

Cultural and Linguistic Multiplicity as a Resource for Sensemaking in a Dual Language

Immersion Teacher Education Context

By

Bethany Daniel

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Approved:

Noel D. Enyedy, Ph.D.

D. Teo Keifert, Ph.D.

Luis A. Leyva, Ph.D.

Emily Phillips Galloway, Ph.D.

Beth Wassell, Ph.D.

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CHAPTER 1

Introduction

Dual Language Immersion (DLI) programs have enjoyed a rapid increase in popularity in recent years. However, DLI education is a contested space as tensions exist between norms that reproduce an inequitable status quo benefiting dominant students (Dorner et al., 2021; Freire & Delavan, 2021) and the historical roots of DLI as a disruptive space to support linguistically minoritized learners (Delavan et al., 2021; Flores & García, 2017). For example, enrollment policies in many states privilege access to DLI programs for monolingual English-speaking students at the expense of linguistically and culturally minoritized learners (Dorner et al., 2021; Valdez et al., 2016). Similarly, language allocation policies in DLI programs often recenter English at the expense of time spent in the immersion language (Freire & Delavan, 2021).

Despite these tensions, DLI has the potential to provide an equitable space that cultivates learners' linguistic and cultural expertise as resources for learning (Macedo & Bartolomé, 2019). However, achieving this potential requires well-prepared teachers who are aware of how dominant ideologies (socially constructed frameworks that reproduce asymmetrical power dynamics; Hall, 1996; Kolluri & Tichavakunda, 2023) inform policies and practices that reproduce the status quo. Ideologically clear teachers have interrogated where they stand personally in relation to dominant ideologies and have considered what that means for their teaching (Bartolomé, 2002; 2010). Consequently, they can enact equitable pedagogical approaches that resist these norms to create spaces of belonging and representation that value all aspects of students' identities (Daniel, 2023).

Preparing equity-oriented DLI teachers who are able to work toward reaching the potential of DLI is a challenge because of the complexity inherent in DLI education. DLI sits at

the intersection of multiple academic disciplines (e.g., bilingual and biliteracy development, math, science, social studies), multiple languages (e.g., academic English, the immersion language, students' home languages) and multiple cultures (e.g., the dominant culture, immersion language cultures, students' home cultures). In mainstream educational settings, hegemonic norms influenced by dominant ideologies often flatten academic disciplines, resulting in a centering of canonical disciplinary understandings, monolingual orientations to learning, and a privileging of White culture (Chang-Bacon, 2020; Keifert, 2021; Warren et al., 2020). Attending to how the multiple perspectives that exist in DLI spaces can be cultivated may create opportunities to move toward linguistic, cultural, and epistemic heterogeneity that rejects dominant norms and reimagines learning that centers and values students' diverse ways of knowing and being in the world (Bang et al., 2012; Cervantes-Soon et al., 2017; Palmer et al., 2019).

However, working toward this potential in DLI classrooms is a nearly impossible task because of what it requires of teachers. Learning to teach is a multifaceted effort in and of itself, and the contested, complex nature of the DLI context only amplifies this challenge. DLI teachers require expertise in multiple languages and general content area knowledge, a general understanding of pedagogy and curricular development, specialized knowledge of second language acquisition and biliteracy development, cultural competency in multiple cultures, and an understanding of the sociopolitical context of U.S. (DLI) education (Amanti, 2019; Guerrero & Lachance, 2018; Lachance, 2017; Howard & López-Velásquez, 2019). Furthermore, reaching DLI's potential for equity requires teachers who can intentionally leverage DLI's complexity to disrupt hegemonic norms (Cervantes-Soon et al., 2017; Freire, 2020; Macedo & Bartolomé, 2019; Palmer et al., 2019).

This dissertation focused on a single DLI methods course to explore how the complexity inherent in DLI can serve as a resource in DLI teacher education to move toward equity. The nature of this particular space was characterized by teacher candidates from diverse linguistic, cultural, and racial backgrounds, the consistent presence of multiple languages in the space, and a principled approach to DLI instruction that drew on a range of interdisciplinary research and pedagogical practices (Bartolomé, 1994). These course features called attention to multiplicity, or an attunement to multiple ways of knowing and being in the world, as support for examining dominant norms within DLI teacher education (Warren et al., 2020). The overall question that guided this dissertation was: How did multiplicity serve as a resource to surface and examine tensions and complexities related to learning to teach in a DLI context?

Multiplicity is defined as an attunement to heterogeneity in knowledge and in ways of knowing (Warren et al., 2020). It invokes an awareness of how dominant ideologies flatten learning to center White perspectives, privilege English, and reproduce cultural and linguistic hierarchies (Macedo, 2019; Mensah & Jackson, 2018; Warren & Rosebery, 2011). Attuning to multiplicity surfaces a recognition of the value of marginalized knowledge, language, history, and culture, and allows for an analysis of the relationships between identity, history, and knowledge production (Bang et al., 2012; Warren et al., 2020). Multiplicity was an appropriate lens to draw on because of its connections as a means of disrupting settler colonialism (Bang et al., 2012; Warren et al., 2020), and settler-colonial ideologies have played a key role in shaping inequities in DLI spaces (Dorner et al., 2021; Macedo, 2019).

The DLI methods course that was the focal context of this dissertation was taught at a large, private university in the western United States. The semester-long course was required for the university's DLI minor, which provided students with a state DLI K-12 endorsement. The

course was focused on developing DLI students' biliteracy. The course instructor, Emily, emphasized developing biliteracy through integrating language, academic content, and culture. The six teacher candidates enrolled in the course spoke multiple languages (e.g., Cantonese, French, German, Japanese, Mandarin, Spanish) and came from a variety of linguistic, cultural, and racial backgrounds. Emily, as the instructor, regularly provided examples of teaching materials and activities in a variety of languages (e.g., French, German, Korean, Mandarin, Portuguese, Russian, Spanish). Teacher candidates had regular opportunities to enact teaching practices by giving teaching demonstrations to their peers, some of whom did not speak their immersion language. Similarly, teacher candidates were often taught by peers in languages they did not speak. Given these course dynamics, multiplicity became the guiding lens of the study.

Throughout the course, multiplicity served as a resource to surface ideological tensions that supported sensemaking around the complexity of DLI teaching and learning. Paper 1 speaks to a Learning Sciences audience to build on recent work investigating settled influences on disciplinary learning (e.g., Bang et al., 2012; Warren et al., 2020). I offer DLI teacher education as a site to investigate how multiplicity serves as a resource to surface intersecting disciplinary norms and to consider how teacher candidates engaged in sensemaking around these norms. Paper 2 speaks to a Learning Sciences audience as well. In Paper 2, the focus shifts to the DLI teacher educator, Emily, and considers how multiplicity served as a resource that Emily used to help her teacher candidates see the profession of DLI teaching in new ways (Goodwin, 1994). Paper 2 offers a fine-grained interactional look at professional vision, in contrast to broader uses of the construct in teacher education (Lefstein & Snell, 2011; Louie, 2018). Finally, Paper 3 is intended for a language education audience and focuses on teacher candidate experiences in the course. I trace how multiplicity served as a resource that supported teacher candidates' movement

toward ideological clarity about the potential of DLI education for equity. This paper offers insights into the role that teacher candidates' identities and experiences play in considering ideological influences in DLI.

Paper 1 considers how multiplicity can be a resource to examine the influences of settler-colonial ideologies on disciplinary learning in DLI contexts. I analyzed two moments from the DLI methods course where teacher candidates engaged in sensemaking about disciplinary learning. Across the moments, I asked how participants in the course attuned to multiplicity as a resource to surface settled disciplinary norms, or dominant norms resulting from settler-colonial ideologies and histories (e.g., Bang et al., 2012; Macedo, 2019). I found that in the first moment, the group foregrounded culture to surface settled norms about its role in DLI science learning. While the group expanded their notion of science to include culture, they still treated science primarily as a settled and static discipline. By contrast, in the second moment, the group foregrounded language and surfaced settled norms about language varieties in DLI language learning. The teacher educator, Emily, explicitly named settled norms that framed a bilingual child's writing in deficit ways and challenged those norms, encouraging teacher candidates to attend to multiplicity as a resource to advocate for linguistically minoritized learners. Paper 1 contributes to our understanding of how multiplicity may serve as a resource to surface settled disciplinary norms. However, additional work is needed to think about how to actively contest settled norms with teacher candidates to reimagine disciplinary learning.

Paper 2 centers the practice of the DLI methods course instructor, Emily. I considered how Emily, through interactions, helped her teacher candidates learn to see the work of DLI teaching in new ways (Goodwin, 1994). I examined a moment where Emily elicited a retelling of an earlier shared class experience, "Blue Honey", from a teacher candidate, Maria. Maria retold

the experience in a blend of French, Spanish, and English. Emily then took up Maria's retelling as an exemplar and engaged the teacher candidates in an analysis of Maria's use of different languages to examine different aspects of learning to teach DLI. Throughout the interaction, Emily drew on interactional resources to construct a dynamic professional vision that acknowledged complexity and engaged with tensions in DLI. Multiplicity served as an important resource that surfaced opportunities for sensemaking and for identifying solutions to professional challenges that resisted an oversimplification of teaching or a reproduction of the status quo. Paper 2's consideration of Emily's practice provides insights from an interactional perspective into how constructing a dynamic professional vision may be important to preparing equity-oriented teachers.

Paper 3 focuses on three DLI teacher candidates enrolled in the focal course, tracing how they moved toward ideological clarity, or an understanding of the impact of dominant ideologies on education (Bartolomé, 2002), over the course of the semester. Multiplicity served as an important resource for developing ideological clarity as it surfaced connections between teacher candidates' personal experiences, classroom experiences, and tensions inherent to DLI. Drawing on an autobiography assignment and interviews at the beginning and end of the semester, I analyzed how multiplicity in the teacher candidates' own lived experiences and in experiences in the methods course allowed them to (re)consider the purpose and potential of DLI. I found that their movement toward ideological clarity led to more refined visions of equity-oriented DLI instruction in their future classrooms. Paper 3 provides insights into how cultivating multiplicity in DLI methods classes may support the preparation of equity-oriented teacher candidates.

Despite its currently contested place in U.S. education, DLI as a program model has the potential to generate learning spaces that resist an inequitable status quo and create places of

belonging that welcome all students' full identities (Macedo & Bartolomé, 2019). While preparing future DLI teachers who are equipped to do this work is a challenge because of the complexity of DLI, that complexity may also serve as an essential resource to accomplish the task. As illustrated across the three papers in this dissertation, leaning into the complexity and taking up the multiplicity inherent in DLI spaces can surface both tensions that teachers need to grapple with and possibilities for navigating those tensions. The presence of multiplicity and its potential to welcome new ways of seeing, knowing, and being in the world may be essential to preparing teacher candidates who can create future DLI classrooms that re-envision DLI education in ways that take up its promise for equity.

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CHAPTER 2

Multiplicity as a Resource for Examining Settled Disciplines in Dual Language Immersion Teacher Education

Teaching is not a neutral effort. Instead, it is a work deeply influenced by sociocultural and sociopolitical forces (Gutiérrez, 2013; Leyva et al., 2021). One line of research that considers how these forces shape teaching and learning is concerned with the notion of ideologies, or socially constructed frameworks for making sense of the world (S. Hall, 1996; Kolluri & Tichavakunda, 2023). Scholars have considered the role of ideologies across educational research, particularly with regard to how ideological influences reproduce educational inequities. For example, one strand of Learning Sciences work has considered how math teachers in professional development communities learn to recognize and resist deficit narratives about their students that persisted because of dominant ideologies (e.g., Horn, 2007; Louie, 2018; Philip, 2011). Similarly, in applied linguistics and language education, scholars have demonstrated how ideologies that attribute value to certain language forms and practices over others harm linguistically minorities students (Alim, 2016; Chang-Bacon, 2020; Flores & Rosa, 2015). However, there is limited cross-field collaboration of these efforts. Instead, work is generally constrained by disciplinary silos.

Given the strength of the Learning Sciences as an inherently disciplinary field, this article seeks to disrupt some of those silos by applying Learning Sciences lenses to a less-commonly considered context, that of Dual Language Immersion (DLI) teacher education. In DLI, students from non-dominant and dominant language backgrounds learn academic content (e.g., math, science, literacy) in a combination of an immersion partner language (e.g., Chinese, French, Spanish) and English. Thus, DLI lies at the intersection of multiple disciplines. Learning

Sciences work that examines ideological influences on disciplinary learning can be generative to make sense of this complex context.

One important ideology to consider is the influence of settler-colonialism. Settler-colonialism, or the process of European nation-states expanding power beginning in the 1500's, was both an economic and an epistemological affair (Mignolo, 2011). It involved not only establishing physical presence geographically, but also colonizing time and knowledge to invent histories, languages, cultures, and disciplines that maintained power intellectually (Bang et al., 2012; Makoni & Pennycook, 2007; Mignolo, 2011). Settler-colonial ideologies linked to histories of colonial expansion shape learning across disciplines. Broadly, settler-colonial ideologies center White, Western ways of knowing and preclude alternate ways of being and of knowledge production (Bang et al., 2012; Warren & Rosebery, 2011).

Colonial mechanisms such as separation and subordination, invention, and exclusion established “settled expectations” based in the colonizers’ cultures of Whiteness (Harris, 1993). Knowledge as a form of property was shaped by dominant assumptions about “what counts as knowing and who counts as knowledgeable” (Warren & Rosebery, 2011, p. 99), as well as “what sorts of things are relevant, worthy of attention, and in need of explanation” (Bang et al., 2007, p. 13868). Thus, disciplinary learning as we know it was constructed out of settler-colonial pasts and is founded in ideological narratives of salvation, naturalization, and assimilation (Mignolo, 2011). Contemporary disciplines and disciplinary learning were created through epistemic borders of settler-colonial ideologies just as colonizers established physical geographic borders.

Consequently, the (re)production of “settled” disciplinary knowledge and practices excludes learners with marginalized identities and prevents all students from gaining a more heterogeneous understanding of the world around them (Bang et al., 2012; Warren & Rosebery,

2011; Warren et al., 2020). Work in science education has examined settler-colonial influences on disciplinary science learning (e.g., Bang et al., 2012; Hudicourt-Barnes, 2003; Rosebery et al., 2010). Similarly, scholars have considered the influence of settler-colonial ideologies on language (Makoni & Pennycook, 2007), language learning (Macedo, 2019), and DLI learning contexts (Dorner et al., 2021). Because DLI inherently invokes multiple disciplines as language and academic content are taught in tandem, these separate lines of investigation on settler-colonialism in language and science may benefit from being brought together. Without explicit attention to settler-colonial ideologies, the intersections that exist in DLI education may amplify the reproduction of exclusionary knowledge and practices across multiple disciplines and languages.

To attend to this danger of reproduction in disciplinary learning, Warren and colleagues (2020) proposed three sensibilities to support “delinking” from settled disciplinary norms and practices: *multiplicity* (attuning to heterogeneous ways of knowing), *horizontality* (attuning to how learning occurs bidirectionally across contexts), and *dialogicality* (attuning to how discourses and language allow us to examine and refuse settled norms). Warren and colleagues illustrated how these sensibilities have supported reimagining disciplinary learning in STEM fields and in literacy education. However, they noted that “all disciplines are in need of a critical re-reading” to understand how settled histories, ideologies, and norms shape disciplinary norms and practices (p. 278). I took up this invitation by considering the disciplines of language education and science education specifically within a DLI context. I focused on a semester-long DLI methods course with six DLI teacher candidates. Course features such as the regular use of multiple languages, participants’ diverse racial, cultural, and linguistic backgrounds, and an interdisciplinary approach to instruction cultivated the potential for attuning to multiplicity as a

resource for sensemaking. I consider here how attuning to multiplicity surfaced opportunities for sensemaking around settled disciplinary norms around language and science in DLI teacher education as well as how these opportunities were taken up.

I first present an introduction to DLI as a context for learning. Next, I review literature that considers the settled disciplinary histories of language learning and science learning (the focal content areas of the study) within a DLI context. I then present analyses of two moments from the course that illustrate how attunement to multiplicity around culture and language surfaced settled norms across disciplines. In the first moment, which foregrounded culture, teacher candidates and the course instructor surfaced settled histories and disciplinary practices but stopped short of explicitly naming or exploring them. By contrast, in the second moment, which foregrounded language, the course instructor explicitly named settled norms and positioned teacher candidates as agents of change who could advocate for linguistically minoritized learners. I conclude with possibilities for cultivating multiplicity to directly engage teacher candidates with the intersecting settled disciplines present in DLI learning contexts.

Dual Language Immersion as a Context for Learning

Dual Language Immersion¹ (DLI) education is a type of immersion education. It involves students learning academic content while being taught in an immersion partner language (e.g., French, Mandarin, Spanish) and in English as the languages of instruction. The primary goals of DLI are for students to learn academic content, gain language proficiency and literacy in two languages (an immersion language and English), and develop intercultural competency (Howard et al., 2018). One-way DLI programs consist of a majority of students who speak one language

¹ I use the term "DLI" because this is the term used within the local context of the study. However, this term obscures historical connections with bilingual immersion education and its roots in equitable learning opportunities for linguistically marginalized learners. See Flores & García (2017) for a full discussion.

(either the immersion language or English) and are learning another (either English or the immersion language). In two-way DLI programs, roughly half of enrolled students speak the immersion language as a home or first language (L1) and the other half have English as their L1. The daily and weekly division of time spent in the immersion language and English varies by program structure (Delavan et al., 2021; Freire & Delavan, 2021; Howard et al., 2018).

DLI as a program model in the United States has its roots in bilingual immersion education. In the 1960's, bilingual immersion programs began to support linguistically minoritized learners in reaching greater academic success. These programs were taught primarily in the immersion language and worked to support English development without using assimilationist models or subtractive approaches that minimized students' use of their home languages and privileged English (Delavan et al., 2021; Flores & García, 2017). However, in recent years, U.S. immersion education has shifted toward providing additional access for White, monolingual English-speaking students while pushing out the minoritized students DLI was originally designed for (Valdez et al., 2016). DLI programs have expanded rapidly, frequently following a one-way immersion program structure, enrolling primarily students with English as their L1 (Dorner et al., 2021; Valdez et al., 2016). While some DLI programs work to revitalize indigenous languages of the colonized impacted by settler-colonialism (e.g., Siekmann et al., 2017), commonly taught DLI languages include Chinese, French, German, Portuguese, and Spanish, or largely Eurocentric languages with cultural and political influence in the United States (Reagan & Osborn, 2021). These "boutique" DLI programs and the rationales given to promote their growth tend to frame language as capital for economic advantage, obscuring DLI's origins as a means to promote linguistic equity and reflecting the influence of settler-colonial

ideologies that shape contemporary DLI contexts (Dorner et al., 2021; Flores & García, 2017; Macedo, 2019).

The DLI methods course I investigated in this study was located in a state that has been heavily involved with recent shifts in DLI education. The state model for elementary DLI education follows a 50:50 language allocation policy, reflecting settled norms that tend to recenter English (Freire & Delavan, 2021). Immersion language instructional time focuses on immersion language literacy, math, and science and social studies. English instructional time focuses on English language arts and literacy and math, with reinforcement for content areas. Because science is typically taught in the immersion language in the state context of the study, science was commonly used during the methods course as an anchoring content area.

Settled Disciplinary Histories in Dual Language Immersion Education

Given the emphasis on science in the DLI methods course I explore here, I focused on the settled disciplinary histories of language education (for languages other than English) and science education as a backdrop for my analysis. Below I briefly consider how settler-colonial histories and ideologies have shaped each of these disciplines.

Language Education as a Settled Discipline

Scholars have argued that "named languages" as we refer to them today are a colonial invention. While languages as a means of conveying meaning in cultural communities existed long before the settler-colonial project began, the notion of a named language (e.g., French, Spanish) as being directly mapped to a colonial nation-state (e.g., France, Spain) is a more recent construction (Makoni & Pennycook, 2007). Stemming out of these naming practices came Western framings of language as an object, an "entity separate from the social world" (Makoni & Pennycook, 2007, p. 18). Language was something to be analyzed, categorized, and studied, but

to remain something separate from the peoples who used the languages for social communication (Demuro & Gurney, 2018).

Languages could only be considered languages, however, if they met the emerging Western concept of "language" as a systematic, rule-bound, scientific construction (Makoni & Pennycook, 2007). For colonizing languages, this reality led to efforts to standardize languages like French, German, and Spanish, evidenced in the rapid proliferation of grammars and dictionaries beginning in the early 1500's (Demuro & Gurney, 2018). By contrast, languages spoken by colonized peoples were labeled dialects, pidgins, or creoles rather than languages, resulting in the "devaluing, dismissing, and dehumanizing" of subaltern speakers, language practices, and cultures (Macedo, 2019, p. 15). These settled expectations persist in language education today. Contemporary language education is considered an "objective" and "discrete academic pursuit" (Demuro & Gurney, 2018, p. 288). Typically framed as neutral and apolitical, language learning is often focused on gaining technical mastery of the language (Macedo, 2019) rather than on using the language for genuine communication in social communities. The teaching of colonial languages is privileged, and "colonial history is largely obscured—or outright ignored—in [second] language instruction" (Demuro & Gurney, 2018, p. 288).

The colonial framing of language as a technocratic tool is further reinforced in language education through the settled norm of detaching language from culture. The primary focus of most language classrooms is the "technical teaching of grammar" with a heavy emphasis on accuracy and correctness (Macedo, 2019, p. 15). This emphasis on linguistic purity echoes efforts to "tame" the primitive communication practices of the colonized as a form of linguistic saviorism, particularly in instances where language teachers with English as their L1 gatekeep

the language practices of L1 speakers of the target or immersion language (Demuro & Gurney, 2018; Macedo, 2019).

Separating language and culture reinforces the objective, neutral framing of language. When culture is taught in language classrooms, it tends to privilege Eurocentric viewpoints and knowledge. Colonizing accomplishments of European nation-states are celebrated while the role of the colonized in these accomplishments, such as that of forced labor, goes unexamined (Macedo, 2019). Inclusion of cultures of colonized peoples is infrequent and tends to be essentialized, reductionist, and superficial (Demuro & Gurney, 2018). Mirroring settler-colonial historical patterns of constructing and inventing cultures and histories for Indigenous peoples as if starting from a blank slate, often in language classrooms, simply "being there" in European nation-states associated with an immersion language is "adequate to claim knowledge of native languages and cultures" from across colonized territories (Makoni & Pennycook, 2007, p. 7). This separation of language and culture and the limited inclusion of culture in language education persists as part of the colonial project, despite the reality that language and culture are inseparable and co-constitutive (Demuro & Gurney, 2018).

Settled influences in language education are also visible in efforts to homogenize language practices in language classrooms. As discussed earlier, inventing named languages and standardizing those languages across colonial territories was an important mechanism used to establish colonial dominance. These "standard" language varieties are supposedly taught in language classrooms today, despite the fact that they represent an idealized language that no L1 speakers actually use (Chang-Bacon, 2020). Instead, this standardization works to "socialise learners" according to "hegemonic values and norms" so that language as an abstract linguistic system holds a status above actual language users (Demuro & Gurney, 2018, p. 288). While "no

language variety is superior or inferior" (Macedo, 2019, p. 23), hierarchies of language varieties exist within named languages that highlight the inferior perception of colonized varieties. For example, Parisian French is typically perceived as the "idealized" standard variety of French (despite notable differences of language practices across city residents). Regional French dialects of French spoken in colonized countries (e.g., Côte d'Ivoire, Morocco) are perceived as less prestigious and languages such as Haitian Creole are often not even valued as full languages (Macedo, 2019). In practice, these hierarchies result in students being exposed primarily to "standard" language varieties rather than preparing them to engage with the language in all its diversity. Similarly, students' home language practices that do not align with dominant settled norms may be critiqued at school. DLI-specific research has found, for example, that linguistic marginalization occurred in Spanish-speaking DLI classrooms where students' daily, authentic language practices and varieties were deemed inappropriate, incorrect, or even nonsensical in academic settings (e.g., Briceño, 2018; Freire & Feinauer, 2022).

Science Education as a Settled Discipline

As with language education, settler-colonial influences have shaped science education, beginning with the construction of the notion of science itself. The influence of Western modernity emerging in tandem with colonial efforts supported the invention and naturalization of science as an object, detached from nature and the knower, neutral and abstract, and easily bounded and classified (Bang et al., 2007; Bang et al., 2012; Keifert et al., 2023; Marin & Bang, 2018; Mignolo, 2011). Scientific knowledge became the property of White males; individuals racialized and gendered in other ways had fewer rights to the enjoyment of science, a reality that persists today (Harris, 1993; Mensah & Jackson, 2018). Western Modern science as the property of colonial White males "led to the exclusion of the plurality of Black Diasporic and Indigenous

peoples' humanity and knowledge systems" (Keifert et al., 2023, p. 1). These peoples' scientific understandings and practices were erased from what "counted" as science, resulting in a static discipline of onto-epistemic homogeneity that reproduced the norms and values of the colonizers. In contemporary science education, these settled expectations determine "what counts as knowing and who counts as knowledgeable" in science classrooms and which meanings and practices are "privileged over others" (Warren & Rosebery, 2011, p. 99). Thus, normative science education typically excludes knowledge and practices from linguistically, racially, and culturally minoritized learners (see Bang et al., 2012; Rosebery et al., 2010; Warren & Rosebery, 2011), requiring these students to assimilate to Western, colonized science knowledge and practices that inherently invoke inequitable power relations (Keifert et al., 2023).

As part of this settled assimilation, science is typically framed as an objective body of knowledge, decontextualized from culture (Bang et al., 2012). Research has demonstrated how culture plays an important role in shaping science sensemaking and in organizing science understandings (Bang et al., 2007). However, cultural practices and thinking may not be acknowledged in classrooms as scientific (e.g., Hudicourt-Barnes, 2003). Bang and colleagues (2012) illustrated this exclusionary reality in their description of an African American student, Jonathan, who questioned the settled classification of the sun as non-living. Drawing on a relational perspective that highlighted how the sun gave life, Jonathan's inquiry made visible the "hidden boundaries" of school science that construct purportedly neutral epistemic borders (Bange et al., 2012, p. 303). Jonathan's cultural practices for participation led him to be perceived in the moment by his science teacher as a troublemaker (Warren & Rosebery, 2011), resulting in Jonathan being shut down. Consequently, the entire class missed an opportunity to problematize settled scientific assumptions (Bang et al., 2012). By contrast, Hudicourt-Barnes

(2003) outlined how teachers in a bilingual program centered a cultural practice of their Haitian Creole students, a conversation structure known as *Bay Odyans* as a means to develop scientific argumentation skills. These two examples surface a central tension in contemporary science education—how to support students to access settled scientific knowledge to succeed in school in ways that avoid assimilation while simultaneously seeking to disrupt settled expectations to reimagine science as a dynamic discipline free from the constraints of Western modernity (Bang et al., 2012; Keifert et al., 2023).

