FIRST-YEAR SCIENCE TEACHER IDENTITIES AS NAVIGATIONS THROUGH THE FIGURED WORLDS OF SCHOOLS

By

Kraig A. Wray

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Curriculum, Instruction, and Teacher Education- Doctor of Philosophy

2019

ABSTRACT

FIRST-YEAR SCIENCE TEACHER IDENTITIES AS NAVIGATIONS THROUGH THE FIGURED WORLDS OF SCHOOLS

By

Kraig A. Wray

A challenge for teacher education programs is preparing novice teachers to utilize progressive teaching practices for the purpose of leveraging student learning. When novice teachers are placed in challenging contexts, progressive practices are often under-utilized and replaced with traditional methods that are more teacher-centered. How best to prepare teachers for various teaching contexts requires an appreciation of factors that influence the professional identity and shape the actions of teachers. For this study, I took a sociocultural lens, which placed teachers as individuals who act within larger systems of power. I used *figured worlds* as a lens through which to investigate the factors that influence teacher agency as it mediates and is mediated by novice teacher's professional identity. This case study investigated three first-year science teachers in high-needs schools. Through the narratives told by these teachers about the culture and systems of power of their schools, I sought to gain insight into their teaching practices and agentic actions. I also sought to investigate these actions as they relate to the professional identities they develop within their figured worlds.

ACKNOWLEDGEMENTS

I am forever grateful for the community of individuals for whom without their support I would never have been able to finish this dissertation[1]. First and foremost, I thank Gail Richmond, PhD who for five years held my hand, supported my learning, and pushed me out of the nest even when I thought I was not ready. I would also like to thank my committee, Corey Drake, PhD, David Stroupe, PhD, and Amy Parks, PhD, for helping me think through my ideas, challenging my definitions, and ensuring this study was of the highest quality.

A special thank you to Christa Haverly, Sarah Keenan-Lechel, and Byeung Yeung Pak; whose in-depth questioning and formatting turned this paper into a document to be proud of.

This project would never have taken place without having three teachers that were willing to allow me in their room to video, question, and learn about their teaching lives. The piles of data would have taken months to process if it were not for my great friend, Paul Rutz, PhD, who helped to transcribe hours of interviews. Thank you for doing the dirtiest of the dirty work.

Lastly, I must acknowledge the role my family has played in this process. I thank my parents, who were constantly curious and supportive of my choice to pursue yet another degree. My children, Madeline and Kallen, who do not yet realize how important they were to me during this entire process. Lastly, and most importantly, my wife and partner, Mandy Hampton Wray, PhD, who constantly pushed me to move forward, who set aside her own work to help me with mine, and who constantly held me up and together.

[1] This work was supported by Grant No. DUE 1340048 from the National Science Foundation as well as funding from the College of Education, Department of Teacher Education, Michigan State University. The views expressed here are our own and do not reflect those of the funding agencies.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

I participated in what may be described as a traditional teacher preparation program at a large university in the late 90s into the early 2000s. At the time, I think it would be fair to say that the focus was on color-blind teaching, "main streaming" special education students, and classroom management as priorities for teaching. Content knowledge, state standards, large-scale summative assessment, and the district pacing guide was a heavy priority for planning and there was an expectation that if the students are behaving, the designed activity would be appropriate for all. I fell into a pattern of using the same activities period after period, year after year, regardless of the student outcomes, because I believed they were good activities. This was arguably the culture of public-school teaching, supported by my community of teachers, and encompassed the world in which I worked.

Eventually, I was formally observed by an assistant principal who was thoughtful regarding student learning in a way I had not experienced before and began to challenge my view of teaching. Our conversations consisted of her challenging my lessons by pushing me to think about planning and execution as they related to student learning and to do this with the intent of supporting growth and change; not of judgement. Her questions of "why" forced me to think about my own practices. This led to me investigate other ways of teaching, trying new methods, and being reflective and critical of my own practices. I also began to notice what was happening around me by examining what veteran teachers and the younger cohort of educators were doing in their classrooms. It was through my exploration and collaboration with others that I began to question why the teachers around me chose to engage in teaching the way they did. What drove them to plan and enact lessons in the ways they did? How do teachers learn to enact these practices? Can they be changed? Can we prepare teachers to be more progressive and engage

students in a more meaningful way? This sampling of questions eventually pushed me to leave the classroom teaching world and enter into graduate school for the purpose of preparing myself to be positioned as someone who supports teacher learning and growth for the purpose of improving student learning. For my purposes in this dissertation, I define learning as "an individual's changing participation in pedagogical activities—planning, instructing in-the-moment, and reflection—over time" (Stroupe and Gotwals, 2018, p. 297). Further, I take a situated perspective of learning (Lave & Wenger, 1991); one which acknowledges a novice's need to participate within a community and engage in the practices of this community.

Once at graduate school, I began by working with alternatively certified secondary science teachers. It was on this project that the constructs of agency and identity were introduced to me. While working within the teacher preparation program and supporting novice teachers as they navigated entering teaching, I began to explore how who these teacher's identities are related to how they chose to teach. Also, I began to think about what factors of the school support or push against how the teachers choose to or are able to teach. In reflecting back on my teaching experience, I wonder: Why did the veteran teachers teach the way they did? Did they have a choice? How could they have been supported to change their methods?

Novice teachers often encounter a world very different than worlds they have inhabited previously. The support of mentor teachers and university instructors is no longer available, and the full responsibility of being the teacher of record rests solely on their shoulders. Who they are as a teacher, what they value as a professional educator, and how they choose to act in front of a classroom of students is highly dependent on many factors. These include: what they experienced as students, what they experienced while a preservice teacher, and what they experience in the teaching world they enter into as a professional.

One way to describe who they are as a teacher is through their professional identities. Teachers may be torn between what they have learned as best practices during their preparation program and the practices that are established and promoted in the schools in which they work. This challenge of two worlds (Feiman-Nemser & Buchanan, 1983) has been well established and is faced by teacher preparation programs as they work to prepare teachers to enter diverse school settings. Work in classrooms during the preservice period is designed to provide opportunities for future teachers to gain firsthand experience with students, applying what they learn in course work to the real world. This practice is based on the assumption that by engaging in this work, teachers learn to apply and hone the practices highlighted in their courses. However, sometimes this is not the case.

Feiman-Nemser and Buchanan (1983) famously describe three pitfalls they refer to as "inappropriate learning" or "conceptual or behavioral traps" (p. 7) that novice teachers engage in while learning to teach, explaining why teachers may leave the preservice program believing they have mastered teaching. These pitfalls are reasons teachers may or may not engage in practices as they were taught by the teacher preparation program. It is these pitfalls that lead teachers to preconceived notions of what it means to 'teach' and what actions or expectations are associated with this kind of teaching. The first is the *familiarity pitfall,* which occurs when new teachers compare the classrooms they are teaching in to the classrooms they remember as K-12 students. This leads to the novice teacher making assumptions about what the students are capable of and what it means to be a teacher. The second *two-worlds pitfall* acknowledges that teacher education takes place across two very disparate contexts: the university and the K-12 classroom. Ideally, the learning that takes place in the former context has a connection to the latter, though that connection is not always made explicitly. This pitfall is encountered when

student teachers are left on their own to make the connections between course work material and the new context of a K-12 classroom. In short, having the knowledge of appropriate action is not commensurate with "acting wisely" (p. 14) based on what is happening in the moment. Lastly, the *cross-purposes pitfall* challenges teacher learning because classrooms are not designed nor intended to support teacher learning. The authors suggest that student teachers enter into the classroom spaces engaging in actions that are broadly "praiseworthy" (p. 19). By practicing in this way, there is minimal reflection on what actions they are taking and the result of these actions. Generally speaking, so long as the students appear to be engaged, the student teacher is not likely to be challenged on the actions that lead to this outcome. This pitfall highlights a lack of reflection on action.

Feiman-Nemser and Buchanan (1983) conclude their essay by describing how they think these pitfalls can be overcome. While they take time to address each pitfall individually, their solutions distill down to making contextual changes to K-12 placements to be more aligned with teacher learning while also helping children learn and support preservice teachers engage in professional identity work. They state: "If schools became places where teachers as well as pupils learned, then future teachers would learn to teach in classroom where their cooperating teachers were also students of teaching" (p. 22). What is lacking here is a finer-grained description of how to create a setting that supports both teacher and student learning.

In order to address these pitfalls or challenges, some teacher preparation programs have implemented clinically oriented, practice-based programming. These may provide a foundation on which new teachers can build their professional identities. By *identities* I mean what a teacher values within a particular space at a particular time as well as how they position themselves (and are positioned) within that space (Richmond, Juzwik, & Steele, 2011). It is by teaching with

progressive practices that are "likely to affect student learning in positive and meaningful ways" (Richmond, 2015, p. 167) that a teacher may begin to see success that supports both the actions they make and the professional identity driving that action within varied context. Yet not all teachers know what actions might best support their professional growth, feel they are able to act, or even want to act. How best to support teachers in developing a professional identity that focuses on the use of high-leverage practices is a constant issue for teacher induction as well as preparation programs.

Thompson, Windschitl, and Braaten (2013) explored one way of addressing the two-worlds pitfall in their study of student teachers' discourse communities. These discourse communities were "…two types of communities, one infused with discourses and tools supportive of ambitious teaching and another that reinforced traditional practices." (p. 574). Like Feiman-Nemser and Buchanan (1983) Thompson and colleagues (2013) noted a disconnect between the progressive practices focused on in some university program and the more traditional teaching taking place within schools. They found that teachers might enter into the profession following three "trajectories": those that value and teach through practices, those that value yet do not employ the practices, and those that neither value nor employ the practices (Thompson, Windschitl, & Braaten, 2013). They concluded that "purposefully designed communities and tools that focus on [practices] throughout preservice and induction and have a major impact on novice teachers, just as they are beginning to select repertoires that will define them as educators" (p. 609). Thus, by providing opportunities for novice teachers to participate in communities that analyze teaching practices within the setting in which they are being employed, they are more likely to identify as progressive teachers and develop lessons that utilize high-leverage practices (Richmond, 2015).

Thompson et al (2013) acknowledge that context has a role in the support of teaching through high-leverage practices. However, how context is conceptualized varies greatly from one study to the next. In response, they call for a reconceptualization of context as a construct. They further argue that characteristics like "beliefs" are insufficient for describing participation in communities and for describing the actions a teacher may engage in while teaching. It is this challenge that I seek to address, and I do so by drawing on a *Figured Worlds* framework. This framework allows an examination of teacher professional identity development and its role in influencing teacher action and therefore makes it potentially invaluable for addressing the gaps in our knowledge about how the development of practices and identity interact. Specifically, in this study, I will investigate the role the figured world of teaching plays in determining actions in relation to professional identity, which in turn shapes teaching practices utilized to support their teaching as well as the development of agency to address challenges.

Research Questions

It is with figured worlds (Holland, Lachicotte, Skinner, and Cain, 1998) that we can begin to explore professional identity. It is, in part through the story's teachers tell about themselves, we can explore the values associated with a teacher's professional identity and the actions they employ in relation to these values, in relation to the school world in which identity is refined.

- In what ways are the actions of first-year science teachers mediated by the school world in which they are working?
- In what ways does the figured worlds framework account for the shaping of professional identities and actions of first-year teachers?

CONCEPTUAL AND THEORETICAL FRAMEWORKS

The overall framework used to guide this study is made up of several constructs. Figured worlds (FW) and identity have been used to describe how individuals interact with their world and those within and how they form notions of themselves within systems of power. I begin this section by investigating the construct of Figured Worlds as described by the original authors and by others have utilized this framework in education research. I then present how the critical construct of identity contained within Figured Worlds as they present it along with my interpretation of its relevance with respect to my research questions.

Figured Worlds

Often researchers choose features of place or characteristics that they wish to focus on, leaving all other factors out of their analysis. This is understandable, given the plethora of contextual factors that may shape what is being measured in a study. While not based in theory, context is used in education research to reference the place and characteristics within. Often the chosen contextual factors are those that are interpreted by the participants. For example, in their work, Skaalvik and Skaalvik (2009) focused on administrative support, parent involvement, and time pressures, as teachers perceive them. Other investigators have focused on more physical aspects of the teaching context such as teaching conditions (e.g., Oakes, 1989). And still others (e.g., Akey, 2006) have focused on teachers' sense of belonging and perceived support. Such studies highlight how variable and poorly defined the concept of *context* is in education research. One way to address the teaching setting and not undertake the immense task of defining such a large and variable idea is by approaching context-based education research through a *figured worlds* lens. The sections that follow further explain the value of utilizing this framework for

describing the way in which one's views and practices are shaped by perceptions, actions and interactions within a space.

Figured worlds are the social and cultural spaces within which people enter and engage in actions in relation to a set of expectations established by the other actors within that world and in which their own identity is developed and refined in practice (Holland, Lachicotte, Skinner, & Cain, 1998). Using this definition that we can investigate the characteristics of a space that influence the actions people make. Further, we can study how worlds are formed based on actors' professional identity as well as how that identity is refined, through agentic action, or intentional action in response to a challenge, based on the world in which it is being applied.

Holland and her colleagues in the field of cultural anthropology originally proposed the idea of Figured Worlds as a way to investigate the constructs of self and identity. Drawing on the work of Vygotsky, they investigated how identity within communities is formed through activity within that community.

In representing the figured world of a school, I seek to gain understanding into how professional identity develops. Further I seek to explore the role of perception of the world, the actions teachers make, and the interactions between community members play in this development. The four components I leverage from Holland, et al.'s description of figured worlds, including culture, artifacts, community, and power and privilege, are laid out and described below.

Culture

If we think of figured worlds as figurative or rooted in discourse, then the pieces of that world are connected and compared with one another through narrative. Working under this assumption leads to the development of a standard plot of the world against which the narratives

are compared. This story then creates a frame of reference for which interpretation of action or participation can take place. Holland, et al. in referring to a study on women's role in a Hindu community state, "The meaning of characters, acts, and events in everyday life was figured against this storyline." (p. 54). Similarly, the culture of a school has an established storyline into which new teachers enter. Furthermore, this culture is developed by the actions of the actors of the narrative. By simply participating in the cultural story, the teachers are involved in the writing of that story.

Artifacts

Participation in a figured world not only privileges action but the tools through which these actions are realized. Holland, et al. go on to state, "Figured worlds are evinced in practice through the artifacts employed by people in their performances… they are the means by which figured worlds are evoked, collectively developed, individually learned, and made socially and personally powerful." (p.61). While the thought of using tools to work within a school world implies things like physical equipment, posters, and classroom furniture's availability and orientation, social tools can also be used to navigate life within the school world. The stories told by and about the world and the norms associated with participation in the world also act as artifacts because they "originate outside the performers and are imposed upon people, through recurrent institutional treatments and within interaction…" (p. 62). Along these lines, titles and labels given to people that have been historically built and come with compulsory expectations also act as artifacts. The participants in this world place value on the labels and make sense of what it means to be labeled, thus including it in their developing identity.

Power & Privilege

In discussing the development of professional identity in a school world, I have made reference to engaging in activity in relation to a cultural narrative. Identity formed through these interactions comes about, in part, when the teacher makes sense of their place in the world in relation to an already established hierarchy. Being that these worlds are created in a social space, people and actions are compared to one another, naturally ranking them. It is within the world that teachers "gain perspective on such practices and come to identify themselves as actors of more or less influence, more or less privilege, and more or less power in these worlds." (Holland, et al., 1998, p. 60). Calabrese Barton and Tan (2010) further explored this when they discussed the social positions new members of a world attain. They go on to say these positions "are inextricably entangled with power, status, and rank." (p. 193). Further they indicate, through agentic action, which they conceptualize as using knowledge, practice, and context to develop their own identities and therefore advance their position in or to alter the world, the teacher may push against this hierarchical system as they work to develop their identity. Through this action, they may generate a professional identity while simultaneously recreating what it is to have power within the world.

Community

Holland, et al. (1998) acknowledges the connection of developing identities and activities within a world and the *situated learning* that takes place with in *communities of practice* (Lave & Wenger, 1991). Lave and Wenger go on to say: "A community of practice is a set of relations among persons, activity and world, over time and in relation with other tangential and overlapping communities of practice." (p. 98). Furthermore, they say: "…participation in the cultural practice in which any knowledge exists is an epistemological principal of learning. The

social structure of this practice, its power relations, and its conditions for legitimacy define possibilities of learning." (p. 98). Godwin and Potvin (2017) strengthen the connection between the two stating: "Communities of practice are types of figured worlds because actors within this group define their membership by their culturally constructed and accepted practices of dialogue, actions and values…" (p. 444). While, there are similarities between communities of practice and figured worlds, something, which is acknowledged by Holland, there are also key differences.

Similar to figured worlds, communities of practice are social and cultural entities utilize artifacts and are characterized by a power dynamic amongst its members in which certain actions are valued over others. In both figured worlds and communities of practice, membership in the community is socially developed, and practices or activities take place in historical time. Figured worlds, however, is more explicit in the acknowledgement that members, novice and veteran, have the power--through agentic action--to reform the world. It is this key difference that I draw on when developing the narratives of the novice teachers in my study. While I acknowledge that community is a primary component of a figured world and engaging in practices valued by the community assists in the teacher in gaining power and privilege; I push against the notion that communities of practice are inextricably linked to one's perceived place in a figured world. Rather, by gaining power, one is able to have influence over actions that are privileged by the community and through agentic action, change what is valued within that world.

Figured Worlds in education research

Holland and her colleagues introduced figured worlds to the field of anthropology in 1998. This way of viewing culture and identity was adopted by educational researchers as a way of interpreting schools and classrooms as worlds in which to investigate the formation of identities of both students as learners of content and participation, as well as teachers. An early

example of this is the study conducted by Boaler and Greeno (2000) focused on the FW of a mathematics classroom world and the identities of students as learners of mathematics. The researchers use figured worlds as a way to frame "learning as a process of identity formation" (p. 171), and they claimed that it is participation in the practices, especially discourses that define mathematics, which supports learning to do mathematics. In Boaler and Greeno's description of their study, they focus on the social construction of a world by the participants, their interpretation of that world, and the "rituals of practice" (p. 173) and the way these mediate the roles, or positions, students and teachers take when engaging in the figured world of mathematics classrooms.

Figured worlds has subsequently been used to investigate identity development of both students and teachers in various settings. Examples of the studies that focus on students include: the development of agency in traditionally marginalized students in an informal, after school STEM program (Calabrese Barton & Tan, 2010), the development of an identity of 'good student' in urban high schools (Rubin, 2007), the development of middle school student science identities with in various figured worlds such as traditional classrooms, childhood, and family (Carlone, Scott, & Lowder, 2014), and the development of a culture of success for teachers and students within a bilingual urban high school (Michael, Andrade, & Bartlett, 2007). Other studies have focused on teachers as the unit of analysis including: teachers coming to identify as Chicana/o activists (Urietta, 2007), pre-service teacher identities within a preparation program world (Horn, Nolen, Ward, & Campbell, 2008) and within a methods classroom world (Robinson, 2007), English teachers identifying as researchers across the worlds of research and school (Fecho, Graham, & Hudson-Ross, 2005), and finally, elementary teacher identity and agency in the school world focusing on accountability (Sloan, 2006).

These studies have been situated in a variety of settings (e.g., schools, classrooms, family, research) and identities within them for both teachers and students have been explored. I will now summarize and interpret in more detail three manuscripts (Fecho, Graham, and Hudson-Ross, 2007; Urrietta, 2007; Rubin, 2007), which are highly cited in the education figured worlds literature. I will then narrow to the studies that are centered in science education before I discuss how my study will add to this conversation.

Fecho, Graham, and Hudson-Ross (2005) investigated the teaching worlds constructed by two English teachers in very different school contexts: one in an affluent suburb, the other in a working-class urban environment. The teachers were part of a larger cohort of teachers participating in a teachers-as-researchers program for the purpose of expanding their view of what it means to do research in their own classroom. Being part of this research project, the teachers were placed in a position to share information about their contexts as well as how their students make sense of what is happening in their classrooms. Having the opportunity to share allowed the teachers to engage in deeper reflection of what was happening within their own classrooms. By doing this they were disrupting the relatively static view of their own classrooms, causing their teaching world to "wobble". When they say wobble, they mean an unexpected occurrence or tension that destabilizes the world, drawing the teachers' attention to the issue. The authors contended that this wobble is not a negative thing, but the impetus for recognizing they have the power to engage in agentic or purposeful action. This manuscript is unique because it is one of the few to acknowledge and address that worlds overlap and members of a figured world bring with them knowledge and experiences from other worlds. By engaging the teachers in exploring the overlap of the research world and the teaching world, they were able to become more aware when there is a disruption in the classroom. Awareness allowed the

teachers to draw on their identities to engage in purposeful action to re-stabilize their teaching world.

In another study expanding beyond the traditional teaching and learning identities, Urrieta (2007) investigated the world of Chicana/o activists who chose to engage in activism by teaching for social justice as a means of "giving back to their community" (p. 117). Urrieta's study focused on the development of identity and the shifts that take place in both "procedural and conceptual" identities (p. 136). What Urrieta means by "procedural and conceptual" identities is; acting in the world is mediated by participation within that world and the understanding of oneself based on interpretations of that same world, taking into consideration lived experiences. Urrieta concluded that identity formation is complex and unique for each individual. He claims that this may support or push against the narrative identity production as described by Holland, et al (1998). Ultimately, the Chicana/o activist educators came to see themselves as capable of activism and therefore gained the desire to participate in this world because of their "immersion in Chicana/o activist figured world." (p. 137).

Finally, Rubin (2007) explored the figured world of student learning and how students are positioned as *good* students in an urban high school. Drawing on the literature that focuses on students of color and the role they and their families are assigned in regard to their success in school, Rubin investigated the learning and development of a positional identity within the world created in the school. She drew on Holland's positional identity but diverged from the four elements discussed above. Instead of culture, community, artifacts, and power, Rubin utilized "the local discourses, practices, categories, and interaction …" (p. 218) as components of the world.

Rubin took a *situated perspective* on learning, one in which "learning is profoundly shaped by the activity systems within which students learn." (p. 220) and focuses on the skills (participatory practices) and the assigned positions found within the world, in addition to the content. She further drew on Lave (1993) when she defines learning specifically as a social phenomenon that takes place in a lived world.

The framework described by Rubin can be used to investigate the identities of teachers much in the same way as students she studied. I anticipate the discourses, practices, categories, and interactions described by Rubin take place in the figured world of teaching in a way very similar to that of a student's learning world. The figured world described by Holland, et al. focuses on elements of culture, community, artifacts, and power, and Rubin's ideas can be mapped onto this framework. For example, the discourses and practices of a community in which a teacher is working in part define the culture of the world, according to Holland. Similarly, practices and interactions connect to the teaching community. Rubin placed artifacts and their use within practices directly when she states "Classroom practices as Oakcity High consisted mainly of worksheets, textbook-based questions, and standardized quizzes and tests. Worksheets, Quizzes and tests were *artifacts…"* (p. 228). Power, for Rubin, seems to be in the interpretation and positioning by and of the students in relation to the discourses, practices, and interactions and thus is not directly addressed by her paper. Further investigating the power dynamic and its potential to both influence action and inaction may strengthen her framework.

Figured worlds in science education

The works described above all draw on figured worlds as a lens for viewing identity of learners or teachers. For this section, I will further narrow the scope to those that utilize figured worlds in science education. The first article I present, focuses on the identities of middle school

students in an informal learning setting followed by two others set in elementary and middle school settings. Next, I will explore the figured world of engineering as a woman navigates engineering in high school and at the university level and then science identities of women of color. Finally, a study that while set in high school, investigates the identities of students, teachers, and curriculum developers. Lastly, the only manuscript to investigate the identities of science teachers at any level leaves a broad opening for exploring science teacher identities as they develop within school and teaching worlds.

