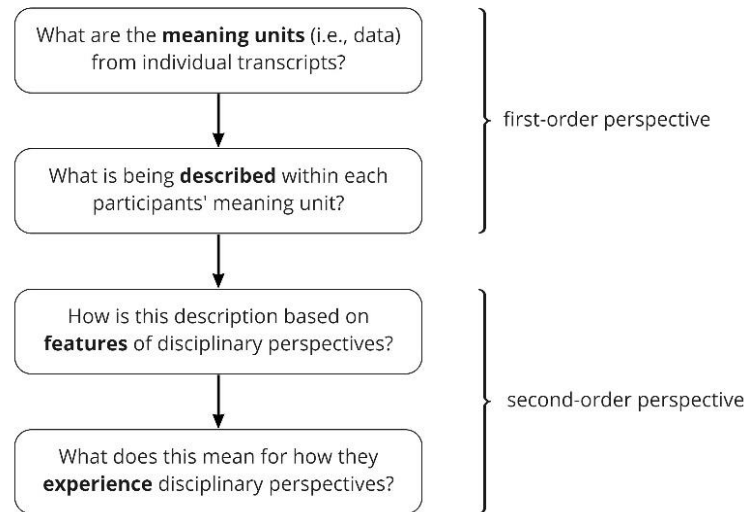


Figure 3.5 Reflective questions used to move from participant descriptions (first-order perspective) to features of the experience (second-order perspective) throughout the analysis.

As shown in Figure 3.5, data was considered from a first-order perspective and a second-order perspective. The second-order perspective aims to abstract meaning from the data in terms of the features of disciplinary perspectives as it appears to the participant. As such, the second-order perspective is characterized by the way that the data provides insight into the relationships that participants have with the phenomenon (i.e., this object has these features that I notice, and so I interact with this object in this way because it presents itself to me in this way).

This third iteration resulted in the formation of five categories of description. Initially, four categories were formulated corresponding to the four ways of working afforded by disciplinary perspectives (i.e., distinct, shared, multiple, and transcendent). A fifth category was created to recognize how distinct ways of working operates in two ways: 1) from the perspective of the faculty developer and 2) from the perspective of the collaborator. This iteration also focused on the development and discernment of qualities that describe each category of description by further interrogating the meaning of the data found within each category. For example, participants discussed the importance of achieving faculty buy-in for the implementation of new initiatives. Participants also saw how faculty bring their disciplinary perspectives as direct expertise to the problem at hand. While these two ways represent two different goals for educational developers, they both center around the broader aim to understand faculty. Therefore, it was determined that these elements represent and describe qualities of a category, not qualitatively different ways of

experiencing the phenomenon of disciplinary perspectives which would result in these two ways being discerned into two separate categories.

In this iteration, visual representations of each category were generated to support the analysis and focus on the perspective of the educational developer. These visuals helped to set the context for the categories of description and test for qualities and distinct elements within and between categories. As such, this major iteration focused on building out the categories of descriptions to ensure the comprehensiveness and detail of the categories as distinct and connected.

3.4.7 Stage 7: Establishing stability of categories

This stage involved naming the categories to capture the meaning of each category as a distinct way of experiencing the phenomenon. In this stage, categories of description were compared to achieve two goals (Åkerlind, 2005): 1) to ensure that “a set of different meanings” (p. 329) were captured for each category and 2) to build “a logical structure relating the different meanings” (p. 329). Towards the first aspect, I identified specific qualities of each category to describe elements of the category that gives the category meaning in the context of educational work. These qualities are based in the way participants described how disciplinary perspectives appeared to them, and therefore, provide a grounded way that is based on the data to interpret and understand the meaning of each category. As part of developing the qualities of each category, I considered excerpts that were challenging to discern similarities and differences within a single category. These excerpts were considered to be cases at the border of the categories, or cases that crossed multiple categories. To test these cases, and to gain a deeper insight into the categories of description, a test protocol was used (Table 3.12) to assess the meaning of each category. In addition, I was sensitive to how participants may be describing elements of their practice in educational development, as the things that they do in their work, but that practices do not constitute the qualities of the category. Practices of educational developers may cut across multiple categories of description and do not distinguish the categories or the relationships between categories.

Table 3.12 Test protocol for establishing the stability of the categories of description.

Category of Description	Questions
Category 1	What is evidence that the description illustrates how the participant is speaking from their own disciplinary space?
Category 2	What is evidence that the description offers ways of understanding within different disciplinary spaces?
Category 3	What is evidence that the description offers different ways of thinking within the disciplinary space/frame?
Category 4	What is evidence that the description speaks to an expansion of the disciplinary space/frame?
Category 5	What is evidence that the description is representative of a new and different space/frame?

This stage of analysis brought together the logical progression of experiencing the phenomenon across categories, starting from Category 1 to Category 5. As Åkerlind (2008) described, “the different ways of understanding that emerge are not constituted independently, but in relation to each other. These different ways of understanding may commonly be ordered in terms of inclusivity of awareness, where more inclusive ways also represent more complex ways, indicated by an increasing breadth of awareness of different aspects of the phenomenon being investigated” (p. 243). Relationships among categories were threaded throughout stages, 4, 5, and 6, where different structures of the outcome space (for example, see

Figure 3.4) provided different ways to see the discernment of features and relationships. By showing how the categories hold together as an integrated understanding of the phenomenon, these connections represent a trajectory of logical progression that completes the comprehensiveness, stability, and coherence of the outcome space.

3.4.8 Summary of Analysis Process

Each stage of analysis resulted in specific outcomes that contributed to overall analysis process. Table 3.13 below provides a summary of the outcomes from each stage of analysis.

Table 3.13 Summary of analysis process and outcomes.

Stage of Analysis	Outcome of Each Stage
Stage 1: Data Preparation	Data transcripts anonymized and prepared for full analysis. Initial surprises and highlights identified.
Stage 2: Data Sensemaking and Coding Development	Development of coding structure with nine overall coding groups Data sensitization and initial sense-making.
Stage 3: Coding Application and Synthesis	Fully coded data set Formulation of participant case notes and storylines
Stage 4: Conceptualizing and Identifying Meaning Units	Identification of meaning units based on coded data. Refinement of the phenomenon of disciplinary perspectives. Convergence on translation as common theme and work activity of educational development.
Stage 5: Collecting and Organizing Pools of Meaning	Formulation of seven pools of meaning to structure meaning units.
Stage 6: Formulating Categories of Description	Multiple prototypes and displays of categories of description. Identification of 4 features of disciplinary perspectives as distinct, shared, multiple, and transcendent ways of working.
Stage 7: Establishing stability of categories	Final five categories of description Convergence on logical structure

In the next chapter, I present the final five categories of description and the corresponding logical structure that make up the outcome space of phenomenography.

4. FINDINGS

The findings of this study are presented as five categories of description that represent the five distinct ways educational developers experience disciplinary perspectives. These categories of description make up the phenomenographic outcome space. As presented previously in this dissertation in Chapter 2, disciplinary perspectives are defined as ways of seeing and approaching phenomenon in the world. Educational developers interact and engage with disciplinary perspectives based on the way they experience disciplinary perspectives in their work. In the context of educational development, this means engaging with others in ways that support and advance the teaching and learning mission of their institutions. Specifically, the findings of this study are grounded and situated in the work of educational development, where the activity of translation emerged as the core integrative thread throughout participants' description of their work. In the following sections, I present the findings of this research as a comprehensive and coherent phenomenographic outcome space consisting of two parts: 1) five distinct categories of description and 2) the relationships between each category. Taken together, these findings represent a comprehensive and coherent outcome space for the various ways educational developers experience disciplinary perspectives in their work.

4.1 The Outcome Space

In educational developer's work of translation, disciplinary perspectives afford distinct, shared, multiple, and transcendent ways of working. Distinct ways of working means that disciplinary perspectives bring specific ways of seeing and approaching situations based on theories, concepts, and methods grounded in disciplinary knowledge and traditions. Shared ways of working means that among disciplinary differences, there exists similarities, commonalities, and connections between disciplinary perspectives. Multiple ways of working builds from distinct ways of working in that collaborators acknowledge multiple ways to approach situations based on disciplinary perspectives. Finally, transcendent ways of working acknowledge how disciplinary perspectives are transformed and abstracted at different system levels within a given situation. These four different ways of working are described as the core features of disciplinary perspectives,

as these features are the basis from which disciplinary perspectives are experienced. Based on these core features, educational developers experience disciplinary perspectives as:

1. *internal frameworks* to bring forward their expertise
2. *user-centered needs and contexts* for development and support within a disciplinary space
3. *connected similarities and differences* between disciplinary spaces
4. *co-constructive expansion of ideas and identity* to open up disciplinary spaces for mutual learning and development
5. *holistic reframing* to enable agency and broader meaning-making that transcends disciplinary spaces

Across all categories, the work of educational development involves educational developers to engage in translation with diverse disciplinary perspectives in relation to particular disciplinary spaces. I use the term *disciplinary space* to represent the conceptual space where disciplinary perspectives interact to achieve the work of educational development. The disciplinary space speaks to the context of engagement with disciplinary perspectives, where disciplinary perspectives are brought to the space. The outcome space comprising of the five distinct categories of description is presented in Table 4.1. The double line in Table 4.1 signifies that Table 4.1 is one connected table, while separating the core features and core qualities of each category, from the situated elements (i.e., social interactions and contexts).

Table 4.1 The phenomenographic outcome space depicting five ways of experiencing disciplinary perspectives in translation work of educational development.




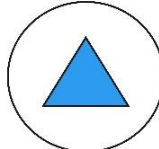
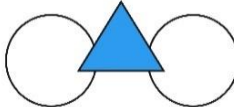
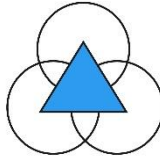
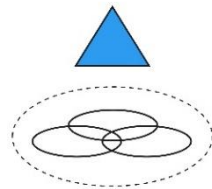
 Educational developer	 Disciplinary space	Category 1: <i>Internal frameworks</i>	Category 2: <i>User-centered needs and contexts</i>	Category 3: <i>Connected similarities and differences</i>	Category 4: <i>Co-constructive expansion of ideas and identity</i>	Category 5: <i>Holistic reframing</i>
Representation of position of educational developer in relation to disciplinary space						
Core feature of disciplinary perspectives as ways of working		Distinct ways of working	Distinct ways of working	Shared ways of working	Multiple ways of working	Transcendent ways of working
Core quality of activities of translation		Translation of their own disciplinary perspective for themselves and for others	Translation to understand the needs and contexts of disciplinary users.	Translation to make connections between similarities and differences.	Translation to build new and expanded understanding.	Translation to see broader contexts and cross-connecting ideas

Table 4.1 continued

Situative Elements		Category 1	Category 2	Category 3	Category 4	Category 5
Social interactions of translation	Interaction of educational developer in relation to disciplinary space	Occupying one's own disciplinary space	Stepping into the disciplinary spaces of others	Stepping between the disciplinary spaces of others	Stepping across disciplinary spaces with others	Stepping out of the disciplinary space
	Intention of educational developer in relation to disciplinary space	Recognize one's own disciplinary contribution	Intention to understand disciplinary specific needs and contexts of others	Intention to think differently about some phenomenon and/or situation	Intention to expand the space of thinking	Intention to transcend the space of thinking
Context of translation	Focus (object of interest) of educational developer's intention	Self	Artifacts	Problem situation	Ideas and identity	Socio-cultural Systems
	Nature of problem in relation to disciplinary space	Problem of interest exists within the educational developers' understanding of their disciplinary perspective	Problem of interest exists within the disciplinary space	Problem of interest exists outside of the disciplinary space	Problem of interest exists across disciplinary spaces	Problem of interest is abstracted from disciplinary spaces

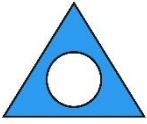
Each category of description is characterized by distinct activities, social interactions, and contextual understanding, as described by the following elements:

1. Educational developers' *position* in relation to their own disciplinary space and the disciplinary space of others
2. Educational developers' *interaction* with these disciplinary spaces
3. The *intention* that educational developers bring to the collaborative interaction
4. The *focus* (object of interest) of educational developers' translation and developmental work
5. The *nature of the problem* situation in relation to the disciplinary space

Each of these elements align with the situated nature of each category. Particularly, each category represents a distinct relationship between educational developers and the disciplinary space where disciplines interact. The activities within each category are described by a set of qualities that represent the kind of actions educational developers engage in as part of their translation work associated with each way of experiencing. These qualities are grounded in participant's description and meaning following from the phenomenographic analysis. These qualities show how each category, as a distinct way of experiencing disciplinary perspectives from the perspective of educational developers, manifests in the work of educational development. The contextual understanding is described as the context of translation which includes the object of translation (i.e., *focus*), and where translation occurs in relation to the disciplinary space (i.e., *nature of problem*). The social interactions are described by the *interaction* and *intention* of the faculty developer in relation to disciplinary spaces. The interaction characterizes the movement of the faculty developer between disciplinary spaces and the intention captures the particular way that faculty developer attends to the disciplinary space of others.

In the following sections, I describe each category of description and the accompanying features and qualities. I provide quotes and larger excerpts from participants' data that provide examples of the qualities of each category, as evidence for the way of experiencing disciplinary perspectives, and to illustrate what each Category means in educational development work.

4.2 Category 1: Internal frameworks to bring forward their expertise



“...for me when I think about my discipline, I also see it as sort of the framework in which I think about my work.” [Clara]

Based on the feature that disciplinary perspectives offer distinct ways of working, this frame captures how educational developers recognize and bring forward their own disciplinary perspectives to their work, and how their disciplinary perspectives and professional experiences influence their interactions. For example, Allie described aspects of her work as “fostering conversations” to help others have “a healthy, good, conversation about teaching and learning”. In this instance, Allie draws on her disciplinary background: “I think all of that [training] is my disciplinary background really informing where I take my conversations in educational development because I keep coming back around to [learning theories], as those arose out of that disciplinary path” [Allie]. In Category 1, educational developers experience disciplinary perspectives as their background context, a guiding framework, and basis from which they approach their work. In this way, educational developers experience disciplinary perspectives as *internal frameworks to bring forward their expertise*. This category highlights the personal reflection and self-awareness of educational developers as they experience their own disciplinary perspectives.

Qualities of Category 1: Internal frameworks involve educational developers:

- 1) using their disciplinary perspective as a framework to think of their work and the work of others.
- 2) recognizing their own disciplinary expertise and contributions
- 3) navigating learning situations and personal growth based on their disciplinary perspectives
- 4) drawing on their disciplinary education as background context for their work

Using their disciplinary perspective as a framework to think of their work and the work of others.

The qualities of Category 1 became evident in the way that participants described how broad ways of thinking, based in their disciplines, influenced how they respond to different situations. For example, Clara, Carleigh, and Iris—all from different disciplinary backgrounds—described the nature of systems thinking as it appears in their work.

Clara: And I think that's the way the discipline just sort of trained me, it tends to be a very sort of systems thinking discipline. So social workers don't usually work as an individual, they are part of a larger system. We understand that individuals that we work with are a part of family systems and education, like larger systems, so we're always thinking about what are the connections and disconnections. And so for me when I think about my discipline I also see it as sort of the framework in which I think about my work.

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Carleigh: I would say I take systems engineering and I have used that a lot within the work I currently do in the faculty development. And that, I'm only thinking about my planning of what programs and services as a center I offer and kind of that systems point of view. Okay. If I'm going to... My goal is to enhance the work of our faculty, and ultimately enhance the learning experience and outcomes of our students, thinking about kind of what ... pieces are necessary for that to happen and thinking about not only within my office and my center, things I have purview over, but what other pieces on campus and elsewhere that would contribute to that. With the lens of our faculty as the ones who we're serving in this broad ... everybody, anybody on campus kind of thing.

Carleigh: But the other part is that I've had this pilot project where I intentionally bring systems engineering in it and it's an internally funded, really small seed project where a few of our [00:21:37] STEM faculty members participated and trying to get them to take a systems approach to student retention and success as opposed to, "here's my class, the students aren't doing well or I'm seeing students when I'm advising them and they're not doing well." But taking that broader approach, and so we do some systems mapping in this small pilot program and we kind of talk about how different pieces, whether it's advising from our advising office or financial or in the classroom things, policies, how all those interact with teachers, so my goal there is to help our faculty members engage in conversations and then perhaps also they're change in mindset and perspectives of how they view and how they can support student success in ways beyond my class.

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Iris: So in biology, and in particular in ecology, with these horribly complex systems, the questions are, if you push one lever, what happens,... if you push two levers, what happens,... if you push one lever up and one lever down, what happens? So that kind of mental arrangement of thinking about how change filters through a system is something that I've worked with my colleagues as an educational

developer quite a bit, helping people specify what, in fact, is the change model of this idea. You want to do this great project, but how is it that this project is meant to work? Why do you think that this project is going to have the impact that you think it is? What's the step of levers that when you push them is going to result in the outcome that you think is going to result in?

Another example of broad ways of thinking that participants bring from their disciplines is in Brooke's description of student-centered thinking.

Brooke: I just remember that some people have said over the years that because of my disciplinary background, I'm always on the student's side. Right? And so then I got more careful about appearing to be more on the faculty side. Because mine led me to always have a student-centered approach. But if faculty have not already been converted to that student-centered approach, they found my discipline and background made them feel I was too soft or not on their side. So, I had to learn to be careful about early on espousing some of the values of my discipline that wouldn't be generally as easy to consume.

Recognizing their own disciplinary expertise and contributions

Experiencing disciplinary perspectives as Category 1 is also characterized by personal reflection and self-awareness of one's disciplinary background, as Brooke described the meaning of her disciplinary background in the context of teaching and learning.

Brooke:I think the first step is actually to realize what your disciplinary area perspective is, what it's taught you to think about students. What it's taught you to think about what's a good teacher. What it's taught you to think about the learning processes. Because if we have a developer who hasn't actually analyzed their own subject area or their own disciplinary area, then they're going to be continually shocked and disappointed when people are not responding to their situations that they're raising because it's going to influence their approach, their style, their suggestions for student interactions, everything.

In a similar way, Gabi described how she experiences an internal sense of disciplinary perspectives as influencing her interactions and opportunities to learn.

Gabi: I think, to go back to reflection, I think it's to ponder, to be more open to even looking at your own, so you as an educational developer being open to what your background is. So it's not just encouraging your peers and the people you're working with but to kind of lead by example. So, being open in saying, "Okay, well, I come from biology perspectives, or I come from sociology perspective, however this is how I acknowledge that, that shades or influences what I'm proposing to you." We have to acknowledge, we can't deny, we are all obviously influenced by what we learn, what we're exposed to in our own learning experiences. So in that way, we can't get away from our disciplines, but we have to just probably be more aware

and to be more reflective on "okay, well, how is that?" And even acknowledging bias.

Gabi: I mean, there's many times when I've had to say that... even when that doesn't make sense here, you're looking at this as a sociologist but that's great, but that doesn't fit here. Or sometimes it might. Like I said, you're always surprised when, "Oh, my God, this isn't sociology, but it totally fits over here." But sometimes it's just not going to and you kind of have to let those biases go and just be like, "Okay, this case, it's a learning moment and I actually have to learn to look at this from a biological focus or whatever." Maybe I don't have those skills. Maybe I need to ask someone or maybe I need to read something or whatever, right? So we just all have to be more aware of how... just like how our, like I said, our culture and our society influences what we're learning. The institutional context, right? Like where does education's role fit? Maybe it's very well supported in your faculty. Maybe it's not. Maybe nobody knows who you are or what you do. Maybe it's applauded and awarded daily. I don't know. Yeah, the context behind, just shape everything.

Navigating learning situations and personal growth based on their disciplinary perspectives

Gabi further described how she draws connections with her disciplinary background as a way of navigating unknown situations:

Gabi: Yeah. Like I said, sometimes I have to sit back and be like, "Okay, don't freak out," because if something's kind of new to me, like... I don't know... Like I said, this physics project I'm involved with [00:25:52]. Like, literally I don't really understand the questions they're asking, like it's very physics, right? But I understand the broader question they're trying to get at is, "Are students learning these concepts? Are we teaching appropriately to get at these key concepts in this introductory course? And how do we assess that?" Right? I think that my background in both sociology and education allows me to kind of doing that "stepping back" and kind of looking at the bigger picture. And understanding, "Okay, here we're looking at student outcomes. We're looking at concepts. We're looking at concept inventories. We're looking at teaching methods, teaching styles, different methods of assessment and evaluation." So, all of my training and education in looking at effective ways of learning and effective practice. And then from a sociological perspective, looking at "Okay, well, what...how does people's own backgrounds, so their cultural or social background, influence how they're coming at these concepts.