A final way that settler-colonial efforts shape science education is in the role of language in science learning. Western modern science norms privilege written, standard, academic English as the forms and language of scientific communication (e.g., García & Solorza, 2021; Stoddart et al., 2002). Thus, the current linguistic diversity in U.S. schools with students who are learning English becomes a settled problem to solve, assuming that English proficiency is prerequisite to meaningful scientific sensemaking. Traditional (settled) approaches to multilingual learners have focused on prioritizing learning English vocabulary and grammar in a science context (Stoddart et al., 2002). These approaches have resulted in deficit narratives of minoritized students' linguistic and scientific capabilities (García & Solorza, 2021). However, research has found that rather than perpetuating norms of language learning as a decontextualized mastery of a rule-bound linguistic system, contextualizing language within the meaningful context of scientific inquiry provides a myriad of benefits (Rosebery et al., 2010; Stoddart et al., 2002). Linguistically minoritized students are able to draw on cultural backgrounds as resources for rich scientific sensemaking (e.g., Bang et al., 2012; Rosebery et al., 2010) as students' diverse linguistic resources across languages become tools to express scientific understandings (e.g., Pierson et al., 2021; Pierson et al., 2023). The context of science allows students to engage in "purposeful

communicative interactions that promote genuine language use" (Rosebery et al., 1992, p. 64), rather than the decontextualized technical mastery of language promoted by settled language learning norms. Because of the collaborative and interdisciplinary nature of scientific inquiry (Rosebery et al., 1992), rejecting the settled separation of language and science learning and the privileging of English in science classrooms can be supported through practices such as translanguaging (Pierson et al., 2021). These efforts can amplify opportunities for learning for all students beyond settled disciplinary boundaries (Bang et al., 2012).

Multiplicity as a Resource for Desettling Disciplinary Learning

As the above illustrates, current disciplinary learning is deeply intertwined in settler-colonial histories and ideologies. Knowing (epistemologies) and being (ontologies) are also inextricably tied together (onto-epistemologies; see Warren et al., 2020). The settled reality of U.S. schools centers an onto-epistemic homogeneity of settled knowledge and cultural practices grounded in privileged identities—White, Western, English monolingual, male (Demuro & Gurney, 2018; Mensah & Jackson, 2018; Warren & Rosebery, 2011). Consequently, onto-epistemic heterogeneity that captures students' rich identities, histories, lived experiences, cultural practices, knowledge systems, and ways of being is excluded from classrooms (Warren et al., 1992). Refusing current settled norms of disciplinary learning can move us toward a more "liberatory education...deeply rooted in the pasts, presents, and futures that sustain and imagine multiple values, purposes, and arcs of human learning" (Warren et al., 2020, p. 278). Engaging in this delinking process supports a "(re)articulation and enactment of alternative possibilities for...learning and relations" (Warren et al., 2020, p. 278). I suggest that considering the role of onto-epistemic heterogeneity in DLI disciplinary learning has significant potential. Furthermore, failing to consider heterogeneity may have notable consequences. Because DLI programs lie at

the intersections of multiple languages and disciplines, each with their own settled histories, knowledges, and practices, reproducing the status quo of homogeneity may result in an amplification of inequities across disciplines and languages.

Warren and colleagues (2020) proposed three sensibilities to delink from settled disciplines and expectations. The first sensibility, *multiplicity*, is an attunement to "the heterogeneity of knowledges and ways of knowing" (p. 279). The second, *horizontality*, describes an attunement to how learning happens across contexts and an awareness of how students' cultural repertoires should be recognized, acknowledged, and integrated into classroom spaces. Finally, *dialogicality* is an attunement to how discourse and language mediate meaning making in ways that allow for a critical examination and refusal of settled norms.

In my analysis of the DLI methods course, I focused specifically on the sensibility of *multiplicity* as "a principled and necessary beginning toward" delinking from settler-colonialism (Warren et al., 2020, p. 279). Taking up multiplicity involves considering how disciplinary knowledge is presented and how disciplinary practices are enacted (Rosebery et al., 2010). This investigation "create[s] openings for interrupting...internal tensions inherent in disciplines as a crucial facet of critiquing and delinking" (Warren et al., 2020, p. 280). Multiple languages (e.g., varieties of English, immersion language varieties, students' home languages) and multiple cultures (e.g., dominant U.S. culture, immersion language cultures, students' home cultures) are inherently present in DLI contexts. While much of this diversity goes unacknowledged, it nevertheless has the potential to "surface and analyze the relationships among identity, history, and knowledge production...both recognized and unrecognized" (Warren et al., 2020, p. 279) across the multiple disciplines taught in DLI.

It is worth noting that I worked to conceptualize *multiplicity* as distinct but related to *multiple*. In this analysis, I used *multiple* to refer to plurality, a key attribute of DLI learning contexts and a marked feature of the DLI methods course examined here. Embedded in this plurality are diverse perspectives and ways of knowing and being (Bang et al., 2007; Bang et al., 2012; Warren & Rosebery, 2011; Warren et al., 2020). Thus, I distinguished *multiplicity* from *multiple* by framing *multiple* as the *presence* of more than one language or culture. I considered *multiplicity* as an *act* of attuning to the presence of plurality to surface and consider relationships from alternative perspectives. The plurality in the DLI course included multiple languages and multiple cultures, which came from the participants themselves and from course materials and regularly surfaced as a key part of learning interactions. I took up the presence of such diversity to ask: How did participants in this DLI methods course attune to multiplicity as a resource to surface settled disciplinary norms? In what ways did they engage with these norms?

Methods

Setting

The data for this analysis come from a DLI methods course for teacher candidates preparing to teach in an immersion language. The 15-week, semester-long course was taught at a large, private university in the western United States and met weekly for 3 hours. It was a required course for the university's DLI minor, which provided teacher candidates with a state K-12 DLI endorsement. The course focused on DLI student biliteracy development. The course instructor, Emily, prioritized developing biliteracy through integrating immersion language acquisition, immersion cultures, and academic content-area instruction. Because science was taught primarily in the immersion partner language instead of English according to state DLI program models, Emily often highlighted science as an academic content area.

Emily took an experiential approach to the course, engaging teacher candidates in activities to experience as learners the methods they were studying. Teacher candidates had regular opportunities to enact teaching practices through teaching demonstrations to their peers, who spoke multiple immersion languages (German, Mandarin, and Spanish). As a participant-researcher, I also led two demonstration lessons in Weeks 11 and 12. These lessons were grounded in ambitious, phenomenon-centered science approaches (e.g., Windschitl et al., 2018) and were taught in French. The lessons demonstrated instruction that balanced content learning and language learning in a language unfamiliar to teacher candidates. Emily also regularly included examples of materials and activities in a variety of languages, including French, German, Korean, Mandarin, Portuguese, Russian and Spanish. As a result of Emily's approach to the course, teacher candidates were regularly involved in learning in languages that they did not speak and teaching peers who did not speak their immersion language. This dynamic resulted in plurality as a consistent and marked feature of the course. My analysis focused on identifying moments where participants noticed the plurality as a resource and attuned to it as multiplicity. I then investigated how this attunement surfaced opportunities to examine disciplinary norms in the DLI context.

Participants

Six teacher candidates enrolled in the focal DLI methods course and were invited and agreed to participate in the study. All participants identified as female and were undergraduate students in their early 20's. The instructor was also consented as a participant. Figure 1 provides a summary of the participants, highlighting the diversity of backgrounds within the course. All names are participant-selected pseudonyms.

Participant-selected pseudonym	Self-identified racial identity	Immersion language	Immersion language experience	Other languages	University major
Abby	White	German	Formal K-12 study, religious volunteer (Germany)	ASL, Spanish	Early childhood education
Anne	did not identify	Spanish	Religious volunteer (Mexico), living abroad (Puerto Rico)	—	Elementary education
Luna	European heritage	Spanish	Religious volunteer (Perú)	—	Elementary education
Maria	Hispanic	Spanish	Formal K-12 study, religious volunteer (Guatemala & Arizona)	—	Elementary education
Melody	Chinese	Chinese* (Mandarin)	L1 speaker	Cantonese, Japanese, Shanwei dialect	Physics education
Mia	Mexican American	Spanish	L1 speaker	French	Elementary education
Emily (course instructor)	White	Spanish	Formal K-12 study, study abroad	ASL	—

*The state referred to their Mandarin DLI programs as “Chinese”. In the context of the course, this label was used to mirror state language. I specify dialect where possible but also use Chinese as needed to match participants’ language and state labels.

Figure 1: DLI Methods Course Participants

The cultural and linguistic diversity in the course was not planned, but given the participants’ backgrounds, plurality was marked feature of the course space. Consequently, the environment offered many possibilities for participants to attune to multiplicity.

Positionality

My role in this course was that of a participant researcher. I was involved as a researcher, collecting data and administering interviews with participants. I also facilitated several parts of class sessions, including the French lessons described above. I attended the institution where the study took place for my undergraduate and master’s degrees, which provided me with a degree of familiarity with the context, including cultural norms within the university. At the same time, because I was not formally affiliated with the institution as an instructor or involved in

academically evaluating participants in any way, I was able to develop relationships with the teacher candidates through interviews and time spent together in class that I believe allowed us to become comfortable sharing more personal insights than might otherwise have been possible. I also had a close professional relationship with the instructor, Emily, that allowed us to collaborate on both the research and the instruction. Because Emily centered plurality as an important aspect of her methods course, it surfaced as a salient feature. The focus on multiplicity came in data analysis as I considered how the group attuned to multiplicity and for what purposes.

At the same time, I recognize my own identities as a White woman who speaks the colonizing languages of French and German and who learned them in a U.S. educational context entangled with settler-colonial histories and ideologies. To address this reality, I sought to engage in consistent reflexivity for how my identities informed my analysis and interpretation of the data (Milner, 2007).

Data Collection and Analysis

The data for this analysis came from recordings of class sessions. The course met weekly for 3 hours for a total of 15 weeks. I intentionally did not attend the first six sessions to allow Emily time as the instructor to establish class norms and culture and because the sessions focused on course content that was less relevant to the study's focus. The remaining class sessions were recorded in person when a research assistant or I was available to support filming (Weeks 8-13) or via Zoom, when I participated remotely without research assistant support (Weeks 7, 14-15). When recordings were made in person, in-room cameras from two angles were used. One captured the instructor and the front whiteboard and projector from the teacher candidates' perspective. The other was arranged from the instructor's perspective to capture the

teacher candidates' participation. Where possible, I stitched together the two video streams to capture both perspectives (R. Hall, 2000). Recordings via Zoom were made by logging into Zoom via the classroom computer, which allowed Zoom to capture a view of the entire classroom.

I began analysis by content logging video recordings of the nine class sessions (Erickson & Schultz, 1997; Jordan & Henderson, 1995). I then reviewed each class session to identify moments of multiplicity that centered language and culture, using multiplicity as a sensitizing concept (Blumer, 1954). In line with my theoretical framing, I identified moments of multiplicity where participants in the class session (teacher candidates, Emily, and Bethany) explicitly attuned to connections across multiple languages or cultures as part of sensemaking. For example, Abby (a German-speaking teacher candidate) connected how prefixes worked in German to how Anne had presented them in her Spanish lesson during a debrief conversation about Anne's lesson. This was marked as an attunement to multiplicity. By contrast, Anne responding in German (or even Spanish or English) during Abby's teaching demonstration in German was not necessarily considered multiplicity. Only when there was an explicit attunement to connections between languages or cultures or visible evidence in the record to indicate multiplicity mediating sensemaking was it marked as a moment of multiplicity. I used Interaction Analysis (IA) traditions of beginnings and endings (R. Hall & Stevens, 2016; Jordan & Henderson, 1995) to segment the moments. My analysis identified 65 moments of multiplicity across the nine class sessions, ranging in length from about 45 seconds to 11 minutes.

I then reviewed the moments of multiplicity to identify when and how those moments surfaced disciplinary histories and how participants involved in sensemaking around settled disciplinary norms. Not all of the 65 moments engaged with disciplinary norms; some were

related to other topics. I selected two moments as contrasting cases that illustrated the group's sensemaking around settled disciplinary norms (Erickson, 2004; R. Hall & Stevens, 2016). I analyzed each focal moment using IA methods, which included multiple viewings of the clips individually and in community with an IA lab (Jordan & Henderson, 1995). In the viewings, I focused the analysis on how, through sequential turns of talk and multiple resources (e.g., gesture, tone, lesson materials), participants attuned to multiplicity and coordinated resources to support unfolding sensemaking (Erickson, 2004; R. Hall & Stevens, 2016). In connection with the analysis, I worked up multimodal transcripts (Norris & Jones, 2005), which I revised to reflect emerging understandings. I then analyzed each moment to understand how attunement to multiplicity and the subsequent sensemaking surfaced opportunities to engage with settled disciplinary norms and how these opportunities were or were not taken up.

Findings

While multiplicity was common throughout the course, I present here two contrasting moments that illustrate how attuning to multiplicity surfaced settled disciplinary norms in language and science education. The first moment foregrounds culture. It demonstrates how multiplicity supported teacher candidates to surface disciplinary norms around the role of culture in science and the role of culture in language learning. However, this moment fell short of explicit engagement with settled disciplinary histories. By contrast, the second moment foregrounds language. It demonstrates how teacher candidates attuned to multiplicity in language to surface settled norms about language learning and expectations for language as a means to communicate disciplinary understandings. In contrast to Moment 1, in Moment 2, the course instructor, Emily, explicitly named problematic ideologies in connection with settled histories to position teacher candidates as agents for change.

Moment 1: Trees as Cultural Connections

Moment 1 was part of a debrief conversation in Week 11 between me, the instructor Emily, and five teacher candidates: Abby (German), Luna (Spanish), Maria (Spanish), Melody (Chinese), and Mia (Spanish; on Zoom). The teacher candidates had just participated in an immersive learning experience in French that I facilitated. The experience explored the scientific phenomenon of how oak trees reproduce. As part of building background knowledge and introducing academic language around trees, I presented species of trees that grow in countries where French is spoken (Figure 2).

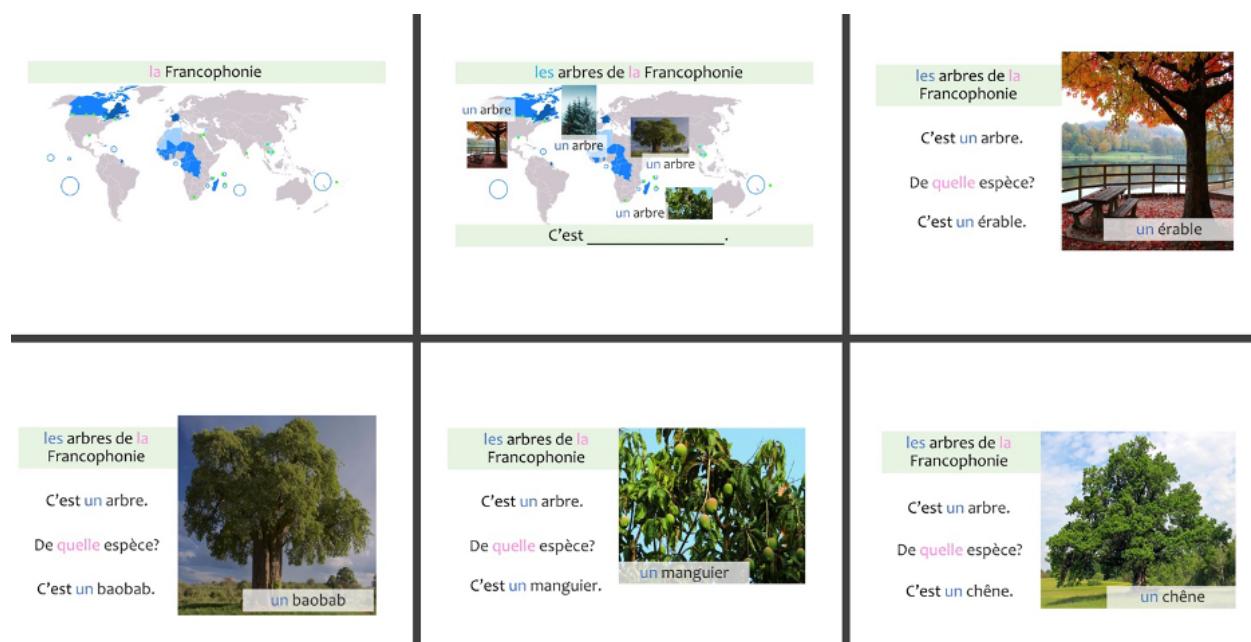


Figure 2: Trees from French-Speaking Countries

This discussion of trees from across the French-speaking world (*La Francophonie*) re-emerged as a significant experience from the lesson in the subsequent debrief. As the group discussed this activity, they recognized the multiple cultural representations. Elaborating on this plurality surfaced for the group opportunities to analyze the relationships between culture, science, and language. Attuning to multiplicity also allowed the group to recognize the influence

of settler-colonialism on where languages are spoken, but the group did not engage with or critique this history.

Moment 1 began with me (Bethany) inviting the group to reflect on and share their experiences from participating in the immersive French learning experience (Figure 3; see Appendix A for transcript conventions).

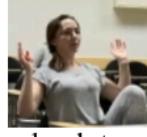
Speaker	Line	Talk	Mediated Action
Bethany	1 2 3	what else? (2.5) ¹ or I guess just any big takeaways that you had from (.) being in this experience with me.	¹ A looks over shoulder at notes from class
Abby	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	² I just have never really thought about (0.5) ³ the possibility of (.) different types of (.) tree:s <i>group laughs</i> like ⁴ as a cultural connection-li I-I was like okay, we're talking about trees, she's gonna somehow lead it to-to-oaks. but I- like the cultural connection of being like ⁵ and now let's talk about all of the trees in all these places, I think that ⁶ I often am just like ⁷ okay, I've gotta talk about oaks. and so then it's hard for me to be like ugh. how am I supposed to like culturally connect this? but. and so my takeaway, which is getting longwinded, is that ⁸ I can-if I pull out a bit, then (.) it's probably easier to find a cultural connection, ⁹ and then I can go back in and narrow it.=	² A turns to front, shrugs ³ A speaks with ear tilted toward shoulder  ⁴ A splays hand back toward sticky note ⁵ A spreads hands and leans back ⁶ A brings hands to temples ⁷ A brings hands down toward desk ⁸ A pulls hands out and leans back  ⁹ A brings hands together and leans forward

Figure 3: Trees as Cultural Connections, Transcript 1

Abby responded to Bethany's question with some initial hesitation, stating with a shrug in a sheepish tone that, "I just have never really thought about the possibility of different types of trees" (lines 4-6). Her hesitancy was marked by several pauses in her speech, and the lengthening of the word "tree:s" (line 6), suggesting she might have been uncertain about how her attunement to multiplicity in this context of science would be received. In response, the group laughed in a way that seemed to indicated acceptance of her hesitant offering.

As Abby took in the laughter and recognized the acceptance, she began to elaborate more confidently. Abby named trees as "a cultural connection" (line 7), invoking a definition of culture that encompasses place and geography. Abby explained how it was unexpected for her to have that cultural connection come out of the science content. She was able to connect the introduction on trees to the focal phenomenon of oak tree reproduction ("okay, we're talking about trees, she's gonna somehow lead it to oaks", lines 9-10). However, she was surprised by the embedded focus on culture ("but I- like the cultural connection of being like and now let's talk about trees in all these places", lines 11-13).

Abby then narrated how her insight about the potential of using trees differed from her usual thinking. Abby noted how she usually focused on the science content ("okay, I've gotta talk about oaks", line 15). Prioritizing science with a goal to get through the content in this way often led Abby to background culture unless she explicitly thought about it ("so then it's hard for me to be like ugh. How am I supposed to like culturally connect this?", lines 16-18). Abby's struggle to include culture highlights the norm of science as divorced from culture. While oaks are not a culturally "neutral" tree, they were framed that way here because they are common in U.S. settings. Abby's "aha" of talking about "trees in all these places" (line 13) made this neutrality more visible as Abby named the potential to integrate culture into science by moving beyond the

focal science content (oaks) to provide multiple representations of trees from different immersion cultures.

Maria built on Abby's explanation by attuning to how this multiplicity could support students' science learning (Figure 4).

Speaker	Line	Talk	Mediated Action
Maria	1 2 3 4 5 6 7 8 9 10 11 12	'I think it had like (.) ² a-an under-like a paired (.) objective, as well, with using the: multiple trees, cause it does (.) um provide the cultural connections, but it also builds background knowledge for students who ³ maybe just mo:ved here, and-and enrolled in your classroom. maybe they came from Hawaii, and they're used to seeing fruit trees, and so now ⁴ you're building those connections so that they- they recognize what you're talking about.	¹ Ma raises arm slightly ² Ma wiggles index and middle finger back and forth ³ Ma opens hands out ⁴ Ma spirals hands down from forehead to desk
Bethany	13 14	I love that. speaking of California,	
Maria	15	(under breath) ⁵ [or California]	⁵ Ma gestures palms open out toward B
Bethany	16 17 18 19 20	[I get tickled] ⁶ every time I go to California, because I don't have palm trees where I'm from, and that's like an ⁷ <u>in our own country</u> kind of culture thing, that I just ⁸ love.	⁶ B splays palms down and beats for emphasis with each word ⁷ B points hands down by sides and emphasizes each word ⁸ B opens hands

Figure 4: *Trees as Cultural Connections, Transcript 2*

Maria acknowledged that, as Abby pointed out, using representations of trees from across *la Francophonie* "does provide the cultural connections" (line 5). However, she noted that it also had "a paired objective" (line 2) of providing an entry point into the science content for students more familiar with other types of trees than the oak. Maria recognized that the multiple trees "builds background knowledge for students who maybe just moved here...and they're used to

seeing fruit trees" (lines 6-7, 10). Seeing fruit trees among the different examples of trees would allow students to "recognize what you're talking about" (line 12).

Maria's hypothetical situation built on Abby's consideration of how culture could be included in science by surfacing relationships between students' identities and experiences and the science knowledge students are expected to learn. Maria further disrupted the settled notion that culture has no place in science as an objective, neutral discipline by noting how culture could be an important resource in accessing and connecting to settled disciplinary content. At the same time, the group remained at a place of considering how students' cultures could be leveraged in service of settled science norms and they primarily framed science as a static discipline. Moving toward disrupting settled norms would require a consideration of how students' cultural practices may be seen as scientific in their own right when viewing science from outside of Western modern norms to truly invite disciplinary heterogeneity (Bang et al., 2012; Warren et al., 2020).

Bethany took up Maria's example and connected it to her own background experiences with trees. While Bethany misheard Hawaii as California (lines 14-16), she gave an example of palm trees in California as being novel "because I don't have palm trees where I'm from" (line 17). Her example attributed culture to the United States ("and that's an in our own country kind of culture thing", line 18). This move was significant because settler-colonial influences on language education often frame the field as neutral and cultural free (Demuro & Gurney, 2018; Macedo, 2019), particularly for those from dominant identities (see Keifert, 2021). Culture is positioned as something that is foreign and other, connected to the colonized. By naming culture within the United States, Bethany started to challenge this norm in a way that allowed the group to consider settled expectations and norms around culture in DLI more fully (Figure 5).

Speaker	Line	Talk	Mediated Action
Emily	1	= ¹ like I didn't know they had mangoes in-	¹ TCs turn to look back at E
Bethany	2	yes.	
	3	in certain-[certain African countries]	
Emily	4	[certain] ² French-speaking countries.	² B waves hand in air
	5	like, I don't think of <u>France</u> .	
	6	and ³ go, <u>mango</u> .	³ E cups hand like "mango"
Bethany	7	yeah.	
Maria	8	[yeah.]	
Abby	9	[right.]	
	10	right.	
Bethany	11	= ⁴ expanding your perspective.	⁴ B spreads hands diagonal
	12	super cool.	

Figure 5: Trees as Cultural Connections, Transcript 3

Emily took up Bethany and Maria's consideration almost immediately by naming her own learning from the representation of multiple trees ("like I didn't know they had mangoes in certain French-speaking countries", lines 1, 3). Bethany's insertion in Emily's pause ("certain African countries", line 3) and Emily's completion of her thought ("certain French-speaking countries", line 4) highlight the entanglement of language in settler-colonial histories. While Bethany foregrounded places (e.g., African countries) that are often not considered in science or language education, Emily attended to the language spread resulting from settler-colonialism (e.g., French-speaking countries). Emily elaborated this relationship as she continued: "like I don't think of France and go, mango" (lines 5-6). Emily's reflection on her surprise at the new connection highlighted the settled disciplinary norm in (DLI) language education to privilege Eurocentric representations of cultural and language varieties, recentering colonizing nation-states. As Emily pointed out, the norm is to associate French with France, and the multiple representations of trees from French-speaking countries around the world made this norm visible for the group. In fact, it was a reality that once named by Emily, resonated strongly with the group, as evidenced by the chorus of agreements (lines 7-10). Attuning to multiplicity here

surfaced for the group the relationship between colonizing histories, language learning, and cultural representations in the DLI classroom.

Abby offered a further exploration of these relationships in her elaboration of Emily's noticing (Figure 6).

Speaker	Line	Talk	Mediated Action
Abby	1 2 3 4 5 6 7 8 9 10 11 12 13 14	I also just think it's helpful, I mean (.) for like languages like German, ¹ it's not qu-hhh::: you don't have quite a broad, you know, ² if you give a map of where all the places are that speak German, I mean (.) also right now in the German world, they're being like, well, we ³ always focus on Germany and not Switzerland, and stuff like that. (.) so, but. it's really cool and helpful, to point out, like ⁴ all those islands that speak French?	¹ A spreads hands ² A opens hands ³ A shifts left and circles hands ⁴ A traces hand down in a list
Bethany	15	mmhmm.	
Abby	16 17 18 19 20 21 22 23 24 25 26 27	like. my husband served his mission in Tahiti, but. you don't necessaril-like, if you're like, ⁵ oh, I served a French-speaking mission. they'd be like, oh, to like ⁶ France? or to ⁷ Canada? and he's like nah. to an island. umm:: and. so that was really cool to also just see, actually, French is spoken in a lot of places.	⁵ A emphasizes with right hand ^{6,7} A lifts one hand then the other
Bethany	28 29	yes. I love that.	