Calabrese Barton and Tan (2010) investigated agency development of middle school students as they are participated in an after-school engineering program. They described agency as "action within a given field are enabled or constrained by the social structures available…" (p. 191). They drew on figured worlds because it best encapsulated their view of social position in that agency necessitates that the individual be able to position themselves within the world in relation to the power dynamics within. Furthermore, they stated: "…identity and figured worlds dialectically interact the role of science as a range of context and tools for enacting agency." (p. 195). In other words, students develop identities in science through agentic action while leveraging science knowledge and practices for the purpose of gaining rank or position in the science world. The students in this study drew on the experiences they brought with them from the community world and leveraged the knowledge they gained as they navigated the science world. As they gained science content knowledge, they were able to position themselves as science leaders within their communities and therefore engaged in agentic action such as facilitating dialogue with community leaders (legislator, police officers, etc.).

In their study that investigated identity development and enacted agency, Godwin and Potvin (2017) explored how one woman authored her identity through high school experiences

and how this lead her to college engineering. Ultimately, her experiences as she navigated the college engineering world pushed against the identity she had developed, resulting in her leaving engineering as a field. The authors focused their study on the participant's development of critical agency in engineering, or her ability to shape the world around her through everyday actions. For this study, they drew on communities of practice (Lave and Wenger, 1991) and likened this to figured worlds because identities are developed through membership within a world in which practices are culturally constructed. While I agree parallels exist, and both communities of practice do act within a larger system of power, figured worlds can be defined at a much larger grain size. Furthermore, communities of practice assume a shared goal for the members and figured worlds may not. Regardless of the differences, the authors concluded that high school experiences that supported the participant in feeling her knowledge and experiences were valued within the engineering world allowed for the development of an identity that seemed to fit in what she perceived that world to be. Further participation within that world pushed against this established identity when the emphasis shifted from how she leveraged her experiences to one of technical knowledge being primarily valued by the field.

Similar to Calabrese Barton and Tan (2010), Carlone, Scott, and Lowder (2014) also investigated middle school students and the interplay of the multiple figured worlds in which they reside. While the former draw on science broadly and community, the latter defined the worlds of interest as *traditional school classroom, reform-based classrooms, childhood,* and *family.* Carlone, Scott, and Lowder explored student identities as they related to what it means to be "good" or "smart" at science. The students came into their classroom worlds with conceptions of who they thought was good at science. The study then compared the opportunities provided in traditional (e.g. emphasis on content, bookwork, etc.) to those of a reform-based classroom

that was structured around socially constructed knowledge and "recognized creativity and curiosity as criteria for performing" (p. 848) as a smart student. Pushing against the dominant view of science learning as inaccessible by female students, those of color, or those from low income backgrounds, to name a few, this study points to the access that may be made available should a reform-based teacher reconfigure what it means to do science and leverage the identities of students brought from different worlds.

In the lone study I was able to find that investigated the identities of multiple stakeholders (teachers, students, and curriculum developers), Price and McNeill (2013) explored a high school urban ecology curriculum and the identities developed by these individuals while working with it. In connecting with the theme that emerged in the above studies, the authors concluded that opportunity, in this case as provided by the activities within the curriculum, can be used to bridge the science world with the experiences teachers and learners get in their home worlds. The data were explored with a social practice theory lens (Holland and Lave, 2009), which states: "meaning is constructed and negotiated … in light of historic situations, context, and communities…" (p. 504; Price and McNeill, 2013). This is significant because intended meaning of the developers and teachers may not align with that of the students. The meaning made of the curriculum therefore may have influence over student identity development with the world of science education that may or may not align with the intentions of the curriculum or the facilitators of that curriculum.

Each of these studies embodies the notion that when supported in making connections between knowledge that is valued in the science world and experiences that connect to that world, learners can develop identities as members of the science or learning worlds. Additionally, they can begin to act in a way that supports positioning themselves as individuals

with power or privilege within the worlds in which they are working. While the worlds explored above center on student learning or teacher actions around a specific value (e.g. activism), little research exists that investigates the teacher identity new teachers develop and the actions they engage in, in relation to their teaching practices, when they enter into an established school world.

Identity

Figured worlds is a theory of identity development. It is within these worlds that people "figure" out how they fit within and develop an identity in alignment with that world. By participating in activities within this world, individuals come to see themselves as actors and can then position themselves as having more or less privilege and power relative to others. Not only does participating in certain practices help a teacher place themselves within the world, but by assigning meaning to those practices relative the "…norms, practices, values, and demands of the setting…" (Carlone, Scott, & Lowder, 2014) may in turn change their value.

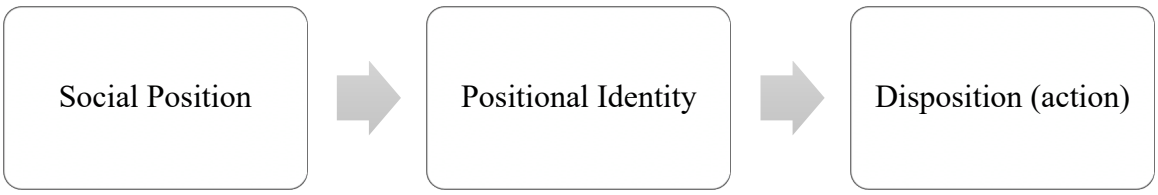
Holland, et al. dissects *identity* into *figurative identities* and *positional identities*. In short, the two are separated by action taken in relation to position and assumptions about culture respectively. While figurative identities are rooted in generic assumptions for behavior within the world, positional identities are represented by the actions an individual makes in response to their interpretation of their place within the world based on others present, on the local physical space, and upon activity to be engaged in. It is due to the focus on the individual that Holland and others center their thinking on positional identity. In this dissertation, I propose to do the same.

Drawing on the parts that make up a figured world, we can begin to make connections to a teacher's identity within that world. Using artifacts as an example, Holland et al, emphasize the

poker chip in alcoholics anonymous and food in Hindi cultures that people use, through action, to place themselves within the world and position themselves in relation to others (Figure 1.1). Similarly, they use the example of the way women speak or present themselves within the world of romance in United States universities as vehicles through which identity is developed. These examples take into consideration the hierarchy within which actions place the actor in relation to others within the world.

This positioning, or how one places or is placed in relation to others at that particular time (Richmond, et al., 2015), does not develop independent of others, but rather through an individual's interpretation of action relative to others. The actions of others demonstrate norms of a world, and reactions to an individual's actions may confirm or push against choices and assumed rank. Carlone and Johnson (2007) address this with their model of the three dimensions of science identity. They describe identity as a combination of *action*, *recognition by others*, and *understanding*. It is explained as follows: "A science identity is accessible when, as a result of an individual's competence and performance, she is recognized by meaningful others…" (p. 1192). Applying this to figured worlds, an identity is available for use by a person when actions in a setting are both appropriate and understood but also recognized by those in power. Removal of any of the three dimensions (action, recognition or understanding) prevents one's identity from being available for use within a world.

Figure 1.1. Positional identity adapted from Holland, et al. (1998).

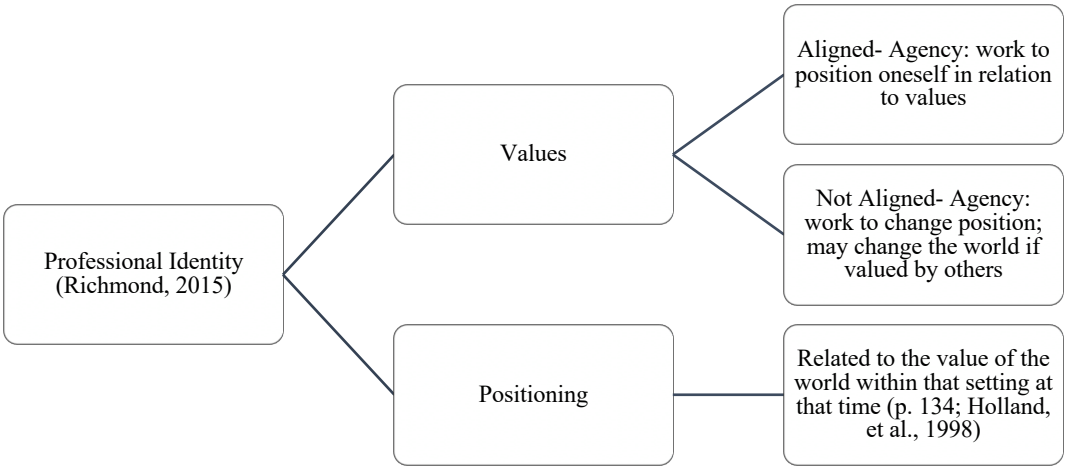


Urrieta (2007) defines identity as "people's ever-changing perception of who they are." (p.118). He then adds that it is not a case of *being* but rather of *becoming*, implying the fluid nature of identity as others have noted. He further explains that identity is relational, meaning one can only recognize the features of their identity by comparing to what it is not or by noting differences between their own identity and the identity of others. The treatment of identity as fluid acknowledges the potential change in values based on time and setting. However, this singular way of viewing identity does not account for the perceptions of self that teachers bring with them into the classroom, nor the influence identity has on actions and conversely the results of those actions on identity.

While I acknowledge the power Carlone and Johnson's model has for connecting action to membership within a world, I think centering identity primarily on action discounts historical experiences a teacher has on their professional identity such as internship, other field experiences, and experiences as a student. Eliminating action from the model would not be appropriate either because it is through action that a) others can recognize a teacher's identity, b) positioning takes place, and c) agency can develop. Holland, et al (1998) rely on the actions within a world using cultural tools to assist in defining positional identity, but the focus is on the relative position one gives themselves and the power dynamic at play in this positioning. Similarly, Richmond, Juzwik, and Steele (2011) conceptualize identity as how one positions and is positioned within a community and what the individual values at a moment in time. An overlap between Carlone, et al., and Richmond, et al. can be identified with respect to how one positions and is positioned by others within a time and place. Teachers do not enter into the world of teaching as blank slates, but rather bring with them ideas based in experiences and values. By acknowledging that identity exists and is altered in response to actions within a

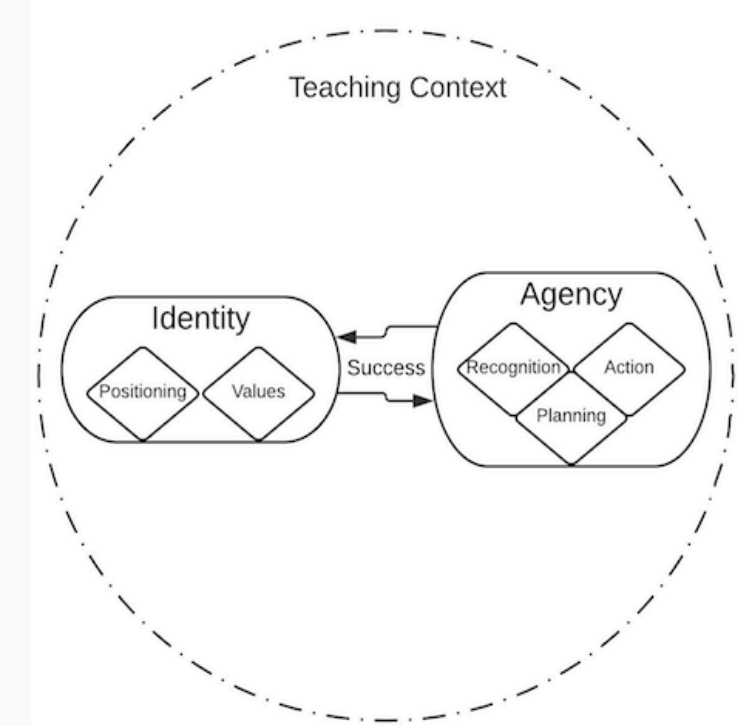
figured world, we can begin to see how schools and the cultures within can influence who a teacher becomes.

Figure 1.2. Aspects of professional identity.



I propose using a framework for identity that draws on Richmond's definition, which includes values and positioning at the core. This view and its interplay with purposeful action, which I call *agency* (Bandura, 2001), marry the ideas proposed by Carlone, et al., with positional identity as described by Holland, et al. in figured worlds. Richmond & Wray have begun to explore the relationship between agency and identity for early-career teachers (e.g. Wray & Richmond, 2018) (Figures 2 & 3).

Figure 1.3. Feedback loop of identity and agency within the pre-service and in-service school teaching experiences.



Pitfalls and novice teacher identity formation

Feiman-Nemser and Buchmann (1983) first explore the term "world" in reference to the experiences and settings in which teachers learn and apply teaching. While their use of the word *world* is not directly connected to *worlds* as described by Holland, et al. logical connections can be made between the two. While Feiman-Nemser and Buchmann do not use the term "context" they do highlight the discrepancy between actions teachers learn, actions they utilize, and what is expected in the different "worlds".

Given that the process of learning how to teach is part of developing a professional identity, a challenge facing teacher educators is how best to prepare teachers to navigate the pitfalls that work against the development of a progressive teacher identity (Feiman-Nemser &

Buchmann, 1983). In short, teacher educators should acknowledge that teachers come to the preparation program with experiences in the classroom, that they have expectations for what teaching is like, and they should anticipate that there will eventually be a conflict between the teachers experience being a student at the university and being a teacher in a K-12 setting. Without acknowledging these challenges, teacher preparation programs enable the "inappropriate learning" (Feiman-Nemser & Buchmann, 1983, p. 7) which impedes the development of progressive teacher identity work and actions.

The *two-worlds pitfall*, wherein being a skilled observer in one setting does not equate being a wise actor in another, acknowledges the fact that simply understanding the theoretical basis for a practice does not necessarily mean the teacher will act (or recognize the need to act) once in the classroom. There is sometimes an assumption that, with little to no support, teachers are able to bridge what is learned at the university with what they experience in schools. Additionally, the expected and appropriate actions that result in "immediate and highly salient rewards" at the university are not necessarily commensurate with those of the school (Feiman-Nemser & Buchmann, 1983, p.14).

Lastly, the *cross-purposes pitfall* states that classrooms are not designed to "further the purpose of learning to teach" (p. 19). Practicing in a K-12 classroom rather than a university space is an abrupt transition for a novice: pre-service teachers go from being supported and coached through progressive practices to practicing in someone else's classroom. Here, their education is no longer the focus, rather, it is the education of the K-12 students that takes center stage. The role of the pre-service teacher is now to enact practices that are likely to not disrupt the status quo and hopefully support student learning. Rather than supporting preservice teachers in developing their teaching practices, feedback comes in the form of recognizing when the

students are quiet, behaving, and the mentor teacher's established classroom norms are maintained. All of these may work against the development of a professional identity with progressive practices at its core.

While Feiman-Nemser and Buchmann do not approach their work around pitfalls using an identity in practice lens, their descriptions of challenges teachers encounter are critical in understanding pitfalls that teachers face in their professional identity formation. They describe the challenges teachers encounter transitioning from one world to another and how they "'figure' who they are through activities" (Urrieta, 2007, p. 108) in relation to the world in which they are working. Each of these pitfalls is rooted in the dynamic that occurs when teachers enter into a new professional setting and either learn to adapt to that existing world or engage in actions that are acceptable in one world but not in another. Through a figured worlds lens, the actions or norms valued by the school may not align with those of the preparation program or through coursework. This disconnect has the potential to deny immediate reward for action or decrease the likelihood of getting feelings of success from agentic action.

Why figured worlds?

Investigating teacher identity formation and its relation to teacher action through a Figured Worlds lens pushes beyond the view of "context" to include the power and privilege, its focus on identity and agency or purposeful action within the world, and the fluidity of interaction between the individual and the world.

Calabrese Barton and Tan (2010) justify their use of figured worlds because of its connection to power and privilege. They echo other researchers when they discuss the "intersecting roles of context, position, knowledge, and identity with agency" (p. 191). However, they raise a concern about the ways power within a school also influences agentic action. They

go on to explain that "power dynamics… are also deeply entrenched culturally and historically, and socially in time and place" (p. 192). It is through figured worlds that agentic action in service of or relation to identity formation can be connected to the power structures in place at a school including the cultural norms of the school and the actions privileged over others by leaders.

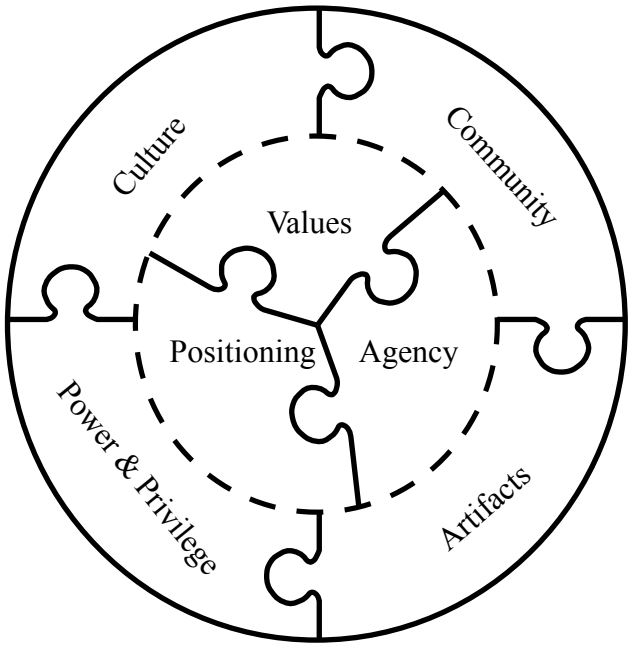
Furthermore, working under the assumption that identity is formed in sociocultural spaces, necessitates interaction with people. These interactions are related to identity in that they all are "dialectically and dialogically" (Urrieta, 2007, p. 109) formed. In this sense, "elements within the figured world take on variations of rank and status" (p. 110). The actions teachers engage in as they relate to their professional identity are mediated by the world in which they are acting. Understanding the reason for action and connecting these actions to identity requires having a sense for the place those actions have in the world and the narratives told to and about the individuals who are acting by other members of the world.

Figured Worlds is at its core an identity formation framework and has been established as a relevant theoretical lens within education. Drawing on situated learning as described by Wenger (1998); Rubin (2007), described high school students developing learner identities. She explains, "learner identity develops through participation in particular practices" (p. 220). She continues by acknowledging that identities are "constrained and restricted" (p. 224) by the world in which they participate which varies from classroom to classroom. Acknowledging the roles, the classroom, the actions privileged over others, and the situated nature (importance of place and time) of learning supports figured worlds as a lens through which to study teacher identity. While Rubin focuses on student identity, it can be argued that first-year teachers coming into a

school are learning how to *be* within a particular setting that may not reflect the setting in which they have previously worked.

The idea of learning within a place and time leads to the fluid nature of figured worlds and its benefit to studying teacher professional identity. Holland, et al. (1998) state through "appropriation, objectification, and communication, the world itself is also reproduced, forming and reforming in the practices of its participants." (p. 53). This statement gets to the point that while identity formation takes place in a setting or world, the world in which the identity is being formed also reforms due to the actions of its participants. Urrieta (2007) discusses this as "world making" (p. 111). Drawing on Vygotsky and Holland et al., he implies one of the strengths in agentic action within a figured world is its power to reform the world. In investigating the role the school world has on identity formation and agentic action, it is important to take note of how the actions privileged by the teacher and the community then reshape the world, potentially rewriting the narrative that defines the world. A model showing my initial thinking of the interaction between identity, agency, and the features of a FW can be seen in Figure 1.4.

Figure 1.4. Initial proposed model of the development of professional identity and agency within a figured world.



METHODS

Study overview

This was a multiple-case study (Dyson & Genishi, 2005) in which, through a figured worlds lens, the developing identities of first-year teachers was investigated. In a brief description of case studies, more generally, Dyson and Genishi (2005) acknowledge the role "context" plays in the actions people make and "the meaning people make of their lives" (p. 9) in specific contexts. Additionally, they note that case studies are not intended to detach context from the data; that teaching action is highly dependent on the setting in which it is being applied. This study does not aim to draw a causal relationship between the teaching world and the actions teachers make, but rather, through observation, to understand the role the teaching world plays in how teachers choose to teach as a result of their participation in and interpretation of that world. Figure 4 shows how I theorize incorporating identity (Richmond, 2015) with the characteristics of figured worlds (Holland, et al., 1998).

The following sections describe the methods I propose to use to investigate these research questions:

- In what ways are the actions of first-year science teachers mediated by the school world in which they are working?
- In what ways does the figured world framework account for the shaping of the professional identities and actions of first-year teachers?

This approach will provide me a means by which to allow new teachers to tell the story of who they are becoming as teachers. Individual narratives will provide a perspective on the way a school world influences professional identity. I begin by describing the teacher participants with whom I will work, followed by the setting in which they are teaching. Next, I

provide a positionality statement that highlights the role I play in collecting the data and acknowledges my experiences in that role. I then discuss the data sources followed by the analytical framework.

Participants

The participant-Fellows were selected from a larger cohort of teachers. Each teacher was assigned a coach based on the location of his or her school. I selected Fellows that worked in a variety of schools, teaching different content areas, and are relatively local. The year began with a broader cohort of nine teachers. Ms. M left the profession mid-year, two others teach out of state, and three others are located in Detroit. While observations of the Detroit teachers is possible, the distance made regular visitation challenging. By chance, two of remaining teachers work relatively nearby and were also interns whom I worked with and therefore have developed a relationship with. Melody was the only participant that is not in an urban school. She was also the only participant in which I did not and have not acted as her induction coach. When another participant (Ms. M) had to step away from the profession to address personal health challenges, Melody was approached to become the third participant. She was chosen because she is consistent in completing her induction tasks, her induction coach is also highly engaged in the process resulting in valuable observations, her rural school provided an alternative world to explore, and I was her field instructor during the internship year. Participant and school setting information can be found in Tables 2.1 and 2.2.

Table 2.1. Participant information.

	James	**Sasha**	**Melody**
Age	47	32	25
Ethnicity	White/ Non-Hispanic	White/Non-Hispanic	Asian (non-Chinese)
Gender/Sexual Identity	Male	Heterosexual Female	Straight Female
Area of expertise	Biology/Outdoor/ Environmental Education	Chemistry	Biology
Licensed area	Biology/Integrated	Chemistry/Integrated	Biology/Integrated
School type	Urban (1119)	Urban (charter; 381)	Rural (400)
Teaching Assignment	HS (Earth Science/ Physics)	MS/HS (Chemistry/Physics)	HS (Physics)

Note: HS-High School, MS-Middle School; The participants were asked to self-identify for the categories above, their answers are recorded here.

Table 2.2. School setting information.

	James	**Sasha**	**Melody**
Classification	Public	Public Charter	Public
Enrollment	1012	381	517
Race/Ethnicity	31 % white 12% two or more 14% Hispanic/Latinx 39% African Amer. 4% Asian	74 % white 7% two or more 7% Hispanic/Latinx 9% African Amer. 3% Asian	90% white 3% two or more 4% Hispanic/Latinx 2% African Amer. 1% Asian
Four-year Graduation Rate	83%	50%	96%
Free/Reduced Meals	83%	27%	66%

Note: Data is from the 2016-2017 school year. (MI School Data, 2018)

Positionality Statement

I entered into this project having been a co-instructor for intern year methods courses, as well as researcher for the project. In the former role, I worked with the other instructors to design learning opportunities that aligned with a high-leverage practices framework and focused on leveraging student experiences as a foundation on which to support academic growth. Naturally, as instructor I had evaluative responsibilities that were intended to support teaching in a

progressive way. As a researcher, I facilitated the collection of induction data including journals, videos, and assignments. My role as researcher required that I keep in mind my goals for them as pre-service teachers with my goals of investigating teacher identity development. I was cautious about providing feedback to support their teaching while not giving away my intentions as they relate to studying their work. Additionally, I acted as induction coach for two of the three fellows with the exception being Melody. This role also overlapped with the research role in that I visited schools and our interactions were recorded as data for future analysis. Similarly, I navigated the feedback provided in regard to their practices and what support they requested of me (e.g. class management, curriculum planning), with my goals of learning about the role the teaching world plays in mediating their actions.