Gabi: And also likewise trying to convince, in some cases they get it but other times to get faculty to see that, "Okay, fine. I don't have a physics degree, but I understand, I can help you in the classroom. I can show you what's working, what's not. I can kind of bring that lens as well." And in the past, as well, when I've worked in other universities or other centers where it's more broader, I certainly see myself, because, like I said, I do have the social science background. But it's quite broad and I can kind of see how the different theories and methods that I've learned, they can be

applied to a range of different fields. Even some places, it surprised me sometimes, where I'm like, "Oh, wow. That was something I did in psychology, but it totally applies over here in this chemistry classroom." So, super cool. I think just people just need to be open to every new...ways of viewing, I guess.

As a way of making sense of their learning Harper spoke to the way disciplinary perspectives inspires them to broaden their disciplinary perspectives to be able to grow as an educational developer and connect with others.

Harper: Anyway... and so, finding that I can use these opportunities [of disciplinary interactions] to grow as an educational developer, both in my career, but then also to be able to speak to people who might not otherwise hear me, I think it's a little frustrating that they wouldn't listen to or that I fear that they might not listen to this more radical stuff in the first place. But there's a part of me that thinks like, "Well, maybe they can start to, if I also know how to speak this language. [Harper]

Harper: But I think those in general conversations between minoritized folks toward coalitional understanding or collaborative understanding, to me is really valuable. But there is also a part of me that I think having those other perspectives helps me sharpen my skills in terms of who I talk to, and what I'm able to do and it also pushes me out of my comfort zone. I think I'd be more if I was told, "Okay, you have the next week free. Go and prepare either a large scale critical qualitative project, or a large-scale survey."

Harper: I would be scared, frankly, to develop the survey and I wouldn't know, I don't have the expertise. And I think, my hope is that having these other perspectives, particularly in STEM areas where there's a privileging of numbers, of numerical measures, of quantitative measures, I'm resistant to it, and I think.... resistant to it from a value and ideological perspective. But I think there's also something to be said for... because I don't feel equipped to do it, I may be a little scared of doing it. And so, it pushes me out of my comfort zone, I think in some important ways, as well. And I'd like... I'd like to be able to... if I truly do want to hold the ideology, that qualitative research, better expresses and better works towards the things that I am trying to say I do, then I should know...I want to know better what the thing that I'm saying it's better than is.

Wendy also expressed feelings of internal tension in navigating unfamiliar boundaries between being a novice in some disciplinary spaces while an expert in other disciplinary spaces.

Wendy: ... I find it a really big issue when people come to talk to you about doing scholarship of teaching or research on teaching and learning. That they want you to be expert in every possible dimension of research on teaching and learning. And I often have to say, "I can point to and I know where to find that, but I'm not expert in that particular aspect of research on teaching and learning. My research expertise is on kind of critical pedagogy and democratic forms of education." And so there's a lot of boundary spanning that goes on there where I'm also an emerging scholar. I find that hybrid identity of, "Am I novice? Am I expert," an interesting tension

and I think that might also translate for people that might be in a more traditional educational development roles, especially in your early days, it's without a professional framework or some kind of formalized induction, I find people are probably finding their way in very different ways around that hybrid novice.

Drawing on their disciplinary education as background context for their work

As evidence of Category 1, Morgan described a tension in his role serving on a collaborative project where he brought disciplinary expertise to the project but was not necessarily on the project for his disciplinary expertise. Instead, his involvement on the project was as an educational developer representing the perspective of his educational development role and portfolio.

Morgan: It was very challenging to try to find the right hat to wear for that [interaction]. Because I was on this project, and that also sort of goes back to my comment I just made about, if we only sent the engineers to engineering. Because I was on the project from the inclusivity perspective, but it also helped that I had a disciplinary perspective that could inform the project.

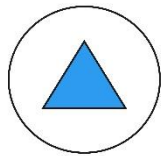
Morgan: So, I sort of was tasked with this dually, as an education developer with a specific portfolio, but someone who has that portfolio because of their disciplinary perspective, so it was challenging to try to be just an education developer, without a discipline. You know, to represent the [Name of Center] on this as the [Name of Center], with pedagogy as its discipline. Or, the scholarship of teaching and learning as its discipline.

Morgan: Because when I'm hearing these conversations I'm bringing to it, as a human being, over 11 years of study, and publishing, and teaching in this field as well. And I think that, other than the one specific moment, that helped a lot, because that was a lot of perspectives and a lot of different examples that we could bring in to make sure that everybody was able to access the material in a specific way. But I remember very much feeling that tension of reminding myself of who I was here, right? Because I wasn't put on it because I had this background, right? I was put on it because I was from the [Name of teaching and learning center] with this background.

The qualities of Category 1 are centered on the way that educational developers engage with translation of their own disciplinary perspective for themselves and for others. In terms of the contextual understanding (problem and purpose) that is afforded with Category 1, the problem of interest for translation exists within the educational developers' understanding of their disciplinary perspective. By engaging with broad disciplinary ideas, bringing a self-awareness of their disciplines, using their backgrounds to navigate unknown situations, and seeing their unique disciplinary role, educational developers focus on the translational development of themselves so

that they may support others. The social interactions (position and perspective) of educational developers is such that they are occupying their own disciplinary space. This way of experiencing disciplinary perspectives acknowledges how disciplinary perspectives are internalized by educational developers to support their own sense-making. With Category 1, educational developers bring a unique perspective that situates their contribution to their work and establishes the foundation for other ways of experiencing disciplinary perspectives through various interactions with others and among diverse disciplinary spaces.

4.3 Category 2: User-centered needs and contexts for development and support within a disciplinary space



While I have a kind of weird trajectory with my own disciplinary focus, given that I've been in social sciences and business and education and so on, that I have to be able to occupy your disciplinary space when we're talking or at least [inaudible 00:13:59] into it and try and understand how you might frame and understand things coming from [your] mechanical engineering background. [Wendy]

Similar to Category 1, this category is based on the recognition that disciplinary perspectives offer *distinct ways of working*. As such, this category captures the way educational developers experience disciplinary perspectives in the distinct disciplinary spaces of others. In Category 2, educational developers experience disciplinary perspectives as *user-centered needs and contexts for development and support within a disciplinary space*. Here, educational developers are focused on understanding and making sense of the context and needs of those they work with and serve within a specific disciplinary space.

Qualities of Category 2: User-centered needs and contexts involve educational developers:

- 1) creating artifacts and supports for disciplinary users and experts
- 2) recognizing unique disciplinary contexts, pedagogies, and expertise of others
- 3) building disciplinary understanding and relationships through similar disciplinary contexts and common ground
- 4) translating broad educational research and insight to inform disciplinary teaching practice

Creating artifacts and supports for disciplinary users and experts

The qualities of Category 2 all represent how educational developers engage in translation to understand the needs and contexts of disciplinary users. For example, Allie described how she worked with disciplinary users to create pedagogy that aligns with what it means to be a professional in the discipline.

Allie: There was one time I was working with someone in [professional discipline], and they really wanted their content to be case-based and wanted the technology that they were going to be using as a blended or online activity to be very responsive to the case so that the case would adjust as the students engaged. It wasn't just a clean cut get to the right answer, it was a pathway that students could follow. The pathway could be... multiple pathways could have been correct. At multiple places along that pathway, the instructor wanted to be able to interject and really correct the students' line of thinking.

Allie continued to explain the needs of the discipline and why it was important for the pedagogy to be designed with “multiple pathways”.

Allie: ... the faculty member who I was consulting with, she talked a lot about how the case needed to be that way because that's the practice of the [disciplinary professional], that you're faced with a conflicting set of conditions that a person may have that you're trying to diagnose and figure out how to best work with that person and treat that person. When you're off on your own as a [disciplinary professional] there's no checking in to a textbook to say that you're on the right track. You have to be constantly sort of reassessing yourself but from your own knowledge as to whether or not you might be on the right track or whether you need to tweak the way that you're approaching that case.

Allie's experience illustrates Category 2 in the way she relates to disciplinary perspectives by supporting disciplinary users in the creation of pedagogy for specific disciplinary use cases. Mack, Finn, and Hudson also explained their attention towards developing targeted support mechanisms through their faculty interactions and consultations, based on the disciplinary backgrounds of their faculty. In this way, they acknowledged the unique disciplinary contexts, pedagogies, and expertise of others.

Mack: But I think that particularly with the teaching and the research on the teaching is very contextual and disciplinary, and very specific. Not necessarily that the research itself is specific, but because you've got folks largely who are coming from disciplines where they don't do what often might be considered social science research.

Mack: Anyway, but I think that if you are a philosopher and you do want to do interviews and focus groups, or you do want to do surveys, that your experience of

those things is very individual to you. How I help you get to where you want to go, to get to where you want to be, and how I can support you in that journey is, I feel like is fairly specific to you. A big part of what I do is consultations, it's time intensive but when I do workshops, when I do presentations, I feel those are helpful. But they're generic in a sense.

Mack: And so I think the next step often is those consultations to take what we've talked about in the presentation or the workshop and tailor it to you and your situation.

Finn described how he takes multiple approaches to support faculty in ways that are effective for them.

Finn: And the only way to do that is to show them that other people in your field may have tried it or that you can try it, and I'll be there to support you? It's really finding that approach with them. As far as my discipline affect my interactions with faculty, there's a multiple of approaches of engagement that I can take with faculty just like they can have multiple approaches with their own students to find what they're engaged with. I think anybody who takes either just to be intrinsic versus extrinsic motivation or I'm just going to do self-efficacy. That's really limiting their approaches with the students.

Finn: Or my approaches with the faculty, that should be multi-directional that there could be more approaches than one particular that'd be most effective. It's kind of exploring what that is. I don't know until I get to know the faculty member, what's going to be effective for them.

In a similar way, Hudson described the importance of being “open to understanding” to see “what’s important to [faculty] from their discipline”.

Hudson: You just have to be open to understanding that first, asking the right questions, and... and you have to be open, you can't say, "Yeah, I'm your Faculty... I'm your Educational Developer, I have all the answers, and this is what you should be doing". Really, I think, it's mostly a matter of just reminding yourself to be open to what it is their trying to achieve and why that's important to them from their discipline and their approaches to learning.

Recognizing unique disciplinary contexts, pedagogies, and expertise of others

Category 2 is characterized by the way educational developers see themselves operating in the disciplinary space of their faculty colleagues (i.e., within the context in which disciplines are interacting). As Sawyer realized, “That was one of the things that I had to get in my mind early on was that you're only a subject matter expert in the discipline in which you were trained. You honor that other people have the subject matter expertise, you're just helping them understand the

teaching piece” [Sawyer]. In one instance, Iris described how she is able to see her colleagues as “disciplinary experts”.

Iris: It's almost like using English, you don't realize that the English that I'm speaking is different than the English that my history professor faculty member is speaking. It's just it's the same language, but it's like whole different parts of the language. That's both frustrating, but it's a lot of fun too because I get to see my colleagues being disciplinary experts. I get to come back to my office and be like, "Oh, they were telling me about this thing, now I got to look it up and find out more about that." Or I get to get a little experience of what it must be like to be in their classes when they're able to give me the three or four sentence summary of this major world event and the consequence and the application to our current day. And you're like, "Wow. I knew X happened, but I didn't understand that all of these aspects about it that you were able to speak so eloquently about." Those are ways that our disciplinary training shows up in educational development.

In similar ways, Yvette and Tracie both work to honor the disciplinary expertise of their faculty.

Yvette: And also [faculty] have a different vulnerability as well. So working with colleagues, you really need to... we are peers in a very real sense. I need to respect their disciplinary expertise. I need to hear them when they're telling me: “this is what it's like in engineering, it's very hard for us to do what you're suggesting.” I need to learn a lot about their context.

Tracie focused on being a partner with her faculty colleagues to make learning relevant in their disciplinary context.

Tracie: I am an adult educator and so I have deeply embedded in my bones the principles of adult education. Right. Which is one of them being that adults come with a set of experiences, that they need to be able to relate to, pull back from, they need to see themselves in whatever learning environment that they're in. They come with a set of experiences that they need to be able to relate to.

Tracie: If ever I'm doing a workshop where I'm working one-on-one with students, or professors for that matter, whatever we do has to be relevant. It's got to be relevant to their needs and it's got to be inclusive of their own perspective because ultimately, I want them to own what they're doing. I'm really partnering with them, helping them get the most out of what they think is going to help them to become successful, because I'm not telling anybody what to do.

Tracie: I'm saying, "Here is some data on best practices in the classroom. Tell me about your strengths. Tell me about your skills. What is it you want to get out? How can I partner with you to help you grow stronger in what it is you believe in? I come with the idea that I'm not a teller. I partner with you to help boost what you already know, where you want to go? You've got a set of experiences, you've got an expertise.

Building disciplinary understanding and relationships through similar disciplinary contexts and common ground.

Participants experience disciplinary perspectives as Category 2 through the different ways that they described how they connect with faculty in different disciplinary spaces. Clara described instances of connecting with faculty in a different disciplinary space by focusing on “where [faculty] resistance comes from”:

Clara: So I know nothing.... absolutely nothing about what they do, but I think my discipline is one that has taught me how to engage with folks who might be difficult, resistant, not interested in moving or change. So just understanding where that resistance comes from, we're being trained to unpack where the resistance might be coming from, and then allow the individual to dictate where they go, are kind of the tenants of what I've learned. So I think that that's what makes those relationships work, I think. I don't want to think that it's me, necessarily. It could be partly me, people, individuals, connecting...but I attribute most of it to what I learned and then using it in that space.

When confronted with disciplinary differences, Carleigh described her approach to understand the meaning of the language used.

Carleigh: And so I find myself having to ... having tried to find ways to understand and learn about a discipline...a discipline in that, well I think I already mentioned...sometimes the way they talk about certain things are going to be different. And so if I have a conversation and I find myself [inaudible 1:00:12:46]that's not quite getting somewhere, it's perhaps because I'm not fully understanding if they use a particular phrase or term, not a technical term within their discipline, but [inaudible 01:12:57] say teaching and learning even, something more broad,... that I understand them and their understanding me because it's this whole... Right

Carleigh: Like the challenges you would face in some sort of interdisciplinary, multidisciplinary collaboration, right? There's that terminology in how you talk about things... And so I had to try and find ways to get a better sense of "well you know, what are these key important things say in the humanities, in the social sciences, in business, in health profession." And so the way I did it was just by asking questions and hearing from them and asking them tell me more about what you mean when you say fill in the blank. Because I'm not familiar with ...you know what happens in history for a history major and whatever project or a writing project might look like.

Iris described her ability to connect with faculty in different disciplinary spaces by drawing on “parallel” concepts, despite herself not sharing in the same background knowledge:

Iris: Even though I'm not a mechanical engineer by any stretch of the imagination, when that colleague says something like, "Oh, well, that's a system initiation problem," you're like, "Oh, of course it is." It's like it immediately makes sense. So

then we might have a conversation. In this group, we might have a conversation about, "Okay, well, in systems in general, what kind of things cause initiation problems?" Well, there's not enough lubrication, there's not enough energy input into the system. Whatever it is. And then, well, okay, well, what's the parallel? What's the parallel here? People have access to different types of metaphors and different descriptions of a system or of a situation, and that just provides more points of a contact with working with a diverse group of people. That's one way in which it's always intriguing to work with people with different disciplinary backgrounds.

Similarly, Deron described how he uses disciplinary context to find “common areas” in his consultations:

Deron: And it's part of my job to find common areas to do my training for when I'm teaching my class or my consultations because I don't know, I might not know ... I'll give you an example that came up recently. I might not know how to calculate stress in soil and how it impacts the foundation of a structure, that is trying to be built. But what I do know is the characteristics of the class that is being taught and the challenges that that class have might be reduced or minimized or addressed by using this pedagogy or this technology.

Deron: But in order to explain it, I need context. And so I often find myself relying on examples from my own education and bring that in because it connects with the people and they'll understand it. And there's a foundation. So I will heavily rely on things like calculus or stats or programming when I'm talking with certain faculty because I know that some of my electrical engineering faculty use [a specific software] and so they have training in some type of programming. Sure, they're more hardware and my thing is more software, but I get it and I understand the concept and so I can use that example to help explain a pedagogy or a technology that I'm encouraging them to use.

Each of the above examples from Clara, Carleigh, Iris, and Deron, illustrate how participants experience disciplinary perspectives as Category 2 through the different ways of connecting with faculty in different disciplinary spaces. From the phenomenographic second-order perspective, the relationship that participants have with disciplinary perspectives is that they are experiencing disciplinary perspectives as understanding user-centered needs and contexts in the disciplinary space of others.

Translating broad educational research and insight to inform disciplinary teaching practice

Category 2 is further characterized by the way that educational developers use their disciplinary background to translate educational concepts to teaching practices in the disciplines. As Sawyer described, “a large part of my job was to take the research evidence on best practices

in teaching and translate that for faculty in any discipline” [Sawyer]. For example, Mack brought a disciplinary “lens” from psychology to support others “where they’re at”, Charlotte identified her ability to translate educational research literature from multiple disciplines for faculty use, and Hudson focused on the way he helps faculty make sense of teaching evaluation data.

Mack: Apply psychological concepts in new ways, just again, because for me psychology is so interesting to me in the work that I do. I like to bring that lens to it where I can and where it's appropriate. And so fitting that lens, where appropriate, to that context that I'm learning about the new context, learning new psychology, it's just ...it's an interplay. But it does require me to learn other contexts and other lenses to a certain extent, so that I can be meeting people where they're at.

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Charlotte: I feel like the core of what I do in a lot of ways is that I understand and read and know the education space. Being able to read [a disciplinary scholarly journal], have conversations with engineering education researchers about their research and what they're doing, reading some of the educational psychology stuff, reading just some education stuff in general and reading it and interpreting it and then being able to translate it for our faculty to be able to use it in their classroom.

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Hudson: Yeah. I think the focus for me is trying to translate kind of the information that we have about teaching assessment into ways that people can improve their teaching and how teaching should be evaluated, which is another part of that. So, I think people get this feedback on their teaching and they're not necessarily sure what to do with it. I think like, if you've ever seen teaching evaluations... it's just kind of... students say a lot of things and it's not always clear how to interpret the statistics, so I think a big part of it is helping people make sense of that data and what parts of evaluations to read and how to use that performative feedback to improve teaching.

As evidence of the qualities of Category 2, participants recognized the distinct ways of working based in the disciplines. Sawyer and Harper described examples of how faculty’s disciplinary expertise brings two forms of expertise in the context of educational development: 1) subject matter expertise and 2) expertise in contextual understanding of pedagogy related to the discipline.

Sawyer: Yeah, particularly if beyond just disciplinary backgrounds there's people that bring experiences in teaching different ways, speaking specifically of... Let's say that everyone would agree that some, some goal that's a part of this initiative would include building on... on students written communication skills in better ways. And everyone would endorse that because in every field faculty complain that students don't write well. But many of them would say "but I don't know how to teach writing", or "I don't know how to really integrate writing into my

curriculum in a meaningful way", but if you have faculty there who bring that background, whether they teach the official writing courses in the English Department or are just very skilled at using writing in their curriculum in general, then they become resources for helping other faculty understand how to bring in teaching and assessment practices that may seem... may seem difficult to do because it's not within their experience, but they could develop more confidence in it because they realize they have all these [inaudible 00:50:43] to show them how to do it.

Sawyer: I'd imagine the same thing with quantitative literacy skill objectives or goals that might be out there. There might be something that involves, you know, critical thinking is always a catch phrase everyone wants to put into some sort of new learning initiative and you'll find people that actually have given thought to how to teach that within their discipline who can help others see how to teach it in their discipline even though they hadn't specifically been teaching it before.

Harper also acknowledged the way disciplines offer a level of subject matter "content" expertise directly related to the problem situation, while epistemic differences lead to "practical differences" in how ideas may be implemented in different contexts.

Interviewer: What role do you think, or do you see the disciplinary background and training might play here?

Harper: I think that it could range. And so, my first thought was thinking about like queer trans curriculum, and I think the disciplinary backgrounds go to just a very straightforward like content thing. You need people with the disciplinary background in the room just to be able to say something about, "Okay, what does a queer and trans perspective look like in terms of curriculum?" I think the other thing that a disciplinary background presents.... different disciplinary backgrounds presents is because there are these epistemic differences or these differences in ideologies,...people can approach a common problem with different frames and in doing so, be able to think about it very practically.

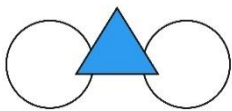
Harper: I think that that, what that means is both... what I mean by that is being able to both have very like practical differences, practically applied differences, but also being able to have... for example, if this is a new initiative, it's going to be a campus wide one, we can't have every single perspective in the academy present, because in a department of 15 people, there are 16 different ideologies. But having a lot of disciplinary differences in the room presents the opportunity to have those different perspectives to be able to say, "Ah, but what about applying this over here? Ah, but what about applying this over here?"