Figure 6: Trees as Cultural Connections, Transcript 4

Abby began by connecting Emily's insight to her own context as a German DLI teacher candidate. She acknowledged how German is not as widely spoken as French ("you don't have

quite as broad...if you give a map of where all the places are that speak German", lines 4, 6). However, Abby recognized that the same issue of representation is present: "also right now in the German world [i.e., the German language teaching world], they're being like, well, we always focus on Germany and not Switzerland" (lines 7-9). While the relationship between Germany and Switzerland is somewhat different than the direct settler-colonial relationships between France and formerly colonized African countries, for example, Abby's point does highlight how colonizing nation-states tend to be privileged in language education. Furthermore, Germany does have a complex history of settler-colonialism to be considered just as France does.

Abby continued by sharing a personal example of assumptions about language, culture, and geography informed by settler-colonial influences. She noted that it was "really cool and helpful" (line 12) to acknowledge how widely French is spoken. She described how her husband had learned French as a religious volunteer (referred to colloquially in the local context as "serving a mission") in Tahiti (line 17). When Abby's husband shared that he served "a French-speaking mission" (line 20), people often assumed only two possibilities—France or Canada (line 22) and he corrected them with the third reality ("nah. to an island", lines 23-24). Abby's tone and facial expression while retelling her husband's experience suggested that the interaction she was describing was a common one. Her narrative highlights how these assumptions about language and place shaped by settler-colonialism pervade U.S. culture more broadly, even beyond a DLI-specific context. Thus, Abby concluded that it "was really cool to also just see, actually, French is spoken in a lot of places" (lines 26-27).

Abby's commentary created a rich opening to consider as a group exactly why French is spoken in a lot of places. However, Bethany's response ("yes. I love that.", lines 28-29) failed to take up this opportunity. While Abby's attunement to multiplicity surface potential to consider

the relationship between languages taught in U.S. schools and their settler-colonial histories, Bethany's facilitation missed an opportunity to further analyze and critique these relationships that might have moved the group towards delinking from these settled disciplinary norms.

Moment 1 demonstrates how attuning to multiplicity did surface opportunities for the group to consider settled disciplinary norms related to the inclusion of culture in science. The group also reflected on norms of representing settler-colonial cultures and languages from colonizing nation-states and the potential to incorporate examples from colonized countries as well. However, overall, the group's sensemaking stopped short of critiquing or analyzing disciplinary practices to disrupt settled norms. Moment 2 provides a contrasting example where settler-colonial influences were identified more explicitly.

Moment 2: “rz” Writing Sample and Linguistic Variety

Moment 2 occurred during Week 14. Abby (German), Anne (Spanish), Maria (Spanish), Melody (Chinese Mandarin), and Mia (Spanish) were all present. The class was discussing early bilingual writing development, and Emily presented examples of writing at various stages (e.g., scribbles, strokes and marks with an intended message, strings of letters, invented spellings). Emily invited the teacher candidates to analyze each writing sample, and after the group's conversation, Emily provided some additional information about each writing stage. Several of the initial examples traced the same child, an L1 English speaker, over several years. Emily then presented the group with a writing sample that had a drawing of a planet and the letters "rz" beneath it, appearing below as Figure 7. Looking at the slide, the group continued their pattern of analyzing the sample (Figure 8).

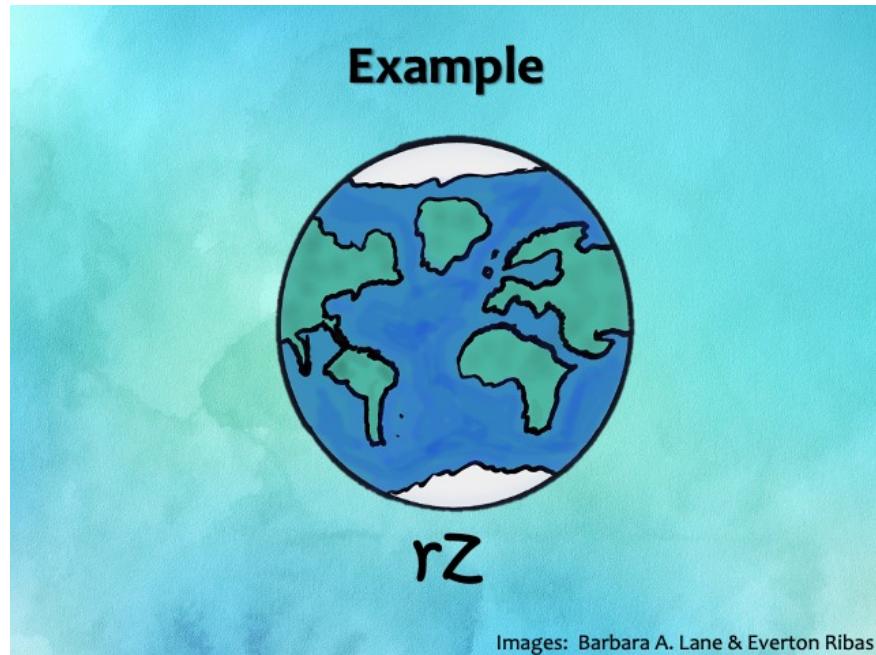


Figure 7: "rz" Writing Sample

Speaker	Line	Talk	Mediated Action
Emily	1	okay.	
	2	'last example.	¹ E puts up RZ slide
	3	what does that say?	
Mia	4	earth.	
Emily	5	² why? (2.0)	² E points at Mi
	6	how did you get earth out of that?	
Mia	7	well, [³ one, the pictures.]	³ Mi points at slide
Anne	8	[I see the earth.]	
	9	(laughs) yeah.	
Mia	10	⁴ one, the picture, the kind of just	⁴ Mi points at slide
	11	looks ⁵ like the earth	⁵ Mi twists palm open
	12	and then	
	13	⁶ just like the "r" at the beginning of it,	⁶ Mi waves hand back and forth
	14	and I don't know how the "z" fits in,	
	15	but I saw earth.	
Anne	16	or is it a "t"?	
		(1.0)	
Mia	17	⁷ could be.	⁷ Mi opens hand in a "shrug"
Emily	18	⁸ Mia, you're right.	⁸ E looks at Mi and nods
	19	it does say earth.	
	20	now tell me why.	
	21	use ⁹ a::ll of your linguistic resources (.) your cultural resources,	⁹ E opens hands and circles them 2x
	22	to tell me why.	

Figure 8: "rz" Writing Sample, Transcript 1

Emily invited the group to determine what was written on the sample ("what does that say?", line 3), and Mia immediately interpreted "rz" to mean "earth" (line 4). Emily then pressed for a deeper analysis ("why?", line 5), which the teacher candidates initially seemed to struggle to provide as indicated by the 2-second pause. Emily rephrased her request for an explanation ("how did you get earth out of that?", line 6), and Anne and Mia immediately referenced the picture (lines 7-8). Mia then pushed forward to connect the picture to the writing, with the "'r' at the beginning of it" (line 13), although she acknowledged that she didn't "know how the 'z' fits in" (line 14). After some effort to figure out how the "z" connected, including Anne proposing that it might be a "t" (line 16), a more "logical" letter for Earth, Emily affirmed Mia's initial

assertion ("Mia, you're right. It does say earth. Now tell me why.", lines 18-20). Emily then attuned to multiplicity as a resource to make sense of the sample: "Use all of your linguistic resources, your cultural resources, to tell me why" (lines 21-22).

This push to think across multiple languages shifted Mia's next attempt at analysis. (Figure 9).

Speaker	Line	Talk	Mediated Action
Mia	1 2 3 4	[well in] Spanish, like the letter s::: ¹ like the letter “z” is like {se- ² ta}, and it’s like	¹ E nods ² Mi twists hand open
Anne	5	[o:::h yeah]	
Mia	6 7 8 9	[-it’s like ³ {ta}] they might have like- if it’s somebody who knows Spanish, they might be like,	³ Mi twists hand open
Anne	10	[that’s true]	
Mia	11 12	[might] have ⁴ felt like oh that is	⁴ Mi brings hands to temples
Anne	13	letter [unclear]	
Mia	14	[a zee] sound	
Emily	15 16	⁵ you’re so close. you’re so close. (3.0)	⁵ E pinches hand forward
Mia	17 18	I just, that’s just what I thought.	
Emily	19 20 21 22 23 24	⁶ you’re right. ⁷ this is supposed to say ear- {er} and ⁸ this is supposed to say -th {thuh} why do they think- why does this child think that a “z” says {thuh}?	⁶ E nods at Mi ⁷ E points at “R” on slide ⁸ E pivots and points at “Z” on slide
Anne	25	[thei::r first language]	
Emily	26 27	[cause in English a “z” says {zuh}] (.) ⁹ first language, and from what specific region or regions?	⁹ E points at An
Anne	28	Spain ¹⁰	¹⁰ E nods at An, still pointing
Emily	29 30 31	because, in Spain, how is a “z” pronounced?	
Anne	32	[unclear]	
Mia	33	[unclear] a:::h,	
Emily	34	a theta.	

Figure 9: "rz" Writing Sample, Transcript 2

While in Figure 8, the group was working to make sense of the student's writing from an English-only orientation, in Mia's second attempt, taking up Emily's invitation to attune to multiplicity, she considered the possibility of another language ("well in Spanish", Figure 9 line

1). This shift surfaced the settled norm of assuming a monolingual lens when evaluating student thinking, something Emily returned to later on. As Mia articulated the sound-symbol relationship for the letter "z" in Spanish (lines 2-6), she and Anne began to identify the potential for a logical connection between the letter "z" and the sound "th" (thuh) in English (lines 7-14). However, the questioning tone in Mia's voice suggests that she remained somewhat uncertain of the accuracy of her proposed connection. Emily affirmed Mia's thinking ("you're so close", lines 15-16), and after another pause, provided an additional press by breaking down their analysis thus far: "this [the letter r] is supposed to say ear- (er), and this [the letter z] is supposed to say -th (thuh)....Why does this child think that a "z" says thuh? Cause in English a "z" says zuh", lines 20-21, 23-24). Anne took up the group's attunement to multiplicity by offering "their first language" (line 52) as a response to Emily's question. Emily then pressed them to think not only about multiple languages, but also about multiple language varieties within a named language ("and from what specific region or regions?", line 27). This final press "clicked" for the group, made visible through nods and Mia's "a::::h" (line 33) as they connected how in parts of Spain, the letter "z" is pronounced as "theta" (line 34) in contrast to pronouncing "z" as "seta" as is done in other Spanish-speaking regions. Thus, for the child, the letter "z" was directly linked to the sound "thuh", resulting in the inscription "rz" that would be pronounced "er-thuh" or "earth". This analysis helped surface not only settled monolingual norms, but also settled norms in language education that privilege certain language varieties over others, something that has been documented in DLI classrooms specifically (e.g., Briceño, 2018; Freire & Feinauer, 2022).

As the group finished their analysis of the writing sample, Emily offered an interpretation of the student's work (Figure 10).

Speaker	Line	Talk	Mediated Action
Emily	1 2 3	¹ so this is an example, of a bilingual child, who is learning to write in English,	¹ E points at slide
Abby	4	they have really good handwriting. <i>(laughs)</i>	
Emily	5 6 7 8 9 10 11 12 13 14 (2.0)	and, who is using ² a:ll of their linguistic resources, ³ to try to communicate. they're ⁴ labeling it, they ⁵ hear the word {er-thuh}, right? and what do we know, or ⁶ what did we learn, about where that puts them, in terms of development?	² E spreads hands wide and gathers them close ³ E mimics writing on hand ⁴ E points to picture and label on slide ⁵ E points to ear ⁶ E points to list of writing stages on board
Maria	15	[unclear] the phonetics	
Emily	16 17 18 19 20 21 22 23 24 25 26	they're recognizing the phonetics, they're starting to put th- the sounds to the letters, and ⁷ so in their brain, the ⁸ sound "r" says {er} and ⁹ they know that a "z" in Spanish says {thuh}.(.) even though what they're trying to write is an English word. that's spelled completely differently. (.)	⁷ E points with both fingers to temples ⁸ E points to "r" on slide ⁹ E points to "z" on slide

Figure 10: "rz" Writing Sample, Transcript 3

Emily's narration provided an anti-deficit framing of the child's work relating to both science and language learning. Emily acknowledged that the student was "a bilingual child, who is learning to write in English" (lines 2-3). However, rather than follow settled disciplinary norms in science that might critique inaccuracies in the work, she acknowledged the representation of the drawing of the planet and celebrated how the child "labeled it" (line 70), as a feature of scientific drawings (e.g., Pierson et al., 2021). Emily also recognized how the student was "using all of their linguistic resources to try to communicate" (lines 6-7), resisting deficit norms that would penalize the child for incorrectly writing "rz" instead of using the school language of "earth"

(García & Solorza, 2021). Similarly, Emily rejected the notion that the child's use of "rz" is wrong in both Spanish and English. Instead, she referenced back to the group's understanding of writing development (lines 11-18) and unpacked how the student's response actually showed a complex understanding of sound-symbol correspondence across multiple languages: "so in their brain, the sound "r" says {er}, and they know that a "z" in Spanish says {thuh}" (lines 19-23). Emily's attunement to multiple languages and language varieties surfaced connections to settled expectations about language use and accuracy in science and language learning. However, Emily resisted settled assumptions about the inaccuracies of this child's work and thinking. Instead, Emily took an opening to illustrate this child's complex thinking for the teacher candidates.

Emily contrasted this anti-deficit framing by analyzing with teacher candidates how more dominant, settled perspectives might shape a teacher's interpretation of the child's work (Figure 11).

Speaker	Line	Talk	Mediated Action
Emily	1 2 3 4 5 6 7	so now I want you to think about the implications of this. if <u>you</u> are this child's first grade teacher, and ¹ he draws you a picture of the earth and writes {er-thuh}, (.) and you aren't ² thinking about the fact that this is a Spanish speaker, ³ what are you going to think? about the child?	¹ E points to the picture, traces the letters on the slide ² E circles hand by temple ³ E points to slide
Abby	7 8	that he doesn't understand what the letters mean. (<i>laughs</i>) and like what the sounds are for the letters.	
Maria	9 10	I would think he's naming the planet. like because he's	
Emily	11 12 13 14 15 16 17 18	you might, if you're ⁴ generous, you might think he's ⁵ naming the planet, this is planet RZ. but if you ⁶ get a lot of stuff like this, can you see why, a lot of English-speaking teachers with a ⁷ monolingual perspective,	⁴ E opens hand ⁵ E points to slide ⁶ E puts hand on slide and wiggles fingers ⁷ E brings hands to temples and pulls them down in front like blinders
Mia	19	o::mmm.	
Emily	20 21 22 23 24 25 26 27 28	might say, ⁸ this child's learning disabled? we've been doing letters and sounds for half of a year, and this kid's giving me {erzuh}? (1.0) right? maybe ⁹ this child has a hearing problem, maybe he ¹⁰ thinks that earth is 11{erz:}. maybe ¹² that's what he's hearing. (1.0) can you see how kids get mislabeled or whatever?	⁸ E points at slide ⁸⁶ E points to ears ⁸⁷ E points to picture of earth ⁸⁸ E shrugs ⁸⁹ E gestures towards ears

Figure 11: "rz" Writing Sample, Transcript 4

Emily began by inviting the group to consider how a teacher who wasn't "thinking about the fact that this is a Spanish speaker" (line 5) might view the writing sample. Abby offered a common interpretation—that the teacher would assume that the child doesn't know "what the sounds are

for the letters" (line 8). Maria proposed an interpretation of "rz" as representing the name of the planet (line 9), which Emily acknowledged as a "generous" interpretation (lines 12-14). Emily then expanded on Abby's point, explicitly naming the settled norm of predominantly "English-speaking teachers" in public schools (line 17) and the settled influence of "a monolingual perspective" (line 18). Emily highlighted the impact of these settled realities, leading teachers to think "this child's learning disabled" (line 21) or that "maybe this child has a hearing problem" (line 25) because his sound-symbol correspondence did not follow English language mappings. Emily's direct namings of these deficit views of the child contrast starkly with her earlier anti-deficit description to highlight the settled practice of bilingual students "get[ting] mislabeled," a practice supported by research, including in DLI contexts (e.g., Hernandez, 2017). As Emily presented a norm in schools that is perpetuated when they fail to attune to multiplicity, particularly around language, she provided a compelling critique of the impact of these settled expectations.

Emily concluded with a call to action for her teacher candidates (Figure 12).

Speaker	Line	Talk	Mediated Action
Emily	1 2 3 4 5 6 7 8 9 10 11 12	so it's <u>r:really</u> important for you ¹ as language teachers <u>in</u> an immersion classroom, to get <u>good</u> ² at the kind of analysis that I've been showing you. <u>because</u> , you are (.) ³ in some cases, gonna be the <u>only</u> person who can advocate ⁴ for what's <u>really</u> going on. for that particular child. kay? and I don't mean to make it sound like ⁵ "ooh you have all the responsibility," but just like (.) being aware ⁶ can help you be a better teacher.	¹ E gestures toward TCs ² E circles fingers around each other ³ E opens hands ⁴ E opens palm to side ⁵ E circles hands over class ⁶ E gestures towards slide

Figure 12: "rz" Writing Sample, Transcript 5

Emily recognized the potential of the teacher candidates to attune to multiplicity given their roles "as language teachers in an immersion classroom" (line 2). She encouraged them to "get good" (line 3) at analyzing students' work in ways that acknowledge students' multiple languages and cultures, highlighting how "you are in some cases, gonna be the only person who can advocate for what's really going on for that particular child" (lines 5-7). Emily recognized how the teacher candidates' capacity to attune to multiplicity could create openings for the teacher candidates to resist settled norms and narratives and advocate for marginalized learners. As Emily concluded, "being aware can help you be a better teacher" (line 12). The gravity of Emily's call to action was emphasized through Emily's tone and gestures (see lines 1-6; actions 4-5). This discussion also highlighted the potential of DLI spaces to disrupt settled norms and assumptions around language. While the group did not go so far as to envision alternative possibilities for learning that was delinked from these realities, Emily's analysis and critique was a powerful way to highlight for teacher candidates their role in and capacity to refuse settled influences within the current system.

Discussion and Implications

This paper has considered how multiplicity served as a resource in a DLI methods course. I found that multiplicity, particularly attuning to multiple languages and cultures, created openings in sensemaking that surfaced settled disciplinary norms around science and language learning. I demonstrated the different trajectories that surfacing followed in a close analysis of two contrasting moments. In Moment 1, settled norms around the role of culture in science were surfaced, and the group's sensemaking expanded to consider how to include culture in science to the end of supporting settled science learning. The group did not push to critique settled disciplinary norms of what counts as scientific knowledge and practices to include true onto-

epistemic heterogeneity. Similarly, multiplicity in Moment 1 surfaced settled norms around cultural representations in DLI learning. The group engaged in sensemaking that expanded consideration of which cultures to include, pushing back on the norm to focus on culture from colonizing nation-states, to include cultures of the colonized who speak the immersion language as a result of settler-colonialism. However, the group again failed to analyze the settler-colonial histories that created present-day cultural and linguistic realities or to critique or consider what it might mean to delink from (or at least acknowledge) settler-colonial histories in their DLI instructional practices (Demuro & Gurney, 2018).

In Moment 2, multiplicity around languages and language varieties opened space to consider the relationship between a bilingual child's identity and sensemaking and settled disciplinary norms around language use in science and assumptions about language development. Emily's anti-deficit narration that framed a bilingual child's writing sample as brilliant in terms of language and science created a stark contrast for her subsequent naming of deficit assumptions influenced by settler-colonial norms. In contrast to Moment 1, Moment 2 did involve the explicit naming and critique of settled norms. This critique, paired with Emily's refusal of dominant framings of students, allowed Emily to highlight for the teacher candidates their potential to attend to multiplicity as a continued resource to advocate for linguistically minoritized learners in settled learning spaces, including in DLI contexts.

Taken together, both moments suggest that multiplicity can be an important resource to surface settled norms in disciplinary learning. Given the plurality of languages and cultures in this DLI teacher education context, it made sense that opportunities to attune to multiplicity would emerge, and they did. It is also generative to consider how to cultivate similar plurality in other learning contexts, including centering students' diverse backgrounds (e.g., Pierson et al.,

2021) and helping teachers and teacher candidates recognize that diversity for its potential (Warren & Rosebery, 2011). While attuning to multiplicity in this DLI context allowed settled norms to surface, they were not always engaged with in ways that seeded opportunities for delinking from settled norms as Warren and colleagues (2020) envisioned. I argue that this limitation is due in part to facilitation moves that shut down rather than opened up space for this sensemaking, such as my own in Moment 1. Similar research has found that the role of facilitation is key in supporting shifts toward anti-deficit perspectives (Daniel et al., 2023). More work is needed to understand how facilitation can support a deeper engagement with colonial histories to refuse settled disciplinary norms and to help teachers and teacher candidates reimagine alternative possibilities for disciplinary learning in their contexts.

It is worth noting that the surfacing of settled histories and norms in Moments 1 and 2 took place in predominantly White spaces, a contrast to some of the more subversive spaces, such as the Migrant Student Leadership Institute, that Warren and colleagues (2020) describe in connection with multiplicity. A key implication from this analysis is a consideration of the role of positionality in multiplicity, particularly in light of the settled influences that pervade many educational spaces and the dominant identities that many educational researchers, including myself, hold. What does it look like to cultivate plurality and allow for attunement to multiplicity that centers colonized voices rather than taking for granted the colonizers' reports of the colonized (Makoni & Pennycook, 2007)? Is true onto-epistemic heterogeneity possible in settled educational spaces, and if so, to what extent? I propose that answers to these questions might be found by considering all three sensibilities outlined by Warren and colleagues (2020) in tandem. While I focused on multiplicity "as a necessary beginning toward delinking" from settled disciplines (p. 279), dialogicality and horizontality provide important additional facets to the

consideration of coloniality in disciplinary learning. As dialogicality allows for a challenging of the colonial constraints of language and horizontality allows for challenging the colonial constraints of the classroom, disciplinary learning can be reimagined beyond the limits of this analysis.

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CHAPTER 3

Constructing Professional Vision in Interaction in a Dual Language Immersion Methods

Course

Learning to teach is complex. The process requires future teachers to gain expertise across multiple domains (Shulman, 1986), develop a variety of new practices (Grossman & McDonald, 2008), take on new roles (Ladson-Billings, 2011), and learn to see what happens in classrooms in new ways (Goodwin, 1994). This learning is embedded in cultural, historical, and political contexts that shape teaching (Gutiérrez, 2013) and is influenced by dominant ideologies (social frameworks for constructing the world; S. Hall, 1996) that reproduce educational inequities (Leyva et al., 2020; Philip, 2011).

Efforts in teacher education to prepare future teachers often seek to deal with this complexity by oversimplifying the work of teaching. These teacher preparation approaches reduce teaching to a set of technical “core practices” that teacher candidates master, then implement repeatedly (Macedo, 2019; Philip et al., 2019). Such reductionist orientations result in a static vision of teaching that fails to account for individual students and local contexts or to interrogate inequitable power relations in schooling (Bartolomé, 1994; Kang, 2022). Instead, equity is relegated to the periphery and teacher education serves to maintain and reproduce an inequitable status quo (Ladson-Billings, 2011; Philip et al., 2019).

An alternative to oversimplification is an approach to teacher education that acknowledges the complexity of learning to teach (Keifert et al., under review). This type of teacher preparation frames teaching as dynamic, one that does not rely on a fixed method (Bartolomé, 1994). Instead, future teachers engage in learning how to teach while attending to the cultural, historical, and political facets of the work (Gutiérrez, 2013). These contextual

realities surface tensions between dominant ideologies that inform policies and practices that marginalize minoritized learners (e.g., Louie, 2018; Stein, 2004) and efforts to disrupt these norms to support more equitable learning spaces (e.g., Shah & Coles, 2020). Teacher education then becomes a space where future teachers can wrestle with tensions that prepare them to become agents of change who creatively re-envision their future classrooms (Bartolomé, 2010; Wassell et al., 2019).

This paper considers the practice of one teacher educator, Emily, and her work with Dual Language Immersion² (DLI) teacher candidates. I present Emily as an instance of a teacher educator who attended to complexity in her practice. I examine how Emily supported her teacher candidates to see professional phenomena in new ways to build professional vision (Goodwin, 1994). Through interaction, Emily constructed a dynamic professional vision that resisted a mechanical approach to teaching. Instead, Emily's construction of professional vision surfaced challenges and tensions for the class to explore together. They drew on a range of interactional resources (Goodwin, 2018) to develop solutions to the problems and to grapple with the tensions as Emily positioned her teacher candidates agentically as emerging professionals. While Emily's practices examined here have implicit connections to equity, I propose that Emily's work provides insights into how constructing a dynamic professional vision may be an important part of preparing equity-oriented future teachers.

Theoretical Framing

The complexity and tensions present in learning to teach as described above are amplified in Emily's DLI teacher education context because DLI sits at the intersections of content and

² I use DLI here because it was the terminology used in the local context. However, I recognize that the term obscures historical connections to bilingual education and the marginalization of linguistically minoritized learners (see Flores & García, 2017).

language learning. DLI is a form of bilingual education with a goal of developing academic content understanding, linguistic proficiency and literacy, and sociocultural competence in an immersion language (e.g., French, German, Mandarin, Spanish) and English (Howard et al., 2018). Program models and language allocation policies vary and shape features of DLI programs such as the number of first language [L1] speakers of the immersion language and of English in each class and the ratio of instructional time spent in the immersion language versus in English (Delavan et al., 2021; Freire & Delavan, 2021).