Data Sources

As part of their contract to participate in the teacher preparation program, the Fellows completed particular tasks. These included participating in monthly professional development workshops, completing weekly reflective journal entries, working with a university-based induction coach, recording and submitting two teaching videos per month, submitting lesson plans that align with the previously mentioned videos, and participating in interviews. The workshops are designed to address specific challenges Fellows identified and to provide opportunities to develop practices and tools immediately applicable to their individual classrooms. Each workshop includes a short free-write period during which the Fellows reflect on a challenge they are facing in their classroom. The journals, which carried over from a similar assignment from the internship are used as a way for the Fellows to reflect on challenges they face and to keep open a dialogue with the induction coaches. They are viewed, commented on, and the Fellows receive feedback to develop the skills of journaling so that they are reflective of

challenges and the work they are doing to address these challenges and are not simply a running summary of their time in the classroom. Coaches are compensated professionals who support the Fellows by providing feedback on their teaching and by assisting the Fellows in recognizing challenges, planning solutions, and enacting solutions. These coaches have access to the journals, teaching videos, and submit to the researcher observation forms for each observation they complete. The Fellows record a complete lesson and submit the associated lesson plan bimonthly to serve as a means of observation. Lastly, each Fellow participated in one semi-structured interview about halfway through the school year and another at the end of the school year. During analysis as questions arose, I reached out to the participants to get clarification on ideas and to ensure my understanding of their interpretation of their worlds was accurate. These email and text message interactions are referenced in the findings chapters. The data submitted for each of the Fellows who are participating in this study can be found in Table 2.

Table 2.3. Data collected for each participant fellow.

Fall Semester 2017

	James	**Sasha**	**Melody**
Workshop	3	3	3
Journal entries	9	19	22
Coach Observations	3	3	4
Videos	4	6	9
Lesson Plans	Daily	Daily	15 (phys) 19 (chem)

Table 2.3. (cont'd)

Spring Semester 2018

	James	**Sasha**	**Melody**
Workshop	5	5	5
Journal entries	9+	15+	18+
Coach Observations	4	4	5
Videos	4	8	7
Lesson Plans	Daily	Daily	15 (phys) 3 (chem)

Note: Sasha's lessons are kept solely on her course Moodle page, which I have access to.

Data Analysis

Data was analyzed using inductive case-based methodology (Glesne & Webb, 1993), modified inductive constant-comparative method (Corbin & Strauss, 2008; Dyson & Genishi, 2005), and by writing analytical memos (e.g., Maxwell, 1996). The data was initially analyzed for broad themes of identity (values based on recurring themes and positioning in reference to placing or being placed in relation to others) and features of the teaching world (Figure 4; Holland, et al., 1998) in which the teachers worked (e.g. Dyson & Genishi, 2005). The features included but were not limited to, for example: Community: mentions of shared practices, inclusivity, expectations for participation within; Culture: ways of being/acting within the world, shared goals/purpose; Artifacts: physical items used in teaching, ways of engaging in discourse; and Power & Privilege: references to authority or being position due to novice status. I then re-examined the data for evidence of held values and patterns in prioritized values, instances of

positioning, recognition of specific challenges, the identified and pursued solutions and, as applicable, post-action reflections. For each data source, I coded for patterns in: *values* (to find the primary value or issue of most importance), *positioning* (references to interactions with individuals and communities), *agency* (recognizing an issue, planning a solution, and implementing a plan around that issue), and the *figured world* (with specific coding for elements of culture, artifacts, community, and power). In order to accomplish this, I coded for teaching-related issues (e.g. teaching practices, relationships, school priorities, etc.) focused on by the teachers and references to interactions and conversations with and about others. I also sought references to problems the teachers had been experiencing (e.g. students not complying with directives, dissociation from the school community) and how this problem may or may not have impacted actionable decisions. Continued repeated mention of problems or challenges were used to indicate level of priority. Further analysis resulted in more specific codes (i.e. student engagement in science, relationships, respect), which was utilized in a second round of coding. Patterns of codes were then be used to draw comparisons *between* cases. Data were triangulated across sources and used to create a more complete profile of each school world and each teacher's professional identity as it develops within it. Sample coded data demonstrating how the features of figured worlds, identity, and challenges, including secondary codes that emerged from analysis can be found in table 2.4 below.

Video excerpts were identified based on references in journal entries, submitted lesson plans, and content relevant to the framework. However, initial analysis, which consisted of viewing relevant videos in conjunction with associated journal entries and interviews, indicated that the teaching videos did not provide additional insight into the teachers' figured worlds. The videos supported a few of the references to teaching, but did not provide substantial support for

the broader teaching worlds the teachers described in their journals. The videos primarily showed lesson-level interactions with students; in contrast, much of the interview and journal data provided both more detailed and broader contextual information related to the school figured world. However, videos were useful in providing supporting data about, or illustrating, how aspects of the figured world played a part in the design of the lessons. Given that video data did not provide additional insights into teacher figured worlds, video data was not included in further analysis for the current study.

Table 2.4. Sample data with codes.

Elements of the framework		Sample secondary code	Example from data
Figured World	Culture	Priorities/Goal/Mission	*... they come collect data and see do we have our 3-part learning target on the wall? Do we have our agenda up for students to see? Do we have a word wall for students? Do we have information posted, student work with rubric so they understand what full credit work is? So those are standard things that they call the* ***'non-negotiables'. The 'Kellogg Way'*** *is to be* ***doing all those things all the time****. (James)*

Table 2.4. (cont'd)

Figured World (cont'd)	Community	Relationships	*He was a **great mentor** and he was always super positive about everything that I did and tried out…* ***He and I were always the last two teachers in the building** and we would leave at 6-7pm. (Melody)*
	Artifacts	Tools Discourses	***Curriculum** development is huge, especially alignment with NGSS, alignment with [community college] classes that they'll be taking in the sciences, and also a **pathway specific curriculum**, so finding a way to meet those. (Sasha)*
	Power & Privilege	Administrator Department Chair	*This week I learned that discipline isn't really going to be changed in my classroom from my **administrators**, so **I really need to take it upon myself**.* (Melody)

Table 2.4. (cont'd)

Identity	Values	Priorities/Goals	*…outside of just doing well in the class, by actually taking the content in a way that is* ***applied to their lives*** *and that they can use in the rest of their classes, and* ***they can use to move on in the sciences****, or say even be inspired to pursue careers in the sciences… (Sasha)*
	Positioning	First-year New teacher	*I know she told somebody else too that she's not working with me and [novice teacher 1] is—****She still considers us new teachers*** *who will probably walk out and won't be here in the future anyways. So why invest time with us in planning and relationship? (James)*
Other	Challenges	Teaching practices Students Planning Classroom management	*…attending the* ***modeling workshop*** *that's in the summer, so making sure I take the time to do those sorts of things, I think is huge.* (Sasha)

As a final check of the analysis, the participants were asked to participate in member checking (Harvey, 2015). Harvey concluded that were he to "see the people I am working with, and myself, as responsible thinking agents, I had a responsibility to give them the opportunity to theorize their own experience." (p. 34). In other words, as a means of humanizing and meeting an ethical standard, he was aiming to connect to the researched rather than remain at a distance. Member checking was important for this study because the Figured Worlds framework implies the narrative of the worlds is that of the teachers. I then, as the researcher, interpret through my own lens their interpretation and draw my own conclusions. In attempting to be responsible, ethical, and humanizing, the teachers were invited to review their individual findings chapters to help assess whether the world as described aligned with their own views of the world. Upon completion of the analysis and drafting I described to each participant the purpose of the study and provided a brief overview of the Figured Worlds framework through which the data were analyzed. It was emphasized that the data and their interpretation were relegated to the first year of teaching and not any time before or since. They were then invited to read only their individual chapters and provide comments. Each teacher agreed with my interpretation and only Sasha offered a correction; the number of teachers that worked in her science department.

Table 2.5. Research questions and data analysis summary.

Research Questions	Data	Methods
In what ways are the actions of first-year science teachers mediated by the school world in which they are working? In what ways does the figured worlds framework account for the shaping of the professional identities and actions of first-year teachers?	Lesson plans Teaching videos Journals Interview Email correspondence Field observations Debriefing conversations	• Analyzed lesson plans for planned and enacted practices. • Coded video for use of practices. • Conducted Semi-structured interviews centered on features of and place within teaching world. • Coded documents/video centering on values, how positioned within teaching world, challenges, and enacted solutions and follow up to the challenges.

Limitations

The teaching fellows all have degrees in science and chose to enter into a fast-track program that is focused on preparing teachers to work in under-resourced schools, which

traditionally have large numbers of marginalized populations. While participation in this fellowship program provides induction support during, arguably, the most influential time in a teacher's career, it also provides monetary compensation commensurate with participation. The teacher fellows self-selected into the program and signed a memorandum of understanding stipulating the actions that must be completed in order to receive the salary supplement. Failure to complete tasks resulted in a proration of the supplement.

I have created these cases through my lenses of observer, mentor, and researcher. As mentor, my interactions, though not evaluative often center on assisting the teachers in addressing challenges they are facing and providing support in improving their practice. By interacting with the teachers in this way, it is reasonable to expect their practices to change in relation to the feedback I provide.

This study focuses solely on high school science teachers in high-needs contexts. This narrows the range of variability of teachers observed. As such, I recognize the demographics of the teacher, demographics of the school, content area taught, and classification (e.g. urban/rural), among other factors, can change the world and therefore the identity of the teachers. However, the story that I will tell about the interaction between the teacher and their teaching world will give me a sense of how professional identity develops as a result of the features of the figured world that are most salient to the individual. This analytical lens can be applied more broadly to assist in gaining insight into a teacher's practice.

Being that an individual's interpretation of their place within a figured world is constructed through their experiences and narratives, the greatest challenge and greatest limitation is that I had to make research-based interpretations of the worlds in which these teachers worked. By authoring this work, I placed my lens on the stories of the teacher's and

made claims about the figured worlds of the teachers through this lens. While this was challenging and influential in my interpretation, my outside perspective allowed me to interpret between the teachers in service of seeking patterns about how novice teachers enter into new schools. Furthermore, the data collected presented challenges in gaining insight into the teacher's views of the figured world. While the journals allowed the teachers to reflect on their classroom and teaching, there was little structure to what they were to talk about. The benefit being that I was provided insight into what was most important to them at that time, but they did not always reflect on the structures that would have been helpful for broader interpretations. For example, while Melody spent time talking about the role her administration and colleagues played in supporting or not her challenges with racism, Sasha's journals tended to rarely mention her administration but rather focused on the nuances of her daily lessons including the challenges and potential changes she would make for the next time she taught that lesson. The lack of journaling about the larger grain-sized school and community topics made interpreting her place within those systems challenging.

Other data challenges included using the video and lesson plans to gain insight into the figured worlds of the teachers. The videos and lesson plans showed snapshots into the teacher's classrooms at the lesson level. These did not provide much support to claims about the teacher's interactions with the community or others in positions of power in the world. Again, as an example, James often spoke of the challenge of planning and not being satisfied with the format of his lessons, the actual video of implementation of his lesson plans would only indicate planned resistance to the format if he were to discuss them; which he did not.

This dissertation and the claims about the actions the teachers made in service of their professional identities would be strengthened with further interviews with the teachers as well as

with the administration and colleagues. I would have liked to probe further into the teacher's choices for action and their interpretations of the individuals who they mentioned in the original interview and in the journal. I also would have liked to follow up on plans they made or referenced initially. Finally, while figured worlds is one's interpretation of their place in the world, as an observer having data from others that supported the participants views regarding the culture of the school and the role administration plays in affecting that culture.

FINDINGS

James- Gaining a sense of power by being positioned through participation in the figured world culture.

In describing James' story in relation to his place in his teaching world, I will begin by briefly describing his background as well as some information about the school setting. This will be followed by an explanation of his interpretation of two aspect of the culture of the teaching world; "Believe the change" and "the Kellogg (pseudonym) way". I will complete James' findings chapter by describing two challenges related to lesson planning that, based on the data seem to overshadow others; working with a special education teacher and collaborating with other content team members.

James came to the fellowship program as the oldest and most professionally experienced in the cohort. While James has a degree and primary certification in Biology, he earned his integrated science certificate just before starting teaching and was assigned Physics and Earth Science. Reflecting on his first week of school James wrote in his journal: "Degree in Bio / Chem. Last year teaching Bio/Chem. This year Earth Sci/Physics. Happy with the room, class sizes, teaching peers, but not class preparation. Lesson planning is not my strong suit." (Journal, 10/14/17). This concern with planning continued to dominate his thinking and grew throughout the year. While certified in all science content areas, these were far from his comfort zone regarding content, thus motivating him to seek support from his fellow teachers and me, his university-based mentor. My original degree, certification, and the majority of my teaching experience was in secondary earth science.

In addition to being older than the average first year teacher, James is also a white male whose wife is also a teacher. In a January 2018 journal entry, James reflected on a teacher

workshop he attended that was focused on racial equity. He was concerned about some of the views of his white peers, specifically teaching 'colorblind' to which I responded "What would have changed their minds? My teacher prep program actively taught us to be colorblind. We know better now, and you have been prepared better than that." (Response, 3/20/18). In an April response to my comment he wrote:

> *Between the [fellowship] program, and some sessions I attended last year in the [neighborhood] Communities project, (and other things in my life additionally) I suppose I am significantly more 'woke' than the average citizen. White society allows us to keep feeling like everything is just fine in our country if we choose to believe it.* (Journal response, 4/20/18)

This is worth mentioning because his life experiences have supported an awareness of racial inequity in society and informed his view of the school world he entered and the actions he took to become a valued member of this world.

In accordance with the requirements of the fellowship, James gained employment in a high-needs school. The school is nestled in the middle of an urban city that neighbors a much larger city. "…it's amazing the economic difference, when you have a college in your town, what that does to the community. Because if you look around at each of the towns that have colleges in them are doing substantially better economically than the ones that don't. (Interview, 4/5/18). Here James is referencing his perception that of economic stability of the neighboring city which has more than one college within it, while the city in which he is teaching does not. Other features of the city add to its unique character, including the schools themselves.

> *Kellogg is a little unique because it has 4 districts in one town. Where Center City has multiple high schools that are all Center City, Kellogg*

is—one district is Kellogg, but an entirely separate district is Sand County, which is also Kellogg, and then at the edges of Kellogg, and out into the country, you have [District 2 and 3], and over the years it's definitely created racial tensions and economic tensions having the community segregate itself in the school systems. (Interview, 4/5/18)

Later in the interview, he attributes this segregation to declining enrollment and further connects it to views of the school both from a community standpoint as well as faculty within the building. "I know we have 1,100 students right now, and 10 years ago it was more like 1,700. I mean it's been a significant drop in the number of students, and a lot of people would say it's based on segregation issues, race issues, and school choice type stuff." (Interview, 4/5/18). This view of the school community, inside and out, lead to the school's mission of "Believe the change", an attempt by the administration to curb the declining reputation.

"Believe the Change"- school efforts to change a culture

When asked about the school mission, James stated that the school had a new statement, but he wasn't sure what it was. He followed this up by saying "they have a stated tagline on all the stuff that they do: Believe the change." (Interview, 4/5/18). He continued on to explain:

That yes Kellogg has had lower test scores. Kellogg has had fights in the cafeteria and hallways and stuff before, and they're trying to make a lot of positive changes, so "believe the change" is the positive message. And I think there are a lot of—I've only got my limited experience in just going from what people have said from the past, but they're making changes. (Interview, 4/5/18)

Again, he acknowledges the school has a history which informs his view of it and of others. James continues drawing on his time as an administrator and resists the community of teachers who feel disgruntled with the actions of the administrators to make changes by empathizing with the administrators and not openly complain.

> *Nothing ever happens fast enough, and as soon as one thing goes wrong, then when you have a reputation of not doing something well, people point a finger at you and say, see, see, see, nothing's changed. They had a fight right at the beginning of the school year, like during orientation time, before school had started, during like a parent come and get your schedules kind of thing. I don't even remember. We might not have even been doing schedules at that point yet. But it was an August evening, and there was a couple girls that were problems last year, and were problems the year before, started fighting and set a negative tone for the community. 'Well, same old stuff at Kellogg.'* (Interview, 4/5/18)

Continuing with his story, James drew on the experience he had in his internship and pushed against the perceived narrative of more of the same at Kellogg.

> *But I don't see it that way. I saw more fights last year at Center City than I did here. Never had anything in my room, never had anything in my hallway. I mean I was involved in 3 fights last year trying to separate kids and stuff, but never this year… we're working it together, but we don't have whole school buy-in on all the things that we're doing.* (Interview, 4/5/18)

As might be expected, James entered into the school, drawing on what experiences he had, namely his internship, and recognized that his new school was not as challenging as other locations in which he has worked. It is worth acknowledging that while James brought these experiences with him, he may not have the local institutional knowledge to judge what differences can be seen over time. Further reflecting, James again makes a comparison to his life before teaching.

> *So maybe that's just the nature of a bigger organization. I've always worked with smaller organizations, and it's easier to get by with 6 people and 16 people than it is 65 and 100 and whatever. We've got 60 teachers plus other folks, so in a staff meeting you get way more diversity of opinions and values and beliefs in the way we should do things. I'm still positive overall. I'm not disheartened by the administration and that sort of stuff.* (Interview, 4/5/18)

While James recognizes there are challenges associated with where he is teaching, he also acknowledges that the administration is working to make changes and he supports their efforts even if it is not the standard response of the teachers. I now transition from an element of the school culture to James' personal teaching goals followed by school and grade level communities and cultures within his school, including "The Kellogg Way" and teacher supports more broadly as they relate to his perception of the interaction between teaching world and his professional goals.

James' professional teaching goals

When asked about his personal goals for teaching this year, James said he wanted to "figure out how to be a good teacher, how to have good relationships with students, build them,

keep them through the school year, and be as effective as I possibly can be. Just self-improvement, start to finish." (Interview, 4/5/18). These goals are broad and loosely defined, which is to be expected for a first-year teacher going into a brand-new career in a brand-new building. Furthermore, James is relatively reflective of his own teaching in a way that differs from Melissa. While she is consumed with the people within her world and speaks very little of her own teaching practice, James' primary focus in his reflections is very much himself and his professional skills development. For example, he stated:

> *I don't have a wonderful routine that I'm happy with, so when I'm going in early, sometimes I'm going in quite early, and that's not—I don't feel good going to bed at 9 o'clock at night to get up at 3:30 in the morning to get some stuff done and be ready for the 7 o'clock, 7:30 students that come in. I don't really want to do that. So, tired and frustrated, yes, but not burned out.* (Interview, 4/5/18)

This is just a small example of James thinking of the day to day activities and realizing he is not satisfied with how his classroom is being run. When asked about his priorities in his class he says:

> *I want the classroom to be safe. I want it to be respectful. Me of the students, the students of me and each other. I want students to come in and think that they're going to do some fun and interesting things in science and not just learning from lists of facts. So, I want student engagement, and I want fun things happening in the room. I want eyes being opened to, 'oh, this works this way because of this.' You know, connections being made. And students working with each other, socially. And realizing it's*

not—that they're in charge of their education, not me. That I'm a teacher. I'm a helper. I'm not a giver of all knowledge, nor is the textbook. That they're responsible for their own learning. (Interview, 4/5/18)

Being that he focused on himself in his reflections, I further pushed him to draw on his colleagues for comparison.

K: Does that teaching style mesh with what is done by others?

J: So, it doesn't much this year because, as we've talked, because of the new curriculum stuff. It really feels like we're handing more stuff to them. (Interview, 4/5/18)

Here I got a glimpse into one of James' primary challenges: a lack of time or energy to develop materials that aligned with his vision of teaching as well as the other content teachers. Above we see he has a vision for how he wants his classroom to run and what he values as a science teacher and this vision does not align with what others are doing. He also expresses frustration at not being happy with how he is teaching yet continues to teach in this way aligning himself with his colleagues because of the lack of time and energy to plan for a subject his in relatively unfamiliar with. This is congruent with how he does not shift blame on to others and focuses on himself; while he is frustrated with the lack of alignment and perceived support from colleagues, he takes it on himself to imply that if he wants a change in his classroom, it is up to him to make that change.

…to me time's the biggest barrier, just being worn out at the end of days, end of weeks. The information is out there. I'm surrounded right now with resources in my little office here that I could go to if I could feel I could take the time to do it. (Interview, 4/5/18)

Time is the one thing James mentioned more than anything else. Not enough time to plan, not enough time to grade, time spent doing things outside of getting ready for class at home, on the commute. Time is what he desires to get ahead of in his planning and preparation. He made reference to time and planned for using this time in the summer to start fresh and planned to teach in the way he desires including lessons that are student-centered and inquiry based. There were a few aspects of teaching that took up his time and made it challenging for him to keep up. These factors include cultural features of the building like the "Kellogg Way" and the daily challenges of interacting with his colleagues.

A focus on the "Kellogg Way"

An unfunded state mandate says that all teachers will be assigned a mentor by the school for the first three years of their employment (Michigan Legislature, 2017). As of November 2017, James' school was not in compliance in this way. "I have multiple supportive relationships but no official mentor." (Journal, 11/1/17). While he doesn't mention getting a mentor until April, "I did just get a mentor, but the mentor relationship just started a month ago, two months ago [February]. …she came and observed me once, but we haven't met yet." (Interview, 4/5/18), he does have a mentor-type relationship with an assigned instructional coach from the beginning. "I do have an instructional coach and have had positive relationships with her and taken time to try to get to know her but also try to improve practice has been good. I don't end up interacting with her a lot." (Interview, 4/5/18). I was able to be in his classroom early in the year during one of his instructional coach's visits and was able to listen in on their short debrief at the end of the period before James and I chatted. In short, rather than looking at instruction as her title implies, her focus was on procedural things like having a posted agenda, the "I can" statement, and learning targets. Along these lines, I asked James about the school's priorities. He responded:

We have a handful of things that are prioritized. The active learning strategies are prioritized. Lesson plans are prioritized. With the understanding, also of, like for example they've asked for lesson plans to be in on Friday at 5 o'clock… They were trying to use a model of co-planning this year with special ed instructors so that each of us, like in our 9th grade academy, each of the core 4 that are on a certain team would work with our individual special ed instructor to do co-planning and then he or she would be in the room working with lessons. That's not really happened in a lot of cases this year.... they come collect data and see do we have our 3-part learning target on the wall? Do we have our agenda up for students to see? Do we have a word wall for students? Do we have information posted, student work with rubric so they understand what full credit work is? So those are standard things that they call the 'non-negotiables'. The 'Kellogg Way' is to be doing all those things all the time. (Interview, 4/5/18)

It is this Kellogg Way, this standardization of routine that the instructional coach focuses on. And while these are what James called "non-negotiable", he still was challenged by implementing these expectations, especially the special education co-planning aspect, and in some cases made the conscious decision to prioritize and amend how he complied with them.

…having the stuff on the board for the 3-part learning target and the agenda are mandated, but I don't go over like I probably should—I don't go over the agenda and don't go over the 3-part learning target every day.

Active learning strategies are mandated, and I try to have those in every lesson. (Interview, 4/5/18)

Given the experiences James brought with him to his teaching career, he entered the school with a sense of purpose and was able to dictate reflections on his teaching and changes he hoped for. Yet this vision did not align with the system in which he had entered, and the malalignment resulted in challenging his view of good teaching. Unlike Melissa, he felt generally supported by the administration and when he did not necessarily agree with their view, he was able to focus on other challenges. Instead, James' primary challenges during his first year were with colleagues and specifically course level planning and implementation of lessons.

The remainder of this chapter will focus on the challenges James faced in interacting with the special education co-teacher assigned to his team and in aligning his curriculum with other grade level teachers of the same content.