Harper: And the hope then too would be that that would allow for the initiative to actually have lasting power rather than be siloed to the group of people who would just go to the committee meetings for an initiative like this.

The excerpts shown provide exemplars of the relationships between educational developers and disciplinary perspectives as they step into the disciplinary space of others. In Category 2,

educational developers are translating the disciplinary perspectives of others such that they may best serve the needs of others. The problem of interest for translation exists within the disciplinary space of those whom the educational developer works with (which may be similar or different to the disciplinary space of the educational developer). Therefore, with this category, educational developers focus on the development of specific outcomes (i.e., building artefacts, solving a specific research to practice challenge) that meet the needs of others. The position and interaction of educational developers is such that they are *stepping into the disciplinary space of others*. Here, educational developers bring a unique perspective focused on understanding the disciplinary needs of those they work with. Where Category 1 recognizes the internalization of educational developers' disciplinary perspective brought to their interaction with others, Category 2 captures how educational developers realize the internalization of disciplinary perspectives in others brought forward in their interaction. That is, educational developers see disciplinary perspectives as internalized in others and work to make sense of the situation based on their interactions within the disciplinary space of others. By recognizing the unique disciplinary context and expertise of others, educational developers respond and adapt their approach accordingly.

4.4 Category 3: Connected similarities and differences between disciplinary spaces



I think educational developers are just uniquely positioned to see differences and commonalities. [Deron]

While Category 1 and Category 2 were based on disciplinary perspectives as distinct ways of working, Category 3 acknowledges that disciplinary perspectives afford *shared ways of working*. Category 3 highlights the ways of experiencing disciplinary perspectives in the shared space where disciplinary perspectives may be brought together towards a common goal. With Category 3, educational developers experience disciplinary perspectives as *connected similarities and differences between disciplinary spaces*. The qualities of Category 3 are held together as activities of translation to make connections between similarities and differences, outside of any particular disciplinary space. The following sections provide excerpts that capture the qualities of Category 3.

Qualities of Category 3: Connected similarities and differences involve educational developers:

- 1) transferring knowledge to different contexts
- 2) seeing different elements and thinking differently within a situation and/or frame
- 3) finding points of connection between differences
- 4) helping to interpret differences (i.e., differences in scholarship)

Transferring knowledge to different contexts

As a quality of Category 3, transferring knowledge to different contexts is reflected in the way that educational developers approach and support different ways of thinking. Finn explained his openness and role in supporting the transfer of knowledge to different contexts:

Finn: So, my opinion is that things you can learn from one field can in some way be translated to other fields, I really don't believe so much in that discipline specific knowledge base...although that's the way it is. People can fall into that way of thinking, like I said earlier, but that doesn't mean that they cannot get value from some other field. I think one of my challenges is to take things that work well in one....one professor work in an economics course, and try to have somebody do that in a different type of discipline. And even though they may not see the translation, I have to look at the... how that transfers between one situation and another.

At a different point, Finn described how the ability for faculty to transfer knowledge from different fields is only a “limitation of their imagination”:

Finn: I think there are some fields that are... I don't know, which come to mind, but there are some fields that are very holding onto that idea. And to me, it's just a limitation of their imagination that, “Can they translate something that's effective in one field to another?” I think anything that's effective in one field could be translated to another. It's just a matter of the limitation of the imagination of the people in those contexts to see those similarities, and maybe not all the elements of that methodology can be preserved, but some of those methods can be beneficial.

Allie also shared similar moments where she noticed faculty drawing distinct contextual boundaries around their disciplines in terms of what could and could not be done in their teaching and learning. However, Allie’s perspective maintained that different topics “could be incorporated into a broad range of courses and of content”.

Allie: ... I know there was one point where around the coffee table we were talking about reconciliation and indigenous pedagogy. The topic was really around the idea that you could indigenize, you could bring indigenous perspectives into any discipline. There were some who supported that claim, and then there were some

who challenged the notion that it could so easily be brought into literally any disciplinary topic....

Allie: Someone saying, “no, my discipline is my discipline. I don't see how you could possibly inject indigenous perspectives into that discipline” ... because it was one of those disciplines that had a notion of right or wrong or we are somewhat disassociated from issues of indigenous perspectives. I just thought that was really interesting because I don't know if it was my disciplinary background that lended me to thinking "of course indigenous perspectives could be incorporated into a broad range of courses and of content". But I remember that sticking out to me, and it was because that person had drawn on their disciplinary background to say, "no, I don't think it would fit into my courses and my content".

Evidence of transferring knowledge to different contexts is reflected in the way Yvette described the role of disciplinary perspectives in making “disciplinary translations”. Yvette identified two ways that disciplinary perspectives might appear. First, she acknowledged the scenario “where everybody is more or less in the same discipline” that requires her to adapt her methods to support the work. The second scenario is when there are people from multiple disciplines and she is working to help them understand each other. In this case, Yvette spoke to her ability to discern conflicts that present themselves as “interpersonal conflict” compared to “disciplinary arguments” that are fundamental to their discipline.

Yvette: I think what can really distinguish your ability to do good educational development work is the ability to make those disciplinary translations and kind of shifts from one to another. And it's also, I think that there are kind of two different ways that it operates. One is... If I go into a department where everybody is more or less in the same discipline, and I'm trying to adapt myself to help them accomplish a task, like a curriculum map, let's say.... but then there's also another kind of work where I'm hosting a workshop or a faculty learning community or like the SoTL development program and I have people in that room from all different disciplines.

Yvette: So then what I'm helping them do is understand one another, right? And to be kind of.... I think sometimes they need help translating what the other ones are saying, you know what I mean? And help them to be open minded and understand that.... Because they don't have the same opportunity that I do to talk to people from different disciplines every day. The other thing, I guess that I would say that's a new point is that...one thing that was really critical for me was to become more sensitive to internal disciplinary arguments as well. So sometimes I would start especially when I first started out, I would be working with a group or an area, and I would notice conflicts that presents itself as interpersonal conflict, and you just kind of think "people don't get along", which they maybe don't, but often at the root of it is actually some kind of disciplinary argument ...that they are on opposite sides of a fundamental disagreement in their discipline.

Seeing different elements and thinking differently within a situation and/or frame

This quality of Category 3 emphasizes how educational developers draw on disciplinary perspectives to see different elements within a particular situation. For example, in developing a professional development workshop that involved faculty from multiple disciplines, Iris acknowledged how the faculty involved in the project brought their disciplinary expertise to the project and how their expertise brought different thinking to the context of change processes.

Iris: So we created this three day workshop and had sessions throughout the three days that were focused on different aspects of change processes. So we had in the group a wide variety of people. So one of them was a faculty member from engineering management whose focus area is supply chains. So that idea of supply chains is like, how do you keep things moving? How do you make sure that you never have a stopping point because you're waiting on something to be delivered and all that kind of stuff? Some of that expertise was brought to the workshop.

Iris: We had two faculty members that were faculty in our technical communications program, so they offered things like, how do you develop an effective elevator pitch? How do you develop effective communication tools for your change process? We had a faculty... I'm trying to think of the rest of the group. We had a faculty member whose disciplinary expertise is in civil engineering and in failures and failure analysis, so that person was able to help people predict where things were going to go wrong, and so on with this kind of group of faculties.

As another example of seeing different elements, Peyton pointed to how “education development involves operationalizing content from multiple disciplines, and finding out how it can work together to solve various problems”. In this case, Peyton described how he focuses on a disciplines’ structure and assumptions in logic as a way to “see similarities and differences between work that’s coming from multiple disciplines”. This has helped in his attempts to make courses for teaching and learning that are “not narrow”.

Peyton: But I found that also useful in pulling together work from multiple disciplines, educational development, I think at its best which is to say, not necessarily how it's always practiced, but at its best, education development involves operationalizing content from multiple disciplines, and finding out how it can work together to solve various problems, whether they're problems in teaching and learning, narrowly defined, or their problems in educational policy, whatever, curriculum, whatever it might be.

Peyton: And so because I tend to focus less on the disciplinary conventions and surface nature of scholarly work and more on what's underneath them, their structures and their assumptions in your logic. I found it's fairly simple for me to see similarities and differences between work that's coming from multiple disciplines, and then to find out how I can apply that in my own work. So let's see. So over the time I've been working full time educational development, which is

coming close to 13 years. I think I have a ton of variety of courses for faculty members and graduate students on various parts of teaching and learning from really, really practical micro stuff like, facilitating discussions and lecturing, all the way up to philosophy and education.

Peyton: I found that being able to bring together multiple disciplinary perspectives and that sort of thing has being really useful in putting those courses together and making sure, or at least trying to make sure, that they're not narrow.

Peyton continued to explain his approach to supporting faculty sense-making of literature from different disciplines by “being able to help through the surface level differences”.

Peyton: So I'm not just relying on information from education scholars for instance, or psychologists or what have you. Also, a lot of curriculum level work, policy work, I was the chair of the [Name of Educational Developers Organization] for a while. And I tried too in that role, with no success-that was another issue... Bring that same approach to their...on, trying to mobilize education developers to be more active, influencing policy decisions. And then of course, consultations, with a lot of consultations involved in the job, at least in the way we do it here, so I've consulted with faculty members and graduate students and administrators from every discipline, and being able to understand what kind of work might appeal to them.

Peyton: What kind of scholarly work might appeal to them. And being able to help them sort through materials that they might have found and focus on the underlying logic has been useful, because let's say if you're a nurse or an engineer and you found some documents or some papers better from social psychology perspective or an educational perspective or even cultural studies. The differences in terms of how, those disciplines communicate, how they research, how they think of a meaningful question, how they interpret evidence. All of those things can sometimes be bewildering for faculty members who aren't from those disciplines, to make sense of and they really want to [inaudible 00:13:14] there tends to be people who really care.

Peyton: So being able to help through the surface level differences and help them make sense of what's underneath, and the meaning behind what they're seeing in that document, and then help them think through how they can make use of that in their work has been really helpful.

Finding points of connection between differences

Deron, Allie, and Iris described the ways they work to make connections across similarities and differences. Deron emphasized his role as a “discussion facilitator” to “bring people together” and “demonstrate that there are common challenges that everyone has”.

Deron: Culture change. I mean, I feel like almost everything that I do revolves around enhancing the culture and discussions around teaching and learning in the

college. And every program that I create or every class that I teach, or every consultation is about ... keeping the discussion about educational theory embedded within a very science heavy college. And so it is my job where I view it as my responsibility that if I see an opportunity where we can collectively solve some of the same challenges, but also create a community in where folks might talk more about their teaching, not just the research. I think, in fact, we're doing a great job on the research end, but about their teaching, that it will benefit the students, benefit the community. And so I felt in that this particular instance, it was my job to bring people together and it was my job to demonstrate that there are common challenges that everyone has.

Deron: And that there are ways that we can address this, and that there is value in these discussions happening despite disciplinary specific differences. That there was commonality that I could see... but I saw them in three different contexts. And so I almost played like this discussion facilitator role and that led to discussions, led to us right now we're in the process of creating some modules that would be in common for some folks...on the assessment development end. And there's discussions on how we could assess the students, what types of question banks could we create. All of these things happen because of a simple discussion, but I think educational developers are just uniquely positioned to see differences and commonalities.

In her facilitation, Allie pointed to her ability to “listen really carefully” so she is able to make connections between “general ideas”.

Interviewer: In this facilitation process that you've been talking about what do you see as your goal?

Allie: I feel like I have to listen really carefully to what's being said. I need to really pay attention. My mind can't wander. I need to focus on what the general ideas being expressed by some are and then the general ideas being expressed by others. I'm trying to keep track of how that might be, what the opportunities are, what the challenges are when those various perspectives are being shared because my role is to make sure that... it's just to sort of moderate the conversation, but then to also at some points jump in and say, "Well, what you've been talking about actually shares a connection because of this and this."

Iris also demonstrated the quality of finding points of connection between differences by building from seemingly conflicting differences to “cause people to think in new and different ways”.

Iris: The right type of clash would be, "I'm just not seeing how that's a motivating factor. What I like is that you're trying to incentivize the behavior that we want. But I'm not sure that the t-shirt is the way to do it. Can we figure out other incentivizing strategies that might be compelling for this population? What other things do they want that they don't otherwise have access to?" So kind of in comedy, there's the... or in improv comedy, there's the idea of "yes-and". So the right types of clashes are the clashes that cause people to think in new and different ways, it doesn't matter if

the idea gets picked up or not, and are respectful, and the wrong type of clashes are the ones where people walk away feeling bruised.

Helping to interpret differences

Within Category 3, the quality of helping to interpret differences is evident in the way participants navigate and facilitate interactions between diverse disciplines. Charlotte feels like educational developers serve as “good middle people” who can balance discussions by “not taking sides”.

Charlotte: From the educational developer perspective, I always feel like we're good middle people as I talked about earlier. It's the, “I'm not taking sides and I'm not promoting one over the other, but we need to talk about the differences in these contexts and the differences in these approaches so that we can move forward together.” It's not saying one is right or one is wrong or that one is appropriate, or one is not, though that's a different topic potentially.

In a similar way to Charlotte, Allie acknowledged the importance of being aware of one's bias and the challenge it is for her to “remain neutral” in her interactions.

Interviewer: Are there any other challenges that stand out to you that might be at play here in a situation like this?

Allie: Remaining neutral or trying to remain neutral. There's an interesting dialogue. There's always been an interesting dialogue in educational development about your neutrality as an educational developer, and I always find that really difficult because I can't help but agree sometimes with one line of argument over another in a situation like this. While my role might feel like I'm there to facilitate a balanced conversation, if I feel drawn to one side of the conversation or another especially as in this case chair of a committee, I'm aware of my bias, and I try to make use of that bias effectively so that I'm not just having everyone air their perspectives and then go in with a perspective that I want. I think that's oftentimes a difficult balance to strike.

Clara's efforts to engage with differences included the act of withholding assumptions about other disciplines.

Clara: We need to invite them in, have a conversation, and maybe check our work with them, but we don't want to make any assumptions that because the discipline “should know” or in the converse of that would be, don't assume that the folks sitting in geology don't have some strong background in teaching and learning and will understand the language, the conversation. And so that's the other work of that committee is to certainly let our discipline shine through, but to not make any assumptions about the other disciplines, in the delivery...the thinking about, planning, and then delivery of whatever it is we're going to do.

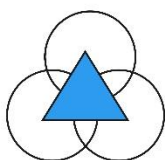
In helping to interpret differences, Peyton discussed “being charitable” in his interpretations between “what is said and what is meant”.

Peyton: Okay. Yeah, I understand. Well, one thing that was really emphasized in my philosophy education that has come in handy is that there are often enormous differences between what is said and what is meant, and that has helped a lot in understanding...not only documentation that I encounter in my work as an educational developer, but in conversations and meetings with people of all sorts of roles, to think charitably, about the difference between what is said and what is meant. So that sometimes people, including me often, like during this conversation for instance, are clumsy in how they communicate. And it can be easy to focus on that and to miss the underlying point that's trying to be made. And so I really take the principle of charity seriously and that is, that you try to interpret someone's meaning or someone's argument as charitably as possible.

Peyton: When you're thinking about what they're trying to communicate, that you frame it as strongly and as intelligently as you can, and respond to that as though that's what they've said. Sometimes it's because that is what they've meant and that's what they tried to communicate, but even if they haven't, it leads to a much more productive conversation, and much more productive working relationship moving forward, if you give them the benefit of the doubt that way.

Category 3 is characterized in the way educational developers experience disciplinary perspectives from the position of *stepping between disciplinary spaces*. Qualities of Category 3 include ways educational developers translate knowledge to different contexts, find points of connection between differences, offer different ways of thinking within a situation, and help to interpret differences. In this way, educational developers' interactions with disciplinary perspectives focus on engaging perspectives to think differently about some phenomenon or situation. The focus of development work in Category 3 is on understanding a particular problem situation, where the problem of interest exists outside of individual disciplinary spaces.

4.5 Category 4: Co-constructive expansion of ideas and identity to open up disciplinary spaces for mutual learning and development



...it's hard to see beyond the boundaries of your discipline, unless you're confronted with the boundaries of someone else's discipline. And so it helped me understand, what we could be doing from a broader perspective. And I think that it was really useful for the other people involved to get the perspectives of everyone else as well. [Peyton]

Category 4 is characterized by the recognition that disciplinary perspectives afford *multiple ways of working*. While Category 3 is focused on translating elements of disciplinary perspectives in the shared disciplinary space, Category 4 extends its focus to ways of expanding the disciplinary space. Educational developers experience disciplinary perspectives as *co-constructive expansion of ideas and identity to open up disciplinary spaces for mutual learning and development*.

Category 4 speaks to ways that educational developers aim to expand the thinking of others, by bringing different ways of thinking (i.e., *how* we can think differently) and by drawing attention to new elements of thinking that may not have otherwise been considered (i.e., *what* might be possible in the space of thinking). These qualities are held together by the act of translation to build new and expanded understanding across disciplinary spaces. This category is also described as co-constructive because it involves educational developers' attention to co-create the collaboration space with others.

Qualities of Category 4: Co-constructive expansion of ideas and identity involve educational developers:

- 1) opening-up the space for new learning, development, and co-creation
- 2) embracing diversity of thought, values, and beliefs to expand the space of thinking (expansion of the frame/reframing)
- 3) developing individual faculty identity and personal development towards teaching and learning
- 4) developing co-constructed and mutual space of understanding (co-existence within multiple disciplinary spaces)

Opening-up the space for new learning, development, and co-creation

The core feature of disciplinary perspectives captured in Category 4 is that disciplines afford multiple ways of working. In the excerpts that follow, Wendy and Finn spoke to the benefit of the multiple ways that faculty bring their perspectives. Specifically, Wendy acknowledged the pluralistic nature of methods and epistemologies among faculty from diverse disciplines.

Wendy: I always try to frame a discussion so that there is no right or wrong in how... One of the great things, but also one of the most unnerving things about conducting research on teaching and learning and particularly the scholarship of teaching and learning is that it's methodologically but also kind of epistemologically very pluralistic. SoTL was founded on this idea of being this big tent and that it's inherently, multidisciplinary. It's not interdisciplinary, but it's multidisciplinary. So you have all of these mishmash of different disciplinary viewpoints that people

bring to bear on research on teaching and learning. And I'm very upfront right from the start with people that what I'm going to talk to them about are some of these how inviting that space can be, but also how unnerving it can be.

Wendy: And I go from there to try and frame conversations which always encouraged someone to say, I don't say this explicitly, but "Invite people to talk about from my disciplinary perspective, this looks like this because of," or, "From my disciplinary perspective, this doesn't make sense because of," or, "From my disciplinary perspective, this is how I would approach this. I've gathered this kind of evidence." And then another strategy is... That course that I just described is delivered over three sessions. And the last session, I invite people to kind of co-create how they want to use those last two hours together. And I call it the kind of share, test, discuss.

In support of diversity and inclusion that encourages "everybody's voice to be heard", Finn described his approach to knowledge creation from a "socially constructivist approach", where "multiple ideas...will shape the final product or the knowledge construction".

Finn: Yeah, I think so. I think the diversity of disciplines is very important for knowledge creation or a very socially constructivist approach with education development, [00:54:19] Vygotsky and so forth. But I think also the idea of hand in hand, the idea of diversity and inclusion. For me, my approach for this would be, to value everybody's contributions because of multiple perspectives will add to the solution or add to the development of the program. That's why I think for faculty members who can really buy into the idea of diversity and inclusion... is really buying into the idea of social knowledge construction.

Finn: You want different people having different perspectives so that they can add something to the discussion. If everybody had the same background, the same high school teachers, the same demographic backgrounds, the same ideas, then there would just be one idea that the students would be bringing to class. Here for the development of the program, I'm glad that there's diversity of backgrounds and disciplines, and even if it's contentious, it's still got to sharpen the final product of this program. And so I would approach this in a way that I would want everybody's voice to be heard, and that to be able to express their ideas and to contribute in a way that which shaped the final solution and program.

Finn: That's really what I'm looking at. And that's kind of how I have faculty buy into the idea of diversity and inclusion because typically, they'll just said, "Oh, that's a good thing. We're stronger by it." But the real reason is that we want that diversity and have people to be able to express and to feel welcomed, and needed in that environment because the multiple ideas, that they will shape the final product or the knowledge construction. So that's where I'm thinking in terms of this.

From the above excerpts, Wendy and Finn illustrate the core feature of Category 4 that is based on disciplinary perspectives as offering multiple ways of working. Seeing multiple ways of working

is what sets Category 4 as a distinct way of experiencing disciplinary perspectives across disciplinary spaces.