Learning to become a DLI teacher is thus inherently multifaceted. Future DLI teachers need an awareness of the diversity of learning contexts within DLI, expertise in multiple languages, strong academic content area knowledge, a general understanding of pedagogy and curricular development, specialized knowledge of second language acquisition and biliteracy development, language proficiency in multiple languages, cultural competency in multiple cultures, and an understanding of the sociopolitical context of U.S. and DLI education (Amanti, 2019; Guerrero & Lachance, 2018; Lachance, 2017; Hood, 2020; Howard & López-Velásquez, 2019). Similarly, tensions in DLI exist between current trends that privilege access to DLI for White, monolingual English speakers (Dorner et al., 2021; Valdez et al., 2016) and the historical roots of DLI as intended to support linguistically minoritized learners (Delavan et al., 2021; Flores & García, 2017), including ideological influences that reproduce inequities within DLI spaces (e.g., Freire & Delavan, 2021). Thus, the complexity and tensions in Emily's context makes it a rich space to consider her work of constructing professional vision.

I frame my analysis of Emily's work around three theoretical constructs: professional vision (Goodwin, 1994), interactional substrate (Daniel et al., 2023; Goodwin, 2018), and multiplicity (Warren et al., 2020). I examine each of these constructs below.

Professional Vision

Professional vision takes a sociocultural view of learning as situated within communities of practice (Lave & Wenger, 1991). New individuals seeking to be apprenticed into a given profession learn the practices of that profession as they co-operatively engage in professional activities, with professional tools, under the guidance of a skilled practitioner (Goodwin, 2018). Key to becoming a competent member of a professional community is an ability to see and interpret phenomena in the ways that experts in the field do. Goodwin (1994) defined this ability as *professional vision*, or "socially organized ways of seeing and understanding events that are answerable to the distinctive interests of a particular social group" (p. 606). Developing professional vision involves not just observation, but full participation in professional action alongside a competent expert within the professional setting (Goodwin, 2018). As part of this participation, action, bodies, tools, and talk are coordinated to establish and convey "disciplined perception" (Stevens and R. Hall, 1998), where practitioners determine and evaluate relevant features to their work that may go unnoticed by those outside of the discipline.

Goodwin (1994) identified three practices that experts across fields use as part of the process of constructing professional vision through interaction: *coding*, *highlighting*, and *producing and articulating material representations*. He illustrated each of these practices within the context of field archaeology. *Coding* refers to the practice of naming phenomena—and particular features of those phenomena—in a setting as relevant to the profession. Key to the work of archaeology is an analysis of different features of dirt that can be interpreted as traces of past human activity that is meaningful for the discipline of archaeology. Thus, archaeologists must code the features of the dirt (e.g., color, texture) and categorize it based on these properties. Coding is facilitated through the use of tools, including professional discourse specific to the

profession. For example, archaeologists use the Munsell color chart and its labels to characterize dirt. *Highlighting* involves marking features as significant from within a complex perceptual field. Archaeologists highlight patterns of dirt that suggest archaeological features by tracing lines in the dirt, visibly annotating the perceptual field and marking the feature as relevant to the profession. Finally, *producing and articulating material representations* involves (re)creating tools that support the activities of the profession. In the case of archaeologists, the annotations on the ground that highlight phenomena of interest are transferred to maps of the site to be used by the team of professionals. While representational forms and practices are often shared across a professional discipline, representational practices can also emerge as shared within a specific community in unique ways responsive to that context (Enyedy, 2005; Goodwin, 2018).

Goodwin (1994) also highlighted the power inherent in professional vision. Because professional vision is socially constructed, it often reproduces professional norms that maintain a status quo shaped by dominant ideologies that perpetuate inequities. This means that professional vision can (and sometimes should) be contested to surface and question its socially reproductive nature. Drawing on the courtroom as a context, Goodwin provided a careful (and often chilling) analysis of the trials of police officers charged with the use of excessive force against an African American man, Rodney King. Video capturing the violent beating was a primary piece of evidence. Goodwin demonstrated how lawyers drew on carefully constructed arguments that led the jury to understand the footage in a particular way that led to the acquittal of the police officers. The case centered around the *representations* of stills from the video evidence. Throughout the trial, individuals *highlighted* aspects of the tape (e.g., body positions, minute movements) as relevant. Most significantly, a key witness, a police officer considered an expert on the use of force, *coded* Mr. King's movements as aggression in a way that justified the

officers' actions, leading to their acquittal. This outcome came about because of how professionals drew on the discourses of their practice to contest what was visible in the evidence. A later interpretation of the same evidence overturned the acquittal for some of the officers. Goodwin concluded his analysis of the case with a caution to consider the ethics embedded in the "power to speak as a professional" (1994, p. 624).

Goodwin (1994) described how the practices of coding, highlighting, and producing representations facilitate the development of professional vision: "as these practices are used within sequences of talk-in-interaction, members of a profession hold each other accountable for—and contest—the proper perception and constitution of the objectives of knowledge around which their discourse is organized" (p. 628). Much valuable work in teacher education has taken up Goodwin's notion of professional vision to consider how and what teachers as a profession notice (see König et al., 2022 for a recent review). However, scholars have noted that this application of professional vision tends to obscure the socially constructed and interactional nature of Goodwin's framing (Lefstein & Snell, 2011; Louie, 2018).

Key to Goodwin's argument is the fact that the practices of coding, highlighting, and producing representations are used to coordinate professional discourse, bodies, and tools in interaction within a professional space. Thus, I used the practices of coding, highlighting, and producing representations as an analytic lens in conjunction with talk and resources in the classroom to consider how Emily, a DLI teacher educator, worked to construct professional vision in the moment through her interaction with her teacher candidates. Figure 13 summarizes each of the practices of professional vision and maps Goodwin's examples to this DLI context.

Processes of Constructing Professional Vision			
	Coding	Highlighting	Producing and Articulating Representations
<i>Professional Contexts and Practices</i>	<i>Transforming professional phenomena into objects of knowledge to be categorized and organized</i>	<i>Making features of professional phenomena salient by marking them within a complex perceptual field</i>	<i>Creating graphic inscriptions that complement and mediate professional discourse and interaction</i>
	<i>Archaeological Field Excavation</i>	using a Munsell color chart and its terminology to categorize dirt as evidence of human activity	outlining archaeological features in the dirt with a trowel
	<i>Courtroom Argumentation</i>	characterizing body movements as aggressive to justify use of police force	annotating photos from video evidence
	<i>DLI Methods Course Sensemaking</i>	labeling shared experiences in the interaction as linguistic phenomena or pedagogical strategies to build professional discourse	circling or bracketing words on the whiteboard
			creating a list on the whiteboard to capture ideas; co-constructing a poster to envision a student-facing representation

Figure 13: Professional Vision Across Contexts

Interactional Substrate Across Timescales

Because professional vision is constructed in interaction, it is important to consider what resources support constructing professional vision as an interactional accomplishment. As interactions unfold, they are mediated by tools and talk in what Goodwin (2018) referred to as co-operative action. Co-operative action involves building something new through the decomposition and reuse, with transformation, of resources available in a public environment that were left by an earlier actor. Goodwin identified these interactional resources available for decomposition, reuse, and transformation as *substrate*, which he defined as "both the sedimented

outcome of earlier action, and the source of subsequent action" (2018, p. 32). Goodwin demonstrated how substrate serves as a resource for co-operative action at multiple scales. A short interaction between two boys illustrates co-operative action across turns of talk (Goodwin, 2018, p. 3):

Tony: [Why don't you] [get out my yard.]

Chopper: [Why don't you] make me [get out the yard.]

Chopper took up the talk resources provided by Tony, decomposed and transformed them, and then reused them to respond to Tony. While the boys were not cooperating in their interaction, it was an example of co-operative action. Substrate may not necessarily involve language as a resource. Goodwin traced how substrate in the form of tools, such as an ax, supported co-operative action across longer timescales by maintaining a key pattern that allows for the accomplishment of a task while changing elements and features within the pattern (2018, p. 4). Parts of the ax publicly available (such as a handle and a head) were reused and transformed over time to create new tools.

Substrate is important to consider in relation to constructing professional vision because substrate shapes subsequent interactions (Enyedy, 2015; Erickson, 2004; Keifert & Marin, 2018; Keifert & Stevens, 2019). Daniel and colleagues (2023) found that as part of the process of teacher sensemaking, teachers in a professional development (PD) community took up substrate across multiple timescales, including historical ideas and tools (e.g., deficit narratives of students, state standards, district mandates) and earlier PD experiences. These interactional resources shaped how and what the teachers taught as well as how they engaged in the PD community. For example, substrate in the form of content standards were a resource that teachers took up to plan lessons, but the standards were in tension with community goals. To navigate

these tensions, teachers took up resources seeded in the substrate from prior shared PD experiences.

From these findings, Daniel and colleagues (2023) proposed that substrate in teacher learning spaces occurs across three timescales. *In-the-moment* substrate involves interactional resources from talk and action during a given interactional sequence. This substrate is similar to Chopper's reuse and transformation of Tony's utterance illustrated above. *Recent* substrate includes resources and tools collected within a community based on shared experiences prior to the moment of interaction. For example, for the PD community described above, summer PD meetings provided recent substrate for subsequent school-year PD meetings. Finally, *historical* substrate involves individuals' experiences prior to joining the community (Keifert, 2021), and broader societal resources, consisting of "historical sets of ideas, tools, and understandings taken as commonsense" (Daniel et al., 2023, p. 12). Historical substrate may be concrete (e.g., individual prior experiences; policy documents such as standards) or more abstract (e.g., deficit narratives of "teachers blaming students", see Philip, 2011). Historical substrate may also be deeply sedimented and layered, and consequently, may reproduce dominant ideologies that easily surface in interactions but are difficult to disrupt (Daniel et al., 2023).

I draw on these timescales to analyze the substrate that shaped Emily's interaction with her DLI teacher candidates. Figure 14 defines these timescales based on the DLI context considered here.

Substrate Timescale	Definition	DLI Context Example
In-the-moment	Resources from within a specific interactional sequence	“Retelling Blue Honey” narrative that begins the focal interactional sequence
Recent time	Shared community experiences prior to the interactional sequence	Immersive French lessons led by Bethany prior to the focal interaction
Historical time	Individual experiences prior to joining the community; Broader societal resources, including professional policies and practices	Linguistic phenomena such as “transfer” and pedagogical strategies such as “TPR” (Total Physical Response)

Adapted from Daniel et al. (2023), p. 11

Figure 14: Interactional Substrate Across Timescales

Multiplicity

One resource available in the substrate that supported the construction of a dynamic professional vision that resisted a static notion of teaching was *multiplicity*, or the practice of attuning to heterogeneous ways of knowing, particularly, in this context, as mediated through different languages and cultures (Warren & Rosebery, 2011; Warren et al., 2020). The practice of multiplicity existed in this community as part of historical substrate but as a non-dominant practice that runs counter to most educational practices (e.g., Bang et al., 2012; Philip et al., 2019). Attuning to multiplicity became an important resource for sensemaking within the group. It is important to note that Warren et al. (2020) propose *multiplicity* as a key first step toward onto-epistemic heterogeneity, or disciplinary learning that welcomes and integrates multiple ways of knowing and being in the world. I do not argue here that attuning to multiplicity in this context resulted in onto-epistemic heterogeneity, but rather that by centering multiplicity as a resource, Emily made space to acknowledge perspectives and approaches that are not always considered in language teacher education. I see this move as a first step toward a more complete heterogeneity in line with Warren and colleagues, a consideration which I attend to more fully in the discussion.

I distinguish multiplicity from plurality. Plurality was inherent in the course structure and dynamics. A plurality of languages existed as the teacher candidates enrolled in Emily's course spoke a variety of different languages (Cantonese, French, German, Japanese, Mandarin, Spanish) from a variety of different backgrounds (Cantonese first language [L1] speaker, English L1 speaker, Shanwei L1 speaker, Spanish L1 speaker; English second or additional language [L2] speaker, French L2 speaker, German L2 speaker, Mandarin L2 speaker, Japanese L2 speaker, Spanish L2 speaker). Students had diverse cultural experiences having lived in a variety of countries for extended periods of time (e.g., Canada, China, Germany, Guatemala, Mexico, Peru). Similarly, the methods course approach was pluricentric. Emily did not ascribe to a given method (Bartolomé, 1994) and drew on instructional techniques from multiple disciplines (e.g., [bi]literacy, science, world language). While this plurality likely facilitated multiplicity, I only identified a moment as invoking multiplicity when plurality was taken up as a resource for sensemaking. For example, at the beginning of the focal moment analyzed here, a teacher candidate retold a story using French, English, and Spanish. Emily attuned to this plurality of languages as multiplicity and took it up as a resource in her work of constructing professional vision. Similarly, throughout the subsequent interaction, participants engaged with the presence of multiple languages as multiplicity to facilitate their sensemaking.

Methods

Study Context

The data for this analysis come from a DLI methods course taught by Emily at a large, private university in the western United States. The university was unique in offering DLI-specific methods courses in connection with a university minor that led to a state K-12 DLI endorsement. The 15-week, semester-long course met weekly for 3 hours and was focused on

developing DLI students' biliteracy. Emily emphasized developing biliteracy through integrating immersion language learning, culture, and content-area instruction to support literacy development. Emily often highlighted science as an academic content area because science was typically taught in the immersion language based on the state DLI program models.

Emily took an experimental approach to the course. She regularly involved teacher candidates as participants in activities so they could experience as learners the different teaching strategies they discussed. Teacher candidates had frequent opportunities to teach their peers and receive feedback on their teaching. Lesson materials and examples represented a variety of languages (e.g., French, German, Korean, Mandarin, Portuguese, Russian, and Spanish). Emily also invited me, as a participant-researcher during the course, to lead two demonstration lessons midway through the semester. These lessons were taught in French and explored the science phenomena of how oak trees reproduce and how bees forage for nectar to make honey. As a result of Emily's approach to the course, her teacher candidates were regularly immersed in using unfamiliar languages and in teaching peers who did not speak their immersion language while enacting a wide range of teaching practices. This dynamic cultivated the plurality described above and allowed Emily and the teacher candidates to attune to multiplicity as a resource during their interactions.

Participants

Six teacher candidates were enrolled in the course. During the focal moment analyzed here, five were present: Abby, Anne, Luna, Melody, and Maria. All the teacher candidates except Melody had English as their L1. Melody's L1 was the Shanwei dialect of Chinese, and she also spoke Cantonese and Mandarin. Melody's immersion language was, according to state labels,

Chinese (Mandarin). Abby's immersion language was German. The other three teacher candidates, Anne, Luna, and Maria, all had Spanish as their immersion language.

Emily, the instructor, facilitated the focal moment. Emily had taught the course observed here since 2018. Emily's background was in Spanish language education, and she was actively involved in the DLI teacher preparation program as well as the broader DLI context within the state and (inter)nationally. As a participant-researcher, I was also present during the focal moment. Just prior to this interaction, I had facilitated the shared immersive experience about bees and foraging ("Blue Honey") taught in French. The diversity across participants again highlights the potential for attuning to multiplicity throughout the course.

Data Collection and Analysis

The data for this analysis came from recordings of class sessions over a 15-week semester. I did not record the first six class sessions to allow Emily time as the instructor to establish class norms and a class culture. We also determined together that the content covered during those first few weeks (an overview of biliteracy theories in DLI) was less relevant to the study's focus. The remaining nine class sessions were recorded in person when I or a research assistant were present or via Zoom when I participated remotely. The focal moment was from Week 11's class session, which was recorded in person using two cameras, one from the participants' perspective that captured the instructor and front whiteboard and projector, and one from the teacher's perspective that captured the teacher candidates and their participation. For my analysis, I stitched together both video streams to capture both perspectives (R. Hall, 2000).

Data analysis was guided by Interaction Analysis practices. I began by content logging video recordings of all nine class sessions (Erickson & Schultz, 1997; Jordan & Henderson, 1995). The moment analyzed here immediately stood out as one rich in interactional activity

where participants were collectively engaged in the work of sensemaking (Jordan & Henderson, 1995). Using the notion of professional vision as a sensitizing concept (Blumer, 1954), I then rewatched the moment to make sense of how professional vision was being constructed, attending carefully to the diversity of semiotic resources present in the interaction. I drew on Marin and Bang's (2018) definition of semiotic resources as "material artifacts, ideas, and actions people both perceive and create to engage in interaction", focusing specifically on the ways that "the layering of semiotic resources (talk, gesture, movement, environmental features, etc.) provide[d] opportunities for the transformation of action and learning" (pp. 89-90).

I engaged in multiple viewings of the clip, both individually and in community with an IA lab and with colleagues (Jordan & Henderson, 1995). In the viewings, I made passes focusing on how participants engaged in each of Goodwin's practices of professional vision (coding, highlighting, and producing representations). I also made passes focused on the different resources from the interactional substrate that participants drew on across timescales (historical, recent, and in-the-moment). Finally, I considered how participants attuned to multiplicity as a particular resource throughout the interaction. In the findings, I present an overview of the full 11-minute interactional sequence. I then analyze in detail three excerpts from the full interaction. I selected these excerpts because they represented moments where features of interest (i.e., professional vision practices, substrate across timescales, and multiplicity) co-occurred.

To increase the validity of my findings, I also involved Emily in the analysis process. After selecting the focal episode, Emily participated in a stimulated recall interview to provide insights into her pedagogical decisions and planning (Calderhead, 1981; Dempsey, 2010). Emily knew that the focus of my interest in the episode was centered on her facilitation in connection with professional vision, and while we had some shared understandings of the term, we also had

divergent views as well. Together, we watched the clip several times, stopping and starting to engage in discussion around what Emily was seeing and what she recalled from her decision-making in the moment. While recognizing this activity as a reflection on the moment rather than an exact recall (Calderhead, 1981), it did allow me to triangulate my analyses with Emily's insights. Her interview commentary is interspersed in the findings below in connection with my interpretations.

Positionality

Recognizing that no interpretation is ever objective (Mendoza et al., 2021), I acknowledge my positionality in this work. During the course, I was a participant-researcher. I participated in the course by facilitating parts of class sessions, including the French lesson described above. I also contributed to class discussions. As a researcher, I was involved in collecting data, including interviewing several of the teacher candidates. I attended the institution where the study took place for my undergraduate and master's degrees, which provided me with a degree of familiarity with the context, particularly with regard to cultural norms. At the same time, because I was not involved in academic or professional evaluation of participants, I believe I was able to develop deeper relationships with the teacher candidates through interviews and spending time together in class than might otherwise have been possible had I been their instructor or a formal teaching assistant.

I also have a longstanding and close professional relationship with the instructor, Emily. We have collaborated on professional projects consistently over the past decade. This history facilitated my presence in the course, both as a researcher and in leading lesson demonstrations. Emily and I regularly reflected about what happened during course sessions from both a researcher and an instructor perspective. I modified my lesson demonstrations based on Emily's

feedback to better meet the teacher candidates' needs and the course goals. While this analysis primarily reflects my own interpretation of the interaction, I present it with deep respect for Emily's professional expertise and her practices as a teacher educator.

Given the socially constructed nature of professional vision (Lefstein & Snell, 2011), I further recognize that my analysis is informed by my identities as a White woman, a former French teacher, and a current researcher involved in teacher education. Each of these identities bring with them social expectations for what constitutes "appropriate" professional practices and vision. To address this reality, I have made efforts to engage in consistent reflexivity around how my identities shaped my analysis and interpretation of the moment (Milner, 2007).

Findings

Constructing Professional Vision in Interaction

In this section, I provide an overview of the 11-minute focal interaction, which began with a multilingual retelling of a shared class experience and was followed by an analysis of the retelling, during which Emily strategically constructed professional vision. I then focus on three excerpts to provide a fine-grained analysis of how Emily constructed professional vision supported by a variety of interactional resources.

Seven people participated. Emily, the instructor, was leading a discussion that was debriefing the immersive French experience (Blue Honey) that I (Bethany) had just facilitated for teacher candidates. Emily was positioned primarily at the front of the room near the whiteboard. I sat at the front of the room behind the podium, in line with Emily. The five teacher candidates were seated in a semi-circle in front of Emily. Several large pieces of chart paper on the whiteboard captured representations from the Blue Honey lesson and Emily had notes on the board that she took throughout the debrief conversation and continued adding to during the focal

interaction. The teacher candidates had materials from the Blue Honey lesson available on their desks. Figure 15 shows the general configuration of bodies and materials. This configuration stayed relatively stable throughout the interaction.



Figure 15: Constructing Professional Vision Interactional Configuration

As context for the interaction, I briefly describe the Blue Honey lesson. The lesson is consequential because it provided a rich recent substrate that participants in the interaction drew on frequently as part of their subsequent in-the-moment sensemaking. The lesson centered on an interactive narrative about a hungry bee, which provided teacher candidates with an introduction to the process of foraging (bees collect nectar from flowers and take it back to their hive; they turn the nectar into honey, which they eat during the winter) and the key vocabulary needed to talk about this process in French (*abeille*/bee; *miel*/honey; *chercher*/to look for, used here to indicate foraging; *ruche*/hive). Teacher candidates then participated in a foraging simulation, embodying bees who gathered honey (water) from flowers and took it to their hive (a pan). While they buzzed as they participated, they did not use French. Teacher candidates were then

introduced to the mystery of "blue honey", a phenomenon that occurred in France in 2012 (see Genthon, 2012). Teacher candidates looked at pictures of blue, green, yellow, and red honey and made predictions about why the honey was unusually colored. They then watched a wordless animated video about the mystery. During the video, they held up cards with pictures and vocabulary words (e.g.: *la reine des abeilles*/the queen bee; *malade*/sick) that corresponded to what they saw (see Figure 16). They also read an informational French text about unusually cold winter temperatures that impacted flowers in the spring and watched a French news video that explained how bees drank candy byproduct from a nearby factory because there were fewer flowers, resulting in the unusually colored honey.

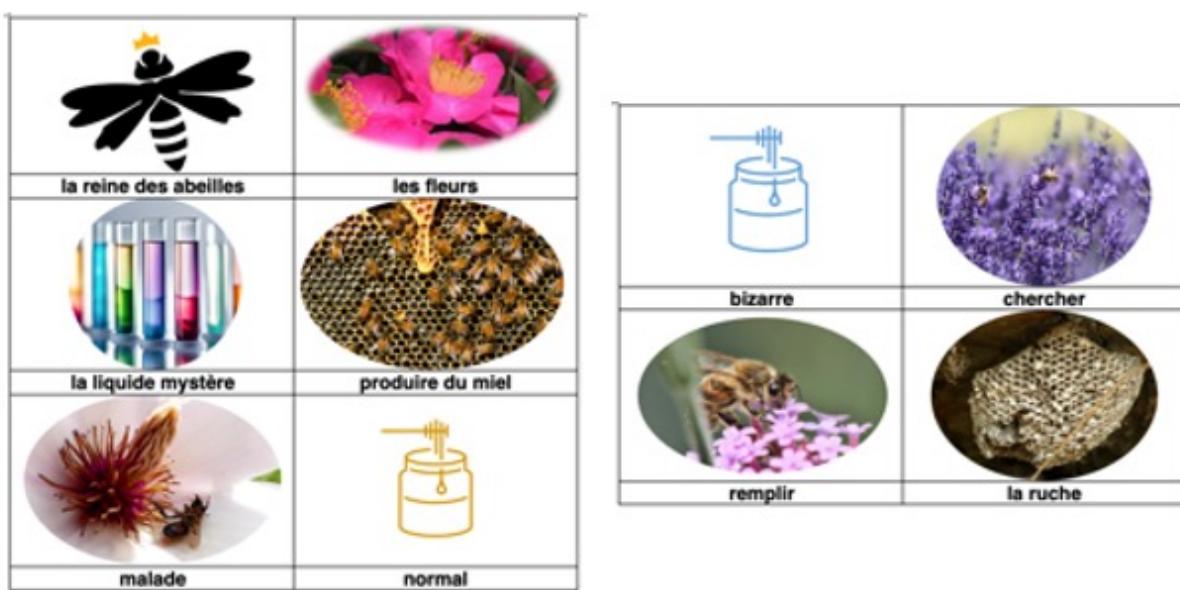


Figure 16: Blue Honey Evidence Cards

The 11-minute sequence analyzed here as evidence of Emily's construction of professional vision was part of a larger debrief conversation following the Blue Honey lesson. During the debrief, Emily asked the class about how the embodied foraging simulation the group had done during Blue Honey could be restructured to provide students with more opportunities to speak French. In response, Maria, a Spanish-speaking teacher candidate, proposed having

students retell the story ("could you also do like a- post ac-tivity post simulation where you like have students recount like what they were just doing?") to which Emily enthusiastically responded "ye:::s!" Emily then invited Maria to engage in her proposed activity ("so retelling the story...can you [pointing at Maria] do that for us?") Emily's request elicited a multilingual retelling of the Blue Honey phenomenon that became the foundation for the group's subsequent construction of professional vision.

Retelling Blue Honey

Maria's retelling of Blue Honey is a rich interactional accomplishment in its own right. However, the focus here is on how the retelling established a foundation for the construction of professional vision. Maria began her retelling with a confirmation of which language she should use, asking Emily, "not in French?" However, Emily replied, "yeah, try it in French."

Interestingly, despite the request to retell the story in French, Maria's first word of the retelling drew on her resources as a Spanish speaker, followed by French that she had learned during the lesson: "*soy une une abeille*" [*I am (Spanish) a bee (French)*]. In the retelling that followed, Maria used a rich blend of French, Spanish, and English to narrate how a bee flies and looks for flowers, then takes the nectar back to the hive to the queen to make honey. Maria also clarified how when it was very cold in the winter, the flowers all died. Maria was supported in her retelling by her peers, most notably Anne, who was seated next to her. Early into the retelling, Anne pulled the evidence cards with key French vocabulary from her desk (see Figure 16) and passed them to Maria to support Maria in her retelling. Figure 17 provides an excerpt of the retelling as an example of how multiple languages and resources were coordinated to produce the retelling. Transcript 1 is primarily to illustrate the interactional texture of the retelling as

context for the subsequent conversation as a fine-grained analysis of the retelling is beyond the scope of this analysis (see Appendix A for transcript conventions).