Co-teaching with special education- conflicting personalities

Teacher retention is a common challenge faced by urban public schools (e.g., Ingersoll & May, 2012); Kellogg is no different. This fact did not go unnoticed by James in his first year. During our interview he stated: "The school's had lots of turnover. The standard thing is, hey, once you've been here 2, 3 years, you're an experienced, you know, teacher." (Interview, 4/5/18). Later I pushed him to think about why there might be some discrepancy between the goals of the administration and those of the teachers. Again, he referenced the turnover challenge and said:

…one of the thoughts I have had is that because the turnover rate is so high at this school, and other similar schools I understand, is that they probably should be putting more effort into new teacher training and

mentoring and keeping the new people that they have so that they're not constantly trying to build new systems because people leave after certain time periods. (Interview, 4/5/18)

Here James acknowledges the challenges facing schools to build a system that is coherent throughout the building when they are in a constant state of introducing new teachers to that system. This challenge was significant given the administrative expectation of common assessments given at the same time. One of the few times James was willing to share responsibility of a teaching challenge came at the beginning of his second semester when students were improperly placed in his physics class. "I suspect that this is one of the outcomes of the high staff turnover rates in Kellogg. You don't know what you don't know. I didn't know to go check a roster somewhere else - no mentoring/training for this. New counselor didn't understand prerequisite classes requirements." (Journal, 2/2/18). James saw a lack of support available to keep those teachers for more than a few years. It is along these lines that the challenge is perpetuated by the more veteran staff and in James' case, the special education teacher assigned to work with him and the others on the 9th grade team. When asked during the interview about how he sees himself fitting into the school community, the following vignette emerged.

The only person I have an issue with right now is my special ed person, who talked more in the beginning of the year about, 'hey let's get together and do the planning', and I'm like, 'absolutely'. But as soon as we got into the year, I realized that I'm not getting lesson plans done on Thursdays to be meeting with her to talk about what's coming the next week, and there's wedge there… (Interview, 4/5/18)

At the beginning of this reflection, which James wrote in April, he acknowledges his role in creating a challenging dynamic as part of participating in the expected actions of the world. Earlier in the year, as he references above, he connects to and almost predicts this working relationship being challenging due to the lack of planning.

> *I came from a collaborative model of the world working. And so not having that feels weird. I'll figure out a way… One thing that does bother me is the idea of—We're supposed to co-plan with our SPED, the special education, but then we get locked into test dates because of them helping read tests and facilitate testing for the students… There was some time they gave us way back in the beginning of the second quarter, where we would spend time during our Tuesday meetings, but most of the time we were just trying to get assessments ready and figure things out and talk about maybe a few pieces off of here, but it still wasn't really shared planning kinds of stuff.* (Debrief, 11/28/18)

The need for teachers of the same subject to utilize common assessments led James and his colleagues to use their limited time together to work on these assessments. While they are encouraged to plan through backward design, their limited time together meant they did not plan together, and James fell behind in his planning. This appearance of lacking preparation pushes against what James sees as the Special Education teacher's expectation that he arrives to their joint planning time prepared. She then connects this to his novice status and used this judgement to under mind how James had been previously positioned.

> *…other teachers have told me a couple times to be real careful with [Special Ed Teacher] because given the chance she'll throw you under the*

bus. So a couple of times after I walked out of the lunch room she said negative things about James not getting his lesson plans in and went and talked to the principal about it to. Ok, ok. That's I assume the time that the 9th grade academy principal came and talked to me, ok, how can I support you? How can I help you get lesson plans in and stuff earlier and on time? And I talked to him about the time factor and all that stuff, and I'll work harder at it. But I know she also expressed that she doesn't want to spend any time with myself or our English teacher as well because we're both new and she expects us to leave. So, you know, turnover rate's so high, she says, why should I invest any time with James and [novice teacher 1] because they're probably just both going anyways? Other than that, I have a good time frankly getting along with other people in the building, administrators and other teachers and stuff. But I do have that one rough relationship right now. (Interview, 4/5/18)

Again, the behavior of the special education teacher was referenced earlier in the year during a post-observation debrief. An example of this from a conversation came when a fellow teacher warned James of the actions the special education teacher was making without his knowledge. Fortunately, over the course of the year, James established himself as a functional teacher whose reputation was mostly a positive one with administration.

[Earth science teacher 1] said that she's throwing you under the bus with Lance and others. He's not doing any planning. He's not planning with me at all, kind of stuff. And well they know that I wasn't getting plans in in the beginning of the year at all. But she's got a little bit of a reputation. If

something's not good for her, she's kind of chatting with somebody above about it. But I guess I never envisioned that the fact that we weren't planning would mean she's never here at all. So again, this is only the second time she's been here this quarter. You know, popped into the end of the third hour, was there for about half the time, but she was on her computer for maybe about half the time. Today she moved around a little bit more and talked a little bit more. So, got to work on that relationship too. So maybe if I can get ahead and get some more plans turned in—I know she told somebody else too that she's not working with me and [novice teacher 1] is—She still considers us new teachers who will probably walk out and won't be here in the future anyways. So why invest time with us in planning and relationship? (Debrief, 11/28/18)

The challenge of working with this particular special education teacher is directly tied to the earlier mention of novices not being supported and the cycle of turnover connected to this school.

If you want people to leave, then don't spend any extra time. She was in my room, I think, twice. I need to start recording it. But I'm giving her the benefit of the doubt. I'm going to say she was in my room 3 times this term. Of all my classes in the 3rd quarter, she was in my class 3 times. You saw her once, I think, because she was in one day that you'd come in. I'm just, yeah—I don't know. She spends all her time with the social studies teacher and bounces into math once in a while. I'm not counting the times when she's helped administer a test but taking a group of

students and administering a test is not the same as being in the room and even if you're not assisting with instruction, there's other things to be doing. It's frustrating to be a new person and have that kind of relationship at the beginning here. (Interview, 4/5/18)

Kellogg is not unique regarding high levels of novice teacher attrition. James recognized his school as one that has a culture of turnover and he attributes this in part to the lack of support for new teachers by the veteran staff members. "You know, a lot of times people, when they've been around a place for 5 years or 20 years and seen other people come and go, they put less stock in new people's voice than they do later on." (Interview, 4/5/18). As a first-year teacher, the perceived lack of support from his colleagues (the special education teacher in particular) created challenges which he addressed by just continuing to do what he could to prepare for his lessons, and not by dwelling on the impact other may have on him.

Co-planning with other earth science teachers- lacking alignment in goals

James' interpretation of his struggle to connect with the special education teacher is rooted in what he sees as her frustration with new teachers broadly and his lack preparedness before their few encounters. In other words, he did not show up to their meetings with lesson plans. Instrumental to this lack of preparedness is his challenge with planning for content that he is unfamiliar with.

The ninth grade is separated from the rest of the high school into a ninth-grade academy; this consists of two veteran teachers teaching earth science in addition to James. Even though earth science is also relatively new to the other teachers, their way of planning does not necessarily align with what James envisions.

> *Neither is particularly able/willing to spend much time beyond the school day getting things ready early. Outside of regular hours we haven't ever met. They've both been helpful to me, don't get me wrong, I guess I was just hoping for one notch more effort.* (Journal, 1/26/18)

Along these lines, James connects this desire to build a professional community beyond the administrative mandate of teachers developing the common assessment within the same content areas. "I guess I'm always going to be after a little bit more collaborative relationship and less independent work because that's my background." (Interview, 4/5/18). However, the nature of whom James works with and their own priorities makes that difficult in addition to the way they use their planning time.

> [*Earth science teacher 2] leaves right after school some days.* [*Earth science teacher 1] leaves after school every day, except when we're here for meetings, so she's like a once every 2 weeks or 3 weeks here to work on planning stuff together. She's got a 3-year-old and a 5-year-old or something like that at home, and her husband works some different hours, so she wants to leave right away because he works evenings. You know, she wants to see her husband for a couple of hours. But then she doesn't get in contact on the weekends either. But you know, part of me is like, couldn't you say something? I mean one quick little fire back about this looks good or, you know, I did this part already.* (Debrief, 11/28/17)

Being collaborative in nature, James does what he can to get his lessons prepared and goes beyond just planning and shares them with his colleagues.

> *I didn't consult. We didn't collaborate. It's just like, hey, here's something that I did. If it's useful to you, great. And I've done that other times as well. So, it's no skin off my back, and yet there's always a little bit of, how come you won't share some stuff back too? But yeah. As long as it doesn't build. (*Debrief, 11/28/18)

Later in the year, James reiterated this way of being during the interview when he said:

> *I'm doing my own things, right, and maybe separate from what they're doing. I'm providing materials, and if they choose to use it, great, and if they don't, that's ok too. They're still providing me with materials sometimes. It's a sharing, but I'm hoping that this summer's work can be somewhat revolutionary, you know.* (Interview, 4/5/18)

By revolutionary he means he hopes to be able to plan ahead and in a way that is more aligned with his view of what good teaching looks like. Related to his challenge of not being able to plan with his team, he feels so behind and tied to the common assessment that he does not feel he can teach in a way he thinks is best.

> *I've moved away from inquiry stuff and doing too much here's the information, let's learn this stuff kind of thing, rather than let's figure out what's going on here. So that's disappointing. I did just have a meeting yesterday with 2 other earth science teachers and talked about the upcoming 9 weeks and some projects that we want to work on, but also the next year and developing more labs, developing more inquiry-based lessons. But everybody's on the we just gotta get through the year with anything that we can.* (Interview, 4/5/18)

This hints at yet another common narrative of the community which James tries to push against; the "survive-the-year" attitude. A recurring theme in our conversations was around planning for inquiry and engaging activities. However, James often use his inability to get ahead in planning as a reason this wasn't happening and the following summer as the time he was going to plan in this way. Early in the school year, his department chair gave the advice to "just survive the first year, don't stress out, everything will be alright" -- which James justified by saying: "He's trying to keep the pressure off which is fine - I put enough on myself." (Journal, 10/23/17).

In regard to James' philosophy and his desire to build a community at his school, I asked him if anyone shared his way of thinking to which he replied:

> *Yeah, but I'm so—I suspect so, but I feel I'm so insular, that I still don't really know other people. You spend all the time in the classroom on your own and then go to some meetings, and then students are in my classroom after school, and it just—I feel alone more than I feel together with other folks.* (Interview, 4/5/18)

It is this view of being alone that seems to be most common between the teachers in this study. Most recently, he had been an administrator in an informal outdoor education center. This job informed his view of teaching, learning, and professionalism and served as a lens through which he approached his first year of teaching. For example, in a January journal entry James wrote:

> *If we as teachers want the administrators to be perfect, then we need to be as well. I'd rather operate on the assumption and trust that the majority of people are constantly striving to do their best (within constraints) and give people the benefit of the doubt. I see our admins in early and staying late. Maybe it's easier for me to consider this because I've been in an*

> *administrator role. I know that people in the front lines of work often don't see what happens behind the scenes to support the workload.* (Journal, 1/19/18)

Having experience as the person working "behind the scenes" and perhaps having felt under-appreciated by faculty may have informed his view of the support from the school administration, and his perception of their work. However, potentially due to his previous experiences as an administrator outside of a school, he has a sense that he can work in a way that supports what he values and participate in the world in a way to begin to develop a sense of power.

James' teaching world

The school faces a challenge of high teacher attrition. This loss of teachers is not helped by the lack of support new teachers feel from those who are their colleagues. In James' case, this is due to the attitude perpetuated by the special education teacher, that new teachers will not last, so are not worth investing in. This lack of investment coupled with the mentality of trying to "just survive the year" leaves teachers like James feeling stranded and only able to work to just make it.

Fortunately, James came to the school with a sense of purpose and a relatively well-formed idea of what it means to teach science. While he struggles to plan for this value, he acknowledges a desire for change and makes long term plans to develop lessons that more accurately align with his view. The power afforded him within this teaching world supports James in beginning to work to make a change. These changes include simple acts such as being willing to verbalize opinions at faculty meetings and proposing changes to the common assessment scheme within the earth science team.

Melody- Navigating a figured world within which her values do not align

This chapter is organized in a way to first explain briefly Melody's background in relation to the worlds she has been in prior to starting her first year of teaching. Namely, these worlds include attending the school she taught in and her teacher preparation program. I then connect her place in the current teaching world to three primary challenges she faced during her first year. These challenges included navigating cultural aspects of the world such as assessment and teacher evaluations, student behavior, and finally racism.

Melody returned to the high school that she attended as a student, this time as a first-year teacher. Like most teachers, she entered into the school with expectations for how the world worked, unlike most, her expectations were based on first-hand knowledge of the space in which she was entering. Some of the teachers were the same as when she was a student, the physical space was the same, and the community was similar. She returned to this school for a few reasons; to be closer to home (her family still lives in the same city), to support her brother who was now a student at this high school, and because she had had a positive experience as a student at this school. Inevitably with the passage of time, the change in actors who participate in this high school community, and now her being a teacher, the world she came back to had significantly changed. Melody explained, "I went to this school a couple years—like 5 or 6 years ago, and there wasn't such a high population of homeless students or students of such low economic backgrounds. I didn't have that as a majority" (Interview, 3/29/18). It is here that Melody worked to refine her professional identity and engage in actions that would enable her to become a valued member of the world within which she was working.

I do not know how much the world changed in those 5 to 6 years since Melody attended high school there. There is a chance the demographics have remained consistent; but coming in

as a teacher rather than as a student put Melody in a position to interact with all students rather than the ones with which she chose to be friends with. Furthermore, the filters through which she views the world more broadly have shifted to one in which she has a stake in the outcome of students. Perhaps even, now that she has completed a teacher preparation program, one who's values have shifted, and she positions herself differently in regard to other educators and students. Regardless, her perception of the student population was different than what she was anticipating.

> *There was* [are] *a larger majority of students who didn't want to succeed and move on, whereas these kids it seems like they don't want to move on at all. They're fine with where they're at. They just want to get the diploma and go on with their lives. They don't want to go to college. They don't want to go to any type of—maybe they want to go to technical training if they can find the correct facilities to do it, but right now I feel like they don't even know how to do that.* (Interview, 3/29/18)

Melody lived in this rural community for much of her life. However, whether due to a lack of awareness of the motivation of others or a change in community, she noted a change in how the students approached schooling.

This high school is the only public school in the area and serves about 500 students from grades 7 through 12. The science department consists of one middle school teacher, and four high school teachers, two of whom have partial assignments in social studies. In an early journal entry, Melody reflected "I was warmly welcomed into the school so far, so I am excited to meet the rest of the staff members." (Journal, 8/21/17). She entered into the world with a sense of support from her new colleagues. Examples of this sense can be found consistently in her journal

entries and during our interview. Early in the year she stated: “I have a strong relationship with my mentor and he checks in with me every day because he is right across the hall, it’s nice to have his input especially with my physics students” (Journal, 9/19/17). Later in the year she states “…at the end of the day we all have to stand out in the hallways and watch the kids. So, he and I will always do a debrief of the day, like, whether or not we’re having a good day, bad day” (Interview, 3/29/18), suggesting this supportive relationship continued throughout the year.

Her assigned mentor was a valued teacher who also was Melody’s teacher during her period as a student. In a follow-up email about her mentor, Melody stated:

> *He was a great mentor and he was always super positive about everything that I did and tried out. He was also ahead of his time with the NGSS curriculum and had undergone the modeling training and encouraged me to do them as well. He and I were always the last two teachers in the building and we would leave at 6-7pm. He took charge of the science department and created a strong relationship with the principal and superintendent. Whenever I had issues with the administrators, he always gave me tips of what to do or say and if I ever felt uncomfortable, he offered to come to the meeting with me. Overall, he was super professional, looked up to by the staff, administrators and students, and constantly looked out for opportunities that he shared with me such as: grant opportunities, conferences, and new ideas/lessons. I would so he is the gold standard and he won a science teaching award last year for outstanding achievement.* (Email, 12/2018).

It is worth noting that the secondary science department and all of the administration are exclusively white males. The implications of these demographics related to socially constructed identities resulted in power dynamics that came into play over the course of the school year.

While investigating the culture of the school, the features of the world that were most salient to Melody were featured in what she talks and writes about; these features are therefore most likely to drive her actions and developing identity. In the sections that follow, I will describe challenges that Melody talked about throughout the year. I will describe the ways in which these challenges are related to the world in which she is working, the actors with whom she is interacting, and how her values shifted how she acted in response to these challenges.

To begin, Melody's narrative indicates support from the teachers which contrasts the lack of support from the administration and how the faculty push against the policies put in place by this administration.

Regarding the administration she states:

> *So it's not very transparent what they're* [administration] *trying to do, but then they always try to implement something new, which is overwhelming to the teachers because that's what we discuss a lot about from the staff meetings. It's like they always add things onto our plate, but then it's like they don't realize it.* (Interview, 3/29/18)

I asked her what she feels the administration *does* prioritize, and she said, "I think they really prioritize graduation rates and good parent relationships because they really fall back on what the parents say rather than what the teachers say" (Interview, 3/29/18). The primary challenges for Melody that permeated her year are related to this feeling of prioritizing parent views over the

professional judgement of the teachers. While this quote is late in the year, it is representative of the ways she perceived her place and the supports she received in the months prior.

Melody's journal often referenced the verbal support she received from other teachers in response to challenges she was having with students and the lack of support the administration provided. For example, she wrote: "I talked to my mentor and my science department [chair] and they were super positive and understanding. It's nice to have people that I can talk to about my problems and they give me advice on what to do" (Journal, 2/23/18). Similarly, when asked about support from the school community, she responded by saying:

> *...One [ninth grade teacher] emailed me. He was like, 'I'm glad that we have someone who came in here with such high expectations who are trying to teach the students how to be a better person.' And then I had another, like the English 12 teacher. She wrote me a little note, and she put it in my mailbox. Those are just confirming that I'm doing the right thing. Because sometimes I'm like 'maybe I'm doing it wrong. Maybe I'm having too high of expectations.' Or 'am I doing this completely wrong?' I don't know. And then all of a sudden, I get those things, and I'm like, 'I guess I'm doing it right.' I'm getting some kind of praise, so that's helpful.*
>
> (Interview, 3/29/18)

Despite this positive feedback, not all teachers were supportive of her efforts to maintain high expectations of her students. This push back gave Melody an opportunity to begin to develop a sense of agency in service of her developing professional identity, as can be seen in this journal entry where she writes "I had a conversation with a veteran teacher yesterday about reality and expectations. I didn't realize that many people think that my mindset is naive because I have

such high expectations for my students, but I think that's a good thing" (Journal, 10/5/17). The theme of having high expectations for her students and these expectations being pushed against by students, parents, administration, and teachers is a consistent one.

In order to explore actions Melody took as she developed a professional identity while participating in her figured world which existed within this high school, I will share three challenges that I identified from the data. These challenges represent a way of being or expectations that were placed on teachers by those in power, and I will discuss how she navigated her participation with these expectations. The first challenge is centered on the cultures of assessment, teacher evaluation, and accountability. Coming from a program that emphasized a practice of assessing student learning, Melody had ideas based in experience for how she wanted this to be realized in her classroom. The administration had policies that mandated that certain actions be taken in service of measuring student learning and teacher effectiveness. These policies conflict with how she believes teaching should be done and her goals for student learning. The second challenge Melody faced relates to the expectations she had for parent-teacher interactions and student behavior, and the role that administrators played in supporting (or not supporting) her position as a leader in the classroom. The final challenge I will explore highlights how the social construct of race comes to play a major role in the ways Melody interacts with the world and others within it. While not historically an issue she has written about, race became a major theme in her reflections, ultimately leading her to engage in significant agentic action.

School culture- Classroom assessment and teacher evaluations

When asked about the school mission statement, Melody said: "All we really know is like the principal's big statement of 'Make it a great day or not, like [sic], the choice is yours'"

(Interview, 3/29/18). This quote is quite telling about the priorities of the school as a whole. Over the course of the year, Melody maintained her stance that the students have some responsibility in the learning process.

> *I have high expectations for them, and they have to reach it somehow. And I always try scaffolding everything and I give them everything that they need in order to succeed, but then they need to do some kind of work to get to that, like, to get to my expectations. So, I feel like with that one statement of make it a great day or the choice is yours, it's like the students' choices to like learn or not to learn. I'm learning that is something that my idealism is not ok with, but that's ok. That's my main goal, but then I'm getting tired.* (Interview, 3/29/18)

In wishing to provide the students more of a role in their schooling she is confronted with the struggle between following the literal interpretation of the mission — giving the students choice — versus taking more of a teacher leader role and managing behaviors in a way that encourages the students to be active participants, even when they may be reluctant.

> *I am finding an inner turmoil of whether or not to move on with a lesson if students are nodding off, is it not their choice? Is it not their responsibility to learn? But it is my responsibility to teach them. It is my responsibility to teach them. It is my responsibility to create activities that excite them.*
> (Journal, 11/21/17)

Melody's had a desire to push against those students that are choosing 'not to make it a great day' as it relates to her interpretation of the school mission. The community of teachers in which she was working also presented a challenge in this regard by not providing, in Melody's eyes,

advice in support of her desire. For example, when reflecting about a student who was creating a disturbance, Melody said: "I spoke to a special ed teacher about her and she said that she acts the same in math, and I asked her what do they do, and she said nothing right now, we just let her do what she wants because that's what she said she would do anyways." (Journal, 9/5/17). Even though the mission provides choice and Melody is in conflict how to find her way into a world that allows students to have this choice, there are features of the world that are more stringent in their implementation.

Classroom assessment. When asked about the routines of her classroom, Melody mentioned entering grades saying, "We have to get at least one new grade in each week." And described her professional development as occurring regularly -- "Every Tuesday we have PD at 7 am…", with a required follow up meeting the next week. She also had to attend new teacher meetings: "I have a meeting with an advisor liaison every Wednesday during my prep. Oh, and then I also have a mentor-mentee meeting every month after school for one hour…" (Interview, 3/29/18). Still, the routine that was most often talked about in her journal and during the interview was the required pre-/post-tests that the teachers gave and the impact they held for her teacher effectiveness evaluation.

> *...so the pretest that the students take if they score a 75% or something, they automatically pass the test, which I think is like—Yeah. I think that's crazy! And I'm like that doesn't make any sense. How can you pass like a 2-credit class or whatever, like biology, by passing a pretest? That's ridiculous. So a bunch of the kids, they pass, like American government and health class, so they're not required to take those classes, and so they're put into different electives. And I'm like, it doesn't matter if they*

pass the pretest for health class or not. They still need—they should learn how to, like, learn the little basics stuff. Or like American government, come on. Some of those questions on the pretest are like probably—of course, you can use context clues, but you don't actually know anything. So that just messes me up so bad. So that's why my pretest is like hard. Because they should not pass that test. (Interview, 3/29/18)

It is not the idea of pre/posttests that poses a challenge to Melody, but rather the way the data are used. Not only do these teacher-written tests determine the courses the students take but also the score change (50% growth) in these tests are used to determine teacher value-added. Teachers attempt to push against this by writing tests that game the system. "A lot of teachers give them a pretest that's really difficult, and then their final exam is easy, so there's a definite growth change" (Interview, 3/29/18). Melody does something similar by making her pretest more challenging, but rather than do this to show student growth, she claimed it was to prevent kids from testing out of a course, thereby implying a value in student learning ideas relevant to the subject, not just getting course credit.

Another impact of this testing culture is the potential actions it offered teachers who might let interpersonal relationships with students influence their decision making. "One of my admin/liaisons told me that, to decide on who passes (if they are in the 40s-50s) you think about whether or not you want them back in your class next year or not" (Journal, 1/25/18). Again, this culture of passing kids pushes against Melody's view of education.

If they weren't up to par, and might I add that my expectations were definitely lowered this year! I do believe and am not going to pass them, and they can suffer another year with me. It is not fair that a student can

pass at a 50. I am not passing them. There is a reason why they have that low of a grade. (Journal, 1/25/18)

Teacher evaluation. The emphasis on how testing reflects on outside perception of the school and teacher's attitudes about learning, as well as a focus on teacher value-added seems to have created a sense of fear among the faculty.

I am getting more and more worried about the quota that I have to make which is 50-60% of my students growing. I also am supposed to have 90% of my students pass my class. I am getting more and more worried about this high of a percentage and my morality of whether or not those students deserve to pass if I were to help bump up their grades. (Journal, 1/25/18)

During the interview I asked whether she felt the evaluation system accurately measured her skill as a teacher. While she spoke about her own experiences briefly, she placed these comments in comparison to other teachers. "… a lot of the staff have been questioning the evaluation system, which is weird because I'm like, 'It's the Danielson. You can't really change the little questions that they mark you on' - but I don't want to say anything because I feel like that's presumptuous" (Interview, 3/29/18). Melody seems to trust the evaluation protocol but does not feel she has the power to voice her opinion in opposition to the frustrated veteran teachers. This placed her in the awkward position of feeling like her view of the system may not be valued due to her status as novice. Regardless of her opinions of the observation protocol, the larger evaluation system at play caused her concern.