Embracing diversity of thought, values, and beliefs to expand the space of thinking (expansion of the frame/reframing)

One of the qualities of Category 4 is in the way participants open-up and expand disciplinary spaces by introducing different frames for thinking. In Category 3, participants engage with differences to think about a situation within a particular frame. Category 4 emphasizes how the frame of thinking itself is challenged and changed which results in a distinct way of experiencing disciplinary perspectives. To illustrate how educational developers offer different frames of thinking, Tracie, Hudson, and Clara provided experiences where they brought a new frame for thinking. Tracie focused on deeply understanding the root causes underlying the problem situation, as she referred to her mindset of “why is the problem”.

Tracie: Well, right now what I think of is my discipline as an adult educator versus pharmacy, and healthcare and their discipline. A lot of times when I'm talking with them, even when they wanted to partner with me on studies, since we have a different almost approaches to how we look at problems, what I've seen is they tried to look at problems from a, "What is the problem? Let's quantify it, identify it, and just kind of address it."

Tracie: My mindset is "why is the problem?" You know what I'm saying? This is what we see. You say your students, ... "Here's the problem. Students don't come to class. They don't do this. They don't do that. They don't do this." Okay, that's great. But why don't they come to class? What do they have to say? How does this impact them? Who's actually sitting down with them? and you could do the surveys [00:32:18] and say, "40% of the people are here."

Tracie: That's fine, that's good information. But why? So a lot of times when we're in these circles of talking about problem solving, I just come at it from a completely different, I guess epistemology. Just, why, why... How are we really serving the students? For me, everything is learning. Everything is learning. And so how can we take some problems and apply it to from a learning standpoint, how can we learn from this? What can we gain from this? Rather than let's [00:32:57] fix the problem, move on and apply some type of solution and that type of ...

Tracie: Because most problems we have aren't black and white, they need to be wrestled with. That's what I see a lot of times that I was asking the how, and the when, and the where, and I want more details, and I want to get student input and faculty input. And so a lot of things that I do have been, I guess qualitative in nature. That's the first thing that kind of comes in my mind about disciplinary, how I apply it.

Hudson described how he aims to “broaden people’s understanding” through a “shift in perspective”.

Interviewer: Was there anything about this experience that especially stood out to you as faculty development or educational development? You had identified this-

Hudson: Yeah, I think... well it's really to broaden people's understanding of learning, right? It's not just the test. You're not just teaching to the test. Intervention is not like its own thing. I think that's another thing too that... like, if you're going to try something like a flipped classroom, which is a really common thing these days.... it's not just a thing you pop-in, right? It's not... again, it's not like a medicine or something. It's something you have to practice. It's something that you get better at over time. So, if you're going to adopt this approach, you really need to adopt the approach and then try it out over multiple iterations. Not try it and say, "Oh, this wasn't effective," and drop it.

Hudson: So, I think there's a shift in perspective that I try to aim for when doing this. I mean, again... it's not about whether it's effective or not, right? It's whether or not I think this teaching method is useful for your discipline, if you're comfortable with it, if you think you can get good at this. It isn't just the simple question of it worked or it was better or something.

In another demonstration of expanding the disciplinary space of thinking, Clara spoke to the way she fosters thinking about diversity, when diversity may not be considered in the conversation.

Clara: So especially when my.... you know, STEM folks will say things like "there's no reason for us to worry about diversity, numbers are numbers, they don't lie, they don't have any feelings." So then I talk to them about "right, but people are interacting with those numbers, and what it might look like in this community or that neighborhood or when you developed that app, are there groups of people who might not have access to it? Or if they have access to it, are they going to engage with it differently?" Right? Those questions are pretty...I think universal questions, but they will sort of force folks who don't think they need to be concerned about culture or human dimension to begin to think about the individual who will be using their product or is sitting in their class. So it's not about dumbing down your class, but more so thinking about your end user...and that makes sense to them.

Developing individual faculty identity and personal development towards teaching and learning

Expanding the space of understanding across disciplinary spaces shows up in ways that educational developers’ attend to developing the identity of their faculty towards teaching and learning. In this way, the nature of faculty identity is a concept that bridges across disciplinary differences or disciplinary focused pedagogies. Clara described her aim of developing a “teacher-instructor identity”.

Clara: For me there's always an element of developing sort of that teacher, which some of my faculty colleagues don't like to be referred to as teachers but I do it, it's sort of developing that teacher-instructor identity. So anything that we do whether it's a workshop, a book group, a large scale kind of initiative like the evaluating teaching project where we're asking faculty to pause and reflect on their role as the teacher, right, as the instructor, as it relates to what it is they teach, to me is faculty development. It isn't the tools that we use, the workshops, the book groups, but in fact the conversations or the discussions that ask individuals to explore why it is that they do what they do and how they do it and who is at the center of that, what their goals are. To me that's what is the faculty development.

In describing how he worked with a colleague to develop a professional development program, Sawyer noticed how “there can even be different values and belief systems about the role of teacher”, and then worked to build in time into the program for “letting people explore their beliefs and attitudes about teaching”.

Sawyer: And I think that in part, a lot of that happened during that five- or six-year period that I was working with that doctoral student that I mentioned before, and I probably tended to come at things a little too logically as a scientist, maybe with too much thinking that there's just going to be rational connections between "doing A, leading to B, leading to C". And to appreciate, well, that's not how everyone's going to work. Everyone's going to come into the program you're trying to develop with their own sets of prior knowledge and biases and their own sets of values. I guess, that's one of the things that she impressed upon me the most, was that there can even be different values and belief systems about the role of teacher. And those essentially drive your actions and so if you make too many assumptions about people sharing the same values about education and beliefs and students' abilities that you do, they're not going to necessarily going to respond to the way you develop your Educational Development programming.

Sawyer: Back when we were, the two of us were, doing these faculty learning communities every year with cohorts of about 20 faculty in teams that are revising their STEM courses, we would kick those off with a two and a half day course design institute and we spent the first... almost the whole first morning really letting people explore their beliefs and attitudes about teaching, about themselves, about their students, and think about how that was reflected in what they were teaching and how they were teaching and I would have never gone there if she had never urged me to see the importance of it. And it was interesting because of all the science and engineering faculty, I was a little touchy-feely for them.

Sawyer: But you know after you had gone through these activities for a couple of hours you could just see that they were sort of releasing thoughts that they really hadn't had before, they were learning what was similar and different about the folks on their team and to come together to co-design a course and realize how they were going to be able to build off of their differences that they had. And that, that wasn't sort of what I would have come at it within my very positivist science background. I would say, you know, "here's some evidence, you should use this, take the next

few minutes to redesign that part of your course using that piece of evidence and then we'll go on to look at another one." But she really helped me see the ability to back off and think about the human side [inaudible 00:29:02] than just the research side.

In alignment with developing faculty's identity towards teaching and learning, a number of participants described the quality of supporting personal development by approaching their work in a person-focused manner that honored the individual. In this way, a focus on personal development is a quality of Category 4, because this focus recognizes the disciplinary feature of multiple ways of working and expands the disciplinary space across disciplinary boundaries. In the examples that follow, Mack, Finn, Sawyer, and Clara described ways of bringing forward their clients' goals, values, and sense of self. Mack emphasized "meeting people where they're at and trying to help them move to where they want to go in a way that's welcoming to them and comfortable for them." Finn expressed his approach in helping "[faculty] to explore the material" while not "preaching to them or telling them that, 'This is how it's done,'" Sawyer also shared his focus on "exploring with that person what it is that they're really trying to accomplish in their teaching". As a final example, Clara showed her focus on personal development with her approach to reaffirm the strengths of individual faculty among challenging institutional expectations.

Mack: I don't mean to paint a discipline as monolithic because they're not. There's great variation within a discipline, but there might be somethings that are more common than others. Having an understanding of how they approach things, and being able to try and perspective take. Meeting people where they're at, both disciplinary, but also skills, and knowledge, and attitudes. Just the whole is a big part of what we try and do in educational developmental. And support them in getting to where they want to go.

Mack: By starting where they're at with them. And so for research, that can be really important in my mind, because if people are trying to go outside their comfort zones in research, that can be scary. And so meeting people where they're at and trying to help them move to where they want to go in a way that's welcoming to them and comfortable for them.

Mack: I mean, there might be some discomfort in a positive way, but not scary, and not... And you know when we get into data analysis, that opens up a whole other can of worms in terms of statistics, and reading statistics nonetheless performing statistics, if that's what they want to do. So yeah. I think that from a disciplinary, it's important to recognize where other people are at both disciplinary and other ways. And trying your best to perspective take and meet them there, and work with them from that perspective.

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Finn: Because just the human side of dealing with people and having them search for solutions to their problem, and I can tell them what to do, but have them explore different areas of what could be and getting them to resources. It's very similar in the education, consultation, field as it is in social work, you know...going to help people, connecting them to social services as well. Listening to them and trying to have them come up with the solution and brainstorm.

Finn: I'm not gonna approach it to where I'm preaching to them or telling them that, "This is how it's done," but I want them to explore the material and to work and develop and help themselves grow in this area.

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Sawyer: ...but very quickly in conversation with her, I realized, as I have in dozens of these conversations later, it's not what I know about Portuguese, teaching Portuguese, it's about exploring with that person what it is that they're really trying to accomplish in their teaching and just brainstorm through the possibilities and the options and share with them what I know about pedagogy in general and instructional design in general and largely have conversations where they discover what they're going to do in their teaching.

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Clara: Yeah. I think sometimes ... well it happens a lot. Faculty get the message from their provost, or their president that something isn't going as planned or expected, you know, retentions dropping, or it's not as high as we want, graduation rates are not as high as we want, so there's been this sort of long period of time...I know at my institution in particular where the message has been "you're doing a lot ..." or I won't say the message has been, but the perception of the messages they're getting is that "you're doing a lot but you're not doing enough." And so what I often lead with is "you are doing a lot. You are doing enough. Let's think about how we can take care of you in the midst of trying to respond to what these additional expectations are, and if we can make the most out of the skills you have, the strengths that you have, then we can respond to this call, respond to this charge, in a way that you can feel good about."

Developing co-constructed and mutual space of understanding (co-existence within multiple disciplinary spaces)

In several instances, participants described the benefits for faculty to learn from each other in cross-disciplinary collaborations. Here, participants display qualities of Category 4 as developing a mutual space of understanding and opening-up the space for new learning in a way that not only targets the goals of the collaboration, but expands the space of learning to lead to new learning. For example, Charlotte pointed out how collaboration aspects of a project can also support "general professional development" of collaborators. Similarly, Carleigh spoke to the

importance of how educational developers can create a community “to be able to share and learn and understand”, when collaborators come together to learn from each other. Peyton emphasized how multiple disciplinary perspectives can make program development stronger by not “being unconsciously narrow” because collaborators are “confronted with the boundaries of someone else’s discipline”.

Charlotte: Clearly, if you're doing some new initiatives to support teaching and learning, then that's going to be an element of educational development. I think there's also a lot that faculty can just learn from each other in working together. Whenever you have a committee that can bring folks together that is likely a place where they can learn from each other and have some educational development. Then, for really supporting their creative and collaborative process for the project in a meaningful way, then that can also support their development. It may link back to their teaching, but in general, just link back to their general professional development of seeing ways to integrate creativity or being more successful in their collaborative processes.

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Carleigh: I think is really important to the education developer is to have participants, in this case, the committee members from different areas, be able to learn from each other, right? And create this almost like a community to be able to share and learn and understand each other when given this is across the campus from many disciplinary backgrounds.

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Peyton: I think that program was stronger as a result of having multiple disciplinary perspectives represented at every stage from inception to ongoing refinements, sustainability, because it prevented the program from being unconsciously narrow. Because if there's, say, if it was just me for instance, if it's just me working on that, the program would have been narrow in ways I wasn't even aware of, because it's hard to see beyond the boundaries of your discipline, unless you're confronted with the boundaries of someone else's discipline. And so it helped me understand, what we could be doing from a broader perspective. And I think that it was really useful for the other people involved to get the perspectives of everyone else as well. And the first couple of years of the program we made sure that we were always co-mentoring and co-teaching, so that in any course you have two teachers who came from different disciplines. And those people were working together to create lesson plans, to have [inaudible 00:34:14] classes, to mark all of that.

While collaborators learn from each other in cross-disciplinary collaborations, Category 4 is also characterized by the way educational developers build up a shared space of understanding. As evidence of how educational developers exhibit this quality of Category 4, Wendy and Harper described how they might develop programming with elements that hold together while

maintaining flexibility for application in broad contexts. Wendy described her approach using a “tight-loose” model of implementation such that there are “core principles and core ideas” to be implemented, but the specific ways of implementation may be different across disciplinary contexts. Harper described his approach to develop “common values”.

Interviewer: What do you see as the work involved as the chair here whose primary goal is to utilize and leverage the diversity?

Wendy: I think the goal of the chair would be to surface what those diversity of disciplinary backgrounds and trainings, what that actually means in this context. I've talked a lot about what's of understanding context, but in a one-to-one interaction. But in a committee, if this group is tasked with really thinking about implementing as a first-order step, I would want to know, I would want everybody to know about one another's disciplinary backgrounds because then you develop a kind of a common platform or at least an understanding or a knowledge of where everybody's coming from. There are many assumptions we make about the value of a diversity of disciplinary backgrounds and training, but we never explicitly talk about it and certainly not in committee meetings. I think there's a role as a chair there to be thinking about that.

Wendy: And then trying to respect the balance between the need, if it's a strategic initiative to have some kind of integrity around the idea so that you're delivering something, but also thinking about how that might be achieved, different disciplinary contexts and respect to that. One way I often describe this kind of scenario is developing a tight-loose model and thinking about implementation so that there has to be some, the tight being, there has to be some agreement around some core principles and core ideas that we're looking to implement. But how those ideas are then implemented, that's where the loose idea of the model might look different because of very valid and legitimate reasons of cross disciplinary differences. I would want to build some capacity about that in the committee. That idea of thinking about, well what does that mean in this context around whatever the strategic initiative is?

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Harper: I think the work as in what do you think I would need to do as the chair. Number one would be creating some rapport and having faculty create some guidelines depending on the scope of the initiative. I would also want to make sure that these faculties departments are going to recognize this work. And I think it would depend a lot on the institution type too, and I would want to be aware of promotion and tenure policies. Because if this is going to be something that takes more than... If it's going to be an initiative that actually has some meat to it, it's going to take at least a couple hours a week for a year maybe. And that's a significant enough...in my opinion, that's a significant enough amount of time that I want, not necessarily like course release for that. But I want to make sure that faculty aren't just like giving up their time eating or sleeping, to do this. So, that

would be one, two would be developing that rapport and developing some kind of common values.

Harper: And so, I would want the diversity of disciplinary backgrounds in the sense that they value different kinds of knowledge differently, but I would want them to share some kind of things. So, to help me put this in perspective for myself, I might think about this as like, okay, they're implementing a new way to implement queer and trans curriculum across programs. Where queer and trans affirming practices, or things like that. And so, I would want in that case, everyone to share the value of affirming queer and trans people in the academy. And so, there would need to be some common ground that we meet on that's more than just like "the greatness of our education," [sarcasm] as something like that, you know it needs to be...something with a little meat to it. But also, some way to unite this group and identify that uniting of the group, and so that if disciplinary differences lead to conflict, there's common ground to also fall back to.

Interviewer: And when you say common ground, what do you mean by common ground?

Harper: Those shared values that I would hope. And so, making those shared values explicit early on as the chair would be valuable to me. And so, saying, "Okay, we are all a group of people who affirm queer and trans [inaudible 00:50:28]. Or "we are all a group of people who care deeply about the teaching mission of the university and want to see a change and we may have different perspectives on how that may change but I invite us to..., I invite us or ask us to be patient with each other in our respective ways of seeing that."

So far, the participant excerpts have presented the qualities of experiencing disciplinary perspectives as Category 4: Co-constructive expansion of ideas and identity. Category 4 is distinct in the way that educational developers see their position crossing over into different disciplinary spaces. In an example of crossing disciplinary spaces, Morgan described his position as being "discipline agnostic" (also highlighted in Category 1) while serving to bring a perspective as a representative of his teaching and learning center.

Morgan: So, as an educational developer, I was uniquely positioned to, almost be discipline agnostic in it. So, as much as the humanities scholar in me wanted to bring that perspective in, I knew that I wasn't on this project as a humanities scholar. I was on this project as an educational developer, so I almost, kind of, got to be the... Not mediator, but maybe, the bridge, or I could say, "okay, so yes, looking at these people, looking at campus, campus isn't just biological, or isn't just social sciences for that."

Morgan: And I think that's something... There's a bit of power, but there's also a bit of danger in that perspective, which is being able to place yourself not in a discipline. Or, in the discipline of, education development, which is the dangerous part, is people don't know what that means. So, to anchor yourself in a discipline that they don't know what it is, is challenging.

Morgan: Because [Name of University] doesn't have an education department, so we are the only folks on campus who do this. [Name of University], for example, they have a school of education, and they have a center for teaching and learning, so they can't quite place themselves as the only folks who hold or champion education, when they have a teachers' college right beside them who does this work. And actually, now, they offer a doctorate in education degree as well, so there's a competing disciplinary perspective at [Name of University].

Morgan: But in this specific instance at [University], I was able to say, kind of, be a representative of the [Name of teaching and learning center], and bring that approach to it, where it wasn't sitting on the side of one or the other, because of my discipline. It was sort of saying, well, from this perspective, this is what we need to do for it. And since the goal of the positive space was education, I had a bit more, almost, authority, to say, we are trying to teach people. What do we need to teach people, what is the outcome, right?

In another instance of crossing disciplinary spaces, Wendy described different disciplinary spaces as “liminal spaces” and the “unnerving” nature that comes from not always being an expert in those spaces.

Interviewer: You also used the word unnerving that I just wanted to clarify what you meant by, I don't remember what you were describing, but that word unnerving. What do you mean by unnerving?

Wendy: I think I was describing how that might feel for faculty member to be... I think I was talking about liminality at the time. I'm not sure myself how these... I have found as an educational developer many of my interactions unnerving, as in unsettling.

Interviewer: Unsettling. Okay.

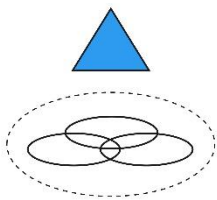
Wendy: Because you are in those different disciplinary spaces because you are in liminal spaces where you don't, you're not always the expert, disciplinary perspective, on what's happening. And I'm always really sensitive that when I'm inviting faculty into those conversations, often they're also in those liminal spaces and that it can feel unsettling for them and people deal with that feeling in your gut where you're like, "Oh, I'm not sure I know what's going on here." People deal with that differently. Sometimes people deal with that by kind of holding hands up and saying, "I know nothing. I'm not an expert." And so as an educational developer, you're trying to encourage a call out and validate what they know about teaching and learning.

Both excerpts from Morgan and Wendy highlight the nature of Category 4 and ways that educational developers notice their position in these different disciplinary spaces along with the tension that arises from crossing disciplinary spaces.

In Category 4, the problem of interest exists across disciplinary spaces as individual disciplinary spaces becomes less important with a shift to focus on learning from multiple

disciplinary perspectives. Therefore, educational developers are *stepping across disciplinary spaces* with others, bringing an intention aimed to expand the space of thinking. The developmental focus in Category 4 is on ideas and people.

4.6 Category 5: Holistic reframing to enable agency and broader meaning-making that transcends disciplinary spaces



So, trying to actually help empower people and give people the skills and backgrounds to create a lot of their own Educational Development programming [Sawyer]

Category 5 acknowledges how disciplinary perspectives afford *overarching and connected ways of working*. Educational developers experience disciplinary perspectives as *holistic reframing to enable agency and broader meaning-making that transcends disciplinary spaces*. With Category 5, educational developers are stepping out of the disciplinary space to see how disciplinary perspectives operate as part of a broader system. Educational developers are involved in translation work that illuminates and brings meaning to broader, overarching, and connected ideas that encompass the system and context together. Therefore, educational developers engage with multiple disciplinary perspectives to transcend the space of thinking. The focus of development work within this Category is that of broader system transformation, as the problem of interest is abstracted from the disciplinary space.

The qualities of Category 5 are held together as each quality speaks to ways that educational developers recognize how their work is situated in broader contexts and cross-connecting ideas. Educational developers engage in translation with these broader ideas to inform their approach to educational development and work with others. The selected excerpts provide evidence of how educational developers experience disciplinary perspectives in ways that transcend the disciplinary space through broader ideas. That is, participants are engaging broader ideas to make meaning of disciplinary perspectives outside of any particular disciplinary space.