Speaker	Line	Talk	Mediated Action
Maria	1 2 3 4 5 6 7 8	euuuh soy une une abeille {I am a a bee} y {and} fly ¹ to fleurs {flowers} umm::: y:: ² {and} I take the nectar {nectar}	¹ M flutters hands at sides like wings ² M looks down at desk; with hands out at side; A lifts papers on desk to find evidence cards (see Fig. 4)
Anne	9	cherche- chercher {look, look for}	
Maria	10 11 12 13 14 15 16 18 19	³ la nectar {the nectar} oh chercher! ⁴ {look for!} une fleur {a flower} para la nectar {for the nectar} ⁵ y {and} remplir {fill up} ⁶ à la ruche {to the hive} ⁷ para la {for the} queen	³ A pulls “chercher” card out and passes it to M who leans over to look at it ⁴ M lifts left hand over eyes in a “chercher” gesture ⁵ A shuffles through cards ⁶ M makes grab gesture; A laughs ⁷ M looks back over at A’s cards
Anne	20	la reine {the queen}	
Maria	21 22	la reine des abeilles {the queen bee} ⁸ para hacer malade {to make sick}	⁸ M and A sit back
Anne	23	malade {sick} is the bad thing, isn’t it? ⁹	⁹ M looks at A
Maria	24	oh. malade.	
Luna	25	miel. {honey} ¹⁰	¹⁰ M looks at L
Maria	26	miel.	

Fonts used to distinguish between languages: Times New Roman = English; Arial = French; Garamond = Spanish

Figure 17: Retelling Blue Honey, Transcript 1

Emily provided insights in her recall interview about the rationales for inviting the retelling and encouraging it to happen in French. Drawing on past similar activities that Emily herself had led, Emily "suspected...that [Maria] would be able to retell it." Emily noted that "I was curious how much of it she would be able to replicate in French, and also pretty confident that she'd be able to do a fair amount." Emily elaborated that her decision to ask Maria to engage in the activity was led by her experience that "I know my students learn better through active modeling and personal experience." Emily knew that asking Maria to model would help the class come to a shared understanding of what was meant by "retelling" as a pedagogical activity. Additionally, Emily anticipated that the "concrete experiences" embedded in the Blue Honey lesson would support "linguistic uptake," and the teacher candidates would be able to see more clearly the relationship between pedagogical strategies and language learning. These rationales suggest that even in the moment, without knowing exactly how the retelling would unfold when extending the invitation to Maria, Emily's expertise led her to enact moves that could foster the construction of professional vision.

Emily had several conjectures about what inviting Maria to retell Blue Honey would produce. In the recall interview, Emily described what her thoughts were as Maria was completing the retelling: "A lot of it for me is very intuitive.My brain is bookmarking things that I'm noticing as she's doing it. ...I'm thinking in terms of the content of the course." Emily bookmarked two key things from Maria's retelling. First, Maria was "using all of her linguistic repertoire to express herself." Because Maria didn't have "all the words in French, she resort[ed] back to Spanish." Emily noticed that "she's not resorting back to English, She's resorting to Spanish, which is the next closest thing." In other words, Maria did not default to her first language of English, using instead her Spanish resources that were more closely related

linguistically to French. Emily wanted teacher candidates to connect this strategy to the notion of cross-linguistic transfer. The second thing that Emily wanted to bring out from the retelling was that nouns tend to be privileged over verbs in language instruction and transitional words are often not explicitly taught "because they're hard to teach" despite being "so critical to effective communication."

With these two noticing in mind, Emily engaged the group in an analysis of Maria's retelling, inviting the teacher candidates to "analyze this [i.e., the retelling] linguistically for a minute". The group recalled which French words Maria had used in her retelling while Emily wrote the words in a list on the whiteboard. Analyzing this moment through a professional vision lens, Emily led the group to *highlight* words that Maria had used by marking the different languages from amid the complex perceptual field of Maria's multimodal retelling. Emily produced a *representation* by graphically inscribing the teacher candidates' responses on the board, and the written list mediated their interaction. Emily *coded* professional phenomena for teacher candidates by pausing periodically during their analysis to engage more deeply with salient phenomena that emerged during the interaction. I present below a fine-grained analysis of three key moments that provide insights into Emily's construction of professional vision.

Moment 1: Representing Nouns and Verbs

After the group had highlighted the words that Maria produced in French, Emily focused the discussion to construct professional vision around one of her "bookmarks" from earlier. Figure 18 presents this interaction. Emily began by verbally signaling ("okay, so, what I want you to notice here", line 1) the presence of a relevant professional phenomenon—the challenge of representing nouns and verbs in a language classroom. She then *coded* the language according to the linguistic categories of "nouns" ("you can all. name. the nouns", line 2) and "verbs"

("when we start getting to the verbs, it's a little shakier", lines 3-4) in preparation for helping the teacher candidates see these categories in a new way. Emily *highlighted* the category of "nouns" by boxing it on the whiteboard (see action 2) and the category of "verbs" with her gesture of pointing to it (see action 3).

Speaker	Line	Talk	Mediated Action
Emily	1 2 3 4	okay, so, what I ¹ want you to notice here is, ² you can all. name. the nouns. when we ³ start getting to the verbs, it's a little shakier	¹ E puts hand near list ² E draws box around first three words in list
Abby	5	⁴ cause you have to conjugate them.	
Emily	6 7 8 9	not even that. cause I wouldn't even care, at this point, in your ⁵ second hour of French,	
Abby	10	[<i>titters</i>]	
Emily	11	[if you] weren't conjugating	
Class	12	<i>laughs</i>	
Emily	13 14	I ⁶ personally believe, it's an ⁷ issue of representation.	⁴ Ab points hand forward ⁵ E holds up two fingers
Class	15	mmmm.	
Emily	16 17	it's easier to show the things, the things that are ⁸ concrete.	⁸ E cups and squeezes both hands
Anne	18	yeah.	
Bethany	19 20	but that- can I ⁹ can I build on that [too]?	⁹ E turns toward B
Emily	21	[yes.]	
Bethany	22 23 24	I think it's interesting, because ¹⁰ you did remember <i>chercher</i> ¹¹ , {to look for} but what did you do in the simulation?	¹⁰ B points finger at class ¹¹ Ab cups hands over eyes and swings back and forth
Abby	25	we <i>chercher-ed</i> .	
Bethany	26	you <i>chercher[-ed]</i>	
Emily	27	[¹² you <i>chercher-ed</i>] a LOT.	¹² E mirrors Ab's gesture
Bethany	28 29 30 31 32 33 34	so-to that, like, that's an aha for me, is that representation doesn't necessarily have to be a picture, but that's why the sims are so important, because that gives you a chance to represent the verbs in a way that you can remember.	
Emily	35	and ¹³ it's why the TPR works so well.	¹³ E twirls open palms at sides

Fonts used to distinguish between languages: Times New Roman = English; Arial = French; Garamond = Spanish

Figure 18: Representing Nouns and Verbs, Transcript 1

Emily surfaced a professional problem for the group: the teacher candidates were able to easily recall the French nouns but had a harder time with the verbs (lines 2-4). Abby offered an initial interpretation for this problem, proposing that the verbs were harder "cause you have to conjugate them" (line 5). While Abby's suggestion was logical from a linguistic standpoint, Emily corrected the contribution to align more closely with teacher professional vision where teachers wouldn't expect students to conjugate verbs accurately without extensive practice (lines 6-11). Abby's (and the others') laughter in response suggests that they accepted Emily's refining of their consideration of the problem through a teacher lens. Emily then proposed a teacher-oriented rationale for the problem—that it was "an issue of representation" (line 14), inviting the teacher candidates to think about what is represented in language classes and how. Nouns are easier to teach because they are easier to represent (i.e., with pictures, objects, etc.) because they are concrete (lines 16-17). Emily built on her coding of the categories of "nouns" and "verbs" to characterize the categories through a professional lens: nouns are "easy to represent" and verbs are "harder to represent."

Bethany built on Emily's characterization by providing a counterexample from the group, noting that they "did remember *chercher* {to look for}" (line 23). As soon as Bethany finished saying the word "*chercher*," Abby immediately enacted a gesture for the word, cupping her hands over eyes and swinging back and forth (see action 11). Abby, Bethany, and Emily then collectively highlighted how *chercher* was salient for the group because they had embodied the act of "*chercher-ing*" during the foraging simulation in the Blue Honey lesson (lines 25-27). In this case, embodying *chercher*, despite being a verb, moved it from the "hard to represent" category to the "easy to represent" category. Bethany then offered a coding of the category of "representations" that moved beyond traditional modes such as pictures to include simulations

that provide "a chance to represent the verbs in a way you can remember" (lines 32-35). Emily confirmed Bethany's coding by offering an additional teaching strategy linked to representations, that of TPR (Total Physical Response; line 35), which involves pairing physical movement with verbal input. Collectively, the group acknowledged the easier nature of representing nouns and also considered how to address the challenge of representing verbs. This interchange allowed Emily to construct professional vision around her intended goal of helping teacher candidates consider the role of representation in language learning.

Moment 2: Pronouncing “froid”

Moment 1 demonstrated how Emily was able to construct professional vision around the use of representations in language teaching in response to her conjectures and in line with what she had anticipated would unfold from inviting Maria to retell Blue Honey. In contrast, this moment shows how Emily constructed professional vision around the concept of cross-linguistic transfer in direct response to her teacher candidates. As Emily was eliciting an analysis of the French words, there were several questions about pronunciation that created an opportunity to construct professional vision that Emily took up (Figure 19).

Speaker	Line	Talk	Mediated Action
Emily	1	what else?	
Anne	2	remplir	
	3	¹ how do you say that one?	¹ A turns to look at B
Bethany	4	remplir	
Anne	5	remplir?	
Bethany	6	mmhmm.	
Maria	7	très fr-froid {froyed /very cold} ²	² E turns and writes “très froid” on the board
Emily	8	très froid. {froyed}	
Bethany	9	froid. {frwa}	
Emily	10	froid? {frwa}	
	11	froid {frwa}	
overlapping	12	³ froid. {frwa}	³ Ma puts hands over eyes
Emily	13	okay, so what I want you ⁴ to notice for that one,	⁴ E underlines “froid” several times
	14	is. ⁵ what is happening here.	
	15	linguistically?	⁵ E points to “froid” and holds her finger there
Abby	16	it’s a conjugation?	
Maria	17	I-	
Emily	18	no, for froid. {fwa} ⁶	⁶ E taps “froid” twice
	19	froid. {frwa}	
Maria	20	I expect it to go “oy”	
	21	because that’s what I ⁷ know in English	⁷ Ma points to self
Emily	22	⁸ so we have a transfer issue here,	⁸ E nods and turns to the board. She writes “L1 → L2” next to “froid”
	23	her L1 pronunciation is transferring to L2,	
	24	and one of the things that we find,	
	25	is ⁹ if we show them words too early,	
	26	(.) then they transfer	
Maria	27	o::::h	⁹ E taps “froid” with each word
Emily	28	but if you	
	29	¹⁰ pronounce pronounce pronounce pronounce,	¹⁰ E circles right hand with each “pronounce” while pointing at “froid” with left
	30	then show them the word,	
	31	¹¹ and make it clear that that is the-	¹¹ E underlines “froid” with her hand several times
	32	the one you’ve been pronouncing,	
	33	(snaps) then their brains are like,	
	34	oh, okay.	
	35	¹² just as a heads up.	¹² E opens hands in a shrug

Fonts used to distinguish between languages: Times New Roman = English; Arial = French; Garamond = Spanish

Figure 19: Pronouncing "froid", Transcript 1

Emily's elicitation of words that Maria had produced in French ("what else?", line 1) led Anne to contribute the word *remplir*/to fill up. Despite having pronounced it correctly, Anne turned to Bethany to confirm the pronunciation (lines 3-6). Maria then offered *très froid*/very cold as a French expression she had used. However, in this case, Maria's pronunciation lacked accuracy. Emily took up Maria's pronunciation and wrote the expression on the board. Given the repeated pronunciation error, Bethany corrected it, and Emily and the class all revised their pronunciation as well (lines 9-12).

In response to the error, Emily again signaled verbally a professional phenomenon for the teacher candidates to recognize ("okay, so what I want you to notice for that one", line 13). Emily highlighted the phenomenon by underlining it on the representation (action 4) and further highlighted it gesturally by pointing to the focal word, "*froid*" (action 5). Emily then invited the teacher candidates to try coding the phenomenon for themselves based on what they have learned ("what is happening here linguistically?", lines 14-15). Abby attempted to provide an appropriate category (e.g., *froid* is a verb conjugation, line 16). Instead of taking up Abby's category, Emily re-highlighted the focus³, making an effort to pronounce the word correctly (lines 18-19, action 6). Maria then described the phenomenon based on her own experience ("I expect it [*froid*] to go 'oy' because that's what I know in English", lines 20-21), recognizing it for what it was. Emily took up Maria's awareness by labeling the phenomenon with specific professional language, coding Maria's description using the professional term ("so we have a transfer issue here", line 22) and a generalized professional explanation ("her L1 pronunciation is transferring to L2", line

³ Emily's re-emphasis after Abby's contribution could have been because *froid* is actually an adjective (and therefore can't be conjugated) or because Abby's suggestion had to do with verbs rather than with pronunciation, which was Emily's focus.

23). Emily highlighted her explanation by representing it on the board, annotating the "*très froid*" in the list with "L1 → L2" beside it (action 8).

Having the teacher candidates be able to attach the "pedagogical terminology" provided by Emily to the professional phenomena identified by Maria was an important part of constructing professional vision for Emily. In her interview, she reflected that, "I know they know the concepts from the things that they're saying...but they're not uptaking the terms to the extent that I would like." In the moment, Emily valued the teacher candidates' abilities to recognize professional phenomena even without the professional terminology. At the same time, in retrospect, Emily grappled with her own professional responsibility to support her teacher candidates to code these phenomena using language that would enable them to more fully engage in professional discourse about their teaching (Goodwin, 1994). Emily's efforts in Moment 2 sought to cultivate that aspect of the teacher candidates' professional vision despite this continuing tension.

Emily concluded with providing the teacher candidates with a pedagogical strategy to avoid unhelpful transfer (lines 24-35). Emily drew on her coding of the mispronunciation of *froid* as a transfer error to emphasize a relationship between seeing the written form of a word and students' linguistic production of a word (lines 25-26). Emily used repetition (line 29) and gestures (action 10) to highlight the need to provide students with many opportunities to hear a word in order to pronounce it correctly. Significant about Moment 2 is that Emily could not have anticipated that the group would mispronounce *froid*. However, when the error happened, Emily recognized and took up the opportunity to construct professional vision around one of her original goals from the retelling, that of engaging teacher candidates with the phenomenon of cross-linguistic transfer.

Moment 3: Creating a Word Wall

The final example of constructing professional vision that I examine here represents a shift from the two prior examples. While in Moments 1 and 2, Emily was constructing professional vision with teacher candidates in terms of helping them see professional phenomena in new ways, this moment involves Emily engaging the teacher candidates in considering how they might engage in professional practices themselves to support students. This moment, as with the others, emerged directly from the group's analysis of Maria's retelling. The group had compared the words that Maria had produced in French (primarily nouns and verbs) with the ones she had used her Spanish resources for (primarily transitional words like *y/and*, *después/after*, *para/for*). They then considered how to scaffold those words for students so that students could develop proficiency in the language of instruction (in this case, French). Abby provided an idea that led Emily to construct an impromptu professional solution with her teacher candidates (Figure 20).

Speaker	Line	Talk	Mediated Action
Abby	1 2 3 4 5	I also think just I- as like a- ¹ knowing that the words that we're struggling with are the connector words, ² as the teacher maybe have like a board in my room that had connector words on it.	¹ Ab points hand toward list of connector words on the board ² Ab points back toward self
Emily	6	yep. ³	³ E writes "word wall" on the board
Abby	7	which, is a word bank, but.	
Emily	8	well. it'd be a word wall=	
Anne	9	=word wall=	
Emily	10	=right?	
...	<i>B puts up chart paper; E gathers colored markers</i>
Emily	22 23	if I want to represent the connector words, ⁴ why would I make y green?	⁴ E writes "y" in green on chart paper
Maria	24	cause it's the one I know::? ⁵	⁵ E writes "pero" in red
Luna	25	oh, because it's like and something?	
Abby	26	[add to:::]	
Emily	27 28	⁶ and something, so I am	⁶ E nods
Luna	29	[replacing something]	
Emily	30 31 32	[⁷ adding.] pero: how could I draw that? ⁸	⁷ E draws a "+" next to "y" in green ⁸ Ab wiggles finger back and forth repeatedly
Anne	33	replace it?	
Maria	34	like the ⁹ three do:::ts?	⁹ Ma makes three dots in air with finger
Emily	35	¹⁰ this would be a good ¹¹ gesture for it.	¹⁰ E mirrors Ab's gesture  ¹¹ An mirrors the gesture
Abby	36	I know it would be a good-um::	
Anne	37	¹² bu::t	¹² An puts out hand in "stop" gesture
Emily	38	¹³ bu::t ¹⁴	¹³ E mirrors An's gesture ¹⁴ An repeats the gesture
Maria	39	oh! you could ¹⁵ do the ¹⁶ alligator mouth	¹⁵ Ma traces a "<" sign in air ¹⁶ Ma claps hand together like an alligator mouth
Emily	40	¹⁷ come do it for us.	¹⁷ E extends marker toward Ma

Maria	41	okay.	
Abby	42	the more than less than?	
Maria	43	¹⁸ like-like	¹⁸ Ma goes to chart paper and writes “<” in red
	44	yeah, like this is good,	
	45	bu::t	
	46	this one, is better.	
Abby	47	oh:::	
Emily	48	potentially	
Emily	49	okay::	¹⁹ Ma hands marker to E and sits down
	50	what abou::t, um,	²⁰ Ab makes two fists and brings them together
	51	¹⁹ with. ²⁰	
Anne	52	you could have like,	²¹ An bends arm and tilts head
	53	two ²¹ little buddies ²²	
	54	<i>laughs</i>	
	55	I'm pretty sure someone did that.	
	56	in one of their lessons.	
Emily	57	so.	
	58	[I'm not saying=	
Maria?	59	[oh, unclear]	²² E writes “con” and two intersecting angles in green
Emily	60	[= ²³ these are good options,]	²³ E skims hand down chart paper
	61	but I am suggesting,	
	62	is go home and think about this.	
	63	figure out,	
	64	what are the connectors that little first graders could use.	
	65	usually, it's and, but, and or. (0.1)	
	66	and then think about,	
	67	²⁴ how could I represent that in a visual way,	
	68	so that when I put my word wall up,	
	69	²⁵ it's not just translations.	

Fonts used to distinguish between languages: Times New Roman = English; Arial = French; Garamond = Spanish

Figure 20: Creating a Word Wall, Transcript 1

When Abby proposed a "word wall" (lines 1-5), Emily responded by gathering materials (colored markers and chart paper) to create a new representation. Shifting away from the representations on the whiteboard that had mediated their earlier discussions, this representation mimicked a student-facing one that the teacher candidates might create to serve as a word wall of connector words for their future students. It captured graphic inscriptions that could mediate

students' understandings of the connector words. Rather than Emily producing a representation in her role as a teacher educator as she'd done before, in this moment, the group collaboratively produced a representation for imagined DLI students.

Emily began creating the representation by using color to highlight the meaning of the words, making "y/and" green on the representation (action 4). She then invited the teacher candidates to consider how the color highlighted the meaning of the word (lines 22-23). As the teacher candidates made the connections, Emily added a symbol ("+") to the representation as another example of highlighting the meaning for students (lines 24-30). The group repeated the exercise for the connector word "*pero/but*", with Emily writing it on the chart paper in red (action 5). As the group tried to think of a symbol or drawing to represent the meaning, they found themselves relying heavily on gestures to highlight the meaning (action 8, lines 34-38). Eventually, Maria proposed "the alligator mouth" (line 39), and Emily invited Maria to add it to the representation (line 40), which she did by drawing the symbol "<" in red (action 18). For the last example, Emily invited the teacher candidates to consider how to highlight the meaning of "with" (line 51). Anne proposed a corresponding image ("you could have like, two little buddies", lines 52-53) with a gesture (action 21). In response, Emily wrote "*con/with*" on the board in green alongside two intersecting carats (actions 22, 23). In this case, the group constructed professional vision by considering how the practice of highlighting could be used to make the meaning of connector words salient for students.

Similarly, the professional practice of coding occurred as the group focused on the category of "abstract words" and coded ways to represent the meaning of those words. While not always as explicitly named or labeled as before, the strategies of color coding, using symbols, and pairing the words with gestures all served as categories of ways to represent abstract words

without resorting to English translations. Frequent use of direct translations, while a certainly a strategy to convey meaning, is not a professional practice that is encouraged in dual language instruction (ACTFL, n.d.; Howard et al., 2018), which was echoed in Emily's final invitation to her students: "think about, how could I represent [connector words] in a visual way, so that when I put my word wall up, it's not just translations", lines 66-69). Significant about this moment was that Emily decided to create a word wall representation without envisioning a clear outcome. In her interview, Emily reflected that she recognized in Abby's comment a potential to make a concrete connection for teacher candidates that they could use in their future classrooms. But Emily had not preplanned how to represent the abstract connector words. Emily described that "my brain was kind of working on the problem...but to be quite honest, that was me inventing in the moment." While Emily began this segment of constructing professional vision unsure herself of how to best represent connector words, she was still able to collectively think with her teacher candidates as a form of collaborative inquiry about her original "bookmark" of how to scaffold the transitional words that are, as Emily noted in her interview, "critical to effective communication" despite being "hard to teach."

Drawing on Interactional Resources to Construct Dynamic Professional Vision

Emily's process of constructing professional vision did not unfold in a vacuum. Instead, Emily (and the group as a whole) drew heavily on interactional substrate across timescales as a resource to support their construction of professional vision. In particular, multiplicity was a resource in the substrate that Emily took up with intentionality to build a dynamic professional vision that could be, and was, contested by the group. This effort resulted in a vision of teaching that reflected the complexity in DLI rather than reducing DLI instruction to a set of core practices. Stepping back from an analysis of sequential turns of talk, in the following sections, I

revisit each of the three moments from above to consider how interactional resources supported the construction of a dynamic professional vision and what is accomplished by examining professional vision within DLI teacher education.

Moment 1 Revisited: Nouns and Verbs

In Moment 1, Emily's engagement with the professional practices of coding, highlighting, and producing representations allowed the group to frame a professional problem: nouns are easier to represent because they are concrete; verbs are harder to represent. However, it was by drawing on interactional resources that the group re-envisioned this problem. In this moment, attuning to multiplicity of languages, semiotic resources, and pedagogical approaches surfaced a potential solution to some of the limits of traditional 2-D representations used in learning (e.g., pictures, charts, graphs). Figure 18 contains the full transcript of Moment 1. I reproduce an excerpt of it here (Figure 21).

Speaker	Line	Talk	Mediated Action
Bethany	19 20	but that- can I ⁹ can I build on that [too]?	⁹ E turns toward B
Emily	21	[yes.]	¹⁰ B points finger at class
Bethany	22 23 24	I think it's interesting, because ¹⁰ you did remember chercher ¹¹ , {to look for} but what did you do in the simulation?	¹¹ Ab cups hands over eyes and swings back and forth 
Abby	25	we chercher-ed.	
Bethany	26	you chercher[-ed]	
Emily	27	[¹² you chercher-ed] a LOT.	¹² E mirrors Ab's gesture 
Bethany	28 29 30 31 32 33 34	so-to that, like, that's an aha for me, is that representation doesn't necessarily have to be a picture, but that's why the sims are so important, because that gives you a chance to represent the verbs in a way that you can remember.	
Emily	35	and ¹³ it's why the TPR works so well.	¹³ E twirls open palms at sides

Fonts used to distinguish between languages: Times New Roman = English; Arial = French; Garamond = Spanish

Figure 21: Representing Nouns and Verbs, Transcript 1, Excerpt 1

Emily was primarily able to construct the professional problem of representing nouns and verbs because of her attunement to the multiple languages (French, Spanish, English) present in Maria's Blue Honey retelling. By drawing on the in-the-moment substrate of the retelling, Emily organized Maria's use of the different languages in a way that made visible for the group the gaps in their knowledge ("you can all. name. the nouns. when we start getting to the verbs, it's a little shakier", Figure 18, lines 2-4). Emily used this gap to frame the problem of representing nouns and verbs. In her recall interview, Emily noted that part of her ability to surface the contrast between nouns and verbs as "an issue of representation" (Figure 18, line 14) stemmed from her own efforts to learn multiple languages (e.g., Chinese, Russian) using tools like mobile language learning apps. Emily's professional expertise led her to recognize that across languages, most of these tools prioritize nouns while verbs are frequently overlooked. Emily drew on this historical substrate grounded in her own professional experience as an explanation for Maria's use of language during the Blue Honey retelling.

In response to the challenge of representing verbs articulated by Emily, Bethany provided a counterexample by reaching into both the in-the-moment substrate of the retelling and the recent substrate of the shared Blue Honey lesson experience from earlier that class session ("you did remember *chercher*/to look for", line 23). As soon as Bethany said *chercher*, Abby immediately produced the same gesture for *chercher* that the group had used multiple times during Blue Honey (action 11). Abby also used *chercher* verbally, pairing the French word with an English past-tense ending to capture the group's earlier action ("we *chercher-ed*", line 25). Reaching into the recent substrate as well, Abby coordinated multiple semiotic resources to reemphasize both her understanding of the verb and her ability to represent it, strengthening the argument of *chercher* as a counterexample to the challenge of representing verbs.

Bethany took up Abby's creation of the hybrid term *chercher*-ed and mirrored it back to the group by transforming the pronoun ("you *chercher*-ed", line 26). Emily similarly transformed the utterance by emphasizing it ("you *chercher*-ed a LOT", line 27) and took up Abby's gesture (action 12). This sequence of in-the-moment reuse and transformation emphasized for the group how *chercher*, for them, served as a powerful contradiction to the challenge of representing verbs—*chercher* was a verb that they could easily remember. Communicating what the group knew about *chercher* required the coordination of talk across languages, gesture, and past experiences (i.e., the simulation). These semiotic resources were all accepted in the interaction as valuable in their own right, resisting pedagogical norms that privilege written communication, academic language, and in second language learning, direct translations.