I am getting more and more stressed out about my evaluation because I just found out last week when they sent out the growth spreadsheet that in order for me to just be effective 70-84% of my students must pass the final exam. I

am currently at a 66% which means that I am minimally effective which is not what I want at all. I originally thought that it was a 50% growth and a 90% passing rate. I have currently an 80% passing rate which from discussion from other teachers is an average for the freshmen class. From checking my evaluation, 25% of how well I am evaluated is based off of that growth percentage and right now, it's not good. (Journal, 6/11/18)

The administration's focus on student performance has created a culture in which the teachers use the evaluation process as a primary factor in their teaching decision making rather than student learning as the goal of their pedagogy. A burden has been placed on the teachers to lower the bar to achieve higher test scores and higher evaluation numbers rather than students taking responsibility of their learning.

I have been having to give special ed students a credit/no credit on the assessments because they do so poorly and the worse [sic] *part is that I have accommodated the tests for them! I've made it so simple that if they were to just do the review sheet and actually try they could at least get the right answer. For the multiple-choice questions, I have even reduced it to only 2 options and they still score 50% -- on the bright side at least they scored 50% rather than 25%.* (Journal, 11/3/17)

Not only was Melody changing her teaching to accommodate her evaluations in order to maximize the likelihood of a positive review, she was being actively coached by mentors to work towards this goal.

The more I teach the more corrupt I feel the system is. I had a discussion with my mentor and science department on how I will be evaluated, and

they told me that I get evaluated on my failure rate. They told me being a new teacher I should definitely not fail more than 10 students that don't have attendance issues. I had about 27 and ten of them were based off attendance. So, then I was left with 17 students. They then asked me how many were in the 50 range and whether or not they could be pushed into the 60s. -- This is just not what I consider fair. (Journal, 11/3/17)

This assessment links her position as 'new' teacher to what is considered an acceptable failure rate. Furthermore, by connecting student attendance to failure rather than their learning, Melody is challenged by the thought that her worth as a teacher is greatly impacted by whether students show up or not. Her concern with the number of kids failing and the impact this has on her evaluation continued into the second semester.

I was at a count of 37 failures last week, but I created the stations lab to help students who were on the edge of passing. I now have a count of 24 failures after marking period 3. This may not be ideal for my evaluation, but it is a lot better than what it was. (Journal, 4/18/18)

The day after the journal entry that opened this discussion on evaluation, Melody felt positioned as not doing well when the principal personally entered her classroom to see her final exam.

Day 2 of finals and this morning my principal came in, to grab a copy of my finals. I know that doesn't sound peculiar because I should be sending it into the office anyways…. well usually right, but I have had no notifications at all about it and no one has mentioned anything. So, when he came to my classroom and asked to have a copy to look over it, of course I was nervous! I feel like something is wrong. Maybe I am not

passing enough students. Maybe I'm too hard. Maybe parents complained about me. All of these thoughts are whirling around in my head. (Journal, 1/26/18)

The teaching world in which Melody was working had a culture which focused on teacher accountability. It did this by way of seeing change in student grades through teacher generated assessments and through a combination of failure rates and the Danielson observation framework. The community of teachers usurped the power of the administration through acts of resistance such as by purposefully writing preassessments that were challenging or by adjusting grades that decreased the number of students that were failing. Melody found herself challenged by being placed between those in charge, whom she needed to see her as a competent professional and those teachers around her whom she wanted to develop professional relationships. She was caught between two parts of the figured world and was not in direct alignment with either. In response she drew on those parts of her teaching identity that valued authentic student learning and kept her pre and post assessments coherent. She also provided opportunities for students to gain legitimate points through learning activities with the goal of helping those students that are failing and therefore reducing her failure rate. In these senses, she engaged in agentic action in ways that aligned or supported her professional identity without overtly pushing against those around her or the administration, both of which she sought to develop a professional relationship.

Managing student behavior and parent/teacher relationships

I came into the school district with high hopes and positivity, but after dealing with so many disciplinary issues with no repercussions and a

disorganized administration system that lacks communication, it is very difficult to work efficiently. (Journal, 5/9/18)

Further compounding Melody's negative feelings about administrative policy informing teacher evaluation, Melody was often confronted with needing help to manage disruptive behaviors that impacted the learning environment. Student behavior and how she addressed it was often referenced in her journals, but two stories were more extensively shared, and these reflect the challenges Melody faced, the administration's reaction to these situations, and Melody's response to these. The first vignette was centered on a student's attempt to complete an assignment by cheating.

So, when this student was caught copying (he took a picture of someone else's paper on his phone and sat in class copying it) I saw him, and I confronted him about it… He told me that he knew everything that was happening on the worksheet. So, I responded with, "if you knew, then you would be fine doing it on your own, I didn't make the worksheet just, so you could copy it." He said he was gone, and he wasn't going to waste his time doing the assignment and he packed up his things and left… Since this is a reoccurring event, I called his mom because this is a family that my mentor and administrators have told me to watch out for. So, I called, and she didn't answer, and I left a voicemail saying it was a courtesy call, the student was caught copying, was confronted and left the in the middle of the class period. I later received a very mean and nasty voicemail in return about how I was not supporting his IEP and that he should not be having a C in my class and that is should be higher. She also told me that

> *my syllabus is ridiculous and that I don't override the law because of his IEP and accommodations. I have his IEP printed off and in a folder. All it says is that he gets extended time on his tests, but nowhere does it say that he can take retakes on tests. She totally disregarded the copying issue because I've called her about this before in which she told me to let it slide and just give him the credit because "all of his answers were right." ... of course, they were right, they were copied -- his work was not even matching up with his answers!*
>
> *I am just frustrated with the system. I had a 30-minute meeting with my principal because I told a student he couldn't copy. The mom even called my principal and told him that she left a nasty voicemail on my phone and she was proud of it. The student who copied and skipped my class got no punishment. (Journal, 11/27/17*)

This story, while a singular event, is representative of the world within which Melody was working. She has an expectation that there are ways of behaving as a student, i.e., doing your own work without copying from someone else. She also expected that this behavior would be seen as unacceptable by the administration. In practice, however, the administration seemed to have fostered a culture in which parent voice, if loud enough, is valued over teacher professional judgement. Another feature of this story is the power dynamic at play. Perhaps because it has worked in the past, and as Melody states, she was warned about this family, the mother felt empowered or entitled to not only behave impolitely, and arguably demeaning, manner towards her child's teacher, but to further emphasize Melody's lack of power at the school by going to the principal with the conflict.

The story above is unique in the level of detail Melody chose to share, but less so in the insight it provides into the world she is working within. Being positioned as low-level novice by a parent and the principal is not isolated, as demonstrated in the following vignette. Again, a classroom disturbance leads to Melody eliciting management techniques in accordance with how she feels they should be handled based on her interpretation of school policy. In this instance, it became apparent that the expectations placed on her regarding classroom management were a moving target.

> *One of my students, he was acting out. So, I sent him out to the office because everyone in the class was like please kick him out. Him and another boy were just distracting them too much, and they're like you need to just have him leave because they are obstructing us from learning. And I'm like, oh my God. I didn't even kick them out. The kids kicked them out. So, I sent them out, and then, like, the principal gave the kid an afterschool detention. And I was like, oh, but I have to call the dad to let him know. And I'm like—because we have to call the parents to let them know so they can get transportation to the kid. And so, I called the dad and said this is what happened, and then—and the assistant principal gave him an afterschool. And then the dad was like, I don't have a vehicle. There's no way I can pick this kid up. And I'm like, it's already—and that was my last class of the day. It was like 3:10, and the bus has already left. And I'm like I don't know what to do. So my kid's just going to be stranded there. So I ran to the assistant principal. He's not there. He's at the busses. And I'm like, this is frustrating. And then there was an*

afterschool bus for whatever workshop, but then we didn't know if it was going to go towards his house or not. In the end, the kid had track, and his friends were going to drive him home. And I'm like, I had to worry about this for like 20 minutes just to get this kid home, and then like, it was just dumb. And then when I was talking to the principal about it, they were like, what teacher was dumb enough to do that? And I'm like, I'm standing right here, and I didn't give him the afterschool. The principal did. I never want to worry about this stuff ever again. This is why I just write them up, and if you feel like you need to give him afterschool, then give him an afterschool. I don't want to deal with that anymore. I did that once where I was trying to give them after schools by myself but calling the parents and then having them to get transportation—some parents are like, why are you giving this kid an afterschool. And I get yelled at. I don't want to do this ever again. I'm just going to leave that to the assistant principal. That's it. So that's when I learned my lesson about that stuff.

(Interview, 3/29/18)

Immediately prior to this reflection, Melody and I were discussing how she felt she related to her administration. She emphasized that they were all white and I later learned they were all male. This matters because soon after, she expressed how she felt positioned in relation to them:

It didn't seem like—they've taken out kids from my class because of racism before, and they took it more seriously in the beginning of the semester, or it seemed like, because some of the kids were like—it was causing almost a fight because it was 2 male students who were doing it,

but now it just seems kind of like, ooh, Miss [Y] is feeling a little bit more sensitive today. It seems like that is what's happening, and I'm like—I don't want it to seem like I'm sensitive. (Interview, 3/29/18)

I pressed her to clarify by asking who she felt thought she was being sensitive, to which she replied, "…my principal". The power the administrators have is multifaceted and significant in influencing Melody's actions. After she addresses student behavior as she thought she was supposed to, the assistant principal takes power away by reacting to the situation by assigning detention without fulfilling the requirements of this and by leaving Melody to manage the aftermath. She is further positioned as having low levels of power by the principal unknowingly reducing her actions to those of a novice in her presence. The interaction described in the quote above reinforces her efforts to isolate herself from the community and remain in the place that she feels she has a degree of control: Her classroom. During the interview we discussed this idea.

K: *How do you feel you fit into or with your school?*

M: *So most of the time I'm just in my room. Even for lunch, I just stay in my classroom and I just work. Because I feel like I'm always just constantly working. Like I need adults. But most of the time I'm ok just being in my classroom where it's safe, like, where I can mandate everything. That's how I feel. (Interview, 3/29/18)*

…

Just like having the control in my room because I feel like I don't have control anywhere else in the school. And then it's still awkward being the new teacher. You can't really ask or expect things. (Interview, 3/29/18)

What began as a high level of optimism for working at this school was eroded away by feeling unsupported by administration when it came maintaining a degree of integrity in her classroom. By appearing to be on the side of parents rather than teachers during a conflict, a culture is created that places teachers lower in the hierarchy and prioritizes parent relationships over learning and teacher professional decision-making. Eventually, Melody retreated to sanctuary in her room essentially isolating herself from the community of teachers.

Racism- Micro and macro aggressions from administration and students

The issue of race was the most frequent topic of conversation in our interview, her journal, and her interactions with her university-based mentor. As we will see, what started as a moment of disrespect between students escalated to disrespect of Melody as a teacher by students, finally to racially motivated bullying which was directed at both Melody and other students. Melody grew increasingly concerned about how to address these incidents, including whether and how to seek support from administration. This support appeared to come at first but spiraled into feelings of hopelessness and, as discussed above, decreased feelings effectiveness.

Early in the year behavior and management were a challenge that inspired Melody to seek help from her colleagues. Their response echoed the expected school norms and what one might consider a traditional response.

> *I try to give them structure, but they won't listen, they completely disregard authority figures and disrespect me. I have talked to the other teachers on what they do in this school what best helps them, and they said if a student is acting out send them to the office.* (Journal, 9/26/17)

Rather than focusing on planning for engagement, as was emphasized in Melody's teacher preparation program, the other solved problems by removing disruptions, in this case, the students. Over time, while Melody appeared to use removal as needed, it did not become her default strategy.

> *The reason why I got so frustrated with my first hour was because they were starting to disrespect one another by calling other students stupid for being slow and they were shouting across my room and I had to keep telling them to quiet down before moving on to the next problem.* (Journal, 10/31/17)

However, there were times when Melody felt she was left with little choice but to remove students. An October entry was the first instance reported in her journal that any disruption was racially motivated. "I had to remove a student from my class because of racist comments of 'dirty Mexican' and 'cracker.' I really don't know how to handle those situations" (Journal, 10/2/17). As the disrespectful behavior of the students intensified, Melody was once again placed in a position in which her values did not align with the expected response regarding management.

> *I had a student ask me whether or not I liked dogs or cats more, and then whispered to her classmate that Japanese people eat cats. I just feel super disrespected as an individual. I just feel uncomfortable right now.* *(*Journal, 11/27/17)

No person—student or teacher--should ever have to experience being repeatedly and personally bullied. While initially shocking, it is not unbelievable, and clearly not out of the ordinary, for a person of color to be on the receiving end of this

type of abuse from what has been established by the those in power, who in this case predominantly white.

This journal entry caught the attention of Melody's university-based mentor who said, "I am so sorry for this experience. Have you considered discussing it with administration?" (Journal response, 11/29/18). Having worked with this mentor for a few years, I have no doubt his response was genuine in its concern. Nonetheless, its lack of specificity and lone advice of *tell administration* points to a larger issue wherein teachers and - to some extent teacher educators – are unaware of the significance of the issue or are not well-equipped to deal with racially charged interactions. This interaction between Melody and her sympathetic, but mentor brings to light the need for university-based mentors to better understand the world in which their novice teachers are working so they can more appropriately provide support.

Being bullied by students because of her identity as a minoritized woman continued into the second semester.

> *I am dealing with more and more racial comments as of late, and I feel bad that I am so sensitive to them, but I don't appreciate these terms at all. I had a student complain about having to write annotations, and a girl responding by saying "What do you expect, she's Asian." I told her that I was offended by that because I didn't think my race needed to be connected with my expectations of the class. Or that I should be derogatorily labeled based off of my race. I have been having more of these comments more and more and I don't like it. I have been stopping*

class because it offends me, and I want the entire class to know how much I don't appreciate the racial comments and to my amazement, I have students who laugh. I don't like this environment at all because I don't feel comfortable in it. I already got called a 'stupid ass teacher', then I had a student say 'ching chong' while I was talking and now this. I appreciate the administrators who are trying to get a handle at this, but all I am getting is demise. (Journal, 2/13/18)

A little over two months later, her tone changed from one of annoyance to one marked by guilt. Rather than taking the stance that racially motivated speech is not to be tolerated at any time, she says she "*feel(s) bad that I am so sensitive to them"* implying her feelings are not justified and she should not feel sensitive. Regardless, she continued to follow protocol and remove kids from the classroom. Another change soon manifested as it relates to Melody's reliance in administrative response, which pushed her to take action in addressing the racialized conversation happening in her classroom.

This week I learned that discipline isn't really going to be changed in my classroom from my administrators, so I really need to take it upon myself. (Journal, 2/22/18)

First, Melody recognized that the expected teacher action of sending students to the administrators, for the purpose of managing behaviors, was not effective.

I realize and know that discipline was probably my worst skill because I don't like dealing with that stuff, but I am now facing them. I am getting better at living class day by day. (Journal, 2/22/18)

Next, she reflected on her skill as a teacher, recognizing that discipline was not a strength of hers, but that student misconduct needed to be addressed.

> *I had some really bad racial issues in the beginning of the week and I wrote someone up for it, but they never stopped and there was a group of them that just made fun of in class. I was the bigger person and I was just super nice and positive and solved my problems through kindness. People feel bad when they are mean to nice people!* (Journal, 2/22/18)

This journal entry from February 22nd entry elicited a response from her university-based mentor stating:

> *I seriously can't believe that your administrators are not taking the racial slurs by your students more seriously. Have you considered talking with your union president or building rep? This is something that they should also be able to address with the administration. I would encourage you to document all of these instances and note what the response of administration is.* (Journal response, 2/27/18)

Being remote and unable to visit her in person, he provided the best support he could through phone, email, journal interactions, and by watching and responding to her teaching videos. This interaction implies some frustration from the mentor about the lack of support for Melody by her administration. She responded to his note saying that she was creating a log of interactions and that she made note of the lack of support she was getting in a survey of administration that they had filled out during a professional development session.

Anecdotally, as someone who had worked with Melody for multiple years as an instructor and research assistant, I find that there is a noticeable change in her demeanor from her

time in the preparation program to her first year of teaching. Watching the videos in succession, the way she speaks to the class and interacts with students changes from an upbeat energetic person to one who sounds and appears worn down, tired, and defeated. While I did not observe any racially motivated interactions, I also recognize that the videos represent a snapshot into her year and there was far more time spent interacting with students than were recorded.

Still, she maintained a way of being despite of the negativity surrounding her, what I might call a primary feature of her identity as a person; genuine kindness. Throughout internship, her constant smiles, bubbly personality, and kindness persisted. It was not until she had her own classroom that these characteristics appear to wane. In this moment in February, she recognized a challenge, formulated a plan, and enacted that plan.

When asked what was preventing her from achieving her goals as a teacher she stated:

> *I have been speaking out more against my freshmen because they have issues with respect and racism, and then bullying and stuff… This is something that's just too large of an issue... And so that's something that I did, and then the students made fun of me for it, which was weird. And then no disciplinary actions were being done from the administration.*
>
> (Interview, 3/29/18)

For Melody, the constant culture of disrespect from the students and the feeling of being positioned as weak by her students, coupled with the perceived lack of administrative support was impeding her ability to teach in the way she felt was best for her students. Later in our interview I asked her what views she did not share with her school. She explained, "So I don't share a lot of the—like the diversity. They don't really care for that, I feel. They don't mind if students say racist comments" (Interview, 3/29/18). Again, she felt separated from the school

community by the issue of race. The constant reminders from people of power that this student behavior is acceptable confirms this feeling.

Melody's teaching world

Aspects of this world's culture was defined in part by administrative policy - such as giving the students a pre-posttest for each unit. Other cultural norms unfolded less explicitly - such as the focus on how many student failures teachers should have for the good of their evaluation. Still other aspects of this world's culture seem to emerge as a direct result of the lack of administrative accountability - such as racism becoming prevalent. The teaching community addressed these aspects of the culture in different ways. When considering administrative policy and teaching evaluations, other teachers supported Melody by acting so that they appeared to meet and conform to the expectations of this culture, but in fact pushed against them, and included her in that conversation about how they did so. Sometimes this agency manifested itself in different ways for Melody such as not following the community practice of making the pre-test hard so that students show growth. Rather she worked to create pre-tests that accurately measured what she felt the students should be able to do or know in that unit. Other times she battled with the thought of using action in her classroom for "self-preservation" such as amending failures to prevent a poor evaluation. Finally, while Melody felt sympathy from her colleagues around the racist language used by her students, she never seems to have received tangible support about addressing the problem beyond "send them out".

Finally, Melody was often positioned as novice or as "other" by colleagues, administration, and students. Often the support from other teachers, while intended to help her navigate the culture of the school, ran counter to her identity and what she valued as a teacher. The administration used their power over Melody by not providing support when she was most

challenged. This resulted in her transitioning from an optimistic person to one who did just enough to get through the day saying: “I am trying my best right now just trying to survive from day to day.” (Journal, 6/5/18).

The culture of the school challenged Melody’s view of what constitutes good teaching. These experiences may have prevented Melody from feeling a sense of success in her actions and therefore may have relegated her to novice status with little growth in power. An inability to align with and work in parallel with the culture of the school and a lack of growth in the power she possessed within the world she was working made her feel as though she were not a member of the community. Unable to navigate these challenges, she was left with two choices: Amend her professional identity to better align with the world or find a new school in which to work. She chose the latter.

> *I also want to move because of the area. I want to be in a larger town. I run into everyone in this community and sometimes I just want space. It’s nice that its a tight knit town, but I’ve grown up here and I want to leave and not get stuck here.* (Journal, 6/14/18).

Which is exactly what she did.

Sasha- Finding purchase for agency

Sasha's professional identity, including her primary value at this time in her career and how she positioned herself and was positioned by others, was supported in the world in which she chose to work. While some aspects of the world posed challenges such as the expectations by those in power in regard to when she was to be present and the staggered schedule of the middle and high schools in which she taught, an opportunity to align what she valued with the priorities of the school presented itself. I begin this section by briefly describing the world, as was interpreted from the data provided by Sasha, before drawing on her narratives to establish the primary value linked to her professional identity, the purpose of science education. Next, I describe the opportunity she took to position herself as relatively more of an expert by working to fulfill a need of the school while also supporting her own identity resulting in being positioned in parallel with the community. Finally, I describe challenges the culture of the figured world present to this work and how she engages in actions to address these challenges while maintaining her course in the work she values.

Describing the world

Sasha began her internship at a public middle school in a moderately sized urban city with industrial roots. Unfortunately, at the end of the first semester, her mentor teacher required time off to address personal health issues and a new placement was needed for Sasha. She was then moved to a public charter school in the same city. This school would eventually become her place of employment. The mentor teacher at the first internship placement often served as a mentor in our preparation program and was generally well regarded by the university. Being a veteran teacher in an urban setting, much of her focus was on student behavior management. While this focus was useful for Sasha's learning, this did not align with the focus of the teacher

preparation program, which was utilizing teaching practices to engage, rather than manage. The new mentor, also highly regarded (winner of city teacher of the year), was an alumnus of the same alternative teacher preparation program and shared a general view of good teaching with Sasha. When directly asked about who shared in her vision she stated: "I mean I think my department does, which is pretty easy on my part because we are all from a very similar program at [university]" (Interview, 4/2/18).

Sasha's school was unique in many ways, and this uniqueness posed challenges to teaching, including sharing a campus with a local community college and being on a year-round schedule. Sharing space with a college meant that while they had access to lab space that most K-12 schools do not have access to, they were at the mercy of the college for scheduling and use of resources. Additionally, the year-round schedule posed a challenge to Sasha not only in the length of the year and the lack of any significant summer break, but also in the way the middle school and high school were operating on the same calendar. What I mean here is the middle school and high school breaks did not happen on the same days. As a charter school the continued existence of the school was reliant on enrollment; a constant priority for the administration. Sasha emphasized her view of what the administration prioritized when asked by stating:

> *I mean students, first of all. Making sure that students are supported, and that curriculum is being developed, especially in the direction of pathways for the science department is really, really important… So, I think kind of having all of that settled is a big priority, and also making sure that we have the enrollment we need to stay a school, right?* (Interview, 4/2/18)

This concern with maintaining a sufficient number of students seems to have been the catalyst for much of what the administration did and how the culture of the school was established. In the sections that follow, I will describe how Sasha positioned herself to work towards teaching in a way she valued while also increasing her position within the community — and therefore her power. I will then discuss the challenge she faced in regard to the way the school schedule limited her ability to work as she would have liked and how she attempted to manage this challenge.

Fostering her developing professional identity: value and positioning in relation to teaching to generate science knowledge

Sasha's priority for her students is that they meaningfully engage with content for the sake of generating science knowledge. She explains, "I would like my students to have the tools they need to be conscious consumers of products, to have basic high school scientific literacy and to be ready for whatever direction that takes them next…" (Interview, 4/2/18). It is this value of engagement with authentic science practices that drives her approach to teaching.

Coming to education with a background in bench science (chemistry), Sasha values having her students not just hear about science, but actively engage with science. This view of science teaching aligned with the preparation program goals and course work that focuses on planning for engagement. Developing curriculum and designing lessons that have engagement as a central feature was a priority for Sasha.

> *…outside of just doing well in the class, by actually taking the content in a way that is applied to their lives and that they can use in the rest of their classes, and they can use to move on in the sciences, or say even be inspired to pursue careers in the sciences…* (Interview, 4/2/18)

The charter school to which she had been reassigned during her internship was in the midst of reorganizing courses and curricula, providing Sasha an opportunity to position herself as a valued member of the community.