Qualities of Category 5: Holistic reframing involve educational developers:

- 1) seeing disciplinary perspectives situated in political and institutional, culture, contexts, and structures
- 2) bringing embodied values that transcend disciplinary spaces
- 3) creating with and supporting others so they may lead as agents in their development
- 4) building up to broader understanding through overarching and connected ideas

Seeing disciplinary perspectives situated in political and institutional culture, contexts, and structures

One way that educational developers experience disciplinary perspectives as Category 5 involves the way that they see disciplinary perspectives situated in political and institutional culture, contexts, and structures. These factors contribute to the aspects of a situation that educational developers notice and attend to beyond the disciplinary perspectives that may be directly involved in the situation. In this way, Category 5 represents a kind of stepping back and stepping out of the disciplinary space. For example, Tracie described how she approaches faculty relationships “from a broader perspective of, “What am I seeing here? What is the problem? I’m hearing the students say this, I’m hearing the faculty say this,” and it’s not who’s wrong or right, but what is actually happening?”. In describing the ways that learning shows up in her work, Tracie discussed how she sees learning as core to many diverse activities and what is required in these learning situations. Tracie continued to describe the political nature of learning referring to the way that learning is “not neutral”.

Tracie: One of the things that... from two different standpoints. Number one, what I loved about the adult ed discipline is that it was hard to define because everything is learning. When you learn you have a disease, when you have a child, when you go to church, when you get a new job, all of that is learning...adult learning. And how do you apply yourself in a particular field when something changes, you have to figure out, “Okay, how am I going to navigate the situation?” Right?

Tracie: You pull from prior experience to try and make sense of what it is you have to do. If you had no prior experience, then you have to jump in and say, “Okay, how does this relate to maybe something different or something?” Get help. You know what I’m saying? That’s one way of saying everything is learning.

Tracie: The other thing is that education or learning, it’s always political, meaning it’s not neutral. Nothing you ever learn is just like this neutral ... And that’s another thing that I see every You always have to ask, “Who benefits? Who’s

disadvantaged," when we do these little policies, or make these statements, or even when we structure a class in a particular type of way, everything is always geared towards somebody's perspective or some preconceived notion or idea. So you always have to question, question, question, question, what are you doing and why, and based off of what truth, and is it really truth? You know what I'm saying?

Tracie continued to highlight the political challenges when people come together from different disciplines:

Tracie: Well again, I see it as a strength because people come with their own understanding. It's also tricky too, when people come from different disciplinary backgrounds are usually not in the same department and they're bringing their own politics to the table. When I look at this, more so than discipline, I see the politics behind it. I'm just thinking for instance, in my college we've got nine different programs. Pharmacy is the biggest one. It has the most students. But we have other health science disciplines, respiratory therapy, collaboratory science, and when we need to get together to determine an issue, what I see at play is more "who benefits and who doesn't?"

By highlighting the political nature of learning, Tracie illustrates Category 5 as she steps out of a disciplinary space to attend to the political context in which disciplinary perspectives operate. In a similar way, Morgan identified how disciplinary perspectives would inform an interdisciplinary collaboration and also spoke to institutional factors that contribute to the political nature of disciplinary collaborations.

Morgan: I think it would depend on what this new initiative is. Because when I saw, new initiative, I was thinking something exciting for it, but to the support teaching and learning across campus, I think it would depend on what that new initiative was.

Morgan: Because if the new initiative was something like creating a co-curricular transcript that would capture undergrad students' non-academic training experiences, and help them connect those skills, that would be something that, I think the disciplinary perspectives would, very powerfully, inform, because they would have things like, well, students in engineering do internships or co-ops, and students in art do volunteer work. Right? You know, those sorts of things I would see for that.

Morgan: But if the new initiative was something like, building a space, something that was like, a teaching and learning library, or something like, an interactive classroom space, or something like, a tech lab, where people could come in and do micro teaching, or try something out. I think the disciplinary perspectives on that one would be a lot more challenging to navigate, because you would start to see things like, well, where is this housed? Who's funding it? You would start to see those structures that come in the discipline, that aren't focused on content, but are focused around money and staffing, and access, and those sort of pieces as well.

The excerpts above from Tracie and Morgan illustrate the quality of Category 5 in the way that these educational developers notice institutional and political factors that transcend disciplinary spaces.

Bringing embodied values

Category 5 is characterized by the way that educational developers experience disciplinary perspectives outside of the disciplinary space through overarching and cross-connected ideas. *Embodied values*, as a quality of Category 5, captures the way that educational developers notice their professional values and the values of disciplines. In one instance, Harper explained his view from “the critical family of perspectives” to “see education fundamentally as a site for social justice”. In the excerpt below, while Harper identified how they are involved in “straight forward” educational development projects aimed at “making education good, [making] teachers teach better”, they also aimed to extend their focus to “open up conversations in ways...that promote equity and social justice”.

Harper: Yeah, certainly to the extent that my disciplinary background is grounded in a critical perspective and that [00:25:17] both informs what I value and what I do, how I try to spend my time or what battles I pick or things like that. So, for example... I think that that comes from a training in sociology but a training in more broadly...and just sort of the critical family of perspectives. And so, I’m not sure that’s strictly sociology. Again, this is where I’m not really a disciplinarian, but I think that higher ed, my world of higher ed scholars and scholar practitioners see education fundamentally as a site for social justice. And so, that informs my work to the extent that “okay, I will do some of these research projects or some of these programs that are just straight forward, making education good, make teachers teach better.”

Harper: But then, for the most part I’d like to focus on “how does thinking equitably complicate this?” Or how can we complicate this with notions of...dimensions of social identity at the forefront? And how do I open up conversations in ways, and continue on conversations that promote equity and social justice? How can I steer my research agenda, as well as maybe the research agenda of the center toward more equity perspectives?

In another instance of embodied values, Harper positioned faculty’s role in higher education where “faculty would shape the initiatives that affect learning”. From this “value perspective”, Harper viewed disciplines as “[faculty’s] perspectives of value in the university” so that their disciplines and the “multiple kinds of ways of knowing shape the academy fundamentally.

Interviewer: Are there any ways where the diversity in disciplinary backgrounds and training might shape or inform the work that will take place?

Harper: I mean, I hope it would from certainly like a value perspective of ...it is my belief that the university should be run by faculty. And in the spirit of an academic ideology rather than a corporate ideology. And so, it's my hope that the faculty would shape the initiatives that affect learning on the campus. Especially because I don't have access to all of those perspectives. I can try to...you know my goal of being able to speak to many disciplines, I can try to create a skeleton that I think will be appealing to many, but then having faculty actually use their disciplines which are their perspectives of value in the university, shape the thing [00:56:50], will be what makes it not just like for buy in so that it actually gets to happen and like, I can feel like I did something, but also from that practical perspective of like, it needs to be shaped by disciplines in order to be bought by disciplines.

Harper: But from an ideological perspective that the multiple kinds of ways of knowing shape the academy fundamentally, and I would want them to shape initiatives that happen at the academy.

In this instance with Harper, disciplinary perspectives are important not just for “buy in” and adoption by the faculty (see Category 2), but that disciplinary perspectives offer insight into faculty's values within the university, and therefore, shape what is important.

Sawyer also noticed the role of faculty values. In his experience, Sawyer was involved in curriculum development project at a departmental retreat where all faculty business was conducted in a different language other than English.

Sawyer: The [Language] program was getting accredited, and they had to put in a big... a big document about their curriculum and everything and they wanted me to come over and help them during a retreat. And that was the most amazing experience I've ever had because even though about half the faculty were [able], they, by convention of their program, conducted all of their faculty business in [Language]. And I didn't know [the Language], no problem, they had an interpreter there.

While working within this disciplinary setting as an external facilitator with a different disciplinary background and ability, Sawyer noticed disciplinary values: “deeply rooted in their discipline as a value that ‘we will conduct our departmental business in [the language]’”. Sawyer continued to describe what he noticed about his experience: “that in every field there's a set of values that underlie what it is you're trying to accomplish as a teacher.”

Sawyer: I guess the thing I took away the most from [this experience] was just their value system. That we... that [the language] is such a critical part of our values that it doesn't matter whether I'm [able] or not, or whether I'm even talking to another [able] faculty member, we communicate in [the language]. Not because they need to practice, they're experts already, it's not that they need to practice. It helped me

appreciate that in every field there's a set of values that underlie what it is you're trying to accomplish as a teacher. And perhaps that showed through more clearly that day than the other, that you would choose a form of communication that wasn't necessary, but was what you believed in.

In these instances, the embodied values of educational developers and the values that they notice within disciplines offer cross-connected ideas that transcend disciplinary spaces.

Creating with and supporting others so they may lead as agents in their development

This quality is representative of Category 5 in the way that educational developers work to co-create and support others in self-directed ways. In Category 5, the quality of co-creation takes on a new meaning because educational developers recognize the limits of their involvement, and that this limitation is used in a positive way. In the case of Sawyer, his educational development setting was in a clinical environment within the medical school where clinician educators “are teaching while providing patient care.” Sawyer described his experience:

Sawyer: But that was something that really stopped me in my tracks when I came to the med school, was this whole idea that you're teaching in the authentic workplace. It really is workplace learning and you have to be teaching at the same time you're providing a really critical safe, safety first, patient first, healthcare provision. And that was an example of a disciplinary approach to teaching that really made me stop and think.

Sawyer focused his attention towards development that aimed to “help empower people and give people the skills and backgrounds to create a lot of their own Educational Development programming” because the teaching and learning is happening in authentic workplace settings. As Sawyer stated, “if I can help develop that Developer toolbox in others, then that really promotes learning day by day in the real workplace.

Sawyer: I'd say our office is involved in all three of those things. We certainly do a lot of consultations and workshops and trainings of different kinds with the idea of developing the skills and knowledge of individual faculty, but also spending quite a bit of time with Department Chairs and groups of faculty thinking about how they can organizationally support the learning that's necessary, the curriculums changes that are necessary, within their individual programs. So, trying to actually help empower people and give people the skills and backgrounds to create a lot of their own Educational Development programming, I think, is really important because...

Sawyer: An example, I had a meeting this morning that was precipitated by a resident physician, so sort of equivalent to a graduate student. The faculty member who had asked, by email, a couple of weeks ago, “Gee, could we bring a piece of

programming from a workshop into a scheduled two-hour time block with their residents?”, so that they could build better skills on how to teach the medical students.

Sawyer: So in the med school environment, it’s kind of similar, even though the students are sort of four years older in every way, residents have much more contact time in teaching med students than do the physicians. Sort of like a graduate teaching assistant spends a lot of time teaching undergraduates.

Sawyer: But when they asked me about bringing this program to them I said “we should get together and talk”, so we got together for coffee this morning to point out “why would you want me to bring somebody from a different clinical department in to tell your residents how to teach in your curriculum, in your venue, when you have excellent educators who have lots of experience teaching and a lot of really good educators in your department?”

Sawyer: What you need to do is feel confident mobilizing them to teach what they know about the types of things that are important for the students to learn, while on rotation in your Department and in the places where they are going to do that. And then they’re always there! If I bring in somebody or I go in and do a program for two hours and leave, I’m gone. But if you can mobilize the educational skills that you have within your program already, then those people are there all the time to continue to coach and be sources for how to do that teaching. A lot of what I try to do is not try to build the programs myself, but try to help people realize you’ve actually got the ability you just haven’t thought about it. You haven’t thought about your toolbox as a developer versus being a toolbox as a teacher to novices. If I can help develop that Developer toolbox in others, then that really promotes learning day by day in the real workplace.

In another instance that illustrates the quality of supporting others in self-directed ways, Mack recognized the limits of his role and acknowledged: “I don’t feel like it’s our place to impose where we think people should go on them”. Instead, Mack focused on how he might provide support “in their journey where they want to go”.

Mack: I think it’s one of the fundamental skills that we have to have, is to be able to perspective take to our best of our ability and be willing to do that. And then try and work within that context to support the person moving where they’re interested in going. As I say that, sometimes... there might be moments where we’re also helping people get to where it would be helpful for them to go, but they may not recognize it at that point.

Mack: But I don’t like saying that, because I don’t feel like it’s our place to impose where we think people should go on them. In terms of their teaching, that if somebody doesn’t want to move away from overheard projectors and reading from the textbook. Although everything in us would scream that you shouldn’t, for good education you don’t stand there and read from a textbook. I don’t know that it’s my job to get them to stop that if they’re not ready to. That’s what I meant by that comment.

Mack: That if we know that good educational practice, nothing suggests that standing in a monotone manner, reading from textbook is good teaching that leads to good learning perhaps in some context it might, but not many of them. I don't know that it's our job to try and force somebody to move away from there. So yes, I think that's fundamental, that skill of being able to perspective take from a disciplinary perspective about other perspectives.

Mack: And support them in their journey where they want to go, in a way that will help them do that. In a way that they can relate to and benefit from. Context is really important in my mind.

With both cases of Sawyer and Mack above, these educational developers acknowledged the limits of their role in educational development, and within those limits, aimed to offer support that would still be beneficial to their clients in their unique contexts. While these examples show qualities of other Categories, the distinct quality of Category 5 that is highlighted here is in the way educational developers transcend the disciplinary space to engage a broader, cross-connecting idea—one of self-directed learning—to make their educational development practice meaningful.

Building up to broader understanding through overarching and connected ideas

Category 5 is distinguished by the way educational developers experience disciplinary perspectives through over-arching and cross-connected ideas. As evidence of the quality aimed at building up to broader understanding, Wendy described one strategy of interest that aimed to engage faculty in dialogue around a common discussion paper. In this case, teaching and learning, in the general sense, serves as an overarching idea and anchor that frames larger conversations about disciplinary perspectives.

Wendy: But what I want to be able to do is to provide a discussion paper that says, “Here are some of their framings of SoTL. Here's some of the work that we do at the [name of] Institute. Here's what we know goes on at campus. How do you make sense of this? What are your experiences or perceptions of this kind of research in your disciplinary context as a kind of stage one?” And then I think there's a role for us as educational developers to synthesize some of that and perhaps come up with some kind of position paper that doesn't look to sanitize and come up with “this is the value of SoTL at [University]”, but that kind of reflects those different perspectives.

Wendy continued to describe the value she draws from “going out into the disciplines and then coming back” to synthesize learning.

Wendy: And I find going into the disciplines and spending some time working through it with them in their context, is much more inviting for the faculty that... You get different kind of data, a different kind of discussion. I think when you go

spend the time going out into the disciplines and then coming back, there needs to be some process of reflecting it back. Maybe that's done through a committee of, "Here's a range of responses that we've got." There is no one way to do something right. You're always going to have conflict, tension, contradiction when you get different disciplinary perspectives on any issue within learning and teaching. Thinking about how to reflect that back and the plurality of those views is important.

In this case, Wendy recognized the "conflict, tension, contradiction" with different disciplinary perspectives, but focused on "how to reflect that back" and show "the plurality of those views". Her engagement to build up to a broader understanding is reflected in the kind of synthesis activity she described to bring different views together.

The following excerpt provides another way that participants engaged with teaching and learning as a broad concept to connect to overarching ideas. Yvette spoke to her goal of "trying to get people to transcend their discipline and think kind of more globally about teaching and learning at the institution".

Yvette: Well I think that ...I would as a developer, I guess I would think that this special committee...this would be an interesting but challenging task. Often... I guess often when we're on these kinds of committees, you're just trying to get people to transcend their discipline and think kind of more globally about teaching and learning at the institution, but in this case, if your primary goal is to actually leverage and surface the disciplinary differences that would be interesting and challenging.

Interviewer: So as the chair whose primary goal is to utilize and leverage the diversity of disciplinary backgrounds here, what do you see as the work that might be involved?

Yvette: I think the work would primarily fall in helping people to become more self-aware of their own disciplinary assumptions and points of view and also to learn a lot more about the others in the group. So it really would be an opportunity to surface things like you know, how does your discipline understand knowledge? How does it understand pedagogy? How does it understand assessment? What kinds of ...what metaphor could you use for teaching or for knowledge in your discipline, and I would be very tempted actually to use that heuristic that I was talking about, as a starting point to say, "you know, do you see yourself in this description? Your discipline has been described this way, does this ring true for you. And where would you disagree with it?" And then hearing from others as well, and having some of those discussions, I think about status, too. I think that's depending on the particular personalities in the group, if they're willing to go there. I think that would be an interesting conversation.

Yvette further spoke to the recognition of commonalities and differences in perspectives and moving beyond to “a higher level of awareness of that ‘we’re all here doing the same thing, ultimately, it just looks different for different disciplinary perspectives.’”

Yvette: I think if people were able to first understand maybe some of the differences and then to also identify where they’re in common. And sort of bring that to a higher level of awareness of that “we’re all here doing the same thing, ultimately, it just looks different for different disciplinary perspectives.” Yeah. I think so.

As the final category of description, Category 5 embodies all of the subsequent categories while holding its own distinct qualities for experiencing disciplinary perspectives. Category 5 is based on the core feature of disciplinary perspectives as transcendent ways of working. These transcendent ways of working are illustrated in the way that educational developers engage with disciplinary perspectives as they are situated in political and institutional culture and contexts, support others in self-directed ways to become agents in their own development, build up to broader understanding through cross-connected ideas, and embody professional values that transcend disciplinary spaces. Category 5 captures the way that educational developers step out of the disciplinary space to see broader system and contextual relationships.

4.7 Relationships Between Categories

In the previous sections, each Category is presented as a distinct way of experiencing disciplinary perspectives, and I have described each Category to show the meaning of disciplinary perspectives within each Category. As the phenomenon (i.e., disciplinary perspectives) changes meaning between Categories, the relationships between Categories captures how the phenomenon becomes more comprehensive along subsequent categories of description as they are logically related to one another (Åkerlind, 2003; Marton & Booth, 1997). Expanding awareness, as a quality of phenomenographic analysis, refers to the way that phenomenon are experienced in increasingly comprehensive ways, such that more features of the phenomenon become apparent to the observer as they progress through this expansion of their awareness of the phenomenon (Åkerlind, 2003; Marton & Booth, 1997). Therefore, in this section, I will focus on disciplinary perspectives as an object to describe the changing nature, logical progression, and expanding awareness of this object.

Disciplinary perspectives as an object in collaborative interactions, becomes increasingly accessible to educational developers across the categories of description. That is, disciplinary perspectives as an object becomes externalized such that it is made visible and able to be supported,

shaped, negotiated, and transformed through interactions. I refer to this interaction with and shaping of disciplinary perspectives as a *trajectory of externalization of disciplinary perspectives*, where disciplinary perspectives, as an object, is being brought forward to interactions and made visible to others. The externalization of disciplinary perspectives captures the changing nature of the object of disciplinary perspectives across the phenomenographic Categories. This progression throughout the Categories further emphasizes the distinction between Categories and what it means to experience disciplinary perspectives within each Category.

Category 1 to 2: Disciplinary perspective as object of educational development context and work

Both Category 1 and 2 recognize that disciplinary perspectives afford distinct ways of working. Where Category 1 highlights how disciplinary perspectives are internalized by faculty developers, the shift from Category 1 to Category 2 is the recognition of interactions within another disciplinary space. The relationship between Category 1 and Category 2 is that disciplinary perspectives become recognized as they are internalized by others and part of the educational development context and work. Therefore, disciplinary perspectives move from being an object internalized by educational developers to an object that is brought forward as part of the educational development context and work with others. For example, Peyton described challenges to collaboration in the way that he noticed disciplinary perspectives as part of individual differences that individuals bring to the interaction. Further, he commented on how it might be a challenge to separate disciplinary differences from individual differences because “they complicate each other”.

Peyton: Any of those attitude-based issues or you can even think of them as political issues, are going to be a huge challenge. In addition to the differences in disciplinary perspective and disciplinary process and so forth that you’re going to encounter. And so they complicate each other. And then in practice in a lot of situations in the moment, you may not be able to distinguish whether what you’re dealing with here is a problem based on disciplinary difference or a problem based on attitude. And then of course you’ll be further complications because of personality and history that individuals have with each other, and whether or not they trust the administration and all of those sort of things.

Category 2 to 3: Disciplinary perspective as an object being translated

From Category 2 to Category 3, disciplinary perspectives become externalized by educational developers as the object being translated through the work of educational development.

In Category 3, with the focus on differences between disciplinary perspectives and building understanding between disciplinary spaces, disciplinary perspectives become meaningful as an object that is being translated between disciplinary spaces. That is, educational developers are translating their own disciplinary perspectives and that of others to make meaning of their situation, build understanding, and perform their work. For example, Yvette described her experience of facilitating a faculty learning community and how she noticed the different ways faculty brought their disciplinary backgrounds to engage with the topic.

Interviewer: Can you describe any, from your experience, ways that different disciplinary backgrounds might have supported or brought value to interactions that you've been a part of?

Yvette: Yeah, an example I'd give you is I ran with another colleague.... we ran a faculty learning community on [specific cultural topic] a couple of years ago. And as you can imagine, that's.... So you're aware of the context we have of the [specific cultural topic]. And a few years ago, we were just embarking on [specific cultural topic] at the institution figuring out what that meant. So this learning community was with a group of interested people, but very diverse in terms of their level of knowledge and background in the areas that people really felt like they didn't know anything...were uncomfortable with the term [specific term], were you know...just kind of like not even knowing what terms they should use, whereas other people had done a lot of study.