Bethany and Emily drew on historical substrate to provide professional insights into why *chercher* was a counterexample to the pedagogical problem of representation. Bethany (re)framed the embodied simulation the group had engaged in during Blue Honey as a general pedagogical strategy ("that's why the sims are so important", line 31) and provided an explanation for its effectiveness ("because that gives you a chance to represent the verbs in a way that you can remember", lines 32-34). Emily affirmed Bethany's interpretation by contributing another related pedagogical strategy, TPR (Total Physical Response). Emily acknowledged that TPR "works so well" (line 35) because it, as with the simulations, involves representing verbs by embodying actions, making them more concrete, and in turn, easier to remember. Together, multiplicity and substrate served as resources for the group to construct a dynamic understanding of representations that don't "necessarily have to be a picture" (line 30).

Moment 2 Revisited: Pronouncing “froid”

In Moment 2, Emily constructed professional vision in direct response to what was unfolding in the interaction, attending to her and Maria’s mispronunciation of *froid*/cold (see Figure 19). Figure 22 presents an excerpt of the production of the error. Again, interactional resources were central to investigating the professional phenomenon of the moment. Multiplicity was key as it made the pronunciation error visible—the presence of multiple languages provided different ways of interpreting the world, in this case how an individual made sense of the same set of symbols: f-r-o-i-d. An English language orientation to the letters *froid* resulted in a verbal utterance of {froyed}, while a French language orientation resulted in a verbal utterance of {frwa}.

Speaker	Line	Talk	Mediated Action
Maria	7	très fr-froid {froyed /very cold} ²	² E turns and writes “très froid” on the board
Emily	8	très froid. {froyed}	
Bethany	9	froid. {frwa}	
Emily	10	froid? {frwa}	
	11	froid {frwa}	
overlapping	12	³ froid. {frwa}	³ Ma puts hands over eyes

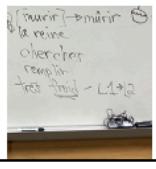
Fonts used to distinguish between languages: Times New Roman = English; Arial = French; Garamond = Spanish

Figure 22: Pronouncing "froid", Transcript 1, Excerpt 1

The production of the error was amplified as Emily took up Maria’s in-the-moment utterance (lines 7-8) as was Bethany’s correction that was echoed by the group (lines 9-12). Emily took up this in-the-moment reuse and transformation of the word *froid* to invite the teacher candidates to identify the linguistic phenomenon that had caused the error (“What is happening here linguistically?”, see Figure 19, lines 14-15).

Figure 23 reproduces an excerpt of the group’s response to Emily’s inquiry. Maria proposed an explanation grounded in her personal experiences and her knowledge of English. (see Figure 19, lines 20-21). Emily then drew on historical substrate (general professional

knowledge about cross-linguistic transfer) to provide a professional framing of Maria's explanation (lines 22-23), followed by a pedagogical strategy to address the challenge—pronouncing the words often in oral language without showing students the written form (lines 24-34).

Speaker	Line	Talk	Mediated Action
Emily	22 23 24 25 26	⁸ so we have a transfer issue here, her L1 pronunciation is transferring to L2, and one of the things that we find, is ⁹ if we show them words too early, (.) then they transfer	⁸ E nods and turns to the board. She writes "L1 → L2" next to "froid" 
Maria	27	o::::h	⁹ E taps "froid" with each word
Emily	28 29 30 31 32 33 34 35	but if you ¹⁰ pronounce pronounce pronounce pronounce, then show them the word, then an- ¹¹ and make it clear that that is the- the one you've been pronouncing, (snaps) then their brains are like, oh, okay. ¹² just as a heads up.	¹⁰ E circles right hand with each "pronounce" while pointing at "froid" with left ¹¹ E underlines "froid" with her hand several times ¹² E opens hands in a shrug

Fonts used to distinguish between languages: Times New Roman = English; Arial = French; Garamond = Spanish

Figure 23: Pronouncing "froid", Transcript 1, Excerpt 2

Emily's recall interview illuminated further how her recommendation for practice drew on historical substrate beyond technical professional knowledge. Emily described a professional development that she had facilitated some years ago with Chinese teachers. She noted that "one of the things that I learned from one of the other Chinese teachers was...the importance of doing a lot of pronouncing before you show the written language. ...They need to hear it a lot [before they see Chinese pinyin], otherwise what they internalize is what their English brain says they are reading. And so I realized that that transfers to French and other languages as well." Emily's attunement to multiplicity and her own personal professional practice of collaborative learning allowed her to identify how pedagogical approaches could transfer across languages. These resources enabled Emily to provide a potential pedagogical strategy for the pronunciation error

the group had produced. Emily's willingness to take up an opportunity that emerged from the moment contributed to and modeled the construction of a dynamic professional development.

Moment 3 Revisited: Creating a Word Wall

Moment 3 contrasted with Moments 1 and 2 in that Emily was working to construct professional vision around representing connector words (e.g., and, but, or), but Emily was thinking through a professional solution alongside her teacher candidates (see Figure 20). As she described in her recall interview, "to be quite honest, that was me inventing in the moment, and they [the teacher candidates] came up with better possibilities than I had, I think." The group collectively drew on and coordinated multiple semiotic resources to consider how to represent the meaning of connector words. Figure 24 provides an excerpt from Transcript 4 that illustrates the group's work to represent the Spanish word *pero/but*.

Speaker	Line	Talk	Mediated Action
Emily	31 32	pero: how could I draw that? ⁸	⁸ Ab wiggles finger back and forth repeatedly
Anne	33	replace it?	
Maria	34	like the ⁹ three do:::ts?	⁹ Ma makes three dots in air with finger
Emily	35	¹⁰ this would be a good ¹¹ gesture for it.	¹⁰ E mirrors Ab's gesture  ¹¹ An mirrors the gesture
Abby	36	I know it would be a good-um::	
Anne	37	¹² bu::t	¹² An puts out hand in "stop" gesture
Emily	38	¹³ bu::t ¹⁴	¹³ E mirrors An's gesture ¹⁴ An repeats the gesture
Maria	39	oh! you could ¹⁵ do the ¹⁶ alligator mouth	¹⁵ Ma traces a "<" sign in air ¹⁶ Ma claps hand together like an alligator mouth
Emily	40	¹⁷ come do it for us.	¹⁷ E extends marker toward Ma
Maria	41	okay.	
Abby	42	the more than less than?	
Maria	43 44 45 46	¹⁸ like-like yeah, like this is good, bu::t this one, is better.	¹⁸ Ma goes to chart paper and writes "<" in red
Abby	47	oh:::	
Emily	48	potentially	

Fonts used to distinguish between languages: Times New Roman = English; Arial = French; Garamond = Spanish

Figure 24: Creating a Word Wall, Transcript 1, Excerpt 1

Abby immediately contributed a gesture, wiggling her finger back and forth (action 8). Maria contributed a suggestion that could be added on paper to the group's representation (line 34) and clarified her idea with a gesture (action 9). Abby's finger shake was taken up by Emily, who named it as "a good gesture" (line 35, action 10), and Anne also took it up (action 11), layering intonation to convey meaning and transforming the gesture into a "stop" variation (line 37, action 12). Emily, in turn, mirrored Anne's intonation and gesture (line 38, action 13). This back-

and-forth taking up of possibilities to convey the meaning of *pero*/but demonstrated how the group was co-operatively working to construct a possible solution. The group drew on each other's offerings from the in-the-moment substrate repeatedly, and the layering of multiple semiotic resources (gesture, intonation, symbol), as with Moment 1, pushed at traditional professional norms that privilege written English language.

Ultimately, Maria drew on a mathematical symbol from historical substrate to propose that “<” represent *pero* (line 39). As Maria added it to the group’s representation, she layered the mathematical meaning of “greater than” to the meaning of “but” (“this is good, bu:::t this one, is better”, lines 44-46), echoing Anne’s contribution of intonation to convey the meaning. Thus, the group’s construction of professional vision around how to represent abstract connector words was facilitated by coordinating multiple disciplines (math, literacy), multiple pedagogical strategies (color coding, using symbols), and multiple semiotic resources (language, gesture, intonation) that were available in the interactional substrate across timescales.

Also key in this excerpt is how Emily attuned to multiplicity by welcoming multiple ideas and multiple authors. This was particularly visible when Maria proposed “the alligator mouth [<]” as a way to represent *pero* (line 29, actions 15-16). Emily immediately extended the marker to Maria (action 17), yielding her role as the author of the word wall. Maria took the marker and added her idea to the word wall representation, providing a verbal explanation as she did (lines 43-46, action 18). Emily’s move served to push back on norms that position the teacher educator as the expert. Instead, Maria became an expert with an idea what was valuable to the group’s efforts to find a solution. Emily acknowledged the intentionality behind her move to give Maria the marker in her interview: “The yielding the authority is intentional. Helping them to be

more like teachers.” This approach allowed Emily to construct a dynamic professional vision with fluid expert boundaries between herself and her teacher candidates.

Similarly, Emily yielded epistemic authority at the end of the moment (Figure 25).

Speaker	Line	Talk	Mediated Action
Emily	57	so.	
	58	[I'm not saying=	
Maria?	59	[oh, unclear]	
Emily	60	[= ²³ these are good options,] but I am suggesting, is go home and think about this. figure out, what are the connectors that little first graders could use.	²³ E skims hand down chart paper
	61	usually, it's and, but, and or. (0.1)	
	62	and then think about,	
	63	²⁴ how could I represent that in a visual way,	
	64	so that when I put my word wall up,	
	65	²⁵ it's not just translations.	
	66		²⁴ E skims hand down chart paper
	67		²⁵ E zigzags hand across chart paper
	68		
	69		

Fonts used to distinguish between languages: Times New Roman = English; Arial = French; Garamond = Spanish

Figure 25: Creating a Word Wall, Transcript 1, Excerpt 2

Emily acknowledged that she did not have all the answers to how to best represent connector words (“I’m not saying these are good options”, lines 58, 60). Instead, Emily made space for the complexity of the problem and invited the teacher candidates to step in and wrestle with it themselves (“but I am suggesting, is go home and think about this.”, lines 61-62). At the same time, Emily still constructed a professional vision of representing the connector words “in a visual way, so that when I put my word wall up, it’s not just translations” (lines 67-69). As Emily acknowledged the challenge of represting these words, she avoided falling into a methods fetish that centered a single right way (Bartolomé, 1994), and she also resisted norms that privilege English in representations (Przymus & Huddleston, 2021). Instead, Emily cultivated a

dynamic professional vision that positioned her teacher candidates as agentic and able to develop individualized solutions for their specific contexts.

In her interview, Emily summarized her view of a dynamic professional vision (Figure 26).

Emily, Recall Interview

It's coming out of the interactions between me and the students. ...As we are having this conversation, I am noticing opportunities to emphasize things that I know they have read in their textbook. Or to emphasize things that are a part of our course learning outcomes. ...So I'm seeing those opportunities. And I'm also, like it's so intuitive. ...Because I'm aware that Melody is a Chinese teacher, [so] this piece of our analysis is worth elaborating on because it's going to help her in her classroom. ...So I am actively thinking about the individual pedagogical circumstances that I know the students in this class are going to encounter in the languages that they teach and then I'm making decisions about which things to pay attention to or spend time on in class based on what I know they're going to encounter and on what I think they already know or understand or don't.

Figure 26: Emily's Description of Her Practice

Emily's reflection emphasizes how, as illustrated in these moments, she drew on multiple languages and pedagogical approaches to coordinate what was happening as her interactions with her students unfolded. Coordinating the in-the-moment with their former shared experiences and with her historical knowledge of the profession allowed Emily to respond to her students' needs and prepare them for their future work.

Discussion and Implications

This analysis has investigated teacher educator practice by considering how Emily, a DLI methods course instructor, constructed professional vision in interaction with her teacher candidates. I first demonstrated how Emily used the practices of *coding*, *highlighting*, and *producing representations* to support her teacher candidates to see linguistic and pedagogical phenomena that emerged out of a shared, collective experience (the retelling of Blue Honey) in new ways that aligned with the work of DLI teaching. I then analyzed how interactional substrate from across timescales, including multiplicity, served as resources that Emily used to construct a

dynamic professional vision that made space for the complexity and tensions present in learning to teach DLI.

The analysis of Emily's practice suggests that there are multiple ways to enter into and recognize opportunities for constructing professional vision. In Moment 1, Emily anticipated what might surface from the retelling of Blue Honey based on her professional expertise. Attending to the language Maria used during the retelling allowed Emily to guide the debrief to analyze Maria's use of French and Spanish in a way surfaced the challenge of representing nouns and verbs and provided an opportunity to construct professional vision around the problem and possible solutions. By contrast, Emily could not have anticipated the mispronunciation of the word *froid/cold* in Moment 2. However, when it did occur, Emily recognized its potential in the moment and took it up as an opportunity to construct professional vision around transfer in ways that reinforced course content. Finally, Moment 3 was, by Emily's own admission, an impromptu moment. It emerged out of her awareness of her teacher candidates' needs and the challenges they would face, but it was unplanned. Going into creating the word wall, even Emily did not have all of the answers. This spontaneity, however, created rich opportunities for the teacher candidates to become more agentic as Emily centered their expertise to co-construct a student facing representation. One question that emerges from these findings is how teacher educators learn to recognize and take up these different ways into constructing professional vision.

At the same time, it was not enough simply *that* Emily constructed professional vision with her teacher candidates. Instead, revisiting the moments demonstrated how interactional resources available in the substrate facilitated the construction of a dynamic, rather than static, professional vision. While Emily's construction of professional vision surfaced pedagogical

problems, the resources in the substrate supported the group to explore possible solutions. In this interaction, the in-the-moment and recent substrate shared by the group, including the Blue Honey lesson and Maria's retelling, were especially rich in multiple linguistic, semiotic, and pedagogical resources. This invites a consideration of what kinds of collective experiences could be cultivated in methods courses and teacher preparation programs to establish resources for teacher candidates to make sense of the work of teaching. Attending to substrate in teacher education may also provide opportunities to support equity. Teacher educators could seed resources in the recent substrate that counter dominant norms embedded in the historical substrate could then be taken up in the moment to support equity-oriented sensemaking (Daniel et al., 2023).

Similarly, Emily regularly drew on resources from historical substrate to construct professional vision. These resources included Emily's professional knowledge and her personal and professional experiences. Emily's use of these resources leads us to consider what experiences teacher educators might be able to cultivate so that those resources could be available to draw on in constructing professional vision with teacher candidates, particularly when seeking to support equity-oriented approaches to teaching (Wassell et al., 2018).

Emily's consistent attunement to multiplicity as a resource allowed Emily to construct not just a professional vision, but a dynamic professional vision that acknowledged complexity. This dynamic approach allowed teacher candidates to grapple with disciplinary tensions such as issues of language use and representation. In the moments considered here, multiplicity in languages, semiotic resources, and pedagogical approaches surfaced relationships between knowledge, the expression of that knowledge, and the construction of that knowledge. Emily's efforts to construct a dynamic professional vision recognized the "movement and shifts" inherent

in a profession (Warren et al., 2020 p. 280). I argue that Emily's attunement to multiplicity provides a necessary first step to future considerations of how to construct professional vision that invites teacher candidates to investigate "how...professional disciplinary practices themselves are forged and constrained by dynamics of power and erasure" (Warren et al., 2020, p. 280).

Similarly, Emily's construction of a dynamic professional vision served as a counter to current efforts in teacher education to reduce teaching to core practices (Philip et al., 2019). Because a core practices approach precludes a centering of equity, a dynamic professional vision may be central to supporting an equity-oriented approach to teacher education. Emily's construction of professional vision clearly demonstrates how for her, teaching is not a reductive, mechanical practice. This was visible through both her responsive interactions with her teacher candidates during class and her reflections on her approaches in her interview. Emily's practice aligns well with Philip's (2019) recent examination of principled improvisation as an alternative to a core practices orientation. Future research to build on this work might consider how professional vision and principled improvisation are related to each other and what principles might be key to cultivate in teacher education to support improvisation that is responsive to local contexts. Pairing the construction of a dynamic professional vision with principled improvisation, teacher educators can prepare equity-oriented teacher candidates ready to navigate the tensions and complexity inherent in the work to enact teaching that is responsive to individual and local contexts.

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CHAPTER 4

Multiplicity as a Resource Toward Ideological Clarity for Dual Language Immersion

Teacher Candidates

Dual Language Immersion⁴ (DLI) as an educational model has experienced a rapid rise in popularity in the United States in recent years. Situated at the intersection of disciplinary content learning and second language learning, DLI can invoke multiple languages, cultures, and perspectives. This plurality has the potential to disrupt the educational status quo that privileges English and White culture as normative (Cervantes-Soon et al., 2017). However, DLI is also influenced by dominant ideologies (socially constructed frameworks for organizing the world; Hall, 1996) that result in the reproduction of educational inequities such as English hegemony and limited access to DLI programs for linguistically marginalized learners (Valdez et al., 2016). DLI programs that reach their disruptive potential require ideologically clear teachers (Bartolomé, 2002), or teachers who recognize how dominant ideologies influence DLI education and are clear on their personal orientations. The process of developing ideological clarity can begin as part of DLI teacher education when teacher candidates are making sense of the varied purposes of DLI and coming to understand how their identities and experiences position them in DLI learning spaces. As teacher candidates explore how dominant ideologies shape classroom realities, recognize the political nature of teaching, and consider how they may be able to disrupt an inequitable educational status quo, they move toward ideological clarity (Bartolomé, 2002; Bartolomé, 2010a; Macedo & Bartolomé, 2019).

⁴ DLI is used throughout this paper because it was the term used in the local context of the study. However, I acknowledge that the term obscures the historical relationship between dual language and bilingual education, including bilingual immersion education's roots in supporting linguistically marginalized learners (see Flores & García, 2017).

This paper considers how three DLI teacher candidates moved toward greater ideological clarity over a semester-long DLI methods course as they engaged with dominant ideologies and became clearer about their personal understandings of the purpose of DLI. Unique to this course was its dynamic that involved teacher candidates from diverse linguistic, cultural, and racial backgrounds. The course instructor regularly took up this diversity as a resource for learning. I consider how attuning to the different ways of knowing offered by this diversity—what Warren and colleagues (2020) identify as multiplicity, served as a resource for teacher candidates to develop ideological clarity. Drawing on an autobiography assignment and interviews at the beginning and end of the semester, I analyze how multiplicity in teacher candidates' own lived experiences and in experiences in the methods course allowed them to (re)consider the purpose and potential of DLI education. I found that their movement toward ideological clarity resulted in more refined visions of equity-oriented DLI instruction in their future classrooms.

Literature Review

As context for my analysis of teacher candidates' movement toward ideological clarity, I first review literature on the potential of DLI to support educational equity. I then explore how dominant ideologies shape current inequities that exist in DLI learning contexts.

For the purposes of this paper, I define equity as full representation and participation in and access to learning opportunities and a sense of belonging in learning spaces that accepts and individual's full personhood (Daniel, 2023). DLI contexts hold promise for this kind of equity because they can: 1) represent and center students' diverse languages and cultures as resources for learning (Briceño, 2017; Freire & Feinauer, 2022; Hamman-Ortiz, 2023; Heiman & Yanes, 2018; Phillips Galloway et al., 2020); 2) provide access to academic learning (Collier & Thomas, 2017; La Serna, 2022; Lu & Troyan, 2022); and 3) foster belonging through developing students'

intercultural and political awareness (Bartolomé, 2002; Domke et al., 2024; Freire, 2020; Heiman & Yanes, 2018). Furthermore, DLI offers this equitable potential by taking an additive rather than a subtractive approach to education.

DLI teachers can facilitate this potential in a variety of ways. Recent work has examined how DLI teachers work toward equity in DLI in their instructional practices and visions of the purpose of DLI. Equity-oriented DLI teachers are aware of and critique dominant norms (Bartolomé, 2002; Lomelí, 2018). Furthermore, they center students' languages and cultures that may be "unnamed" in the curriculum (Chang, 2022) and leverage minoritized languages and language varieties to empower students and contest English dominance (Freire & Feinauer, 2022; Heiman & Yanes, 2018). Such teachers also engage students critically and position their students to engage in efforts for social change (Heiman & Yanes, 2018). They accomplish these goals through a variety of instructional approaches, including culturally responsive pedagogies (Freire, 2020; Lomelí, 2018) and approaches that are responsive to students' language practices (Hamman-Ortiz, 2023). Common across this research are instructional approaches and conceptualizations of language and culture that resist English and White hegemonic norms. Thus, central to achieving DLI's potential is an awareness of how the current status quo impedes equity in DLI spaces.

The reproduction of the educational status quo is informed in large part by dominant ideologies, or invisibilized social norms that are accepted as commonsense and that reproduce inequity (Fairclough, 2015; Hall, 1996). One constellation of ideologies that directly influences DLI contexts are ideologies related to settler-colonialism (Cervantes-Soon et al., 2017; Dorner et al., 2021; Macedo, 2019). Settler-colonialism includes the ideologies and processes by which

nation-states, beginning around 1500, expanded their territory through exerting economic, military, political, and cultural power over others (Mignolo, 2011).

Language became an important tool through which settler-colonial power was maintained (Makoni & Pennycook, 2007). Colonizing languages were standardized based on the construct of an idealized “native” speaker, leading to “ideological erasure wherein the existence of language practices that do not fit within the schema of a dominant language ideological narrative are ignored or explained away” (Chang-Bacon, 2020a, p. 3). These idealized standard language varieties were linked to the cultural capital and power of settler-colonial nation-states (Makoni & Pennycook, 2007; Rosa & Flores, 2021). Parallel efforts worked to delegitimize indigenous languages of the colonized as creoles, dialects, or pidgins rather than languages or to erase the languages entirely “through the teaching of imperial languages” (Macedo, 2019, p. 10). This colonial influence has resulted in English hegemony in contemporary U.S. education.

English hegemony that stems from dominant ideologies has shaped DLI context by influencing who has access to DLI programs. Settler-colonial histories in the U.S. have established English as the dominant language of instruction, and being a monolingual speaker of English is framed as normative, while being bilingual is framed as an exceptionality (Ortega, 2019). Consequently, bilingual immersion programs were historically conceived in response to legislation that framed a lack of English as a problem to be solved (Flores & García, 2017; Ruiz, 1984). Early bilingual education provided a way for linguistically minoritized learners to access academic content in their home languages while also developing proficiency in English. However, recent shifts in educational policies such as enrollment mandates, program allocations, and school choice programs have shifted access to DLI education (Bernstein et al., 2021). DLI offerings are increasingly available to White, monolingual English-speaking students as a

“boutique” option to improve their educational résumés (Delavan et al., 2021; Flores & García, 2017). Meanwhile, DLI has become less accessible for minoritized students, including Black students, whose experiences in DLI have been found to be generally exclusionary (Blanton et al., 2021; Palmer, 2010). Dorner and colleagues (2021) argued that this pattern of “English-dominant, white students... ‘push[ing] out’ students who are less privileged by race and language from language programs originally designed for them” echoes settler-colonial processes of linguistic and cultural erasure toward assimilation (p. 325).

English hegemony is also visible in DLI program language policies. A common program structure in DLI is a 50:50 language allocation model, where for half the school day, instruction takes place in the immersion language and for the other half, it takes place in English. This approach, referred to as “equal language allocation” may appear equitable on the surface, but it results in less contact time overall with the immersion language when time spent in activities outside of the main classroom (e.g., art, physical education, lunch) is accounted for, resulting in an overall privileging of English (Freire & Delavan, 2021). English is also often given precedence for tasks such as classroom management or standardized testing (Ballinger & Lyster, 2017; Briceño, 2018) or when a strict English-only policy is adhered to in English instructional spaces, preventing translanguaging opportunities with the immersion language (Freire & Delavan, 2021). However, allowing English dominant students to use English during immersion language time may actually reinforce English hegemony (Lyster, 2019). Because translanguaging is a natural communicative strategy for bilingual speakers that inherently resists English dominance (García & Li, 2013), in DLI contexts where a majority of students are English dominant, language separation policies may serve to “protect” the immersion language and resist hegemonic norms.

Educational inequities in DLI are also shaped by settler-colonial ideologies that created linguistic and cultural hierarchies. As part of settler-colonial expansion, colonizing languages and cultures were commodified as capital and provided economic benefit and social privilege over colonized languages (Rosa & Flores, 2021). As a result, “[t]he powerless Others, most often brown and black, were rendered without language” (García, 2019, p. 152). Languages and cultures came to be ideologically organized into hierarchies based on perceived prestige. Colonizing languages and cultures were more prestigious than local languages. Similarly, language varieties within a language were placed along a hierarchy based on their proximity to the idealized standard language (Chang-Bacon, 2020b). European language varieties (e.g., Castilian Spanish, Parisian French) were privileged over colonized language varieties (e.g., Mexican Spanish, Puerto Rican Spanish; Canadian French, Senegalese French). Such hierarchies persist today and are evident in labels used to distinguish between language varieties, such as “low German” dialects that carry less prestige than “high German” (Villa, 2002).

The hierarchies based in settler-colonial histories influence how languages and cultures are taught in DLI contexts. For example, French is primarily associated with and taught in connection to the nation-state of France. Parisian French is established as the idealized language variety. When curricular materials explore *la Francophonie* (the French-speaking world) and include countries such as Algeria, Canada, Haiti, Senegal, etc., their language varieties and the diversity of cultures they have are often discussed only superficially (Macedo, 2019). The impact of colonialism that led to French being spoken in these countries and realities such as the erasure of indigenous languages are rarely addressed, even though most of the commonly taught languages in DLI (e.g., Chinese, French, German, Portuguese, Russian, Spanish) have some (albeit frequently complicated) relationship to settler-colonial ideologies and histories.

Linguistic hierarchies also inform which language varieties are welcomed in DLI spaces. Speakers of less prestigious language varieties often have their language practices questioned and devalued, as language hierarchies “[signal] to speakers of minoritized languages that what they speak is inferior and impure, restricted, and uncultured...[and] that their culture, too, is inferior and impure, restricted, and less desirable” (Macedo, 2019, p. 29). DLI teachers have been found to reinforce notions of “standard” language varieties, positioning students’ use of home language varieties as nonsensical (Briceño, 2018), despite the potential benefits of exposing students to a wide range of linguistic diversity (Freire & Feinauer, 2022). Given the both the pervasive influence of dominant ideologies as well as the possibilities for DLI to disrupt the educational status quo, it is important to consider how DLI teacher candidates come to navigate the tensions inherent in the inequities to push toward DLI’s potential for greater equity.