Sasha did not enter into her first year of teaching having students fully engage with science practices in her lessons. Sasha. arrived in a science department where teachers were free to develop their own materials, and her arrival coincided with the development of materials for the courses she was scheduled to teach. This posed some challenges, as the department chair — who was her internship mentor — also taught physics and was highly regarded within the school and by Sasha. While agreeing with Sasha on the principles of science teaching and the end goal they were working towards, he had strong ideas about how he thought things should be taught, and Sasha was challenged by meeting the requirements he set while also exploring a new way of teaching. Sasha reflected: "I wouldn't say that I always agree with everything he says or does but we have a pretty open dialogue and he actively encourages constructive criticism as a two-way street." (Journal, 10/22/17). She was also challenged by limited time due to a commute, traveling on a college campus which was unique (moving rooms in the middle of class and not getting lab space).

Being housed on the campus of a community college, the school worked to balance meeting the requirements as described by the state standards while developing and maintaining a partnership with the post-secondary institution with which they closely worked. Part of this partnership included preparing the students to begin to take class at the community college level prior to graduating from high school. This required that the programming of the middle and high schools, science in particular in this case, take into consideration the needs of the NGSS as well as the academic expectations of post-secondary coursework. The school and science department

sought to do this by creating curricular pathways or sequences of classes that directed the students toward a career trajectory at the community college level such as pre-engineering, medical science, or skilled trades for example. Finding herself in a world that valued developing curriculum that was vertically aligned with both the NGSS and local college and that was "performance-based" (JPEC, 2018, p. 8) at a time when it was being developed, was fundamental to Sasha's success in positioning herself as someone with authority and expertise in this area. I asked her directly if her views of teaching aligned well with others in her new department. She replied: "I think my department does [align], which is pretty easy on my part because we are all from a very similar program at [university]. So, I think that we have some aligning views that way." (Interview, 4/2/18). After a teacher left mid-year and was not directly replaced, the department was left with three teachers, including Sasha, all of whom were members of similar fellowship preparation programs. Part of their alignment around teaching philosophies came from drawing connections between the Next Generation Science Standards (NGSS, 2013) and the school's desire to prepare their students for college courses.

> *Curriculum development is huge, especially alignment with NGSS, alignment with [community college] classes that they'll be taking in the sciences, and also a pathway specific curriculum, so finding a way to meet those. I actually just discussed with [Department Chair], department head, today what he felt like should be the priority for some of our classes, like comparing NGSS to making sure that they are [community college] aligned, and it sounded like we were both on the same page, that NGSS should be something that we're more focused on.* (Interview, 4/2/18)

Sasha's journal entries were much narrower and more focused, but no less reflective, than James and Melody. James. and Melody. wrote about their place within the worlds they were working in -- from the school level down including interactions with students, teachers, and administrators. Sasha, however, primarily reflected on the lessons she was teaching. Generally, her journal entries centered on what she and her students did during a particular lesson, what went well or was challenging, and how she would change it to better align with her views of good teaching. In an example from early in the year, she reflected on her lessons around what she sees as the fundamentals of chemistry.

> *...the first few weeks in chemistry we have been discussing the metric system, significant figures, scientific notation, and using conversion factors. These are so fundamental to the way all calculations are done in chemistry that it didn't make much sense to do an activity about this before they had learned about it. I suppose I would concede to being wrong if I saw some better way to do this, but I decided to cover the concepts and then put them into practice. Their first lab will apply these concepts in a density lab this week.* (Journal, 9/23/17)

In this unit Sasha was purposeful in choosing to organize her course so that students drew on content they learned in application to a new activity. In this particular case, she chose to lay a foundation in chemistry math prior to applying the concepts in practice. In another example, she reflected again on the chemistry course.

> *I also do not want to rush through anything because I want the kids to also understand what they are working on and not just going through the motions. Part of this is because I was trying to add additional labs and*

engaging activities, and this has extended my curriculum. (Journal, 11/5/17)

Sasha was seeking to find a balance between covering the content she felt obligated to cover while also providing students with "engaging activities". Much of her journal reflection and our conversations after my observations revolved around navigating what she saw as a focus on breadth of content but with too little time for students to explore that content in meaningful ways.

As the year progressed, she incorporated more progressive practice-based instruction into her lessons. In referencing a lesson on the gas laws in chemistry she stated:

I did change this lab around so that I did NOT give a lesson on the relationships beforehand. I tried to set this up more as an inquiry. There were some students that were already familiar with either these labs or the relationships already but for the most part I did see students reasoning through this. (Journal, 2/25/18)

Central to her goal of teaching is allowing the students to build knowledge through experiencing science in an authentic way. While she does acknowledge that some students have seen some of the concepts modeled in the various stations of this activity; she saw some success when she heard her students talk through the concepts, working to make sense of the relationships between the concepts associated with the gas laws.

Aligning with the preparation program, Sasha's professional identity centered on planning for engagement so her students could have authentic experiences in the classroom. This part of her identity was supported by the world in which she was working. This world also allowed for a slightly restricted flexibility for developing curriculum to address both the

priorities of the school and department and also Sasha's own goals for her classroom. The need to develop a new course provided the opportunity. How Sasha navigated this set of competing issues is discussed next.

Finding her place in the world

Many factors came together to support Sasha's growth as a teacher and being positioned as a valued member of the community. These included having completed her internship at this school, working with science teachers that came from the same preparation program and therefore shared in many of the same values, and having a highly supportive administration and department chair. These factors alone did not *give* her power and privilege but rather allowed her the space to find a way to engage in actions that had the potential to be valued. Sasha was still required to navigate the needs and expectations of the community, align those needs with her own values, and put in the work to accomplish both goals.

As a teacher who wanted her students to be active in the generation of science knowledge, developing curriculum in a school where this approach was valued allowed Sasha to position herself as a valued member of the community within the world and support her own professional goals. While teachers had the freedom to design their own courses, there was an expectation that those teaching the same courses or sequence of courses would use the same curriculum. For example, Sasha mentioned: "[Department Chair] started to design the course before he realized I would be teaching it. He set up a case study format, so I took this and I am running with it." (Journal, 1/11/18). Sasha valued the case study approach to teaching and integrated it into her way of teaching beyond just chemistry. Additionally, there was much discussion about how to move forward with designing other courses, like physics, and Sasha identified a collaborative feeling in these design-focused discussions. However, the expectation

that she would be teaching someone else's curriculum perpetuated an air of competitiveness within the department.

> *It's really a matter of when I can get to it [the curriculum] and if I can get to setting it up before [Department Chair] does. Because I think whoever starts the path, it's just easier to kind of work together on that because there's only so much time, and it's always helpful to have more people working in developing.* (Interview, 4/2/18)

She wanted to have her voice heard in the curriculum design process, but also acknowledged that she will fall in line and cede to what can be interpreted as the department chair's position of power, were he to begin the work. Sasha nuances her understanding of this environment by clarifying that her enthusiasm comes from a desire to support, rather than to compete.

> *…he [department chair] does so much with the department and the development of curriculum that I've just really wanted to put my work on the table. You know, like come to the table and actually be helpful that way.* (Interview, 4/2/18)

Being a small department (less than 3 science teachers for the middle and high schools), prior to Sasha starting at this school, the teachers were able to do their part to develop courses that aligned with their areas of specialty. The department chair primarily focused on high school while another teacher designed middle school curricula. Being that the curricula were detailed and fulfilled the needs of the entire term, the establishment of the initial library of materials was a long, ever-changing process. This explains why the chemistry case-study course was already established upon her arrival and was foundational to Sasha's planning, yet physics was still in need of planning during Sasha's first school year.

At the beginning of Sasha's first year of teaching, the middle school specialist left to teach at another school, leaving a gap in the eighth-grade curriculum. This gap provided the opportunity for Sasha to once again create materials that both aligned with her view of teaching as well as fulfilled a need of the science department. Sasha spent the fall working on the eighth grade Biology course, trying to incorporate case studies much like the chemistry course.

Then in January the teacher who left for the fall semester returned. Sasha journaled "I am very excited to have [teacher] back on our science department team!" (Journal, 1/11/18). What power was gained as it related to developing courses became tenuous because this teacher reassumed her role as middle school curriculum specialist and the work Sasha had done became temporary.

> *I am excited to roll out this course doing backwards design, but it is a little strange to plan a course that I know will not likely be used again. I say this because [teacher] is essentially planning all of [middle school] and she rearranged the topic bundles that [Department Chair] had set up.*
>
> (Journal, 1/20/18)

Sasha went on in this entry to mention that the department chair had set up the course outline from which she was working and that it was "… yes planning courses is a lot of work, but I know things will be fine if I stay positive and communicate with my department." (Journal, 1/20/18). I sensed frustration in her entry and knowing how much time she had put into planning and how important her lessons were, I followed up on this entry asking directly about her sense of ownership in the course design. She replied to me saying:

> *Down side is the courses will not be the same in a couple of years as the new curriculum roles out. It is a different level of work to plan a course*

when you design everything in [online course system]. That being said, I have been less inclined to program complex problems into [online course system] for [middle school] this term. What is the point if it needs to be done again in two years? (Digital Response, 3/20/18)

Sasha recognized her place in the hierarchy of the department and what that meant for the curriculum she was hoping to create. Later during our interview, I explicitly asked about this particular situation.

K: Do you feel like you have a voice in this curriculum moving forward?

S: No, [middle school], not as much. That's [teacher]. That's [teacher's] world.

...

K: So, you don't feel like you have—

S: Ok, I don't feel like I have a voice in reordering the whole curriculum for 6th, 7th and 8th in the way that it's vertically and horizontally aligned, no. But when it's—if I'm the one, and I don't know who it will be, but whatever course I get, if it's not designed already, yeah. Absolutely I'll have the freedom within those topic bundles and that structure to make those changes. (Interview, 4/6/18)

To Sasha, being able to design the courses was not only a means to aligning her lessons with her teaching philosophy and a way to position herself as an active and useful participant in her department, but also a way to be understood by others as valuable and therefore to be positioned as someone with power. During the interview I was more direct in questioning Sasha about the teacher's return and whether there were any frustrations she had in that sense.

Yes, but I think it's—I've felt better about it since I've actually talked with both [Department Chair] and [teacher] about it. And it is the case that we

plan to use the curriculum for a couple of years. So it's not just like a one and done. It's not going to be done after this year. I am—It is likely going to be me teaching that course next year. So at least it gets to get used again, and then, yeah. I'd say I was very frustrated with that as I was struggling with putting that together and the amount of time that it takes to develop a course and then to have it not be used again is frustrating.

(Interview, 4/6/18)

Even though she was frustrated that her lessons might not be used beyond the current term, there was a sense of relief when she learned that the class she had been designing would indeed be used again, at least in the near future.

In addition to course and department level reflections, Sasha spoke often of her lessons and unit planning and implementation. In trying to keep up with her planning and other teaching related expectations, Sasha was able to continue to analyze her lessons and try to reflect on how to better align these lessons with her own philosophy of learning. Recall, she emphasized student engagement with science practices as they align with the NGSS in an authentic way. For her as a first-year teacher this meant trying to determine what could be considered extraneous and therefore expendable.

I want to find a way to slow down and dig deeper, and I think we even talked about this, that following the NGSS itself, especially for chemistry, there really aren't as many topic bundles for that, and I think that's for a good reason. Because if you do it right, you can dig into that stuff more.

(Interview, 4/2/18)

Based on her reflections, she focused in on a couple of practices: Engaging in scientific discussion and planning investigations (engaging in inquiry and application; Richmond, 2015). For instance, Sasha said: "I would like to see myself moving more towards having students lead discussions and inquiry for students to actually explore phenomenon. (Interview, 4/6/18). Additionally, she said:

> *I think a lot of what I want to focus on in the future, what I would like to be, is somebody that allows students to ask their own questions, explore the answers, collect data on that and then discuss it as a class. So a big part of that is going to be me cutting out a lot of content that I don't need to cover so I can dig into things a little bit more deeply, which is kind of my theme right now... I did try to start doing some of that this term with, say, the gas laws exploration. I didn't just tell them the relationships. I actually had them try to work them out themselves. I think I could've given them more time for that, but I was already heading in that direction this term.* (Interview, 4/6/18)

The example above, is one of many in which she referenced her goals (e.g. designing investigations, exploring phenomena), critically reflected on the implementation, and planned for what she saw as improvement. Eventually her journal entries began to show a pattern of successes as they related to her lessons. For example, she wrote:

> *This week I ran another argument driven inquiry lesson but this time we did food webs. Students had to analyze a complex food web and make a CER that addressed this guiding question: "Which organism would have the biggest impact on the food web if removed?" This was the second time*

we followed this investigation format and I think overall the students showed a large improvement in following the process. They were less freaked out by the amount of freedom that they had in collecting and analyzing data. (Journal, 6/8/18).

In this 8th grade lesson, Sasha was able, by designing the appropriate scaffolding, to provide opportunities for her students to engage in practices. This was the third lesson in a row in which she felt the students were able to be successful in engaging in the lesson in a way that supported its underlying goal, a feature necessary for continued agency.

Sasha entered into a school world that was young even to those who helped established the culture. She recognized the challenges but also the opportunities; she saw a need and a role that needed filling. In her case, this need was one in curriculum design and she positioned herself to bring an expertise in teaching practice as well as, as being an expert in both these areas. Sasha summarized her school thusly:

...you know what I like? Part of it is I like how new the school is. And I like that there is opportunities to find different areas that you can be helpful, different things that you can help with. So that things are still in a lot of ways being figured out. It poses challenges, but I think that there's opportunities to find a good role, find a better way to make things work. And there's something about that that I really, really like. Things aren't already set in stone. (Interview, 4/2/18)

While having the support of those above her was paramount, the system itself also presented challenges to engage in her work. One of these challenges will be described next.

Challenges in this world: A disjointed schedule

The school schedule posed some challenges for Sasha. This challenge arose from the layout of the school and the lack of daily schedule alignment between the middle school and high school. As mentioned, being housed on a community college campus afforded some positive structural features such as laboratory spaces and collaboration to vertically align curriculum and support students gaining a higher education. However, being a 6-12 public charter school using the college's facilities, teachers were not always provided with the resources they needed. For instance, Sasha wrote: "Some of us had (and still have) a class scheduled in two rooms meaning we need to switch rooms in the middle of the class." (Journal, 1/20/18). Through a journal comment, I asked Sasha to explain what she meant. In a response comment to my query she said:

> *There were not enough rooms given to [the school] from [the community college] in time this year. Our room schedules were pieced together haphazardly at the last minute. Some [school] teachers had the first part of a class in one room and then needed to relocate to another space for the second half of their class because these were the only times that space was available to them.* (Journal comment, 3/20/18)

Not only were the middle school and high school students being spread over the campus, but the lessons were being interrupted to relocate, greatly disrupting and reducing learning time. Sasha implied with in this journal entry that this was taken care of eventually and did not mention it beyond this instance.

A second scheduling challenge had to do with the staggered schedule of the middle school and the high school breaks. Each school had the same overall hours, but the extended vacation breaks (summer, spring, etc.) were not identical. I asked Sasha and her mentor why the

school would do this, and the mentor responded in an email saying they did this "…because the two principles [sic] were not working together but were instead trying to cater to their students and faculty" (email correspondence, 1/22/19). The schedules have since been aligned -- Sasha said "… I complained a lot when they almost didn't sync the calendar again." (text message, 1/21/19).

While she was not the only teacher with classes in both the middle and high school, this type of schedule did not seem to be the norm for most of the teachers in the school. Since the time off for each school did not align, she worked more than most other teachers.

> *Since I am teaching [middle school] and [high school] this term I don't have the same long breaks. The schedules for the two do not line up and [middle school] went back to school a week earlier than [high school]. I am a little bummed about this schedule difference, but I am trying to make the best of this.* (Journal, 1/11/18)

The lack of alignment between two parts of the same school is unorthodox within a district, let alone within a singular "building". Regardless of the reason, teaching for both parts of the school posed significant challenges related to her lesson planning as described above.

> *That's a big thing that I've been considering, is how am I going to have time to plan the next curriculum when I'm still in this semester planning this curriculum? You know, every semester with no time off, I have something new to develop, something that's not only new to me but is new as a curriculum style, like—well, there's a lot out there on modeling, but a lot of these case studies and those sorts of courses that I've been designing are somewhat novel, and they're not things that I can easily just pluck off*

the internet and then just take with me the next day, you know? (Interview, 4/2/18)

While expecting to find a case study-based unit that was ready made on the internet is not likely and not the practice of an effective teacher, her point was that she could not just find these lessons and thus she was required to put in significant time to develop them.

As the terms progressed, the challenge of this schedule became more prominent in Sasha's reflections. She elaborated: "…if I have time off, I barely have time off to relax. It's really time-off to go through my paperwork or my data, or work on my [masters] classes, …you know—it's not relaxing time, you know?" (Interview, 4/2/18). While Sasha was encouraged to take time off to make up for the misaligned high school / middle school breaks, she was also chastised for doing so, even though when she did take time off, she used it to catch up on grading and planning.

> *I have half as much planning as most people, and I have—I don't have all the breaks that the [high school] teachers get, either. And apparently, I am supposed to take those days off, the days that I miss. I know I wasn't taking days off for a reason. Because in the beginning of the year we were so short on substitutes that they were asking us to not take days off because they were having a hard time covering all the classes. So, I'm like what is it? Do you want me to take days off because I need them, or do you not want me to take days off because you don't have enough subs?* (Interview, 4/6/18)

This confluence of mixed schedules and mixed expectations added another layer to the challenges Sasha's was facing with developing curriculum.

During the same interview Sasha wrestled with knowing the school wanted to support her and to ensure that she is able to do her job fully, but that it was also standing in the way of letting her do what she understood as necessary to meet their own goals. She stated:"…they want you to not get burned out and take days off and, yes, they want you to not take a lot of days off because they don't have a lot of substitutes…"(Interview, 4/6/18). The school was asking her to do two things that seemed to contradict one another.

Further complicating this situation was the need to substitute for fellow teachers, which further precluded Sasha's ability to complete her own work. Sasha reported:

> *Last week felt very busy. We have been having a difficult time getting subs so lately many of us have been using our prep time to sub for other teachers. So last week if I was not meeting with an independent study student or in some other meeting then I was subbing for another teacher.* (Journal, 11/12/17)

Eventually, Sasha did begin to talk about how she could utilize her time off to engage in self-care and try to keep up with her professional responsibilities.

> *I had been avoiding taking days off, but I recently learned that I am expected to use extra vacation days for this since I teach middle and high school and do not have any full spring break weeks. I am planning to utilize this to take more days off in the future. Doing this has really helped me to get the extra rest/work days that I need to get caught up on sleep and work.* (Journal, 4/8/18)

Within two weeks she was able to implement her plan by taking some time off. But taking one day off only temporarily mitigated her stress and she continued to look ahead to the mounting work she needed to complete as it relates to curriculum development.

> *Even with this day off… I feel like the only way I can complete everything is if I start working through the night on weekends (which I don't know if I have the energy for right now) … Ugh. I don't get 6 weeks off for summer. [middle school] gets out early for the summer because of their lack of breaks over the year but [high school] had extra breaks through the year their schedule runs into August. I am kind of freaking out.* (Journal, 4/20/18)

The expectations that Sasha should take time off to account for the two school's schedules implies a lack of consideration by the administration. As a teacher, I recognize the extra work that accompanies planning for a substitute. Additionally, the same administration also expected the teachers to *not* take days off and instead be available to help substitute as needed. Regardless, if her own work tasks, such as lab setup, grading, or preparing for class were not being met, they must be completed at another time.

Sasha sought out an opportunity to participate in a professional development training on her own. This training required her to take significant time off, but she was supported by her administration and department chair in doing so.

> *This week I was preparing to be gone from school for the next two weeks. I am attending the modeling workshop… and this is actually running for a surprise 3rd week during the 4th of July weekend. Part of me is excited about the extra training and another part of me is a little bummed that I*

will not have my 4th of July week off. It seems like around every corner I am losing any bit of time off that I am supposed to have. (Journal, 6/5/18)

Even though Sasha was "freaking out" because her time to work on curriculum planning and prepare for teaching was overly controlled by the school, she prioritized an opportunity to engage in professional development that aligned with her view of good teaching.

During a post-observation conversation in March 2018, Sasha and I discussed curricula that could support her students in engaging in science in authentic ways but would not require having to spend hours planning, adding additional stress. Early in our conversation she stated: "I'm already not great with my time and planning curriculum. I will be the first to say that. It takes me a long time to feel comfortable where I'm at with planning…" (Debrief, 3/26/18). She mentioned needing a resource to support her chemistry curriculum redesign. I shared that there was also a modeling chemistry curriculum and she was eager to learn more. She had experienced modeling instruction (e.g., Brewe, 2008) as a teaching method during her preservice methods course and saw this as a valuable way to have student engage in making sense of the content that was not direct instruction. She stated: "I would really love to have less that I'm focused on that I can actually spend the time asking them questions and letting them get into it, and I just feel like I'm missing that right now." (Debrief, 3/26/18). She saw modeling as a way to get help planning curriculum and as something that might potentially reduce the time spent on planning. Importantly, modeling aligns with her values as a teacher – supporting students building science knowledge rather than being told through direct instruction. In a later interview the idea had taken hold and she was beginning to see this way of teaching as a solution to her challenges.

…by actually taking the content in a way that is applied to their lives and that they can in the rest of their classes, and they can use to move on in the

sciences, or say even be inspired to pursue careers in the sciences—that's all dependent on me developing as a teacher as well, so having the time to be reflective and make changes to my assessments, having the time to actually dig into different types of curriculum. Say, attending the modeling workshop that's in the summer, so making sure I take the time to do those sorts of things, I think is huge. (Interview, 4/2/18)

Earlier in the year, Sasha mentioned her department chair was fully supportive of her desire to learn more and try new things, she stated: "I wouldn't say that I always agree with everything he says or does but we have a pretty open dialogue and he actively encourages constructive criticism as a two-way street." (Journal, 10/22/17). While he had his own ideas about how he thought learning happened and therefore how teaching should be done, he also supported Sasha's desire to attend the modeling workshop.

...he is more open to modeling. But we were talking about that today, and I'm not sure we're in the same place about the planning for the physics class yet...But he sounds like he's open to it. But I still, yeah, it's still not solidified. (Interview, 4/2/18)

The support the department chair gave for Sasha to attend this workshop and plan the physics curriculum represents more than a senior teacher giving his blessing to a novice teacher pursuing her own professional development. Even though he was not convinced of the value of a modeling approach to teaching science, if modeling was to become the new expectation in teaching physics, a shift in the culture regarding teaching physics would occur. The department chair would be expected to participate and teach in this way, much like with the chemistry case

study units. A willingness to learn more about modeling instruction shows a level of support for Sasha and a recognition of her increased position in the school, by someone in power.

Sasha came into a school world that focused on not only developing curriculum but also on aligning that curriculum to support the school mission of supporting students in higher education. The school culture supported teacher goal setting (e.g.: 'with administration we're supposed to set goals for improvement'; interview, 4/2/18) and the expectation for Sasha seemed to be developing curriculum that was shared within a department but also aligned vertically with the community college. The school community aligned well with these goals and there seemed to be a shared goal, at least with Sasha and her department chair, in developing high quality curricular materials.

There were challenges associated with the school culture that may have had a more direct impact on those like Sasha who had less power and were therefore subject to staggered schedules between the middle school and high school. There was a mandate from the administration to make up this lost time by taking time off, but there was also the expectation that teachers would be available to fill in when teachers were absent. These expectations from those in power were in conflict with one another and put those like Sasha in the awkward situation of having to negotiate the "correct" action. As a new teacher that was often not taking time off but rather working.

Despite this of the work / take-days-off contradiction, Sasha was supported by her department chair and her administration to develop curriculum and attend professional development that aligned with her goals as a teacher. The results of the professional development workshop she attended in the summer are pending in regard to changes she made to her teaching practices and how those practices will be viewed by her department chair and administration.

Regardless, the trust she was afforded to do this as well as the changes that may result because of this opportunity necessitate a shift in expectations for others and positioned Sasha as one with authority. She would be the resident "expert" in modeling and others would be expected to utilize her expertise.