Yvette: And so, that was a great example where people really...you know, we had someone from [specific discipline] who really brought a critical frame. We had a couple of [people from a professional field] who really thought about the issues we were talking about and kind of a historical arc and were able to express that to people. We had people in professional programs like someone who was a [professional role] who talked about her work in [geographic location], with a specific community and was able to bring that perspective. So, yeah, I think that that's a good example of where people with different disciplines can really enrich each other's understanding of a topic, a difficult topic.

Another illustration of disciplinary perspectives as an object being translated is presented below.

Mack acknowledged and supported the disciplinary lens of others in research translation and translating their own expertise to diverse audiences:

Mack: I think that in those research discussions, having to recognize that a person's primary way of doing research in their profession is to develop a philosophical argument based on writings, published writings based on scholarship, and developing a philosophical argument, and they want to talk about doing research, then talking about how they could do it from that disciplinary lens.

Mack: And then if they want to move away from that disciplinary lens, for whatever reason, if that's what they would like to do, then helping them do that in a way that

would make sense to them, from that disciplinary lens, or from that context that they're in, in a way that would be supportive to them. One of the things that I've heard from folks, and I'm not meaning to brag, is that I do a pretty good job of helping explain statistical concepts and research concepts in a way that people from a variety of perspectives can understand what I'm talking about.

Mack: And even though you're from arts and humanities, or you're from science, or you're from engineering, or you're from whatever. That if I can do a pretty good job of explaining to a group of people from these different perspectives of what the message I'm trying to convey around research, that isn't from their lens, but I can make accessible to their lenses, then that's really important. Yeah, that context is critical.

Category 3 to 4: Disciplinary perspective as an object to do the work of translation

Externalization of disciplinary perspectives from Category 3 to Category 4 renders disciplinary perspectives as an object to do the work of translation. This shift acknowledges that disciplinary perspectives are not just being translated to achieve work tasks, but that disciplinary perspectives are used as a tool to facilitate the work of translation. Furthermore, from Category 3 to Category 4, disciplinary perspectives are not just offered to think differently about a situation, but afford educational developers and collaborators to cross disciplinary spaces by expanding what is salient in the situation. As an example of how disciplinary perspectives might be used to do the work of translation, Yvette commented on how her education background helped her understand others.

Yvette: So I think that having an education background for me has helped me to... I think it's helped me to think about the work that I do...not just from my own disciplinary perspective, but understand that other people have disciplinary perspectives and try to empathize or put myself...really try to get to know and think about what their priorities are in their discipline.

In the example below, Tracie spoke to the work of an interdisciplinary collaboration as having faculty describe what an analysis of a problem might look like from their disciplines. In this case, disciplinary perspectives are used to translate a problem situation.

Tracie: Well, I would say the work would be number one. The work would be, I would say, an analysis of the problem according to different people's disciplines. You know what I'm saying? If I'm saying this, whatever the initiative is, if I were to do this for the history department and I'm a history professor, how would I approach it? What are some of the strengths that I can bring? I would have everybody really kind of bring their understanding of what the problem is because in that we can help address at very different levels some challenges that may come

about. And different disciplines, I would imagine, would see different challenges to whatever this initiative is.

Tracie: Really streamlining all of that and listing to all of those things, and looking at how is this going to work, what will translate across the board for all the different programs that are represented, and really kind of hashing it out. Discussion, analysis followed by discussion. Then, of course, setting milestones like, “Okay, how are we going to move this thing forward? And what step? What would this look like?”

Tracie: Determining what success would look like or what implementation would look like, all of those things, getting everybody on board. So there would have to be a lot of discussion around that.

Disciplinary perspectives as an object used to do the work of translation is evident in the way that Wendy identified “three domains” that she is aware of when interacting with faculty: “the ways of thinking, the ways of doing, and then the local culture all come into play with how they are going to interact with you as an educational developer and the kind of programming, or delivery, or conversation that you want to have with them.” These “three domains” are inspired and influenced by disciplinary perspectives to engage in the work of translation in educational development.

Wendy: What I then find really interesting is overlaying the kind of disciplinary and departmental culture. You have kind of these disciplinary conventions, but then the organizational structure of the type of institution, the type of department you’re in, the kind of chair that you have, all of these things then create what Katarina Martensson and Martensson calls these kind of micro cultures. And I know that kind of is talking about lots of types of different kind of theoretical ways of thinking about it, but essentially you’ve got kind of ways of thinking and doing and are then influenced by the type of institution and the local culture. You need to know that as an educational developer going in.

Wendy: I kind of think of those three points as my armory for kind of going in. I need to know that stuff when I’m going in across different disciplines to have conversations with faculty. In different ways those three domains, kind of the ways of thinking, the ways of doing, and then the local culture, all come into play with how they are going to interact with you as an educational developer and the kind of programming, or delivery, or conversation that you want to have with them. Having a sense of how those three domains are playing into that individual or group of individuals I think is really important.

Category 4 to 5: Disciplinary perspectives as an object transformed through translation

The final externalization of disciplinary perspectives from Category 4 to Category 5 occurs as disciplinary perspectives become the object that is transformed through translation. In this way, disciplinary perspectives as an object takes on a new form that captures the critical reflection of

educational developers to challenge different ways of thinking. The transition from Category 4 to Category 5 results in disciplinary perspectives experienced in a new transcendent space, above any disciplinary space.

Gabi: But I like to think that educational development and the kinds of work that I do and people that I work with do, and kind of the profession in general is to try to, I guess, make that more salient or apparent that it's not... Like, yes, there's disciplinary perspectives and that obviously influences where we're coming from, how we view teaching and learning, how we view research, how we view a range of different things.

Gabi: But if we kind of step out of that frame and see how it's part of a bigger frame, so obviously the disciplines are all... For instance, sociology, education, psychology are different disciplines or frames but they're part of larger frame which would be the social sciences. As we go broader than that, they're part of science and if you go broader than that, they're part of intellectualism and academic focus, right? It's like a family.

Gabi: There's an article that describes educational development as a family of strangers, in the sense that we all come from different backgrounds. We even have different titles, depending on the institution or the country. But we're often doing a lot of the same work. Maybe approaching it differently, again, coming from our disciplinary backgrounds. But how we're all kind of... have the same end goals or things in common that way. Yeah. I think disciplinary background or disciplinary perspectives are frames or lenses that are differences. It influences how we approach teaching and learning, how we approach research, and different endeavors in the university. But it's all part of a bigger picture, I guess, that we're all part of.

Sawyer commented on his "reflective practice as an educational developer" in which he challenged dominant approaches in his work, which led him to think differently about his role and change his practice.

Interviewer: How did you navigate some of those changes or start to realize or learn or let go, as you said, of that [STEM] discipline but now you're moving to something else? Whether it's a discipline or some other way of seeing it, how did you navigate that?

Sawyer: Part of it is my own reflective practice as an educational developer realizing that some of the things that I thought should work, saying "here's the evidence, just do it and you'll get better results", that wasn't working. As I explored more about what really are human behaviors associated with change processes and I realized, well yeah... if I stop thinking about the job as being "teaching teachers how to teach", which is how I began, I started thinking about it, "no, you're really a change agent. You're trying to bring about change in others". They are teachers, it would almost be insulting to say, "I'm here to teach you how to teach". That's not being respectful to their experience, even if it is produced experiential knowledge, it is different than what we see in the research literature.

Sawyer: So I realized I really needed to get away from the idea that it was about teaching teachers how to teach, and I had to understand a lot more about their own reflective practices and what led them to what they were doing and what their values were as teachers, and use that as a way of trying to leverage changes that they might consider doing.

The trajectory of externalization of disciplinary perspectives characterizes the transition of disciplinary perspectives, as an object, between categories of description. Where the categories of description have described the way disciplinary perspectives are experienced, the externalization of disciplinary perspectives describes the nature of disciplinary perspectives as an object within interdisciplinary collaboration. The changing nature of this object points to the ways that disciplinary perspectives are experienced as an expanding awareness across higher categories of description. Taken together, the categories of description and the related relationships between categories, form a comprehensive view of ways of experiencing disciplinary perspectives by educational developers.

5. DISCUSSION

The research goal for this study was to investigate how disciplinary perspectives are situated in the work of educational development. Towards this goal, I used phenomenographic methods to investigate the ways that educational developers experience disciplinary perspectives in their work. I identified five distinct ways that disciplinary perspectives appear to educational developers. These ways, as categories of description, characterize how disciplinary perspectives become meaningful in the work of educational development.

In this discussion section, I revisit each of the three turning points (previously introduced in Chapter 2: Literature Review) to explain how study findings contribute to a broader and integrated understanding of how collaborators may engage with disciplinary perspectives in practice and how situative knowledge supports an understanding of integrative work for competency development. Each turning point represents an effort to overcome a key challenge in interdisciplinary collaboration and development that then informed the conceptualization of the research objectives and contributions of this study (see Table 5.1). I conclude with a discussion of the limitations of the outcome space and of the study itself.

Table 5.1 Mapping of interdisciplinary collaboration challenge, turning points, research objective, and contributions.

Interdisciplinary collaboration challenge	Turning Point	Conceptualization of research objective	Contributions
How do collaborators come to understand each other's ways of seeing a situation (i.e., each other's disciplinary perspectives)?	<p>Turning Point 1: Seeing two levels of understanding that collaborators bring to a situation.</p> <ul style="list-style-type: none"> • <i>What</i> each collaborator sees in the particular situation • <i>How</i> the collaborator sees the situation (i.e., the qualities of their perspective that informs what they see) 	How collaborators come to understand each other requires both levels of understanding for collaborators to see perspectives and frames of a problem situation.	<i>Understanding practice:</i> Categories of description as five distinct frames for educational developers to see and attend to in a situation. These frames capture how educational developers might respond to a situation based on their experience with disciplinary perspectives.
What are ways of knowing disciplinary perspectives as they are situated in collaborative interactions with others?	Turning Point 2: Characterizing forms of knowledge and knowing as situated knowing that constitutes an ability to see how disciplinary perspectives become meaningful in integrative work.	Engagement with disciplinary perspectives in integrative work is a social and situated activity. Understanding situated knowing of disciplinary perspectives expands how collaborators might engage with disciplinary perspectives.	<i>Understanding situated knowledge:</i> Qualities and features of each category of description show how disciplinary perspectives become meaningful based on educational developers' position in relation to disciplinary spaces.
How does situated knowing relate to professional practice and competency development?	Turning Point 3: Expanding the view of competency development for knowledge, skills, and attitudes to see competencies as a set of integrated practices for performing work tasks.	Situated knowing provides a basis for integrating practices to support an ability to perform work tasks.	<i>Understanding work:</i> The outcome space offers an integrative device to see relationships between educational developers and disciplinary perspectives, grounded in the work of translation.

5.1 Frames as Ways of Experiencing Disciplinary Perspectives

The challenge underlying turning point 1 pertained to a need to better understand how interdisciplinary collaborators come to understand each other's disciplinary ways of seeing a situation. The outcome of this turning point was broadening the conceptualization of integrative practice to include not just *what* others see but also *how* others see. A focus on how others see places emphasis on understanding the elements that shape and inform different perspectives. These elements make up "frames" that collaborators bring and construct in a situation that affords particular ways of seeing a situation.

The idea of frames comes from the design literature as a way to describe how professional designers name what they notice and attend to regarding a situation (see Schön, 1983, 1984). Dorst (2011) described a frame as "a (novel) standpoint from which a problematic situation can be tackled" (p. 525). In Dorst's description of design reasoning, frames connect the principles for how a solution might work with the desire to create a specific value (Dorst, 2011). Similarly, Haase & Laursen (2019) described frames as "the designer's approach to creating a new or redefined perspective on a problem that offers a new and radical direction for resolving it" (p. 20). Hey et al. (2007) acknowledged how designers each bring their "own set of assumptions, or *frame*, that guides [their] interpretations and actions" (p. 81). Hey et al (2007) further operationalized frames as having the following elements: "1) a desired end state or goal, 2) relative importance and relevance features (prioritization of designers' attentions), 3) boundaries to the design situation (problem scope, solution scope, resource constraints), and 4) criteria for evaluation (of new information, features and possible solution concepts)" (p. 81). The practice of framing also resonates with Ellis (2018) who described the role of frames and reframing in educational development specifically for facilitating change and different ways of thinking.

From the standpoint of my study findings, the five categories of description may be interpreted as five distinct frames from which educational developers may see and think about disciplinary perspectives in the work of educational development. These frames reveal interactions between educational developers and disciplinary perspectives (i.e., what educational developers notice in their situation) as well as the features and qualities of disciplinary perspectives that educational developers attend to in their work. Each frame represents elements of the situation and serves to bring an awareness to ways of experiencing disciplinary perspectives in educational development.

Within each frame, educational developers may be positioned to attune, attend, and respond to different ways of thinking, while eliciting and facilitating productive interdisciplinary collaborations. However, the frame is not a description of the work or the practice of educational development. The frame is the device created to make meaning of how educational developers relate to disciplinary perspectives. In this way, the frames contribute to an understanding of how educational developers may traverse and navigate disciplinary spaces. The frames offer ways for educational developers to see 1) different kinds of collaborative situations 2) their position in relation to different disciplinary spaces and 3) possible frames that collaborators may bring to the situation.

Each frame is named in such a way that acknowledges the context of disciplinary perspectives, as the disciplinary spaces that educational developers are situated in, and the activities involved in these interactions. In a similar way, Land (2004) uses the concept of *orientation* to characterize “analytic categories that include the attitudes, knowledge, aims and action tendencies of educational developers in relation to the contexts and challenges of their practice”. Based on Land’s (2004) study of different orientations to educational development, Land found that educational developers “adopt differing orientations in different strategic contexts” (p. 13). Land (2004) explained that orientations “are not innate personal characteristics of developers, and are not fixed. Rather the term orientation is chosen to imply a way of making sense of a given situation or set of tasks that subsequently informs and influences action” (p. 13). As frames, the five categories of description highlight ways of seeing and thinking about disciplinary perspectives as they show up in the work of educational development.

In the practice of interdisciplinary collaboration, educational developers may adopt or notice these five different frames as a way to facilitate and navigate different interactions, tensions, and goals. For example, tensions may arise when different collaborators may be working from two different frames (i.e., categories of description) and so the ability for collaborators to operate from the same frame offers benefits for building mutual understanding. In another way, frames open up the possibilities for exploration of a situation (Stompff et al., 2016), and so the findings offer a way to see alignment and opportunities for generating possible frames between collaborators and educational developers. Ultimately, while the frames serve to see elements of the situation in practice, educational developers may experience the categories of description simultaneously to perform their work tasks, as they traverse across the categories in collaborative interactions.

5.2 Situative Knowing of Disciplinary Perspectives

The challenge underlying turning point 2 pertained to understanding the social and situated aspects, or situated knowledge, of what it means to engage with disciplinary perspectives in integrative work. This understanding involved characterizing professional practice from the perspective of *knowing* (Cook & Brown, 1999) and the social constructionist view (G. Rowland, 2004). With these two perspectives, I highlighted how situated knowledge constitutes an understanding of how practices become meaningful in relation to the situation and through activities of use.

The outcome of this turning point was a study design that adopted a situative perspective to elicit the ways that disciplinary perspectives appear to educational developers. In this sense, situative knowledge of disciplinary perspectives constitutes an understanding of how disciplinary perspectives become meaningful in collaborative interactions. A key contribution of this study is illuminating qualities of interdisciplinary collaboration as a social and situated process, where interdisciplinary work takes shape in relation to disciplinary spaces as individuals engage with the disciplinary perspectives of others.

The research findings map a phenomenographic outcome space that characterizes the nature of disciplinary perspectives from the position of the educational developer in reference to different disciplinary spaces. As such, each category of description illustrates the situated and social nature of interactions as educational developers engage with disciplinary perspectives. As summarized previously in Table 4.1 (The Phenomenographic Outcome Space), the situated aspects characterize the context of translation (the space), and the social aspects characterize the social interactions of translation (integrative interactions). Here, I revisit these aspects by considering the varying interactions and contextual elements through which disciplinary perspectives appear in the work of translation in educational development. A summary of these interactions and contextual elements is shown in Figure 5.1 below.

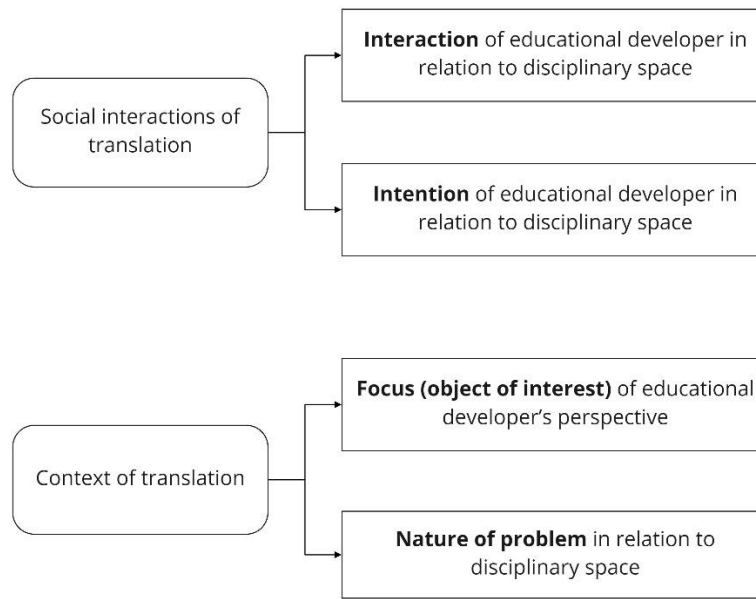


Figure 5.1 Situative elements of the categories of description.

The “Social interactions of translation” is comprised of *interaction of educational developers* and *intention of educational developers* in relation to disciplinary spaces. For *interaction*, the categories capture a particular type of interaction between educational developers and disciplinary spaces. For example, Category 1 sees educational developers as occupying their own disciplinary space. For each subsequent category, the term “stepping” is used to indicate a sense of movement and transition of educational developers in relation to disciplinary spaces. With Category 2, educational developers are “stepping into” the disciplinary space of others. Category 3 is characterized as “stepping between”, to illustrate educational developers moving between the disciplinary spaces of others. Category 4 is characterized by educational developers “stepping across” disciplinary spaces with others. Finally, Category 5 sees educational developers “stepping out” of the disciplinary space.

For *intention*, each category is characterized by a particular way that educational developers attend to the disciplinary space of others. The term “intention” is used to represent an intentional perspective that educational developers bring to see and respond to disciplinary spaces. For example, Category 1 is characterized by educational developers’ recognition of their own disciplinary contribution. For Category 2, the intention of educational developers is towards understanding disciplinary specific needs and contexts of others. For Category 3, the intention is

to think differently about some phenomenon and/or situation. For Category 4, the intention is to expand the space of thinking. Finally, with Category 5, the intention is to transcend the space of thinking.

The “Context of translation” is comprised of *the focus of educational developer’s intention* and *the nature of the problem in relation to disciplinary spaces*. The *focus of educational developer’s intention* highlights particular objects of interest that appear within each Category. For Category 1, educational developers’ *self* is identified as the focus to indicate how Category 1 captures educational developers’ understanding their own disciplinary perspectives. For Category 2, *artifacts* are identified as the focus to capture how educational developers work to create, develop, and provide instructional materials, products, and other support services to their faculty clients. For Category 3, the *problem situation* is the focus as educational developers aim to understand the whole problem and its context. Category 4 is characterized by the focus on *ideas and identity* of others to explore possibilities for mutual learning among different disciplines. Finally, for Category 5, *socio-cultural systems* become the focus as educational developers see the entirety of interactions encompassing disciplinary spaces.

The *nature of problem in relation to disciplinary space* locates the problem of interest in relation to disciplinary spaces. The concept of *problem of interest* refers to the broad topic that educational developers may be collaborating on or working through. In other words, the problem of interest represents the reason that collaborators are engaging together, whether it be a specific problem to solve, a situation to understand, or a topic to discuss. In Category 1, the problem of interest is located within the educational developers’ understanding of their disciplinary perspective. In Category 2, the problem of interest exists within the disciplinary space (for example, within the disciplinary space of the faculty member that the educational developer may be consulting with). In Category 3, the problem of interest exists outside of the disciplinary space, where the educational developer’s position is located between disciplinary spaces. In Category 4, the problem of interest exists across disciplinary spaces, where the educational developer’s position and disciplinary spaces overlap. In Category 5, the problem of interest exists outside of any disciplinary space.