Theoretical Framing

Macedo and Bartolomé (2019) asserted that DLI’s potential for equity could only be realized “under the vigilant implementation of critical DLE [Dual Language Education] educators” who understand the history and impact of settler-colonial ideologies on DLI education (p. 47). Fostering this ideological understanding can begin as part of DLI teacher preparation by engaging teacher candidates in working toward ideological clarity (Bartolomé, 2002). Dominant ideologies such as settler-colonialism often operate invisibly and manifest in educational structures and policies that are taken as commonsense (Fairclough, 2015; Hall, 1996). Thus, a key part of working toward ideological clarity involves making dominant ideologies visible in order to recognize what is actually happening in classrooms. Ideologically clear teachers recognize the political nature of teaching, the inequitable power relations that reproduce the educational status quo, and the ways that ideologies shape policies, methodologies,

and classroom practices in ways that harm learners with marginalized identities (Bartolomé, 1994; Macedo & Bartolomé, 2019).

Engaging teacher candidates in efforts to gain ideological clarity requires an understanding of colonial histories and sociopolitical and historical influences on disciplinary and language learning (Bartolomé, 2010b; Macedo & Bartolomé, 2014; Palmer et al., 2019). As teacher educators use critical approaches to engage teacher candidates in an explicit study of ideologies, teacher candidates can come to recognize how ideological influences in education result in the production of asymmetrical power relations that create inequitable conditions for students (Bartolomé, 2010a). Teacher candidates also surface and examine their own beliefs and engage in reflexivity grounded in their own backgrounds and experiences (Bartolomé, 2002; 2010b; Varghese & Snyder, 2018). Key to ideological clarity is how teacher candidates are framed as agentic. Rather than being told what to think, they investigate ideological issues from multiple perspectives and then work to become clear and articulate where they stand personally in relation to dominant norms (Bartolomé, 2010b; Macedo & Bartolomé, 2019).

Ideological clarity is often framed as an outcome, intertwined with related processes such as ideological becoming (e.g., Freedman & Ball, 2004; Holdway & Hitchcock, 2015). In this analysis, rather than tracing the process of ideological becoming, I focus on ideological shifts in DLI teacher candidates' narratives that occurred over the course of a semester toward an outcome of ideological clarity. However, recognizing that the outcome of "arriving" at such clarity is one that unfolds over years and may constantly be re-negotiated (Palmer et al., 2019), I consider how teacher candidates indicated movement *toward* rather than arrival *at* ideological clarity. Furthermore, while work toward ideological clarity in teacher education ideally involves explicit attention to ideologies across a teacher preparation program (Bartolomé, 2010a), in many

current contexts, explicit attention and/or a continued articulation of these issues across courses is not possible. Such was the reality of the context of this study. Thus, I consider how teacher candidates were able to move toward ideological clarity with limited explicit focus on ideologies.

While ideologies were not an explicit focus of the study's context, the DLI methods course examined here was unique in ways that may have supported teacher candidates in working toward ideological clarity. Invoking the multiple languages, cultures, and perspectives that are possible in DLI, plurality, or the presence of more than one language, culture, or perspective, was a marked feature of the course. Six teacher candidates were enrolled in the course. They spoke a variety of languages (e.g., Cantonese, French, German, Japanese, Mandarin, Spanish) and represented diverse racial, linguistic, and cultural backgrounds. The course instructor regularly provided examples of teaching materials in a variety of languages (e.g., French, German, Korean, Mandarin, Portuguese, Russian, Spanish) and the teacher candidates were regularly taught by their peers in languages they did not speak. I argue that this plurality allowed course participants to attune to *multiplicity* (Warren et al., 2020) as a resource throughout the course, including as a resource in moving toward ideological clarity.

Multiplicity is defined as an attunement to heterogeneity in knowledge and in ways of knowing (Warren et al., 2020). It invokes an awareness of how dominant ideologies result in settled norms that flatten learning to center White perspectives, privilege English, and reproduce cultural and linguistic hierarchies (Warren & Rosebery, 2011) Attuning to multiplicity surfaces a recognition of the value of marginalized knowledge, language, history, and culture, and allows for an analysis of the relationships between identity, history, and knowledge production (Bang et al., 2012; Warren et al., 2020). DLI teacher candidates in this course attuned to multiplicity in

ways that were visible in their narratives and that supported their movement toward ideological clarity. Drawing on ideological clarity and multiplicity as theoretical frames, I asked:

1. What shifts were visible in DLI teacher candidates' narratives over the course of a semester long DLI course and did these shifts indicate movement toward ideological clarity?
2. What role did multiplicity play in these shifts?

Methods

This study took an embedded single-case study approach (Yin, 2017). I focused on a single DLI methods course as an intrinsic case of DLI teacher education (Brinkmann & Kvale, 2014; Yin, 2017). The goal was to better understand the case of this specific course to contribute to limited research on DLI-specific teacher preparation (Hood, 2020). I situated the case within a U.S. context, focusing specifically on the influence of settler-colonialism in U.S. DLI spaces. Within the case, I focused three teacher candidates enrolled in the course for this analysis because they were planning to teach in a U.S. DLI context and had participated in the relevant data collection activities (an autobiography assignment and two interviews). I considered each teacher candidates' ideological shifts as a unit of analysis, which I analyzed from the autobiography assignment (AB) and interview (I1) given at the beginning of the semester and an interview (I2) given at the end of the semester.

Study Context

The study took place in a DLI methods course taught at a large, private university in the western United States. The semester-long course was required for the university's DLI minor, which provided students with a state DLI K-12 endorsement. The state in which the study took place offers DLI programs in Chinese (Mandarin), French, German, Portuguese, Russian, and

Spanish. While the state uses the term “DLI” to refer to all of their immersion programs, a mix of one-way and two-way immersion programs exist, with one-way programs being the most common. The state follows a 50:50 language allocation model, with immersion language time focused on immersion language literacy, math, and content areas (science and social studies) and English instructional time focused on English language arts and literacy and math with reinforcement for content areas.

The methods course itself focused on developing DLI students’ biliteracy. The course instructor, Emily, emphasized developing biliteracy through integrating language, academic content, and culture. She took an experiential approach to the course. Teacher candidates regularly engaged in activities that positioned them as learners to experience the methods and pedagogical strategies they were studying. Teacher candidates also had regular opportunities to enact teaching practices through teaching demonstrations to their peers, some of whom did not speak their immersion language. Similarly, teacher candidates were often taught by peers in languages they did not speak. The dynamic resulted in the plurality discussed above and created potential for attuning to multiplicity as a resource for learning.

Participants

Six teacher candidates completed the DLI methods course, all of whom were minoring in DLI education. Of the six, only four completed the autobiography assignment, initial interview, and final interview that served as the data sources for this analysis. Because the focus was on preparing DLI teachers in a U.S. context, I highlighted three of those four participants: Abby, Maria, and Mia (Figure 27). The fourth teacher candidate, Melody, was not planning on teaching DLI in a U.S. context, and her interviews focused heavily on transferring her course experiences

to her intended international context. Thus, while I do not include her perspectives here, I do wish to acknowledge Melody as a significant part of the course and of the larger study.

Participant-selected Pseudonym	Self-identified Racial Identity	Immersion Language	Immersion Language Experience	Other Languages	University Major
Abby	White	German	Formal K-12 study, religious volunteer abroad	ASL, Spanish	Early childhood education
Maria	Hispanic	Spanish	Formal K-12 study, religious volunteer abroad, family heritage	—	Elementary education
Mia	Mexican American	Spanish	Spanish as a home language	French	Elementary education

Figure 27: Interview Participants

Data Collection and Analysis

The primary data sources included an autobiography course assignment and two interviews with each participant. Teacher candidates completed the autobiography assignment during the first two weeks of the course (see Appendix B for the assignment). In their autobiographies, they reflected on their language backgrounds and discussed different aspects of their identity. Teacher candidates chose four identity categories from six possibilities (Education; Gender & Sexuality; Health & Wellbeing; Race; Religion; Wealth & Class) and could respond in any language they chose. This flexibility in assignment structure was designed to allow teacher candidates to determine what they felt comfortable sharing and how. Abby and Mia both completed their autobiographies in English. Maria responded in Spanish; I provide her original words and a translation (verified by Maria) when referencing this data.

Each teacher candidate completed an initial interview (I1) during weeks 3-4 of the semester and a final interview (I2) during the last week of the semester. All interviews took place and were recorded via Zoom. They lasted about 45-60 minutes each and were guided by a semi-

structured protocol (Castillo-Montoya, 2016). Interview 1 invited teacher candidates to reflect on their language backgrounds and elaborate on topics discussed in their autobiography assignments. Interview 2 followed up on topics from the initial interview and invited teacher candidates to discuss their experiences with the course. I took a constructivist approach to the interviews, viewing them as interpretive narratives of participants' realities that we constructed during the interview process (Charmaz & Belgrave, 2012).

I also collected video recordings of nine of the 15 total class sessions. These recordings captured content such as interactive instruction, group discussions, teaching demonstrations, and peer and instructor feedback. They served as secondary data sources that I used to triangulate the findings, including references to class experiences that participants shared in their final interviews (Brinkmann & Kvale, 2014).

To analyze the interviews and autobiographies, I followed a flexible coding process, taking an abductive approach (Deterding & Waters, 2021). I used multiplicity as a sensitizing concept in reviewing the data (Blumer, 1954) but remained open to unexpected ways in which teacher candidates discussed their experiences. I first open coded the interviews and autobiographies to characterize the content of each data source (Saldaña, 2021). I then engaged in content analysis, looking for patterns across the data sources for each teacher candidate (Morse, 2012). Some of the key content categories identified included: attunement to multiplicity, descriptions of personal identities, and expressions of values or commitments related to DLI teaching. I then completed iterative rounds of thematic analysis to synthesize the content and identify ideological shifts that appeared from the beginning of the semester (in the autobiographies and Interview 1) to the end of the semester (in Interview 2). Teacher candidate shifts centered primarily on their understandings of the purpose of DLI education. To strengthen

the validity of the findings, I triangulated the interview and autobiography data with class session recordings, compared the findings with theory and current literature, and shared drafts of the findings with the teacher candidates as a form of member-checking (Brinkmann & Kvale, 2014). I revised my analyses, interpretations, and writing based on their feedback.

Positionality

I wish to acknowledge my positionality in relation to this study. I am a White woman whose first language is English. I studied French and German primarily in predominantly White U.S. educational settings, including the institution where the study took place. Consequently, I had a familiarity with the institution's culture and academic programs that helped me connect with the teacher candidates. I also have a long-standing professional relationship with the course instructor that allowed me to collaboratively integrate my research into her course. My role in the methods course included administering interviews and being present as a researcher in class sessions, which I attended mostly virtually, but was in person for three weeks. I also led two lesson demonstrations in person during class sessions, which allowed me to deepen my relationships with the teacher candidates. Because I was a graduate student from another institution at the time of data collection, I did not hold any institutional power over the teacher candidates, which I believe further supported relationship building and authenticity, especially during the interviews. While my research interests in equity influenced this analysis, I sought to honor and uplift the voices of the teacher candidates whose stories I share here, particularly those who hold minoritized identities. Recognizing the limits of my own perspectives given my positionality, I engaged in regular reflection and reflexivity to avoid imposing my biases as much as possible (Milner, 2007). I am grateful for the time that the teacher candidates took to share their stories and provide feedback on my representation of their experiences.

Findings

All three teacher candidates' narratives over the course of the semester demonstrated shifts, specifically around the purpose and potential of DLI education. Multiplicity was a key resource that teacher candidates noted throughout their narratives. While many ideological connections were implicit rather than explicit in this context, teacher candidates did show evidence of movement toward ideological clarity through rearticulated visions of DLI to disrupt norms related to settler-colonialism.

The first two narratives I present here are from Mia and Maria, both of whom identified as having Hispanic heritage. Their ideological shifts allowed them to consider their own language experiences and histories to envision how to support minoritized students in DLI contexts. By contrast, the final narrative is from Abby, who identified as a White teacher candidate. Her shifts allowed her to grapple with what it means to cultivate equity and disrupt dominant ideologies with students who hold identities of power and privilege. Taken together, these three narratives give insights into what it might mean to prepare critical DLI teachers equipped to cultivate DLI's equitable potential. I present the findings by describing each teacher candidate's individual shifts, highlighting the role of multiplicity throughout. I conclude each narrative with a consideration of how these shifts suggest movement toward ideological clarity. In the discussion, I look across the three narratives to further consider ideological clarity in DLI as a means to disrupt settler-colonial influences.

Mia: “I can make sure that my students don’t feel like an outcast”

Mia’s identity as a Mexican American whose first language (L1) was Spanish shaped her initial perception of the potential of DLI to help linguistically minoritized students maintain their language. Mia described her language background (Figure 28):

Mia: Excerpt 1, Interview 1

So I grew up speaking Spanish at home. ...My parents, they believed that Spanish is such an important language. And it was not only going to benefit me like as a kid, but also benefit me in the future. And I was only allowed to speak Spanish at home...because my mom really wanted me to obtain that fluency in Spanish with her and my brother. ...My brother, when he was growing up, he didn't have that strong like, emphasis, like, you have to speak it. So now he doesn't really speak Spanish fluently. Like he can understand it, he just can't really, like, say what he wants to say. And so that's, I realized now, like, Spanish is just so important. ...And I think that's why I, I hold on tight to my language.

Figure 28: Mia, Excerpt 1, Interview 1

Elsewhere, Mia elaborated that while she learned English in school, she grew up in more Spanish-speaking communities than her brother did (Autobiography [AB], Interview 1 [I1]). Mia attributed the differences in their upbringings to the language differences between her and her brother. Mia's awareness of how language use and language value vary across contexts led Mia to "hold on tight to my language." Mia's connection to the Spanish language influenced her decision to pursue DLI: "There's so much benefit in teaching a language that we already know to people that want to learn the language. And so that's what really made me make the decision, like I want to teach and do immersion programs" (Interview 1, [I1]). Mia's view of DLI as a means to help linguistically minoritized learners "hold tight" to their language aligns with the potential of DLI to disrupt English hegemony.

Mia's sense of her own cultural and racial identity was tightly connected to her language background. Mia described the work she did in high school to make sense of her identity (Figure 29):

Mia: Excerpt 2, Interview 1

For me in high school it was kind of hard to like really identify myself, like, what am I? Am I American? Or am I Mexican? And that's what, like this huge debate between myself, trying to find my own identity, like am I just White? cause I grew up in a White community? And I spoke English and I was born here? Or am I Mexican? Like it was just a huge debate until I—my junior year of high school, I was finally like, no, I'm a Mexican American. I was born here. But I also have roots that bring in like the Spanish speaking. ...It was a moment of just like, eye opening to me, as a high schooler...to realize there's people that look like us. But I still had friends who were, you know, White, and I grew up with them. ...I identified myself more as an American at one point because I was doing things they did. And I felt like an outcast with the Spanish speakers because I didn't do things like they did. ...And then when I slowly started hanging out with them [the Spanish speakers] more, and I was like, these are my roots. This is where my family's from. This is what my family used to do before they adapted to this culture. And I just had a mix of both. And that's where I slowly started adapting more into being friends with people that I didn't have before.

Figure 29: Mia, Excerpt 2, Interview 1

Mia noted that she often felt a “barrier” between her English- and Spanish-speaking friends (I1).

This barrier and the struggle Mia narrated above suggest the influence of linguistic and cultural hierarchies between English language and American culture and Spanish language and Mexican culture. Mia’s positionality allowed her to be a part of both groups to an extent, but she had to struggle until she found an identity that resonated with her (“I was finally like, no, I’m a Mexican American. I was born here. But I also have roots that bring in the Spanish speaking.”

Mia’s identity work to make sense of her own racialization in U.S. school contexts was something she drew on in subsequent reflections on how her positionality influenced her work as a future DLI teacher, a reality echoed in research on bilingual teacher candidates (Briceño et al., 2018).

Mia recognized the diversity in her own background, holding space for different languages, ethnicities, identities, and cultural practices that reflect multiple ways of being in the world (I1). Attuning to this multiplicity, when asked Mia drew connections to how her experiences could influence her future DLI classroom (Figure 30).

Mia: Excerpt 3, Interview 1

I think, just knowing who I am, and like the things that I've learned, like in high school. I felt like an outcast. And I know there'll be students in my classroom that will feel like outcast with, instead of feeling like an outcast with their Mexican friends, they're going to feel like an outcast with their American friends. And then also my American students will feel like they're an outcast compared to, like their Spanish-speaking friends because they don't know about the culture. ... I think just knowing that I was also in the same spot, I allowed myself to be exposed to that, I can do the same thing to my students. I can expose them to the different contexts. ... I wish I was a part of a dual immersion program that taught me like, you speak Spanish, but there's a classmate that wants to learn Spanish. He might look different, you are different, but these differences bring us together. ... But I feel that's what I want to do in my classroom, just knowing that I was an outcast, I felt like an outcast in my groups, I can make sure that my students don't feel like an outcast. That's what I really want to do in my time as an educator.

Figure 30: Mia, Excerpt 3, Interview 1

Mia articulated how in DLI, and specifically in two-way immersion programs, all students may feel out of place in some way ("I know there'll be students in my classroom that will feel like an outcast with, instead of feeling like an outcast with their Mexican friends, they're going to feel like an outcast with their American friends. And then also my American students will feel like they're an outcast compared to their Spanish-speaking friends"). In noting this possibility, Mia hinted at how DLI can disrupt typical classroom power dynamics as linguistically minoritized students' cultural expertise is centered ("My American students will feel like they're an outcast compared to their Spanish-speaking friends because they don't know the culture"). Mia further named the potential of DLI to disrupt linguistic and cultural hierarchies as students come together to learn different languages ("I wish I was a part of a dual immersion program that taught me like, you speak Spanish, but there's a classmate that wants to learn Spanish... these differences bring us together"). This potential to create an equitable community lay at the heart of Mia's goals as a future DLI teacher ("But I feel that's what I want to do in my classroom, just knowing that I was an outcast, I felt like an outcast in my groups, I can make sure

that my students don't feel like an outcast. That's what I really want to do in my time as an educator").

By the end of the semester, Mia had nuanced this potential for DLI into a vision of her DLI classroom as a place of belonging, especially for minoritized learners. Mia's vision included an expanded notion of *who* might be in her future classroom, a more precise articulation of the *whys* of DLI, and an understanding of *how* to realize this vision, particularly in her role as a teacher. One of Mia's key shifts was in expanding who might be in her classroom. She attributed this shift to her experiences in the DLI methods course, where she had an opportunity to teach Spanish-speaking peers like Maria, as well as her classmates Abby, who spoke German, and Melody, who spoke multiple dialects of Chinese. Mia reflected on teaching those lessons (Figure 31).

Mia: Excerpt 4, Interview 2
<p>At first it was kind of hard to teach because, I just, I don't know. Cause in my mind right now, when I go into these schools, the majority of my students are gonna be native English speakers that like, have been exposed to Spanish. ...I never really thought about it until after teaching [my peers] that there might be a student in my classroom that is not a native English speaker, that might be from Brazil, that knows Portuguese. And that might be confused with Spanish a lot. Somebody that is from China that is learning Spanish. ...Because it will be harder for someone like [Melody], she knows Chinese, and then she knows English. And then she's trying to learn Spanish. And I think that made me really think about more, there's some people who are going to be bilingual that are trying to learn another language. So I have to be really, really careful with the way that I teach and how I teach it.</p>

Figure 31: *Mia, Excerpt 4, Interview 2*

Mia's initial expectations for who would be in her class ("native English speakers that have been exposed to Spanish") align with current trends where many DLI programs are more likely to enroll monolingual English students than linguistically minoritized students (e.g., Dorner et al., 2021; Valdez et al., 2016). However, attuning to the multiplicity that was present in the DLI methods course allowed Mia to consider new possibilities for her students' linguistic

identities. She expanded possibilities for multilingual identities in her classroom ("there's some people who are going to be bilingual that are trying to learn another [third] language") in ways that include the increasingly diverse backgrounds of students in U.S. schools (Papa, 2020). Mia recognized that her students might already speak languages other than Spanish, including students with linguistic expertise in languages similar to Spanish (i.e., Portuguese) and those with experience in languages less similar to Spanish (i.e., Chinese). Pushing against expectations of English hegemony in the classroom, Mia acknowledged that the possible linguistic diversity in her future classroom directly impacted her responsibilities as a teacher ("So I have to be really, really careful with the way that I teach and how I teach it").

Mia continued this theme of inclusivity as she articulated a more precise rationale for her "whys" of DLI education (Figure 32):

Mia: Excerpt 5, Interview 2

I think one of my new "whys" is the emphasis of involving different race and culture into what you're teaching. I think that's really important. ...I think I really learned this semester like why we're teaching them culture, like, we're teaching them to learn about like different parts of the world that speak this language and their customs and traditions from this place. I think that's one of my whys now of teaching. Like teach them that just because that country speaks Spanish doesn't mean that they're all the same, but they're different cultures, and you're learning the language, and you learn in different cultures, like you, you're able to make connections to that place.

Figure 32: Mia, Excerpt 5, Interview 2

Mia defined one of her new "whys" as the importance of teaching culture to expand students' perspectives ("we're teaching them to learn about different parts of the world that speak this language and their customs and traditions from this place"). Resisting norms in language education that tend toward sanitized and monolithic views of culture influenced by settler-colonial ideologies (Macedo & Bartolomé, 2014), Mia instead nuanced that "involving different race and culture into what you're teaching...[is] really important." Mia recognized how

multiplicity could be a resource for effectively teaching culture, articulating how one of her goals was to help teach students that culture is not monolithic ("just because that country speaks Spanish doesn't mean that they're all the same, but they're different cultures"). Mia also prioritized helping students make personal connections to those cultures, including drawing from their own cultures ("you're learning the language, and you learn in different cultures...you're able to make connections to that place"). Mia's rearticulated "why" is significant because it rejects cultural hierarchies linked to settler colonialism, creating spaces where students from culturally minoritized backgrounds can feel like they belong.

Mia further described how she worked to create this sense of belonging in a 200-level Spanish course she was teaching at the time (Figure 33):

Mia: Excerpt 6, Interview 2

Something I'm more confident in is to allow myself to be involved in my lessons. ...I've noticed that during the semester, when I taught, we would talk about a subject, and I would include like, well...where my family's from, like from Mexico, this is how they did this and this is how they spoke like this. ...I will share stories or traditions or customs, things that my race does. So like my family does growing up. And I know that's going to be a huge chunk, like how I teach. Because I want my students to feel comfortable with sharing. Because I noticed that when I did that, when I shared my, who I am, like my race, where my family comes from, my students were more open to share where they were from, and what they did differently, and their own family and their country. And I felt like that was, sharing that chunk of me really reflected the way that I taught and the way that the lessons were. My students were more open to speak and to share more about topics, cause we discuss a lot of topics about like, we talked about stereotypes, we talked about genders and separation of families that are like diversity, and technology, we talked a lot about topics that are kind of hard to talk about if you don't share that chunk of you.

Figure 33: Mia, Excerpt 6, Interview 2

Mia noted that her confidence in "allow[ing] myself to be involved in my lessons" came from observing the DLI course instructor, who would often include personal connections and adjust instruction to meet the TCs' needs (Interview 2 [I2]). As Mia began sharing in her university class "who I am, like my race, where my family comes from", she noticed that it led to "my students [being] more open to share where they were from, and what they did differently, and

their own family and their country". This approach of sharing and showing a level of personal vulnerability as the teacher resisted settled norms of the teacher as the only authority figure and source of knowledge in the classroom (Warren et al., 2020). Mia reflected that disrupting these traditional power dynamics impacted her teaching and her students' learning ("My students were more open to speak and to share more about topics, cause...we talked a lot about topics that are kind of hard to talk about if you don't share that chunk of you"). Mia rejected ideologies of language teaching as neutral and apolitical (Bartolomé, 1994; Palmer et al., 2019) and was able to create a space where students felt comfortable sharing aspects of their identities that are often excluded from the classroom. While Mia drew on her experiences teaching her university class, she recognized direct connections to her future DLI classroom ("And I know that's going to be a huge chunk of how I teach. Because I want my students to feel comfortable sharing"). This desire for a safe community where students feel comfortable enough to share vulnerable aspects of themselves encapsulates Mia's nuanced vision of DLI for her students.

Mia demonstrated movement toward ideological clarity as she began the semester with a recognition of the potential of DLI to support linguistically minoritized learners. By the end of the course, Mia had nuanced her vision to expand on the who, the why, and the how of transforming her future DLI classroom into a space of belonging for all learners, and especially for linguistically minoritized learners. Multiplicity was a resource that Mia attuned to throughout, connecting to multiple cultures and ways of being from her adolescence and multiple linguistic and cultural backgrounds in the DLI course to mediate her personal experiences as she rearticulated her vision for DLI. Mia's clarified vision disrupted linguistic hegemony by expanding understandings of the linguistic identities of her future students and disrupted cultural hegemony by resisting monolithic perceptions of immersion cultures. Mia also demonstrated

clarity with regard to her role as a teacher in a two-way DLI program could upend settled power dynamics and position the teacher and students from all backgrounds as co-learners in community with each other.

Maria: “An advocate for language learning”

Maria began the methods course with views of how DLI could support students’ home language maintenance. Maria’s understanding of this potential stemmed from her own language background (Figure 34):

Maria: Excerpt 1, Interview 1

I’m Hispanic. But I grew up only speaking English. I did not know a lick of Spanish. And that did not bother me growing up. Because all my friends, all my teachers, my entire environment was English-speaking. And so I just, I didn’t have a second thought about Spanish or any other language until it was a requirement in high school. And then it was kind of a chore to learn.

Figure 34: Maria, Excerpt 1, Interview 1

Although identifying as Hispanic, Maria described how she was not bothered growing up by not knowing Spanish because of the contexts she grew up in. She elaborated on this reality in her autobiography (Figure 35):

Maria: Excerpt 2, Autobiography Assignment

Las raíces de mi familia empiezan en España. Después de un tiempo, viajaron hasta México y se quedaban. Un poquito tiempo mas y unos conquistadores de los Estados Unidos tomaron parte de la tierra y se cambió el nombre a Nuevo México. Allí ha vivido mi familia hace este tiempo. Por la cultura, mi familia empezó dejar el idioma de español hace dos o tres generaciones porque en ese tiempo había que si hablaron inglés, progresara más que si no. Entonces, dejaron de enseñar sus niños español. Unos pueden entender o responder in Spanglish, peros los de mi generación no sabemos nada.