> *There's never enough time, so me developing and becoming a better teacher, being able to work with my students in a differentiated way and making sure I'm meeting my goals of helping students to connect their science with their everyday lives, that's really, really huge.* (Interview, 4/2/18)

Even when challenged to create a course, to adhere to contradictory attendance expectations, Sasha maintained her professional values. She sought an outside opportunity to grow professionally for the sake of what she felt best served her students' needs, even when that learning opportunity required her to take time away from school.

Cross-case Analysis

These three teachers entered into worlds that had relatively established cultures. There were expectations of them coming into this space and goals set forth by the administration that helped dictate what mediated those expectations. The community of teachers and the administration generally worked in a way to aligned with these expectations, and the first-year teachers were tasked with finding a way to make themselves part of the storyline of the culture of the figured world. Regarding the cultures, the administrators lead the charge in defining the priorities of the schools and in some cases the expected actions of the faculty in service of achieving these goals. The teaching staff for the most part did their part to provide supports to the new teachers by providing access to materials and supports when challenged. However, in

some cases the supports pushed against the administrative mandates for the sake of doing what the veteran teachers felt was more important at that point in time. An example of this took place for Melody, whose school prioritized graduation rates and in service of this, a focus on the pre-post unit assessments within the courses. In this moment she valued authentic growth, but the veterans suggested intentionally making the pretest more complicated than the posttest to ensure the appearance of growth taking place and to suggest students were achieving. They did this in service of their teaching evaluation scores which were in part based on student scores.

While other examples existed for each teacher in the study, the underlying challenge for all of them as new teachers, there are multiple figured worlds they must navigate. Having power and privilege within one world, such as the science department or a school committee, does not predict power and privilege in another world. Being new generally translates into low levels of power and privilege in multiple worlds. Navigating interactions with the overlapping communities within these means having to be thoughtful and often strategic about the actions they choose to engage in because working in the service of the goals of one world has the potential to push one out of alignment with the goals of another. In turn, this impacts the acquisition of power and privilege in both worlds. An example of this was seen when Melody received the advice from other teachers of making her administration mandated pre-test much harder than necessary to help show positive change in learning. This presented an ethical dilemma for Melody as she was uncomfortable with manipulating the scores in this way and had positioned herself in opposition of the pre/post-test practice due to the impact it had on her teaching evaluation score. Placed in a similar situation, James was required to give common unit assessments with the other teachers in his subject area. He had concerns regarding the format of the assessments, and he indicated that the lesson plans that were used to prepare for these tests

were shared between teachers. This caused James the greatest challenge in regard to navigating the priorities of multiple groups because he needed help planning, did not feel the assessments were well aligned with his view of good teaching, yet he was required to give them.

I drew on a situated perspective of learning (Lave & Wenger, 1991), that of learning as a change in participation in pedagogical activities (Stroupe & Gotwals, 2018), and learning within figured worlds as described by Rubin (2007). The three teachers here entered into a figured world, were subject to the affordances and limitations of the space and engaged in actions that were driven by the culture of their particular figured worlds. Each teacher came to his or her first year of teaching from the same cohort and preparation program. All expressed similar desires to have students engage with science in a meaningful way and to be student-centered in their approach to instruction. While Rubin's study focuses on student learning in relation to social positions, similar comparisons can be made with respect to the teachers in this study. Each teacher was positioned as a novice within her or his figured worlds participated in the community in different ways. James' positioning as a novice led him to be left to his own devices. The lack of support from the various teachers around him resulted in his adoption of teaching materials and therefore ways of teaching that pushed against his view of good teaching. Similarly, Melody was positioned as too sensitive and ineffective at managing student behaviors. Being positioned in this way resulted in her pulling away from the community and focusing primarily on tolerance for diversity and science learning secondarily. Finally, Sasha, having completed her internship in this school, came into her first year with her department chair and administration having an established level of confidence in her ability to work and to be a member of the school community. She used her already established relationship to find a way to be positioned as an expert in a way that aligned with the priorities of the school. Through this

positioning, she was able to engage in pedagogical activities that aligned with the culture of the school while also maintaining her desire, and furthermore continuing to develop skills, aligned with her views of authentic, student-centered engagement with science content.

The following figures (5.2, 5.3, and 5.4) represent power as perceived by the participant relative to other significant actors in their FW (the larger the circle, the more the power) and the extent of values alignment, also as perceived by the participant (where alignment is indicated by identical colors). Overlap of circles and color hue shows alignment of values or, at least, willingness to act in an aligned way.

Figure 5.1. James' perceived power within his figured world.

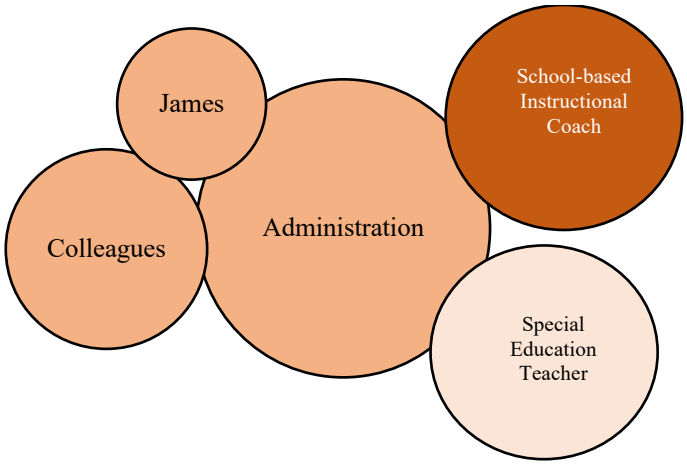


Figure 5.2. Melody's perceived power within her figured world.

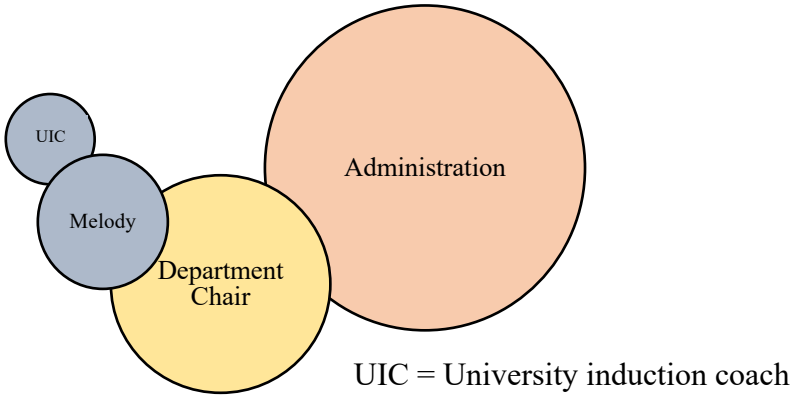
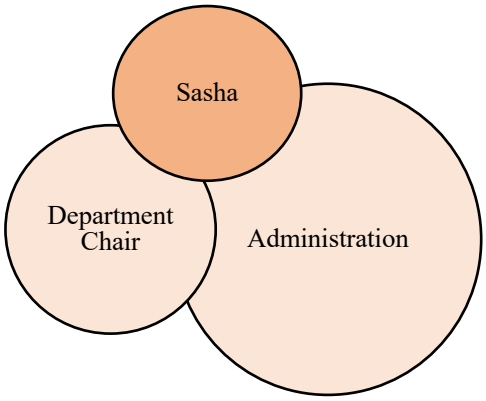


Figure 5.3. Sasha's perceived power within her figured world.



DISCUSSION

In this dissertation I made use of a Figured Worlds (FW; Holland, et al., 1998) lens to investigate the ways in which first- year teachers worked to make their way through their school worlds. This lens focuses on an individual's perception of their place in a world which is made up of the culture of that world, the community of participants in that world, the artifacts through which the culture is realized, and the power and privilege of those participating in the world (Figure 5.4). It is through this perception of place as it relates to the features of a figured world that one's professional identity, itself shaped by one's values and positioning which are in place at a particular time and in a particular place, can be realized.

My research questions for this study were the following:

- In what ways are the teaching practices of first-year science teachers mediated by the figured worlds within the school in which they are working?
- What actions do first year teachers take to support the development of their professional identities?

In the following section I address each of these research questions by drawing on the features of the FW framework in relation to the respective worlds of each teacher. Additionally, I will discuss the challenges the teachers face in their work and how they were connected to the literature and their respective professional identities. Next, I draw on these worlds to more explicitly acknowledge the role that FW play in professional identities and how these worlds mediated how the actions the teachers chose to make in service of these professional identities.

Drawing connections between the pitfalls of teaching and figured worlds

How best to prepare teachers for entering a classroom that may or may not reflect their time as a student or their teacher preparation field experiences is a constant struggle for all

teacher preparation programs. Over thirty years ago, Feiman-Nemser and Buchanan (1983) proposed the idea that practice-based education may be a way of addressing the challenge of the disconnect between what is taught in preservice education and what is expected in the schools, and three pitfalls associated within. While not a focus of this study, anecdotally, all three participants in this study may have experienced the pitfalls to a different degree at different times. These teacher's experiences can be used to examine each pitfall as a confirmation of the difficulties that teachers more broadly continue to encounter. To demonstrate the pitfalls as challenges experienced and responded to by beginning teachers such as those in my study, I provide examples of how each of my study's participants addressed a particular pitfall in their first year of teaching. I reemphasize here that "worlds" as described by Feiman-Nemser and Buchanan are not the same "worlds" of Holland and colleagues. Regardless, both speak of the expectations put forth by schools and those in power on those early in their teaching careers and the impact those expectations have on the actions the novice teachers choose to engage in. The navigation through these expectations is the focus of this study and a connection between the two views of "worlds".

The first pitfall is one where teachers make unsubstantiated connections between the classrooms they were in as students to those that they are teaching in. This pitfall may be most clearly illustrated by Melody for whom this was a literal experience. She ended up teaching in the exact rooms in which she was a high school student with many of the same teachers. And she was initially surprised by what she saw as a shift in the attitudes of the students compared to what she was expecting based on her experiences as a student.

The second pitfall highlights the potentially conflicting purposes of the preparation program and the classroom in which the teacher is working. Sasha's case illustrates this pitfall

because she aligned herself with the practices-based approach to teaching highlighted in the preparation program and worked to take her professional growth beyond what it provided to learn more. Specifically, she found herself challenged by her department chair who disagreed with the philosophy of modeling instruction. Yet, Sasha was able to find a way to bring what she valued in her preparation program to her school by leveraging her privilege within the school figured world and by using her agency to seek out professional learning opportunities related to modeling instruction. She was then able to massage both what she valued from her preservice education and what she valued about teaching in her school to fit; a very direct example of the second pitfall.

The third pitfall, school norms established to praise certain actions based on the behaviors of students, made it challenging for James. One administrator valued quiet and compliance and another valued some controlled chaos if that meant students are actively engaged, resulting in mixed expectations. While the need to be perceived as capable through the administration's eyes in terms of teacher evaluations was prominent for all the teachers, this posed a unique challenge for James in relation to how the feedback he received from various people in positions of power was not always aligned with one another.

Practice-based preparation did not prevent the teachers in this study from experiencing the pitfalls as described by Feiman-Nemser and Buchanan (1983), but it did provide a foundation that supported acting in a way that was aligned with their view of good teaching and thus supporting the continued development of their professional identity. In these cases, the teachers' identities are reflected by actions which included the addition of inquiry, modeling, and inclusion. James continues to work to incorporate more inquiry into his lesson and to change the common assessments to be less focused on rote memorization. Sasha went to a modeling

instruction workshop on her own time and has brought this style of teaching to her physics classes. As a result, others within her community are taking note of what the students are able to do with this way of teaching. Melody's reflections did not focus on high-leverage practice-based teaching as much as the other two, but she did spotlight the equity and inclusion principles that were foundational to her preparation program.

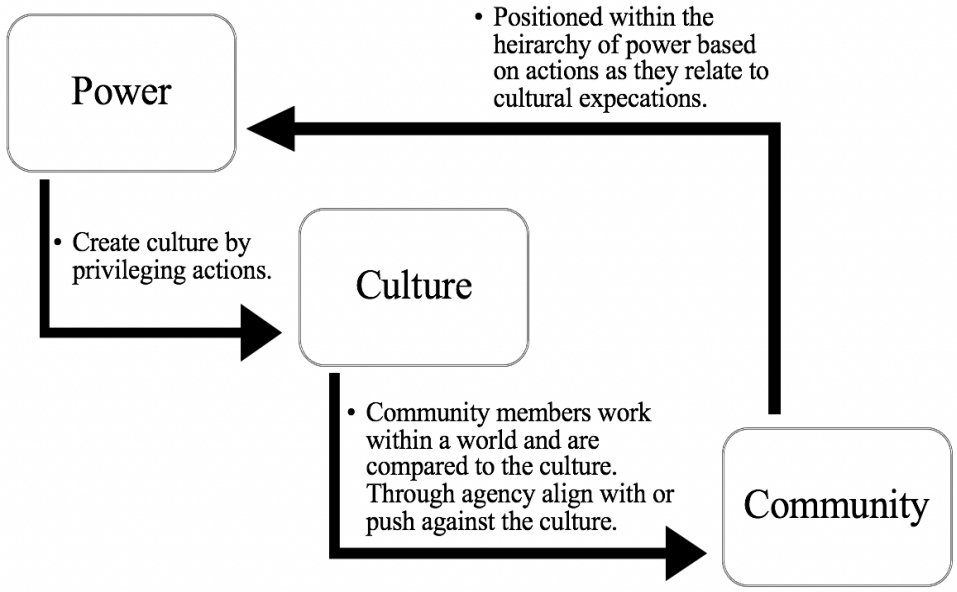
The pitfalls of teaching were unavoidable for these first-year teachers but not insurmountable. Through agency, that was the result of actions aligned with their professional identities, which was in part developed while in their preparation program, they were able to create opportunities to address these pitfalls and move forward in one way or another. While identity played a key role in the actions the teachers took, these actions were also mediated by the world in which they were acting. I argue that the features of the figured worlds perceived by these teachers were highly influential in both perpetuating and helping to alleviate the challenges they faced. As first year teachers, they entered into a world with an established hierarchy of people and an established culture that for some was in flux as priorities of the administration shifted. In addition to the pressures of learning how to teach, they had to learn what was expected of them within the FW. Entering a new world, each teacher's professional identity was reevaluated, aspects were analyzed for compatibility within the world, and adjustments made. Sometimes these adjustments resulted in a professional identity that was more aligned with the world and the teacher felt a sense of success as a result of actions made and a sense of power gained. Other times, the resulting professional identity was out of alignment with the world in which it was being realized and the teachers felt a sense of failure which resulted in feeling a loss of power and privilege.

Additionally, by drawing on a FW framework a vision of the school setting, the people active and influential in that setting, and the expectations of participants in that setting through the eyes of the teacher were revealed. While other frameworks allow researchers access to various actors within a school world, FW permitted me to view this world and the salient features within through the eyes of three individuals and to create narratives as they navigated entering into their respective worlds for the first time.

Features of the figured worlds

I approached this study with the view that each of the components of a figured world (culture, community, artifacts, and power) held equal claim to defining the figured world (Figure 1.4; Holland, et al., 1998). This assumption was based on my interpretation of Holland and colleagues' descriptions of the features and the studies through which they highlight these features. As a result of careful analysis of the data, my interpretation of the importance of the components of the figured worlds model has shifted. I have come to place a higher value on power and privilege as being absolutely necessary in order to enact and form culture, and as a place of authority on which the community bases its actions (Figure 5.1). The interpretation of the data has led me to remove artifacts from the model. While they are understandably important in a figured world and likely used by these teachers, they were not discussed within the teacher's stories and therefore not a primary component of the analysis of their worlds. Furthermore, the nature of the data collected were less likely to reveal artifacts as a salient feature for figured worlds. Regardless, the strength of this new model is in its ability to equally explain the behaviors of three very different teachers working in three very different worlds.

Figure 6.1. Amended model of identity development through a figured worlds lens.



Culture in a figured world includes the expected ways of acting, the tools or artifacts through which these expectations are met and is in part defined by those with more power. These expectations or cultural ways of acting in the figured worlds of schools were important to the first-year teachers for a variety of reasons. They knew there were expectations placed on how they acted, and these actions were monitored by school mentors and administrators. One example of this was when James' school-assigned mentor focused on whiteboard protocol. However, they were also positioned within communities with teachers who differed in terms of how they approached and sometimes even pushed against administrative priorities (as in the case of Melody). Each teacher also experienced internal conflict around, for example, fulfilling the expectations of the administration, and aligning (or not) with their community of peers, which all presented additional challenges to navigating the world and gaining power.

Power and privilege are acquired or lost when a teacher interprets her position within the world based on the outcome of actions she chooses to make and, as a result, how she is

positioned by others higher in the hierarchy. This positioning is related to the teacher's interpretation of the community's response to the actions in which the teacher chooses to engage in. The teachers do this by comparing their actions as they relate to the standard script by which the world is defined, or the culture of the figured world. The teachers in this study were positioned as having more or less power based on the actions they chose to engage in. These actions were taken in service of what they felt was aligned with their values. If these actions also were in alignment with the culture as established by those in power, they were seen as capable by the same powerful people. For example, James participated in faculty meetings and organized his classroom and routines to reflect the cultural expectations of the administration. In response, the administrators went out of their way to provide me when I visited the school with a glowing review of James' skill, likeability, and the administrators' admiration for him. In contrast, Melody valued student deep learning of science and respect regarding diversity, and these were not a priority of the administration and not aligned with their expectations. She was positioned and labeled as "sensitive" and in one case talked about by administration in what they thought was behind her back (though she unknowingly overheard them) in a way to suggest she was ineffective at classroom management. These examples support the work of Moore (2008) who found that those with power were able to be more agentic and this feeling of agency was tempered in novice teachers who felt low levels of power outside of their classrooms. I argue with my analyses that in fact, agentic actions, which also align with the norms of the world, provide teachers with additional access to power. Once teachers gain this power, they are then positioned to be able to make changes to the world. These changes help mold the world so that the values of the teacher and the values of the world are shared, providing the foundation on which the capacity for leadership is built.

Connecting figured worlds to professional identity

Teachers bring values with them into a figured world and thus professional identity is refined based on the experiences in that world. When teachers' experiences in these figured worlds support the values they bring to their teaching, those values are reinforced and in conjunction with positioning, the identity is "confirmed" as aligned with those of the school. Melody, for example, was supported and protected as an intern within a space that did not tolerate direct racism, but this was not the case in her new world. Rather, her attempts to curb intolerant behavior and to seek assistance from those in power was met with resistance, and her efforts to create an inclusive classroom environment backfired as she became the target of students' racially charged comments. In contrast, James came from the same internship setting as Melody but prioritized different aspects of teaching for scientific understanding (e.g., planning for inquiry for Melody vs assessing understanding in meaningful ways for James) and therefore received different supports from the internship mentor. He then entered into a figured world in which some people in power (e.g., a veteran special education teacher) did not provide the supports he needed and in fact actively worked to take away power by going to the administration with complaints. On the other hand, the administration, coaches, and fellow science teachers actively supported him. Regardless of the mixed levels of support, James was able to take action to support what he most valued, moving away, for example, from the widely used multiple-choice assessments to those that he felt better assessed student understanding. Lastly, Sasha was with a mentor who later became her department chair and had strong views of how science should be taught. However, he also allowed her the freedom to explore her own ways of teaching. This support, which came from a place of power, allowed her to act in ways that aligned with her values; for example, he covered her classes while she attended a

professional development workshop to learn more about modeling instruction, which she hoped to use as a model for her own teaching. Ultimately, the department chair and Sasha shared the same basic value in having the students engage scientific work for the purpose of understanding content. My interpretation of the data does not suggest this was the case for either James or Melody. Literature often references the need to support teachers' instructional practices (i.e., Luft & Patterson, 2002), but fewer studies mention the need for teachers' values to be supported in the workplace. The cases in this dissertation study illustrate the importance of this for supporting the development of agency and a productive professional identity.

Connecting this study to educational research with figured worlds

As was previously mentioned, in education research, FW has primarily been used to investigate learner or student identity development. These have included, for example, what makes a 'good student' in urban high schools (Rubin, 2007), middle school science learner identities in multiple worlds (Carlone, Scott, & Lowder, 2014), and development of a culture of "success" in a bilingual urban high school (Michael, Andrade, & Bartlett, 2007). Less studied has been the identities of teachers in the worlds in which they are working. The few existing studies have included a focus on teachers as Chicana/o activists (Urietta, 2007), pre-service teachers in a preparation FW (Horn, Nolen, Ward, & Campbell, 2008), and elementary teachers in a FW of accountability (Sloan, 2006). What these studies have done is to bring the lens of FW to education research and begin to expose the individuals needs of the teachers within their worlds by grounding those needs in teachers' perspectives of their world and of their own values. However, while each of these studies move identity research forward, they all have very specific FW in which they are situating themselves and are generally researcher driven (Chicana/o activism, accountability, etc.). This dissertation is unique in that the teacher's narratives dictated

how they perceived the worlds of which they were a part. Additionally, I did not limit the scale of the world (e.g. accountability) nor focus on specific identities (e.g. Chicano/a activist), but rather situated the study within the school in which beginning science teachers were working and how they positioned and were positioned within them. This study adds to the literature by highlighting the teacher's primary values and how those values are positioned in relation to others to help define their identities. Through a FW lens, I was able to explore these identities and place them relative to other actors and investigate how the identities related to and were impacted by the community and culture in which they worked.

Developing a professional identity within figured worlds

Melody, James, and Sasha entered into their individual figured worlds, as Holland, et al. (1998) described, figuring how they fit in by participating in the world. They developed, or rather reshaped, their professional identity by positioning themselves as having more or less power and therefore seeing themselves as actors with influence resulting in change within the world. Along these lines power and privilege were only gained when the actions they choose to engage in were acknowledged by others, especially those with higher levels of power. It was this recognition that provided the teachers with support that endorsed what they were doing and validated the aspects of their identity aligned with the actions (Carlone and Johnson, 2007). The validation provided a sense of success regarding the agentic actions they engaged in which further compelled new instances of agency; an aspect of privilege that is gained with power.

These three teachers came into their teaching worlds with developing and fluid professional identities (Richmond, 2015). They entered these worlds valuing particular aspects of teaching and positioned themselves as certain kinds of teacher as result of their experiences in their certification program. All of these features of their professional identities followed them

into their first year of teaching. In these new worlds they evaluated their values in relation to the priorities of the school set forth by the established culture. They also positioned themselves and were positioned relative to other professionals within that world and to actions privileged by the culture and communities. Melody valued inclusion as a priority, this became more so as the students pushed against this value. While positioned in parallel during teacher preparation, this shifted to one of being positioned in opposition of the new school. Her options then became to change her value, act in a way to attempt to change her setting or leave for a new school that better aligned with and supported her professional identity. James, on the other hand, had a primary value of planning for student engagement. His vision of how he wanted to accomplish this was less clear, but he was steadfast in his desire to plan with this goal in mind. He was positioned in parallel with his school by those in power who supported the activities he did in his classroom and the level of compliance they often afforded him (a separate priority of the administration). Finally, from the very beginning of her preparation program, Sasha valued the teaching practices and the associated goal of supporting students in generating scientific knowledge. Her school world positioned her as someone with power to make changes that aligned with the overall goal of developing curriculum. She was able to align with the school by creating lessons that aligned with her view of good teaching (valuing high-leverage practices and wanting to support student engagement), and by seeking professional development that supported teaching in a way aligned with these values.

The narratives of the teachers allowed me to access the features of a figured world--culture, community, artifacts, and power/privilege—within the schools the teachers of this study were entering in a way that favored the view of that world from the teacher's perspective. The individual needs of teachers are driven by their professional identities (see Richmond, 2015)

which, while fluid, influence actions teachers take and greatly are influenced by those with power and privilege within the FW. This view of identity remains fluid and responsive to the environment; additionally, the teacher positions themselves in parallel or in opposition to cultural expectations of the community as determined by those in power. Should their values align with those of the community, as was the case with Sasha and to some extent James, power is gained, and agency is supported as an outcome of the actions they choose to engage in. Should their values not align, power and privilege are decreased, and a change in value must take place create better alignment. Should this compromise not be attainable, the teacher may find themselves seeking a world that aligns with their views of teaching as was seen with Melody.