Taken together, the situative elements described by *social interactions* and *context of translation*, offer an integrative way to see relationships and connections between social interactions and context. For example, the interaction of educational developers in relation to the

disciplinary space (within social interactions of translation), as *occupying one's own disciplinary space, stepping into, stepping between, stepping across, and stepping out*, is connected with the nature of problem (within context of translation). Furthermore, the intention of educational developers in relation to the disciplinary space (within social interactions of translation) aligns with the objects of interest (within the context of translation), as *self, artifacts, problem situation, ideas and identity, and socio-cultural systems*. In Category 1, educational developers occupy their own disciplinary space (i.e., interaction), such that the problem of interest exists within the educational developers' understanding of their disciplinary perspective. Educational developers recognize their own disciplinary perspective (i.e., intention), such that the object of interest in the context of translation is one's *self*. In Category 2, educational developers step into the disciplinary space of others where the problem of interest exists within the disciplinary space of others. Since the intention is to understand user needs, the focus is on creating *artifacts* that meet these needs. In Category 3, educational developers step between disciplinary spaces such that the problem of interest exists outside of disciplinary spaces. The intention is to think differently about a phenomenon, so educational developers focus on the *problem situation*. In Category 4, educational developers step across disciplinary spaces, and so the problem of interest exists across disciplinary spaces. The intention is to expand the space of thinking, so educational developers focus on different *ideas and identity* that contribute and inform one's thinking. In Category 5, educational developers step out of the disciplinary space, such that the problem of interest is abstracted from disciplinary spaces. The intention is to transcend the space of thinking which leads to a focus on *socio-cultural systems* as these systems and disciplinary spaces interact together. Therefore, all of the categories are characterized by connections between social interactions and the context of the situation. First, *interactions* of educational developers give meaning to *the nature of the problem* and its location relative to disciplinary spaces, and second, the *intentions* of educational developers bring into focus particular *objects of interest*.

The findings illustrate how each of these interactions, intentions, focus, and nature of the problem give meaning to the categories of description for how educational developers experience disciplinary perspectives. Specifically, the characteristics of social interactions and context illuminate elements of situative knowledge for how disciplinary perspectives become meaningful in educational development.

5.3 Competency Development in the Work of Translation

The challenge underlying turning point 3 pertained to the professional development of educational developers to support their practice and professional competencies. In my literature review, I presented the view of seeing practices as they are situated in relation to their use to perform professional work tasks. I highlighted the importance of situative knowledge as an understanding of how these practices become meaningful through the context, interactions, and activities in which the practices are applied in use. This review led to turning point 3 that identified the challenge of developing competencies for educational development in such a way that integrates practices towards work tasks. With an understanding of how these practices become meaningful, collaborators may engage in responsive and inclusive facilitation of knowledge building and integrative activities, where they are positioned to attune, attend, and respond to different interactions.

Phenomenography is based on the premise that individuals act and react to situations based on the way that they experience the situation (Marton, 2015). Here, I revisit the relationships between 1) ways of experiencing, 2) practices, and 3) competencies as a set of integrated practices for being and performing professional work tasks (Sandberg & Pinnington, 2009), to show how the findings of this research set the foundation for noticing, reflecting on, and framing educational development practices and competencies. I use the phenomenographic outcome space as an integrative device to draw connections between these relationships.

The research findings offer a way to notice, engage with, and reflect on disciplinary perspectives as they are situated in the work of educational development. Specifically, the phenomenographic outcome space offers an integrative device to see how disciplinary perspectives appear and operate in the work of translation.

The phenomenographic outcome space offers an understanding of how the knowledge of disciplinary spaces and relationships with disciplinary perspectives supports the work of translation in educational development. The categories of description show how disciplinary perspectives appear with distinct qualities and features in the work of translation. Furthermore, the logical progression between categories of description captures how disciplinary perspectives, as an object, become externalized in the work of translation.

First, each category represents an integrated way that disciplinary perspectives appear to educational developers in the work of educational development. The qualities of each category are grounded in participants' descriptions of different activities in educational development (i.e., things they do in their work), and make up the way that educational developers experience disciplinary perspectives. Although this study did not investigate specific practices of educational developers, the phenomenographic outcome space offers a way of seeing knowledge that supports engagement with disciplinary perspectives, such that educational developers may recognize and respond to different kinds of collaborative situations. For example, by recognizing the variation between Category 3, Category 4, and Category 5, educational developers may be positioned to recognize different kinds of collaborative challenges, traverse disciplinary boundaries and spaces, move between system levels of analysis, and see opportunities for translation in their work. By considering the variation of elements within educational development work, particularly that of engagement with disciplinary perspectives, the findings of this work offer a basis for formulating and investigating practices in educational development.

Throughout this work, I have conceptualized competencies as a set of integrated practices for being and performing professional work tasks (Sandberg & Pinnington, 2009). Although this research did not investigate the phenomenon of a work task in educational development, the findings are grounded in the work context of translation in educational development. That is, the findings are interpreted in relation to the way that educational developers engage in translation activities. However, the categories of description do not represent ways of experiencing translation as a work task of educational development, and therefore, the categories of description may not be interpreted as competencies for educational development work. Instead, in support of developing competencies for educational development, the phenomenographic outcome space broadens and integrates what it means to engage with disciplinary perspectives (i.e., as a practice) in educational development work from a phenomenographic second-order perspective.

Where the dominant approach to integration centers around using perspectives to generate insight as a new understanding about a situation (Repko & Szostak, 2017), my research findings offer an extension to this approach by highlighting the importance of frames as ways of experiencing. While interdisciplinary collaborators may acknowledge the differences in perspectives and work to understand these perspectives to generate new insight about a problem situation (i.e., questions like “what are your thoughts and ideas about this situation?”), I posit that

this level of understanding and work operates in the first-order perspective of describing “what is”. At the same time, individuals experience problem situations in different ways (i.e., questions like “how does this situation appear to you?”). Therefore, while generating insight in the first-order is important for integration, this aspect does not identify the way that collaborators may move to generate a change in frame based on understanding how others experience a situation from the second-order perspective. For example, this specific quality of framing and expanding the space of thinking is representative of Category 4: Co-constructive expansion of ideas and identity. These two different ways of engaging with perspectives are represented as two different logic statements in Figure 5.2 below.

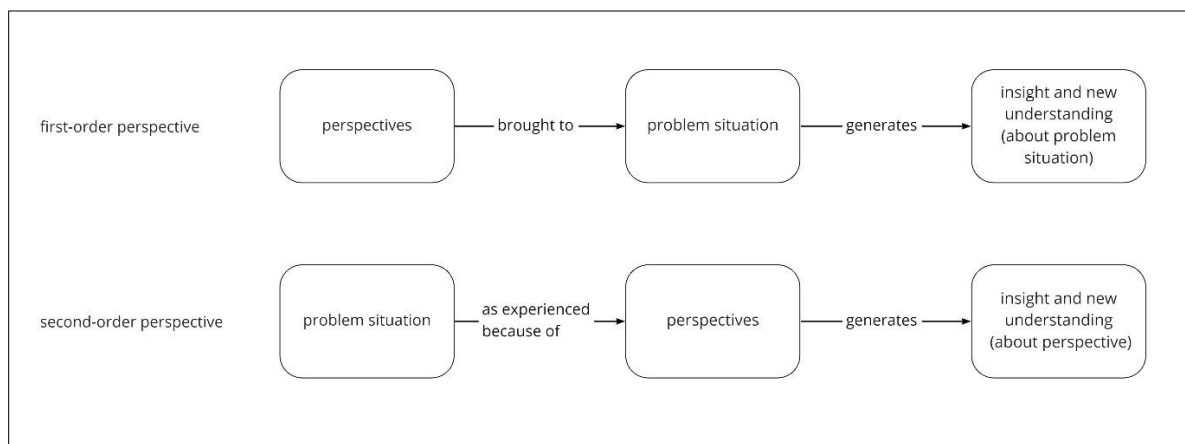


Figure 5.2 Two different logics of engaging with perspectives in relation to a problem situation.

Another example of how the findings illuminate the second-order space is in the relationships between the categories of description, as a logical progression referred to as the trajectory of externalization of disciplinary perspectives. This logical progression captured how disciplinary perspectives as an object in collaborative interactions, moves from being an object internal to educational developers to an object that is externalized as it is translated, used in the work of translation, and becomes transformed through translation.

Overall, my findings may be interpreted against the backdrop of professional knowledge of educational developers. In this way, my findings offer an understanding of the situated knowledge of disciplinary perspectives involved in interdisciplinary collaboration. Other research has characterized interdisciplinary work by considering varying degrees of integration (O’Rourke

et al., 2016; Repko, 2007) and the different types of questions being asked (Lattuca, 2001). In my work, I adopt a situative perspective to see interdisciplinary work take shape in relation to disciplinary spaces. Understanding the situative elements of interdisciplinary collaboration may support educational developers in designing authentic learning and development opportunities for diverse faculties and communities. As Sharpe (2004) described,

The situated perspective argues that *all* knowledge is situated, so one question for professional development is how various settings might give rise to different kinds of knowing. In academic life, staff are likely to be part of more than one community of practice, being peripheral in some and central to one or more others. They might be part of the community of their discipline, their school or department, their course team, even their peer group on a professional development course. Part of the skill of the developer would then be in locating development activities within the appropriate community.

Other authors have emphasized the importance of situated learning in community to promote authentic professional development of faculty and educational developers (G. A. Smith, 2019; Taylor, 2005). As the field of educational development responds to the continual changing landscape of higher education, the role of educational developers will continue to develop and adapt. For example, the role of educational developers as change agents has been emphasized in the literature (Dawson, Mighty, et al., 2010; Roxå & Mårtensson, 2005). The findings of my study offer ways for educational developers to see how they might adopt different roles and perspectives depending on the collaborative situation.

5.4 Limitations of the Phenomenographic Outcome Space

The outcome space of this research presents five distinct ways of experiencing disciplinary perspectives in the work of educational development. In this section, I discuss limitations in the way that the research findings may be interpreted from a methodological and practical perspective.

Methodologically, unlike a qualitative thematic analysis approach that aims to synthesize participants' descriptions of their experiences, the findings do not aim to tell a story about participants' experiences. Instead, the phenomenographic approach aims to describe a particular phenomenon through participants' ways of experiencing that phenomenon (i.e., how the phenomenon appears to them). Therefore, this research aims to tell a story about the phenomenon of disciplinary perspective based on the collective set of participants' descriptions as evidence of the ways of experiencing the phenomenon. The categories of description represent the kind of

relationships that educational developers have with the phenomenon of disciplinary perspectives. The 18 educational developers who participated in this study represented variation in the ways that they may experience the phenomenon in the context of educational development work. Therefore, the findings may manifest differently in other interdisciplinary contexts with different interdisciplinary professionals. Although the findings may not be broadly extended to all integrative work contexts, I have taken steps through the phenomenographic quality considerations embedded in this research to ensure transferability of my findings. The findings are transferable in the way that the categories of description characterize varying relationships with disciplinary spaces. Furthermore, the findings are grounded in the context of translation in educational development work. I describe the categories of description using the concept of “qualities” to indicate that these qualities make up the category, but do not represent a complete, conclusive, or definitive set of elements that are part of the category. In this way, as the reader interprets these findings in their own context, there is an opportunity for the reader to see their own experiences and work represented in my research findings.

From a practical perspective, the outcome space characterizes engagement with disciplinary perspectives based on the position of educational developers in relation to disciplinary spaces. Although multiple disciplinary spaces are shown as multiple white circles in the representations of Categories 3, 4, and 5, these categories may be equally represented by only two disciplines: that of the faculty developer and that of the faculty they are working with. All of the categories of description are independent of the number of disciplines involved.

The categories of description do not represent practices of educational developers or different ways of doing educational development work. The categories of description do not represent better or worse practices in relation to each other, or more sophisticated ways of experiencing that lead to any better or worse outcomes in the work of educational development. That is, while the categories represent distinct ways of experiencing disciplinary perspectives, the categories of description are not hierarchical pertaining to the performance of educational development work. The ways of experiencing the phenomenon of disciplinary perspectives follows a trajectory of comprehensiveness and expanding awareness, but Category 5 as a way of experiencing is not inherently better or worse than Category 1 or any other subsequent Category.

It is not intended that these categories of description represent a progression from disciplinary, multidisciplinary, interdisciplinary, and transdisciplinary, despite the categories

sharing similar qualities of these characterizations. The major difference is that the five categories of description presented in the phenomenographic outcome space do not represent progressively higher degrees of integration. Instead, my findings use integrative work as the context for which to see interactions between disciplinary spaces. In educational development practice, educational developers may experience the categories simultaneously as they move between categories that serve their needs, situations, and objectives. Indeed, some excerpts presented in the findings illustrate qualities of multiple categories but were presented under a particular Category to exemplify specific qualities of that Category. As identified earlier, the work of translation, that is, making meaning of ideas and situations to advance development of teaching and learning, holds all of the frames together. Therefore, it is expected that educational developers' specific practices of translation would extend across the categories as engagement with disciplinary perspectives is shaped by the context, social interactions, and activities of this translation work.

6. CONCLUSION

Educational development is an inherently interdisciplinary field, where educational developers bring their own disciplinary background and training to their work with others from diverse disciplines. To support educational development practice in interdisciplinary collaboration, this research set out to understand how educational developers experience disciplinary perspectives in their work. The findings of this research are presented as a phenomenographic outcome space consisting of five categories of description representing how educational developers experience disciplinary perspectives (Figure 6.1).

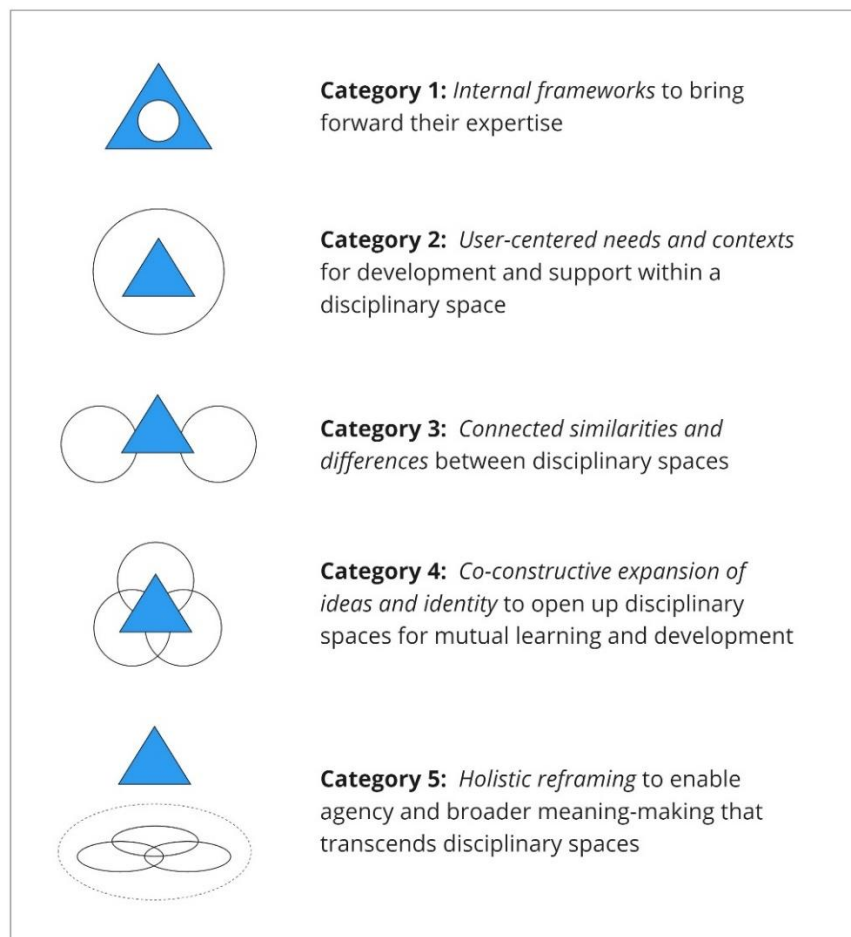


Figure 6.1 Five categories of description capturing the variation in ways educational developers experience disciplinary perspectives. The educational developer's position (blue triangle) is shown in relation to different disciplinary spaces (white circles).

The outcome space considers integration from a situative perspective to see educational developers' position in relation to diverse disciplinary spaces. Based on this situative perspective, each category of description is described by 1) qualities for how disciplinary perspectives manifest through activities of translation in educational development, and 2) social interactions and contexts that give meaning to disciplinary perspectives. There is also a logical progression that captures the relationships between the categories, described as a trajectory of externalization of disciplinary perspectives. This progression recognizes how disciplinary perspectives move from an internalized to an externalized object. Taken together, the five categories of description present a representation of variation in how disciplinary perspectives appear to educational developers.

6.1 Research Contributions, Implications, and Future Work

In the following sections, I will discuss my research contributions, implications, and future work, in relation to integrative work and practice, and broader implications for the field of educational development. Furthermore, while this study considered the interdisciplinary context of educational development, I will offer broader implications for supporting integrative work in engineering education.

Integrative Practice and Work: Engaging Disciplinary Perspectives in Educational Development

This work contributes to an understanding of disciplinary perspectives from a situative perspective. Disciplinary perspectives were framed as an object in interdisciplinary collaboration that collaborators experience through social interactions, activities, and contexts. From this situative perspective, this work presents opportunities for further exploration of the practices and work tasks of educational developers engaged in translation and interdisciplinary collaboration. The categories of description offer points of connection for educational developers to recognize and frame different approaches in their work. With an understanding of the ways of knowing disciplinary perspectives, educational developers and interdisciplinary practitioners may be better positioned to notice, elicit, and respond to disciplinary perspectives in integrative work and collaboration. For example, educational developers may be able to see variation in experiencing disciplinary perspectives that may inform how collaborators negotiate disciplinary differences and how they come to understand multiple perspectives. Furthermore, the phenomenographic outcome

space contributes to an understanding of how disciplinary perspectives take on different meaning depending on the context of the collaborative situation.

This work has also offered a way of thinking about multidisciplinary, interdisciplinarity, and transdisciplinarity as integrative work. In addition to seeing variation in integrative work based on degrees of integration (O'Rourke et al., 2016), the kinds of questions being asked (Lattuca, 2001) and problems addressed, or the methods employed, the phenomenographic outcome space points to variation in the ways of engaging with disciplinary perspectives in relation to different disciplinary spaces. The findings offer a way to see integrative work with disciplinary perspectives based on the situated interactions and relationships with disciplinary spaces. In this way, the outcome space integrates multidisciplinary, interdisciplinarity, and transdisciplinary ways of working as each of these ways may be operating within each category of description. The variation in the categories of description characterize interdisciplinarity collaboration based on collaborators' position, relation, and engagement with different disciplinary spaces. Based on this characterization, the outcome space provides a way to see how educational developers might traverse between, within, and across disciplinary spaces and engage with disciplinary perspectives as an object of integrative work. The categories of description, as frames, offer launching points for educational developers to develop their interdisciplinarity practice in response to the collaborative situation.

Broader Implications for the Field of Educational Development

This research supports the professional development of educational developers by providing an integrative device for seeing variation in ways of engaging with disciplinary perspectives. Based on a situative perspective, the phenomenographic outcome space offers insight into the professional work of educational development and how educational developers may develop their practice of interdisciplinarity collaboration. This dissertation has approached professional competencies for educational development as a set of integrated practices, capturing what educational developers do and who educational developers are, in their activities to achieve particular work tasks (see Sandberg & Pinnington, 2009). By grounding the context of the five ways of experiencing disciplinary perspectives in the work of translation, future research may consider how different knowledge, skills, and attitudes for educational development are situated in relation to activities of translation. Furthermore, future research may consider relationships

between the ways of experiencing disciplinary perspectives and achieving different educational development outcomes. The professional identity of educational developers is another opportunity for research that may integrate professional practices and ways of being to explore what it means to be an educational developer, professional values of engaging in educational development and integrative work, and how educational developers see themselves as interdisciplinary professionals.

Broader Implications for Engineering Education

This research contributes to the broader field of engineering education by advancing an understanding of interdisciplinary practice and integrative work, and how engineering faculty may be supported in engineering education transformation through educational development.

Integrative work is inherent in engineering and design practice, as engineers and collaborators draw on diverse expertise and experience to face complex, socio-technical challenges. Particularly, problem framing is an important part in the design process to formulate, scope, and define the problem. In support of problem framing activities, this study offered five different frames that interdisciplinary collaborators may engage with as ways of seeing disciplinary perspectives. Additionally, this study provided insight into ways that educational developers may attune and attend to the situative knowledge of disciplinary perspectives in collaborative interactions. While this study focuses on the context of educational development, the findings may be viewed in broader integrative work contexts, such as engineering education, because the findings focus on the relationships between individuals and different disciplinary spaces, and how disciplinary perspectives are brought forward as an object in these spaces. In this way, the findings of this work may also be used to develop assessment and self-reflective tools for collaborators in engineering education.

For engineering education transformation, engineering faculty collaborate with educational developers in research and the scholarship of teaching and learning, creating educational experiences, and facilitating instructional and curriculum change. Educational developers, as change agents who support engineering faculty, may benefit from developing the ability to generate, adopt, and hold multiple frames for seeing and setting a problem. Furthermore, collaborative partners within engineering education (e.g., faculty, graduate students, and administrators) may benefit from understanding the different frames, perspectives, and professional expertise that educational developers bring to their interactions.

Further work may consider how the five frames operate within participants who hold particular STEM disciplinary backgrounds. Although an analysis of this type was not part of this dissertation, future research opportunities might investigate the relationships and elements that translate between STEM backgrounds in relation to the research findings. This analysis might provide insight to support the application of the research findings across diverse STEM disciplines to enhance teaching and learning of interdisciplinary collaboration.

6.2 Closing Thoughts

This dissertation represents an interdisciplinary engineering education research project in several ways. At the beginning of this journey, I set out to develop a dissertation that would contribute to an understanding of interdisciplinary collaboration and integrative work—drawing on multiple perspectives and approaches from engineering education, learning and cognition, teacher education, interdisciplinary studies, and design. I presented the need to understand disciplinary perspectives in terms of what collaborators see, and also how they see a particular situation. I also pointed to the challenge of integrating practices into competencies situated in work tasks. From these challenges, I adopted a situative perspective to see integrative work as a social and situated activity. I framed educational developers as interdisciplinary professionals who bring diverse disciplinary backgrounds to their work with faculty across different disciplines. In the context of educational development, I designed a phenomenographic study to investigate how educational developers experience disciplinary perspectives. The findings, presented as a phenomenographic outcome space, identified five distinct ways for what it means to engage with disciplinary perspectives through activities of translation. These five categories of description may be interpreted as frames that illustrate the variation in how educational developers engage with disciplinary perspectives, thereby broadening an understanding of the relationships educational developers have with traversing disciplinary spaces.

Interdisciplinary collaboration and educational development will continue to shape the landscape of teaching and learning in higher education. This dissertation has presented an integrative device for collaborators to see, elicit, and engage with multiple disciplinary perspectives.

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APPENDIX A. PURDUE INSTITUTIONAL REVIEW BOARD APPROVAL LETTER



HUMAN RESEARCH PROTECTION PROGRAM
INSTITUTIONAL REVIEW BOARDS

To:	ROBIN ADAMS ARMS
From:	Institutional Review Board
Date:	08/05/2019
Committee Action:	Expedited Approval - Category(7)
IRB Approval Date	08/02/2019
IRB Protocol #	1907022422
Study Title	How Educational Developers Experience Disciplinary Perspectives in their Work
Expiration Date	08/01/2022
Subjects Approved:	27

The above-referenced protocol has been approved by the Purdue IRB. This approval permits the recruitment of subjects up to the number indicated on the application and the conduct of the research as it is approved.

The IRB approved and dated consent, assent, and information form(s) for this protocol are in the Attachments section of this protocol in CoeusLite. Subjects who sign a consent form must be given a signed copy to take home with them. Information forms should not be signed.

Record Keeping: The PI is responsible for keeping all regulated documents, including IRB correspondence such as this letter, approved study documents, and signed consent forms for at least three (3) years following protocol closure for audit purposes. Documents regulated by HIPAA, such as Authorizations, must be maintained for six (6) years. If the PI leaves Purdue during this time, a copy of the regulatory file must be left with a designated records custodian, and the identity of this custodian must be communicated to the IRB.

Change of Institutions: If the PI leaves Purdue, the study must be closed or the PI must be replaced on the study through the Amendment process. If the PI wants to transfer the study to another institution, please contact the IRB to make arrangements for the transfer.

Changes to the approved protocol: A change to any aspect of this protocol must be approved by the IRB before it is implemented, except when necessary to eliminate apparent immediate hazards to the subject. In such situations, the IRB should be notified immediately. To request a change, submit an Amendment to the IRB through CoeusLite.

Continuing Review/Study Closure: No human subject research may be conducted without IRB approval. IRB approval for this study expires on the expiration date set out above. The study must be close or re-reviewed (aka continuing review) and approved by the IRB before the expiration date passes. Both Continuing Review and Closure may be requested through CoeusLite.

Unanticipated Problems/Adverse Events: Unanticipated problems involving risks to subjects or others, serious adverse events, and serious noncompliance with the approved protocol must be reported to the IRB immediately through CoeusLite. All other adverse events and minor protocol deviations should be reported at the time of Continuing Review.

Ernest C. Young Hall, 10th Floor - 155 S. Grant St. - West Lafayette, IN 47907-2114 - (765) 494-5942 - Fax: (765) 494-9911

APPENDIX B. PRE-RECRUITMENT PROTOCOLS

B.1 Pre-recruitment Email

IRB Protocol #: 1907022422

RECRUITMENT EMAIL POSTING

How Educational Developers Experience Disciplinary Perspectives in their Work

Richard Aleong
School of Engineering Education
Purdue University

Dear Colleagues,

As part of my PhD dissertation, I am conducting a study that explores how educational developers describe the meaning of their disciplinary perspectives as it relates to the work of educational development. The purpose of this research is to enhance the development of professional competencies for interdisciplinary collaboration in educational development.

Educational developers, faculty developers, and instructional developers who work at Centers for Teaching and Learning/Instructional Excellence in higher education institutions, in the United States or Canada, are invited to participate. Professionals who identify their primary work role with that of educational/faculty development are also invited to participate.

Your participation will involve an interview with me for approximately 1 to 1.5 hours, conducted virtually via teleconference (i.e. Skype, WebEx). In this interview, you will be asked to reflect on your experiences in educational development and share how disciplinary perspectives may influence your work. For your participation in an interview, you will receive a \$35 electronic Amazon gift card.

Your participation in this study will be strictly confidential. This study has been approved by Purdue University IRB.

If you are interested to speak with me, please complete this brief form at the link below so I may contact you to schedule an interview time. If you would like to learn more about this research or have any questions about this study, please feel free to contact me.

Link to form: [INSERT LINK]

Thank you for your time. I greatly appreciate your consideration to participate.

Sincerely,

Richard Aleong
PhD Candidate
School of Engineering Education
Purdue University
raleong@purdue.edu

B.2 Pre-recruitment Information Form

Purdue IRB Protocol #: 1907022422 - Expires: 01-AUG-2022

RESEARCH PARTICIPANT INFORMATION SHEET

How Educational Developers Experience Disciplinary Perspectives in their Work

Key Information

Please take time to review this information carefully. This is a research study. Your participation in this study is voluntary which means that you may choose not to participate at any time without penalty or loss of benefits to which you are otherwise entitled. You may ask questions to the researchers about the study whenever you would like. If you decide to take part in the study, you will be asked to return this form via email. Please be sure you understand what you will do and any possible risks or benefits.

This study explores how educational developers describe the meaning of their disciplinary perspectives as it relates to the work of educational development. The purpose of this research is to enhance the development of professional competencies for interdisciplinary collaboration in educational development. The research project will require participation in a personal interview with the researcher conducted via virtual teleconference (i.e. Skype, WebEx) for approximately 1 to 1.5 hours in length.

What is the purpose of this research?

This research aims to understand the professional practice of educational developers and their experience with disciplinary perspectives in their work with others from diverse disciplinary backgrounds.

Educational developers, faculty developers, and instructional developers who work at Centers for Teaching and Learning/Instructional Excellence, in the United States or Canada, are invited to participate. Professionals in other higher education academic units, or those outside of academia, who identify their primary work role with that of educational/faculty development are also invited to participate. We would like to enroll 27 people in this study from various disciplinary backgrounds and levels of experience in educational development.

What will I do if I choose to be in this study?

Participation in this study will involve one interview with the researcher. During the interview, participants will reflect on their experiences and describe aspects of their work and practice as an educational developer. The interview will be conducted via teleconference (i.e., Skype, WebEx) and scheduled at the convenience of the participant. The interview will be for approximately 1 to 1.5 hours and will be audio recorded and transcribed. Participants will have the opportunity to review the transcription to ensure that they are comfortable with the information that was shared during the interview.

What are the possible risks or discomforts?

This research is of minimal risk as the interview involves questions that are typical questions that participants may experience in their everyday activities or collaborative work tasks.

To protect your privacy and confidentiality, pseudonyms will be used to identify participants, and any identifying information will be removed from the interview transcript. Breach of confidentiality is always a risk with data, but we will take precautions to minimize this risk as described in the confidentiality section.

Are there any potential benefits?

There are no direct benefits to participants, implied or offered. Participants will be contributing to research that may inform the professional development of educational developers. Participants will be asked to engage in self-reflection about their experiences and work activities which may benefit their practice as an educational developer.

Will I receive payment or other incentive?

Participants who complete the interview will receive a \$35 electronic Amazon gift card. The gift card will be emailed to you within approximately 3 weeks after your interview.

Will information about me and my participation be kept confidential?

All information collected about you and your participation will be kept strictly confidential. Digital data (i.e. audio recordings) will be kept on a secured, password protected, hard disk drive. Email records of participation will be archived in secure, password protected hard disk drive and deleted from the researcher's personal email account. No identifying information provided throughout the duration of the study (i.e., from the pre-recruitment form or interview) will be used in the reporting of research findings. De-identified data will be stored indefinitely, and any other research records that may identify participants will be destroyed three years after completion of the study.

The project's research records may be reviewed by US DHHS Office for Human Research Protections, and by departments at Purdue University responsible for regulatory and research oversight.

What are my rights if I take part in this study?

Your participation in this study is voluntary. If you agree to participate, you may withdraw your participation and any data already collected at any time without penalty.

Who can I contact if I have questions about the study?

If you have questions, comments or concerns about this research project, you can talk to one of the researchers. Please contact:

Dr. Robin Adams, Professor, School of Engineering Education, rsadams@purdue.edu
Richard Aleong, PhD Candidate, School of Engineering Education, rleong@purdue.edu

If you have questions about your rights while taking part in the study or have concerns about the treatment of research participants, please call the Human Research Protection Program at (765) 494-5942, email (irb@purdue.edu) or write to:

Human Research Protection Program - Purdue University
Ernest C. Young Hall, Room 1032
155 S. Grant St.
West Lafayette, IN 47907-2114

To report anonymously via Purdue's Hotline see www.purdue.edu/hotline

B.3 Pre-recruitment Survey

IRB Protocol #: 1907022422

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PRE-RECRUITMENT CONTACT FORM

How Educational Developers Experience Disciplinary Perspectives in their Work

Richard Aleong
School of Engineering Education
Purdue University

Cover Page (once interested participants have clicked on the link)

Thank you for your interest to participate in this study.

This brief pre-recruitment form will ask you to provide your name and email, along with a few questions about your academic background and role in educational development.

This information will be used so I may follow-up with you to schedule a personal interview via teleconference (i.e, Skype, WebEx). Your participation in this research will be anonymous and any information you provide will be kept strictly confidential.

Thank you for your time. If you have any questions, please feel free to contact me.

Richard Aleong
School of Engineering Education
Purdue University
raleong@purdue.edu

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Name:

Email:

Name of higher education institution or organization of employment:

1. Please provide your official job title:
2. Please indicate the educational development unit that best describes where you work:
 - A. A center for teaching and learning, or instructional/teaching excellence that is specific to the discipline of engineering
 - Name of Center:
 - B. A center for teaching and learning or instructional/teaching excellence
 - Name of Center:
 - C. An academic unit within higher education that is involved with educational/faculty development
 - Name of academic unit:

- D. An organizational unit outside of higher education that is involved with educational/faculty development
- Name of organizational unit:

3. [IF Option 2C or 2D above is selected (other academic/organizational unit internal/external to higher education)]
- a. Please briefly describe any aspects of your role and/or work that you identify as educational development?
- What level of experience in educational development do you identify with?
 - I am an early career educational developer (e.g., 1-3 years experience).
 - I am an experienced educational developer (e.g., 4-8 years experience)
 - I am the director/administrator of an educational development unit (e.g., 9+ years experience)
4. Please indicate your academic credentials and the academic department/discipline that awarded your degrees:

Bachelor's degree: _____

Master's degree: _____

Doctoral degree: _____

5. Do you hold any other qualifications, certifications, or credentials related to your role in educational development?
6. Please select the top three (3) activities that you feel are a major part of your work as an educational developer:
- Written or oral communications (i.e, reports, presentations, workshops)
 - developing policy and strategy
 - one-on-one consultation with faculty
 - working with faculty, graduate students, and/or postdocs in a collaborative capacity
 - conducting classroom observations
 - facilitating teaching and learning workshops for faculty, graduate students, and postdocs
 - developing program/degree curriculum
 - designing instructional materials for in-class or online learning (i.e., course/instructional design)
 - serving on academic committees
 - administration and coordination of activities in support of academic unit
 - other activities

Please specify:

Demographic Information: Please place a check mark in the box beside your response.

1. Which of these terms would you use to describe your gender identity (Select all that apply)

- ☐ Agender
- ☐ Genderqueer
- ☐ Woman
- ☐ Man
- ☐ Trans Woman
- ☐ Trans Man
- ☐ An identity not listed here, please specify: _____
- ☐ Prefer not to respond.

2. Which of the following categories best describe you? (Select all that apply.)

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Hispanic, Latino, or Spanish Origin
- ☐ Middle Eastern or North African
- ☐ Native Hawaiian or other Pacific Islander
- ☐ White or Caucasian
- ☐ A racial or ethnic category not listed here, please specify: _____
- ☐ Prefer not to respond.

This is the end of the form. Please click next to submit your responses.

+Page Break+

Thank you for your time and interest in this research study!

I will be in touch with you soon to schedule an interview. In the meantime, if you have any questions, please feel free to contact me.

Richard Aleong
School of Engineering Education
Purdue University
raleong@purdue.edu

APPENDIX C. PHENOMENOGRAPHIC INTERVIEW PROTOCOL

IRB Protocol #: 1907022422

1

INTERVIEW PROTOCOL

How Educational Developers Experience Disciplinary Perspectives in their Work

Richard Aleong
School of Engineering Education
Purdue University

Interview logistics and overview

Thank you for your time today. I really appreciate the opportunity to speak with you. This project is titled How Educational Developers Experience Disciplinary Perspectives in their Work and is part of my PhD dissertation in Engineering Education.

My background is in mechanical engineering. I did my bachelor's and master's degree at Queen's University in Kingston, Ontario. And that's really where I first got excited about educational development research. As a graduate student, I started going to the workshops and events offered at the Center for Teaching and Learning, and that's where I really first got exposed to educational development and became inspired by the impact of educational development in higher education. I am really interested to understand how we can support educational developers in their work.

Particularly, educational developers bring diverse disciplinary perspectives to their work. I'm interested to hear about your experiences as an educational developer and the ways that you engage with your disciplinary perspective and the disciplinary perspectives of others. To guide the interview, I have a few questions that will ask you to reflect on your experiences and share your thoughts.

You received the information sheet about this project. I want to remind you that this interview is voluntary and your participation in this study will be confidential.

This interview will be audio recorded and should take about one hour to an hour and a half. Do you have any questions before we begin?

Personal Background and Description of Work

First, I am interested to learn about your disciplinary background and work in educational development.

Part 1: Background into educational development (personal disciplinary perspective and establish context)

Can you tell me about your background and work in educational development?

1. How did you get into educational development? (What is your background in educational development?)
 - a. In a few sentences, how would you describe your work as an educational developer?
 - b. Can you tell me a little bit more about the Center where you work or your academic unit?
 - i. What kind of projects, activities, or programming do you do?

Rev6

- ii. Is there anything about these activities that stands out to you as educational development? What makes these activities educational development?
- iii. How do you identify your work with educational development?

2. How would you describe your disciplinary background and training?
 - a. Are there any ways where your disciplinary background and training shows up in your work?
 - i. What does your disciplinary background and training mean to you for your work in educational development?

I'm interested to hear more about how your disciplinary background and training might offer you different disciplinary perspectives for seeing and approaching challenges in educational development.

3. What kind of things come to mind when you think of the term disciplinary perspective?
 - a. Are there any ways where your disciplinary background and training gives you ways for seeing and approaching your work?
 - b. Based on your disciplinary background and training, do you feel like you bring any disciplinary perspectives to your work in educational development?
 - c. Can you give an example of a disciplinary perspective you bring?
 - d. Do you feel like your work in educational development has shaped any of your disciplinary perspectives?
 - e. Are there any ways where your disciplinary perspective helps you in your work as an educational developer?
4. Can you describe any aspects of your work that involves working with others who see or approach problems differently?
 - a. How do disciplinary perspectives show up here?
 - b. Why are multiple disciplinary perspectives important?
 - i. Reminder: What do you mean by that?
 - c. What are you trying to do when you work with different disciplinary perspectives?
 - d. In your work with others, is there anything that you notice that is different between their disciplinary perspectives?

Part 2: Engaging with participant's disciplinary background and training towards work tasks and achieving outcomes

I'm interested in hearing more about how disciplinary perspectives show up in your work.

5. Can you tell me about a specific experience you have had as an educational developer where you worked with others who brought different disciplinary perspectives to the situation?
 - What were you trying to do? What was the larger goal?
 - What work was involved?
 - Who was involved and what was their role?
 - Was there anything about this experience that was particularly challenging?

- Is there anything about this experience that stood out to you as educational development?
- In what ways were disciplinary perspectives involved?
- How did disciplinary perspectives show up in this work?
- What was it about this experience that required you to work with diverse disciplinary perspectives?
- How did you engage with the diverse disciplinary perspectives?
- Was there anything about the disciplinary perspectives that helped you in this experience?
How did disciplinary perspectives help?
- Why were diverse disciplinary perspectives important in this experience?
 - How important are disciplinary perspectives in your broader work of educational development?
- Did disciplinary perspectives play any particular role in this experience?

Part 3: Experiences with the specific setting (context)

So for this last part, I'm going to share with you a scenario that you may have experienced before or might experience in the future. As you take moment to read it, imagine yourself in this situation, but the goal is not to solve the scenario or perform any task. So I won't be asking about what you might do in a scenario like this. The scenario serves as a setting for the ideas that we are going to talk about next.

Context Setting Scenario**A New Initiative to Support Teaching and Learning**

As an educational developer, you have been asked to chair a special committee tasked with developing and implementing a new initiative to support teaching and learning across campus. The committee has been convened consisting of faculty from diverse disciplinary backgrounds and training.

Your primary goal for bringing together the faculty is to utilize and leverage the diversity of disciplinary backgrounds and training towards the creation of the new initiative. With this goal in mind, you have been asked to support the committee's creative and collaborative process in the project.

6. When you read this, is there anything about this situation that stands out to you as educational development?
 - a. As the chair whose primary goal is to utilize and leverage the diversity of disciplinary backgrounds and training, what do you see as the work involved here?
 - i. Probe into the work:
 - ii. See question 7 below.
 - b. In your own words, how would you describe the goals of the project?
 - c. What do you see as your goal for yourself as part of this project? Is this similar or different from the overall project goal?
7. How would you describe the work required in this situation?
 - a. How do you see your role in this situation?
 - a. What does this situation require you to do?
 - i. Is there anything about this work that requires diversity in disciplinary backgrounds and training? Or makes disciplinary backgrounds and training especially important?
 - b. Are there any challenges that you anticipate in this situation?
 - i. Why are those challenges? What about that makes it a challenge?
8. In a situation like this, why might diversity in disciplinary backgrounds and training be important here?
 - a. What role does disciplinary backgrounds and training have here?
 - i. What is it about disciplinary backgrounds and training that might be important in this situation?
 - b. Why might it be helpful to have different disciplinary backgrounds and trainings represented in this situation?
 - i. What might this diversity in disciplinary backgrounds and training offer the project?
 - ii. How might faculty member's disciplinary backgrounds and training be used to achieve the goals of the project?
 1. Can you give me an example of what this might look like?
 2. How might you begin to work with the committee and faculty members to utilize and leverage the diversity of disciplinary backgrounds?
9. Are there any ways where diversity in disciplinary backgrounds and trainings may **shape or inform** the work of the committee?
10. Are there any ways where the diversity in disciplinary backgrounds and training may **impede or challenge** the work here?
11. Are there any ways in which the diversity in disciplinary backgrounds and training may **support and bring value** to the committee?

Closing

We are at the end of the interview. My last question is about anything you might need to help you in your work with diverse disciplinary backgrounds.

1. Is there any support, professional development, or resources that would help you in your work with diverse disciplinary backgrounds?
2. Is there anything else that you would like to share about your disciplinary perspective and experiences as an education developer, that you didn't get to talk about during the interview?

Thank you for your time. That is the end of the interview.

To protect your privacy, I will randomly assign you a pseudonym for reporting of the research findings. Do you have a pseudonym that you would like me to use? What are your pronouns that I may use in the reporting of the results?

Once I have completed and transcribed all the interviews, I will follow-up with you so you may review the transcription to ensure that you are comfortable with the information that was shared.

Thank you again.