CONCLUSION

This section will begin with a discussion of general conclusions followed by an acknowledgement of the limitations of this study and then a summary of directions this research could take moving forward. Finally, implications for the field of teacher education are described.

The figured worlds in which these teachers worked and were finding their way were defined by how the teachers discussed the culture or the expected way of doing work within the world, the artifacts or tools including discourse moves through which the culture is realized, the communities or groups of people that share a view of the world and a collection of practices, and the power and privilege or hierarchy/rank people are recognized as having by those in power as it relates to what is expected by the culture. By utilizing the teacher's narratives as related to their own interpretations of their place within these respective worlds, I explored how they, through in/action, tried to align with or push against the culture of that world. The cultures of the schools, the communities of teachers, and the power and privilege afforded to the participants from those perceived as authority figures impacted what actions were taken and how they were positioned within the hierarchy of the school world.

All three participants had been members of the same teacher preparation cohort, with James and Melody even having the same internship mentor at the same time. While there is evidence that suggests the formal preparation opportunities including course work and field experiences played a role, at least in part, in forming their professional identities, life experiences before and after these programmatic ones were noteworthy. Melody chose her first job as a result of many factors that included fulfilling fellowship requirements, returning to the school she attended, and being near family, among others. Being Hmong, Melody's family and her place within was important. Living in the home of her parents, for financial and cultural reasons, likely

played a role in where she looked for employment as well. Additionally, Melody did her undergraduate studies at a large Midwest university and completed her internship in a large urban setting, both of which offered a level of support and a relatively high immigrant population that was not replicated when she moved back home. James, a white male came to his school with a wealth of education-based leadership experience such as being an administrator at an outdoor education facility. And while he interned in a large urban high school, he lived a more rural life which included hunting and management of his family's land. Finally, Sasha was provided the chance to stay on at the school she interned in because she was highly valued by the administration and department chair who also was her mentor and a past fellow from the same university. Not only did she seek employment in an urban school district, but she also lived in a large (but separate) urban setting.

The teaching setting for each fellow varied from predominantly white, small rural for Melody to large urban for James. to small urban public charter for Sasha. Unsurprisingly, the priority of the schools while overlapping in some ways (i.e., student achievement) varied in how the schools worked to address it. Melody's administration required pre- and posttests to show growth and learning while James' school chose to focus on common end of the unit assessments and a standardized way of organizing daily objectives and other routines. Lastly, Sasha's school heavily focused on developing curriculum that aligned with the educational pathways developed to support students transition to higher education.

These three teachers entered into a figured world that had goals established by the administration. They did not come into a space knowing what actions were expected of them but rather they had to learn through social interaction with more senior members of the faculty, The community did not always agree on how best to achieve the goals, though sometimes specific

shared practices were established (e.g. James: the Kellogg Way and established common assessments). Other times, the community did not necessarily have established practices, but the novice teacher engaged in practices with what was established and amended them to fit their individual needs. Such as was the case with Sasha and the physics curriculum. She came into a department with a set way of teaching chemistry, through case study, and learned from this how curriculum was aligned with the community college and the state standards. She was able to then bring in her own view of good teaching when developing new physics curriculum without pushing against the expectations of the community in overtly challenging ways. These examples help support the idea that learning is both can be cultural and social (as was described by Lave and Wenger, (1991) in describing situated learning without requiring necessitating alignment with the shared practices of a community of practice.

The interpretation of the data suggests that acquiring a sense of power and privilege within the world facilitated actions in service of the teacher's values and therefore supported the development of their professional identities. Melody was never able to gain power and in fact may have left the year with less than she entered. Her inability to successfully maintain authority in her classroom in the face of student-initiated racism in her classroom and the actions of others to not only fail to support what she values but to actively challenge these values and subverted her ability to move up in the hierarchy. Ultimately, she left the school to go to one that more aligned with those in which she had positive experiences related to inclusivity. James and Sasha were both able to find a space in which they were positioned by themselves and other to gain power and privilege. James came to his school with socially obtained power, or power gained from being positioned as one with power by those with whom he interacted, as well as past experiences that gave him a leg up in acting in a way that supported his professional growth.

Sasha came to her school when curriculum development was in progress. This timing worked to her advantage because her primary content area at this school, physics, was last to be written. She came in with ideas for how she would like to see physics taught, and even though her department chair/mentor had philosophical differences in teaching, he actively supported her exploration and implementation of modeling instruction. While working on physics gave her a sense of ownership with respect to the curriculum, more autonomy in her department and therefore more power. She was able to establish herself as a valued member of the science team and authority on a way of teaching. This position was also challenged halfway through the year when a more senior teacher, who at the time was considered the middle school science lead, that had left for a different school returned and reestablished her position as lead. In brief, the veteran's power and privilege eclipsed that of Sasha. Even though Sasha had been working on 8th grade science curriculum in addition to physics, the work she had done in middle school was replaced by that of the veteran resulting in a slight loss of power and therefore increased frustration at her new position. Fortunately, she had physics on which to build her professional identity and was positioned as a valuable member of the staff thus increasing her power and privilege due to what she was accomplishing.

Limitations of findings

Figured Worlds are complex; as is the worlds of teaching. Teachers navigate these complex worlds and must make decisions about themselves as educators as well as the development of their practices. By definition FW are a person's interpretation of their place within a world and being the narrative of an individual means the world itself is defined in very different ways depending on the story being told. My attempt to interpret the teacher's view of their world not only challenged my ability to take into consideration my own lens of

interpretation but also show me that defining a world is not a straightforward task. Within schools there are multiple cultures and multiple communities, each with their own sets of expectations, their own privileged actions, and their own people in power. These aspects of a figured world also overlap where, for example, while a science department may have veteran teachers and other people in power, and shared ways of behaving within that department, those ways of being may not be reciprocated by other departments or even valued quite as highly at the administrative level. This leads to teachers not only having to navigate membership within the school but also within the other communities that are housed within or influenced by larger structured worlds such as the central office. Because teacher's narratives were revealing of their perceptions, as is what FW is grounded in, for this study, I was conscious in my work to allow the teachers to bound and define their own worlds. This was seen when Sasha focused her narratives and conversations on curriculum planning, department level implication of the plans, and her individual lessons. In comparison, Melody and James spoke less of their individual lessons and instead focused on their perceived place in the school.

These findings, as with all case studies, are limited in their ability to draw broad conclusions and generalizations. While each teacher participated for a full school year, this time frame may not be suitably sufficient to establish identities more deeply. Again, acknowledging the state of continual flux that identities are in, this may be particularly true for those teachers that are brand new to a school and a profession more broadly. Further systematic exploration of these teachers' experiences beyond their first year of teaching may bring new insights into what aspects of the world they see as more critical to the actions they choose to engage in. Getting their feet under them, becoming a member of the community, and having a better grasp of what it means to not only be a science teacher, but a science teacher in their particular space may

allow for greater nuances about how we view them and about how they view themselves as professionals. As an example, Sasha was agentic and focused in her desire and ability to attend the modeling workshop to learn a way of teaching that did not align with her department chair's view of good teaching.

Future directions

Continued investigation would follow these teachers as they become established within their worlds. Further exploration would allow us to connect the modeling workshop experience to Sasha's future teaching and as Holland and colleague describe, determine whether she is able to rewrite the world to make the world's values more closely mirror her own. Similarly, following Melody from her first-year world into a new school (and a new world) that she hoped would better support her identity may provide insights into interpretations of the spaces she inhabits, as well as the choices she makes with regard to teaching practices. Based on her narratives, the lack of support in service of what appeared to be her primary value around equity and inclusion was almost crippling to her practices as a teacher. I would further explore whether being in a new world allowed her primary value and therefore her identity to shift to one that focused on the progressive practices of her preparation program, or whether she was left trying to establish herself as a social justice advocate for her students in a way that prevented her from incorporating this cause with her content instruction.

I would continue to question how changing status within the world (gaining positions of privilege and power) mediated the actions the teachers chose to engage in and what primary values emerged from sustained time in a particular world. Further, if gaining power and privilege within a world is key to influencing culture as was concluded, then some change in culture in each school might be recognized as these particular teachers gain positions of prestige over time.

Continued exploration would be necessary to determine this. For Holland, et al, artifacts were critical pieces of the figured worlds which they studied. This study did not find evidence to support this assertion, but that does not mean they weren't essential. Rather this implies a) data sources were limited in their ability to allow me to draw conclusions regarding artifacts and b) artifacts were limited in scope as part of the teacher's narratives. Either way other sources of evidence including more field observation and direct questioning that focused on artifacts would be beneficial.

Implications

As we know from prior research, teaching with progressive teaching practices is likely to enhance student learning (Grossman, Hammerness, and McDonald, 2009; Windschitl, Thompson, Braaten, & Stroupe, 2012) and may also provide a foundation upon which a new teacher can build their professional identity (Wray & Richmond, 2018). Even though teacher preparation programs may be centered on such practices, once teachers leave that program and enter the workforce, these practices may fall to the side in lieu of more traditional pedagogy (Stuart and Thurlow, 2000). Teacher educators that value progressive teaching practices as a way of teaching have expectations for how the practices should be implemented. What challenges teacher educators then is not knowing where the teachers will be going and what world and features of that world will come into play and how the novice teachers will navigate this world. Furthermore, it is sometimes assumed these practices are valued by the novice teacher and there is a desire to teach with these practices. In order for teacher educators to provide learning opportunities *and* classroom supports that reinforce progressive teaching, they must understand *why* teachers make the pedagogical decisions that they do. In addition to recognizing that new teachers struggle to navigate the transition between the world of teacher preparation and the

professional teaching world, teacher educators must also understand how the teaching world influences the new teachers' professional identity. These matter because professional identity and teacher action are inseparable (e.g. Luehmann, 2007). Through this study I was able to better understand how interacting within a FW influences professional identity. Teacher educators and mentors can support teachers in progressive practices, which can lead to a change in the power or hierarchy of practices valued within the teaching world.

This study helps us to understand what it is about teacher's identities and their interpretation of the world they are in that makes it more or less likely for them to engage in certain teaching practices. By having a firm foundation as a teacher who uses practices, they may be able to enter into a world, navigate the culture that is established, and work in agentic ways to teach in a way that supports the values they have as a teacher while also being positioned as a valuable member of the community. Furthermore, this study also points to the challenge teacher face in regard to the culture of the school as it is dictated by the administration as well as the novice teacher's work to assimilate into that culture while trying to achieve a sense of power and privilege as it is granted by the administration as well as fellow teachers. It is implied that were the administration or those in power to establish a culture of inclusivity and recognize that teachers may need support, then teachers could achieve the goals they have for their classrooms while working in a way that aligns with the expectations of the broader school world.

Thompson, Windschitl, and Braaten (2013) described the trajectories teachers may take as they enter into school settings that may or may not support their implementation of teaching practices as envisioned by the teacher preparation program. In doing this, they make a call to reconceptualize the idea of *context*. While not the goal of this project, and the fact a new view of context was not fleshed out, a step toward thinking about how setting and the people within

impact teaching was taken. If a teacher's willingness to engage in agentic action commensurate with their teaching identities is influenced by their individual views of the cultural expectations and the communities with whom they interact, and to some extent the artifacts made available, then figured worlds may be one way to explore teacher's enactment of practices within their schools.

Ultimately, if teacher educators and researchers are to develop pre-service preparation programs and induction supports that are responsive to the needs of the teacher *within* the worlds in which they are working, figured worlds may allow access to this information. From a methodological standpoint, Figured Worlds provides a way of approaching a school through the eyes of the teacher. Through this lens, teacher educators can see what it is about a school is most salient to a novice teacher, including what they see as being prioritized by those in power, and with whom they interact while trying to find their way. By recognizing the priorities of the figured world as they are perceived by the teacher, supports can be tailored to help assist acting in a way congruent with the world while also teaching in a way that is valued by the teacher. Additionally, the actions of a teacher in relation to these factors can be aligned with their professional identities and what additional factors influence how those identities form can be studied. More practically, having an understanding of how a teacher interprets the world in which they work and what actions they choose to prioritize allows mentors, teacher educators, and even administrators to tailor supports to meet the needs of the teacher while also working towards their goals of student growth and learning. These supports may include, focusing mentoring on teaching and how the teacher interacts with students in addition to school-based routines. They may also include providing time for new teachers to plan with others in their content area or creating a space for new teachers to build community with others and opportunity

for the group to problem solve issues that are particularly important to them. Most importantly, recognizing that new teachers have experiences, concerns, values, and voices. These voices have something worth saying and they desire to feel valued and their ideas worthy of being heard. Providing them a purchase in their school world may provide a level of power that instigates agentic action and a commitment to participation within and desire to maintain residence in that world.

APPENDIX

APPENDIX

A. Interview Protocol

1. How would you describe your school? (tell me about the people, the community, feelings of power…)
    a. What do you feel is prioritized by the administration? Department?
    b. List from most to least?
    c. How would you describe the mission of your school/department?
        i. How is this similar or different than the goal you have for your classroom? (what is your goal?)
        ii. Have there been things (things/people/policies) that help you achieve your goals?
        iii. Are there barriers (things/people/policies) to achieving these goals?
        iv. Has your view of the school changed since you arrived? (feelings towards, opinions of, alignment with or against)
    d. What do you struggle with…what views do you not share with the school? Why? How do you deal with this difference/conflict?
    e. How do you feel you fit in to/with your school? Department?
2. How has your teaching changed since you came to this school? Why?
    a. Have you noticed if any changes have taken place with other teachers or with the school more broadly because of suggestions you have made?
3. With whom do you communicate/hang out/receive support from most, within the school or outside/ teachers or not?
    a. Is there anyone that shares your philosophy of teaching or that supports you in a way that aligns with your view of teaching? In what way do they support you? (are there any aspects that you may not align on?)
4. Describe any routines you have in your classroom. (ex. Turning in work, starting class)
    a. What routines are mandated by the school? How do you implement these routines? Have you made any changes to these routines? Why?
    b. What routines have you developed on your own? Why did you do this?
5. Do you feel you have control of what and how you teach? If not, ?
    a. Who or what have caused challenges? Or supports?
6. Have you been asked to take on any leadership roles? Have you taken on any leadership roles in your school? How would you describe this experience?
    a. Do you feel you have power or influence over what do you do in your classroom? School?
7. Describe a lesson or unit that went well. What about that unit made it successful to you? Describe how you went about planning that unit. (Repeat for a unit that did not go well.) Describe how you go about planning lessons?
   (If unclear in their answer: What do you draw on? Prioritize?)
    a. Do you co-plan with anyone?
    b. Who do you feel closest to? Who is most important to you as a professional? How have they helped you? (if not at school, where?)

8. What resources do you draw on to implement your lessons? School supplied? Others in the department? From teacher prep? Outside?
    a. What resources do you draw from to plan your lessons?
9. What tools are most important to you in your teaching?
    a. Where do you get the tools you use?
    b. Does your school also find these tools to be important?
    c. Does your school value other tools that you may not? Why?
    d. Are there any tools that you are expected to use? Have you changed these tools in any way?
10. How would you describe your teaching style?
    a. Does this teaching style mesh with what is done by others?
11. How are you evaluated?
    a. Who evaluates you?
    b. Do you feel your evaluations accurately represent your teaching? Why?
12. What difficulties have you faced in the past year? How did you address these?
13. (If not addressed earlier) What is your greatest challenge now? How are you addressing it?
14. How would you describe the transition from teacher preparation to internship to full time teacher?
    a. Has your philosophy of science teaching and learning changed since beginning your teaching career? In what ways?
    b. In what ways has your style of teaching changed?
    c. What was most difficult or frustrating when you came to full time teaching?

REFERENCES

REFERENCES

Akey, T. M. (2006). School context, student attitudes and behaviors, and academic achievement: An exploratory analysis.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review Psychology, 52,* 1-26.

Boaler, J. & Greeno, G.G. (2000). Identity, agency, and knowing in mathematics worlds. In J. Boaler (Ed.) *Multiple perspectives on mathematics teaching and learning* (p. 171-200). Westport, CT: Abex Publishing.

Brewe, E. (2008). Modeling theory applied: Modeling instruction in introductory physics. *American Journal of Physics, 76,* 1155-1160.

Calabrese Barton, A. & Tan, E. (2010). We be burnin'! Agency, identity, and science learning. *The Journal of the Learning Sciences, 19,* 187-229.

Carlone, H. B. & Johnson, A. (2007). Understanding the science experiences of successful women of color: Science identity as an analytic lens. *Journal of Research in Science Teaching, 44,* 1187-1218.

Carlone, H. B., Haun-Frank, J. & Webb, A. (2011). Assessing equity beyond knowledge- and skills-based outcomes: A comparative ethnography of two fourth-grade reform-based science classrooms. *Journal of Research in Science Teaching, 48,* 459-485.

Carlone, H. B., Scott, C. M., & Lowder, C. (2014). Becoming (less) scientific: A longitudinal study of students' identity work from elementary to middle school science. *Journal of Research in Science Teaching, 51,* 836-869.

Corbin, J., & Strauss, A. (2008). Qualitative research.

Fecho, B., Graham, P., & Hudson-Ross, S. (2005). Appreciating the wobble: Teacher research, professional development, and figured worlds. *English Education, 37,* 174-199.

Feiman-Nemser, S., & Buchmann, M. (1985). Pitfalls of experience in teacher preparation. Teachers College Record, 87, 53–65.

Glaser, B. G. & Strauss, A. L. (2017). *The Discovery of Grounded Theory: Strategies for Qualitative Research.* New York: Routledge.

Glesne, C. & Webb, R. (1993) Teaching qualitative research: who does what? International Journal of Qualitative Studies in Education, 6:3, 253-266, DOI: 10.1080/0951839930060307

Godwin, A. & Potvin, G. (2017). Pushing and pulling Sara: A case study of the contrasting influences of high school and university experiences on engineering agency, identity, and participation. *Journal of Research in Science Teaching, 54,* 439-462.

Grossman, P., Compton, C., Igra, D., Ronfeldt, M., Shahan, E., & Williamson, P. W. (2009). Teaching practice: A cross-professional perspective. *Teachers College Record, 111,* 2055-2100.

Grossman, P., Hammerness, K., & McDonald, M. (2009). Redefining teaching, re-imagining teacher education. *Teachers and Teaching: theory and practice, 15,* 273-289. doi: 10.1080/13540600902875340

Harvey, L. (2015). Beyond member-checking: A dialogic approach to the research interview. *International Journal of Research & Method in Education, 38,* 23-38. DOI: 10.1080/1743727X.2014.914487

Holland, D., Lachicotte, W. Jr., Skinner, D. & Cain, C. (1998). *Identity and Agency in Cultural Worlds.* Cambridge: Harvard University Press.

Holland, D. & Lave, J. (2009). Social practice theory and the historical production of persons. *Actio: An International Journal of Human Activity Theory, 2,* 1-15.

Horn, I. S., Nolen, S. B., Ward, C. & Campbell, S. S. (2008). Developing practices in multiple worlds: The role of identity in learning to teach. *Teacher Education Quarterly,* 61-72.

Jackson Preparatory and Early College. (2018). Early College Parent and Student Handbook 2018-2019. Retrieved from: http://www.jacksonpec.org/downloads/school_operations/early_college_handbook_2018-2019_02.22.2019.pdf

Ingersoll, R. M. & May, H. (2012). The magnitude, destination, and determinants of mathematics and science teacher turnover. *Educational Evaluation and Policy Analysis, 34,* 435-464.

Lave J., & Wenger E. (1991). Situated learning: Legitimate peripheral participation. New York: Cambridge University Press.

Lave J. (1993). In L. Resnick, J. Levine, & S. Teasley (Eds.), Perspectives on socially shared cognition (pp. 63–85). Washington: American Psychological Association.

Luehmann, A. L. (2007). Identity development as a lens to science teacher preparation. Science Education, 822–839. doi:10.1002/sce.20209

Luft, J. A. & Patterson, N. C. (2002). Bridging the gap: Supporting beginning science teachers. *Journal of Science Teacher Education, 13,* 267-282. doi:10.1023/A:1022518815872

Maxwell, J. A. (2008). Designing a qualitative study. *The Sage handbook of applied social research methods*, 214-253.

Michael, A., Andrade, N., & Bartlett, L. (2007). Figuring "success" in a bilingual high school. *The Urban Review, 39,* 167-189.

Moore, F. M. (2008). Agency, identity, and social justice education: Preservice teachers' thoughts on becoming agents of change in urban elementary science classrooms. *Research in Science Education, 38,* 589-610. doi: 10.1007/s11165-007-9065-6

Michigan Legislature, State of Michigan. (2017). *Section 380.1526.* Retrieved from http://www.legislature.mi.gov/(S(d5jyqpxjzgczqdpht20513wu))/mileg.aspx?page=GetObject&objectname=mcl-380-1526.

NGSS Lead States. (2013). *Next generation science standards: For states, by states*. Washington, DC: The National Academies Press.

Oakes, J. (1989). What education indicators? The case for assessing the school context. *Educational Evaluation and Policy Analysis, 11,* 181-199.

Price, J. F. & McNeill, K. L. (2013). Toward a lived science curriculum in intersecting figured worlds: An exploration of individual meanings in science education. *Journal of Research in Science Teaching, 50, 501-529.*

Richmond, G., Juzwik, M. M., and Steele, M. D. (2011). Trajectories of teacher identity development across institutional contexts: Constructing a narrative approach. *Teacher College Record, 113,* 1863-1905.

Richmond, G. (2015). Creating supports for the development of high-leverage teaching practices in secondary science classrooms. In. J. A. Luft and S. L. Dubois (Eds.), *Newly Hired Teachers of Science* (pp. 165-180).

Robinson, C. (2007). Figured world of history learning in social studies methods classroom. *The Urban Review, 39,* 191-216.

Rubin, B. C. (2007). Learner identity amid figured worlds: Constructing (in)competence at an urban high school. *The urban Review, 39,* 217-249.

Thompson, J. Windschitl, M., & Braaten, M. (2013). Developing a theory of ambitious early-career teacher practice. *American Educational Research Journal, 50,* 574-615.

Sfard, A. & Prusak, A. (2005). In search of an analytic tool for investigating learning as a culturally shaped activity. *Educational Researcher, 34,* 14-22.

Skaalvik, E. M. & Skaalvik, S. (2009). Does school context matter? Relations with teacher burnout and job satisfaction. *Teaching and Teacher Education, 25,* 518-524.

Sloan, K. (2006). Teacher identity and agency in school worlds: Beyond the all-good/all-bad discourse on accountability-explicit curriculum policies. *Curriculum Inquiry, 36,* 119-152.

Stuart, C. and Thurlow, D. (2000). Making it their own: Preservice teacher's experiences, beliefs, and classroom practices. *Journal of Teacher Education, 51,* 113-121.

"Student Count." *Student Count,* MI School Data, www.mischooldata.org/DistrictSchoolProfiles2/StudentInformation/StudentCounts/StudentCount.aspx

Stroupe, D. & Gotwals, A. W. (2018). "It's 1000 degrees in here when I teach": Providing preservice teachers with an extended opportunity to approximate ambitious instruction. *Journal of Teacher Education, 69, 294-306.*

Urrieta, Jr., L. (2007a). Identity production in figured worlds: How some Mexican Americans become Chicana/o activist educators. *The Urban Review, 39,* 117-144. doi: 10.1007/s11256-007-0050-1

Urrieta, Jr., L. (2007b). Figured worlds and education: An introduction to the special issue. *The Urban Review, 39,* 107-116.

Wenger, E. (1998). Communities of practice: Learning, meaning, and identity. Cambridge, UK: Cambridge University Press.

Windschitl, M., Thompson, J., Braaten, M., and Stroupe, D. (2012). Proposing a core set of instructional practices and tools for teachers of science. *Science Education, 96,* 878-903. doi: 10.1002/sce.21027

Wray, K. A**.** & Richmond, G. (2018). Factors shaping agency of beginning science teachers working in high-poverty schools. *Journal of Science Teacher Education*. DOI:10.1080/1046560X.2018.1514824