My family’s roots begin in Spain. After a while, they traveled to Mexico and stayed. A little more time and some conquerors from the United States took part of the land and the name was changed to New Mexico. My family has lived there for some time. Due to culture, my family began to leave the Spanish language two or three generations ago because at that time it was assumed that if they spoke in English, they would progress more than if they didn’t. So, they stopped teaching their children Spanish. Some can understand or respond in Spanglish, but those of my generation don’t know anything.

Figure 35: Maria, Excerpt 2, Autobiography Assignment

Maria reflected on her family's linguistic history and how it intersected with colonial histories and geographic place. Interestingly, Spain's settler-colonial past was somewhat underplayed in Maria's narrative, perhaps because Maria focused specifically on her family's individual journey ("My family's roots begin in Spain. After a while, they traveled to Mexico and stayed"). However, Maria did explicitly acknowledge the settler-colonial history of the United States ("some conquerors from the United States took part of the land and the name was changed to New Mexico"). Furthermore, Maria directly linked this history to English hegemony ("Due to culture, my family began to leave the Spanish language two or three generations ago because at that time it was assumed that if they spoke in English, they would progress more than if they didn't") and connected it to her family's language loss ("so they stopped teaching their children Spanish. Some can understand or respond in Spanglish, but those of my generation don't know anything").

As Maria got older and learned Spanish, she realized the impact this history had on her family and her relationships, and it led to her interest in DLI (Figure 36):

Maria: Excerpt 3, Interview 1
I have grandparents who I don't understand, like, when we go to visit, it's my dad or my grandpa that translate for me when I talk to them. [After learning Spanish], I realized that like, it's a really big deal to know, like, the community's language, as well as your family's language, or like your ancestral language. And so that was just something that I wanted to be an advocate for. But I had already started the education major. And I wanted to keep going with that. And when, like, I dunno, when I had come across the DLI concept, I knew I wanted to be a part of that, because I could be an advocate for education and be an advocate for language learning, as well as language where you like, keep it, kind of thing, instead of get rid of it.

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Figure 36: Maria, Excerpt 3, Interview 1

Maria recognized how not having Spanish preserved in her family had limited her relationships with her family members across generations ("I realized that like, it's a really big deal to know, like, the community's language, as well as your family's language, or like your ancestral

language"). Preserving and learning heritage languages became, for Maria, "something that I wanted to be an advocate for." When Maria learned about DLI, she immediately saw its potential "because I could be...an advocate for language learning, as well as language where you like, keep it, kind of thing, instead of get rid of it." Maria noted how DLI could counteract subtractive language education approaches that distance students from their heritage languages as they reinforce English hegemony (Lachance, 2017).

This space for different languages and backgrounds in DLI appealed to Maria, who saw its potential (Figure 37):

Maria: Excerpt 4, Interview 1

What appeals to me the most is that we have just as much an effect on students as like your typical elementary education teacher would, that we can love them, and we can support them and we get to see their growth and help them progress. But we have like a bit further to go with that. Because we have to think about connections and backgrounds, whereas it's not necessarily innate in like a regular classroom, in monolingual schools because the teacher just knows that they're teaching content, and they're teaching students, but in the DLI classroom, it's. A lot of people have different backgrounds, with, with the language and like, not, even the language itself has different backgrounds, whether it's just like home language or academic language, and so there's just a lot more thought and concern, in my opinion, to being a DLI teacher.

Figure 37: Maria, Excerpt 4, Interview 1

Maria acknowledged that DLI creates explicit space to focus on linguistic and cultural differences in a way that is "not necessarily innate in like a regular classroom, in monolingual schools." Maria attuned to the multiplicity of language resources, acknowledged students' different backgrounds and variety within language ("home language or academic language"). Maria's awareness of linguistic diversity connected to her own experiences learning Spanish, where she connected with Spanish speakers from "all the different Spanish speaking countries" (I1). As Maria described language varieties throughout her interviews, she acknowledged their

differences without positioning them hierarchically, accepting them all as valid, an approach that could support more equitable DLI instruction (Briceño, 2018; Freire & Feinauer, 2022).

Over the course of the semester, Maria's commitment to welcoming linguistic diversity in additive ways developed into a broader vision of how to advocate for preserving students' languages and cultures. Central to Maria's expanded vision was the role of culture. Maria described how she wanted to support her students to think about immersion cultures (Figure 38):

Maria: Excerpt 5, Interview 2

With race, I think, yeah, just realizing how ignorant I was as a child, with the ways that different teachers treated me, and how, like not-different teachers treated me and other students. I want to make sure that my students are aware more of culture than of skin color, I guess, especially since it is like a DLI classroom, and we are learning culture every single day. And so I don't want them to think of like, oh, Mexico is where their skin color is brown. But instead, oh, Mexico is where they speak the same language that I know how to speak. But they also have beautiful mountains and oceans. And they have this weird fruit that we don't have, or not weird fruit, but they have like this, this delicious fruit that we don't have here, or it's expensive here, because it doesn't grow here kind of thing.

Figure 38: Maria, Excerpt 5, Interview 2

Maria's vision of culture drew on her past experiences with race, both positive and negative, to focus on breaking down racial stereotypes ("I don't want them to think of like, oh Mexico is where their skin is brown) and disrupting cultural monoliths perpetuated by settler-colonial views of the Other (Macedo, 2019). Instead, Maria described a multifaceted approach to culture that included language ("Mexico is where they speak the same language that I know how to speak"), geography ("they also have beautiful mountains and oceans"), food ("they have this delicious fruit that we don't have here"), and economics and climate ("this delicious fruit that we don't have here, or it's expensive here, because it doesn't grow here"). Furthermore, Maria named the need to move away from dominant norms that frame cultural differences as "weird" to more asset-oriented framings of immersion cultures. Thus, Maria considered how to provide students

with multiple ways to make connections between the immersion culture and their own lived experiences in more inclusive ways.

Maria's perception of culture also included making space for her students' home cultures, and she provided concrete strategies to bring those backgrounds into her future classroom as she reflected again on how aspects of her own identity, such as her religious background, had shaped her and how she might welcome all aspects of her students' identities (Figure 39):

Maria: Excerpt 6, Interview 2

I personally think that something that I would want to do is, because [religion], it's another aspect of culture, it's a huge part of who people are more than just their language, their food preference, their music preference. ...I also want to have open doors with my, with the parents of the students that I have, that if they know of a book that is by an author who has, who shares the same religion as them, and they also want that introduced to-to their child and to the students in my classroom, they're more than welcome to tell me about it. And I can look into it, and include it in my classroom, because I think students should be aware that religion is a thing...because it will be brought up in some aspect, talking about culture and different countries.

Figure 39: Maria, Excerpt 6, Interview 2

Maria acknowledged religion as another important facet of culture that is significant to many ("it's a huge part of who people are"), despite it being something that is often taboo in schools. Maria's proposed policy of "open doors with my, with the parents of the students that I have" would allow families to bring in aspects of their culture that were meaningful to them. Maria was careful to articulate in her interview that she did not intend to promote or privilege one religion over another (I2), an effort to disrupt cultural hierarchies. Yet her attunement to the multiplicity of belief systems that exist and shape how students are in the world welcomed student perspectives alongside perspectives from immersion cultures ("I think students should be aware that religion is a thing...because it will be brought up in some aspect, talking about culture and different countries").

Maria's commitment to advocate for students' home languages and cultures came through clearly as she articulated throughout Interview 2 her goal to expand students' exposures to different cultures rather than exclude them as irrelevant to learning (Figure 40):

Maria: Excerpt 7, Interview 2

[Language learning] can get hard. And that can really discourage students if they think all that they're learning is a language, and not recognizing that hey, I get to be a part of two cultures, my culture at home, and the culture at school kind of thing. ...If there's ever something [the students] want to share that they think is unique, they can because it's part of their culture and the class is open to different cultures. ...Maybe I would just establish a culture share day... and students can start to think and begin to prepare since the beginning of the school year, just so that they can recognize, like [immersion language] culture is important. And that's what I'm learning. But my culture is also still important. And the teacher doesn't want me to get rid of it kind of thing. They want me to share it.

Figure 40: Maria, Excerpt 7, Interview 2

Maria emphasized how culture was not limited to only the immersion culture, but that all cultural experiences are valued ("the class is open to different cultures"), again centering multiplicity as a resource not only for herself, but also for her students. Similarly, Maria highlighted students' home cultures as an asset ("I get to be a part of two cultures, my culture at home, and the culture at school"). She also disrupted assimilationist attitudes from settler-colonial ideologies by resisting subtractionist views of students' home cultures ("immersion language culture is important. And that's what I'm learning. But my culture is also still important. And the teacher doesn't want me to get rid of it...they want me to share it").

Over the course of the semester, Maria's initial views of DLI as a means to advocate for language preservation expanded to an ideologically clearer vision for how to intentionally welcome and integrate students' backgrounds. Maria attended to the multiplicity of cultural practices and linguistic varieties as resources for learning for the entire classroom, an orientation that may disrupt cultural and linguistic hierarchies by accepting all languages and cultures as valuable (Briceño, 2018; Freire & Feinauer, 2022; Macedo & Bartolomé, 2014). Similarly,

Maria's additive and asset-based framings of students and their linguistic and cultural backgrounds may disrupt subtractive approaches reflective of settler-colonial ideologies (Bartolomé, 2002).

Abby: "Helping kids be a little bit more aware of those outside of themselves"

Abby was a White teacher candidate who had German as her immersion language (Autobiography, [AB]). Abby's first language was English, and she learned German in middle and high school and as a religious volunteer in Berlin (AB, I1). Abby also had experience studying basic American Sign Language and Spanish. She was the only teacher candidate in the course who had participated in a DLI program (Spanish) as a student.

Abby began the course with a clear sense of the potential of DLI to support L1 English speakers in attuning to multiplicity in the world around them. She described her views on how learning a language through DLI benefits students (Figure 41):

Abby, Excerpt 1, Interview 1

But I think that learning a second language is super, super helpful, super, super important. ...Just having that slight understanding of like, there is a world that's bigger than you, especially when like, the L1 is English. I think is super, super big, of just helping kids recognize that there are languages all over the place, and they have different cultures. ...And so just giving them that little introduction I think helps people be a lot more understanding of people who don't necessarily come from the same background as they do. As well as also just, like prepares them to be a more successful person because they recognize that there's different backgrounds, different experiences and things. So yeah, just like the focus of helping kids be a little bit more aware of those outside of themselves, and those who are different from them, through language acquisition.

Figure 41: Abby, Excerpt 1, Interview 1

Abby's commitment to "helping kids recognize that there are languages all over the place" was shaped by seeing her own and her family's involvement with Spanish, German, and Chinese DLI programs (AB, I1). Abby saw multiplicity as a resource that DLI students could take up themselves, learning about "different cultures...different backgrounds...different experiences" to

become "a little bit more aware of...those who are different from them, through language acquisition."

Abby expanded on the potential of this awareness by focusing on the different attitudes about language learning in Europe versus the United States (Figure 42):

Abby, Excerpt 2, Interview 1

In Germany, and most other countries, you learn English as, just like starting, in Germany I believe it's in fourth grade, where you really start learning English. And, so and they also have to take another language too. So at the end of their general education, they are at least, you know semi-aware of three separate languages. And I just feel like, a lot of the feedback that I got from people that I interacted with in Germany and stuff, the concept, or the feeling about America is that we're kind of ignorant. We think, because we speak the world language, because we, you know, I don't know, are this world power, often English speakers come off as a bit ignorant, especially when you go into another country and just assume other people are going to speak your language, and you don't try to learn the language that you know, of the culture that you're in. And so that's, I mean, most of the countries already have a program in which students are learning a second language, be it English or, you know, French, or something else. And so I just think that that's, when you have such a high-density population of English speakers that don't necessarily learn a second language, giving them that opportunity is really important.

Figure 42: Abby, Excerpt 2, Interview 1

In comparing the different attitudes in Germany and the United States, Abby made visible the multilingual ideologies of Germany ("So at the end of their general education, they are at least, you know, semi-aware of three separate languages") contrasted with the monolingual ideologies of the United States ("We think, because we speak the world language, because we, you know...are this world power, often English speakers come off as a bit ignorant, especially when you go into another country and just assume other people are going to speak your language").

Abby's articulation of this monolingual reality made direct connections to settler-colonial influences, highlighting assumptions that English is "the world language" and the United States is "this world power" with monolingual English speakers who "just assume other people are going to speak your language." These statements reflect attitudes that center English hegemony, linguistic hierarchies, and a history of U.S. imperialism. Abby argued that "giving [English

speakers] that opportunity [to learn another language] is really important," positioning DLI as one possible way to begin to resist these ideological norms.

Abby also identified potential in DLI based on her own experiences with the program as a student (Figure 43):

Abby, Excerpt 3, Interview 1

That's, so the DLI program that I did Spanish through was in a lower SES, socioeconomic status like area, where there were a lot of Hispanic families. And the dual immersion program, I feel like, brought, the dual immersion program itself removed this SES difference between those who spoke English and those who spoke Spanish, like, we're all in the same class, we're all learning the same things. These Spanish speakers are way better than we are at the language, so in fact, they're doing better in school. And so for once, they're like, the, the better team, so to speak. And so it just kind of leveled the playing field, where it wasn't about the background you came from. It was about, you know, we're all learning a different language. We're all—either English or Spanish, but we're all here in the same class.

Figure 43: Abby, Excerpt 3, Interview 1

Participating in DLI programs as a student herself led Abby to perceive DLI classrooms as equal ("We're all in the same class, we're all learning the same things") in ways that pushed at dominant narratives of linguistically minoritized learners ("The Spanish speakers are way better than we are at the language, so in fact, they're doing better in school"). While research shows that DLI as a means of "level[ing] the playing field" is no guarantee (e.g., Palmer, 2010) and Abby's Spanish-speaking classmates may not have felt this same way, Abby's perspectives illustrate that DLI holds potential to disrupt linguistic and class-based dominant norms (Bartolomé, 2002; Macedo & Bartolomé, 2019).

At the end of the course, Abby's commitment to the potential of DLI remained, but she also articulated a clarified vision that acknowledged the complexity inherent in enacting more equitable DLI instruction, particularly in her German DLI context. Central to Abby's vision was the role of culture in DLI classrooms, as she reiterated in her second interview: "I want so bad to have just the most culturally authentic classroom." Yet Abby identified three challenges to

incorporating culture in ways that aligned with her commitments: 1) finding (appropriate) authentic texts; 2) providing students with access to cultural communities beyond the classroom; and 3) teaching culture in a reflexive way. One of Abby's challenges throughout the course was finding culturally authentic texts to use in her lessons. In her final interview, Abby reflected on what "culturally authentic" meant (Figure 44):

Abby, Excerpt 4, Interview 2

It's hard to find authentic, you know, German texts that my students can understand and will enjoy. Like I have a book of fairy tales, of the Brüder Grimm fairy tales, but they're not written directed towards young children, in the same way. ...I messaged [my friend] and I was like, what books did you guys use in school? And it was like *Max und Moritz* which is not, it's culturally traditional, but it is not appropriate to use in the U.S. school system because it's kind of violent. And the other examples she gave me were other ones that like, culturally, I can't use them here. ...I'd have to find some sort of German show that is still again, culturally appropriate for *us*, right? it's finding that balance of the cultures, because I also think like, like, I feel like the cultures are more similar in just like the Americas a little bit. And so when you have like, and like Asia there, they seem to be very, very conservative about a lot of things. So you know, like, I feel like it's easier to find sources that are acceptable to include in the classroom, when you, because they're just, they align with our views and our values.

Figure 44: Abby, Excerpt 4, Interview 2

Abby identified that part of her struggle was not just finding culturally *authentic* texts in the immersion language, but culturally *appropriate* texts for the DLI school culture. Abby's attunement to multiplicity as she reflected on this tension allowed her to acknowledge different ways of being, where certain topics (e.g., violence, sexuality) are culturally taboo in some cultures but not in others, and that this differs significantly worldwide (e.g., Germany, the Americas, Asia). This point was something that Abby elaborated with multiple examples in her interview. Abby did not give up her commitment to a culturally authentic DLI classroom that used materials representative of German cultures, but she did recognize that realizing her vision relies on "finding that balance of the cultures."

A similar challenge emerged as Abby considered how to provide her future students with connections to cultural communities beyond the classroom (Figure 45):

Abby, Excerpt 5, Interview 2

That was something I realized about, another struggle of DLI, and specifically like German DLI, because Spanish, there's a ton of people who took it in high school or something, like parents who could maybe pull little bits out, or you know, you run into people at the grocery store or other things like that. And they speak Spanish. So you're not just limited to the classroom environment. ...I remember when I was doing Spanish immersion, one time we were at the store, and there was these two kids like bickering in Spanish. And I was like, Mom, I know what they're saying, they're fighting over which kind of Gatorade to get, the red or the blue....I had the chance to experience the language outside of the classroom, and then, like actually have to pull on that knowledge. ...Even with like Chinese and stuff, there's one lady in my [church congregation] who speaks Chinese. And so my sisters will, sometimes she'll come up to them and be like, let's practice your Chinese. But just the importance of finding other ways to interact with the language outside of class, I realized is super, super important.

Figure 45: Abby, Excerpt 5, Interview 2

Abby drew on multiplicity as a resource across languages (Spanish, Chinese) to make sense of her personal experiences with connections beyond the classroom as a learning support ("I had the chance to experience the language outside of the classroom, and then, like actually have to pull on that knowledge"). Abby elaborated elsewhere on how these out-of-class connections can provide meaningful motivation for students to persist in language learning (I2), a motivation that is needed in an educational culture that privileges English. Despite not arriving at a clear solution to this challenge in her interview, Abby remained firm in continuing to search for an answer because of her commitment to "the importance of finding other ways to interact with the language outside of class, [which] I realized is super, super important."

One of Abby's key shifts during the semester was to build on her views of the potential of DLI to disrupt monolingual ideologies as she expanded her understanding to think more critically about how to equitably represent and integrate culture into her classroom (Figure 46):

Abby, Excerpt 6, Interview 2

And, as far as culture goes. I want so bad to have just the most culturally authentic classroom, because we were talking about this today. [Religious volunteers] kind of are like, I spent a year and a half or two years in this place. Now it's my culture. And you're like, no, it's not. And I think that that kind of happens in DLI classrooms, you're like, oh, well I've spent this many years learning this language, so now I'm an expert. And I actually saw, on the social medias, there was an ASL—a member of the Deaf community, who was saying, it's really not fair to have hearing people teach ASL, because it's not their culture. They've learned little case d deaf, but they do not know uppercase D Deaf. And, so it's kind of doing it a disservice for someone who has learned, you know, who, like, I can spell things in sign language, I can, I know like teach, mom, dad, whatever, I know these small signs. So I could feel like I should take it on myself, to teach other people, and be like, let me teach you this, this language so that you can communicate with people. But it's, it's essentially, it's so like, taking out of context, but taking it out of a cultural context, and not really appreciating any of the, like being a part of the capital D deaf community, it means a lot. And it means a lot, just to like people personally. And I think that's the same thing for any language.

Figure 46: Abby, Excerpt 6, Interview 2

Abby reaffirmed her commitment to the importance of including culture in DLI ("I want so bad to have just the most culturally authentic classroom"). Building on her descriptions in Interview 1 of how DLI could expand (especially L1 English) students' understandings of the world, in Interview 2, Abby challenged what that expanded understanding might allow for. Attuning to an often minoritized perspective—that of members of the Deaf community (see Reagan et al., 2020)—Abby highlighted how their ways of knowing and being in the world should not be appropriated ("it's not really fair to have hearing people teach ASL because it's not their culture"). She drew parallels between this perspective and her own experience with American Sign Language [ASL] ("So I could feel like I should take it on myself to teach other people, and be like, let me teach you this language so that you can communicate with people"). Abby's description echoes settler-colonial attitudes where the dominant culture "take[s] it on [themselves]" to facilitate communication for minoritized groups (Macedo, 2019). Abby named this as "taking out of context, but taking it out of a cultural context" and that it's "the same thing for any language." In other words, she recognized how her positionality as an ASL learner did

not inherently give her full access to Deaf culture or the authority to teach that culture and language to others. Again, while Abby did not identify a clear or simple solution, her awareness of the inherent complexities of what it means to have a truly culturally authentic classroom surfaced settled norms and assumptions.

Abby's shifts are noteworthy because she began the semester with a fair amount of ideological clarity around the potential for DLI to challenge monolingual norms by attuning to multiplicity, particularly for L1 English students. Rather than converging around a specific vision at the end of the semester, Abby's shifts helped her better see complexities embedded in her visions of equitable DLI. This opening of the complexities, particularly around culture, aligns with research on ideologies that suggests that divergent perspectives can actually support ideological clarity, especially when grappling with complex issues of equity (Philip et al., 2018). Taken together, Abby's clarity about the complexity of teaching culture may help her enact her visions for DLI in more responsive, and ultimately more equitable ways. This thoughtfulness is particularly important in Abby's context as a White teacher in German DLI, who will likely end up working in a one-way DLI program with monolingual English learners. Such a nuanced approach may allow Abby to more intentionally implement pedagogies that disrupt settler-colonial ideologies and norms.

Discussion and Implications

The discussion considers patterns across the three narratives and implications for equity-oriented DLI teacher education. All three teacher candidates in this analysis demonstrated shifts toward ideological clarity, although these shifts differed based on the teacher candidates' backgrounds and positionality. Mia nuanced her understandings of DLI's potential to envision DLI as a place of belonging, especially for linguistically minoritized learners. Maria expanded

her consideration of DLI's potential for language preservation by framing culture as a multifaceted resource within an additive and asset-based orientation. Mia and Maria both offered important perspectives on possibilities for DLI from their experiences as a Spanish L1 speaker (Mia) and a Spanish heritage learner (Maria). Abby's positionality as a White L1 English speaker led her to name monolingual ideological influences on U.S. language education and articulate the potential of DLI to disrupt them. She moved toward greater clarity as she acknowledged the complexity of teaching language and culture in the United States within its settler-colonial history.

All three teacher candidates moved toward clarity in ways that could prepare them to create more equitable DLI classrooms. Yet their different paths align with literature that highlights how ideological clarity does not involve telling students what to think (Bartolomé, 2010a; Macedo & Bartolomé, 2019). Instead, the teacher candidates in this study demonstrated how their clarity developed as they engaged with their own lived experiences (Bartolomé, 2004; 2008). As teacher candidates considered their personal identities, histories, and sense of belonging through the autobiography assignments and reflecting during the interviews, they made implicit connections to ideologies that shifted their visions of equitable DLI classrooms (Varghese & Snyder, 2018).

In contrast to recommendations that developing ideological clarity should involve explicit instruction on ideologies (Bartolomé, 2010a), teacher candidates in this DLI methods course did not, for the most part, have an explicit focus on ideologies, nor was there a focus threaded throughout their preparation program. These findings suggest, however, that shifts toward ideological clarity may be possible even without explicit instruction. While an integrated, explicit focus on ideologies may be ideal (Bartolomé, 2010b), this reality may not always be

possible in teacher education. For example, DLI teacher preparation may be limited to a single course as part of a broader program. Time and curricular constraints present an ever-present challenge in teacher education, and there may be political contexts where explicit engagement with ideologies is not safe or possible (e.g., Ricklefs, 2017). Thus, these findings are notable because they suggest that the same goal of developing ideological clarity may still be obtainable in more subtle ways such as methods course assignments.

I argue that multiplicity may be an important resource to support ideological shifts, particularly when explicit attention to ideologies is not possible. For the teacher candidates in this study, attuning to multiplicity provided a medium through which teacher candidates connected their lived experiences, including shared experiences with each other, and their learnings about DLI education to visions for their future classrooms. Through the autobiography assignment (Appendix B), teacher candidates had the opportunity to surface multiple aspects of their identities that they reflected on more deeply in their interviews. Similarly, the course design that centered plurality through regularly engaging with multiple languages also surfaced opportunities for teacher candidates to attune to multiplicity. Course designs in DLI teacher education that foster reflection and reflexivity, as well as approaches that welcome multiple languages, cultures, perspectives, and methods (Bartolomé, 1994) can provide opportunities for teacher candidates to use multiplicity as a resource for developing ideological clarity even when explicit ideological engagement is not possible.

It is important to note that attuning to multiplicity in this context was primarily limited to plurality in languages, cultures, and experiences. While teacher candidates sometimes took up multiplicity to challenge dominant norms, multiplicity in this context was still often influenced by settled disciplinary norms, falling short of the disruptive potential for multiplicity that Warren

et al. (2020) proposed. For example, Abby's attunement to multiplicity to make sense of monolingual ideologies in the United States in comparison to Germany (see Figure 42) could have been enhanced by a critical consideration of privilege inherent in language learning in Europe, with its own settler-colonial past, as well as an exploration of the language learning and knowledge that has been lost from linguicide as a result of settler-colonialism. Pairing multiplicity as a resource alongside an explicit focus on ideologies may support teacher candidates to consider more heterogeneous ways of knowing and being, similar to how Maria grappled with her family's language loss because of the impact of settler-colonialism, monolingual ideologies, and English hegemony (see Figure 35). Such an approach would allow teacher candidates to envision DLI classrooms where minoritized languages, cultural practices and knowledge systems are considered just as valid as dominant ones (Bang et al., 2012). One such possibility for reaching this potential might involve the field advocating for more DLI programs that support revitalization of Indigenous and minoritized languages (King & Hermes, 2014; Papa, 2020).

A primary limitation of this study is that it focuses on teacher candidates' shifts toward ideological clarity over the course of a single semester, and these shifts are limited to teacher candidates' visions of their future classrooms. This analysis stops short of considering how the visions and clarity teacher candidates expressed may actually be enacted in practice. Future research, particularly longitudinal research, is essential to provide insights into what it means to not only move toward, but also to sustain and enact ideological clarity. How do DLI teacher candidates transform from ideologically clear future teachers to teachers who demonstrate their ideological clarity in their pedagogy through caring, advocacy, and resistance of the status quo (Bartolomé, 2004, 2008; Heiman & Yanes, 2018)? This is especially important because many

DLI teacher candidates will teach in DLI contexts that are heavily influenced by settled norms and dominant ideologies (Freire & Delavan, 2021). The field must consider how to support teacher candidates to not only become but to remain agents of change when faced with the inevitable resistance from school structures and systems (Fitzsimmons-Doolan et al., 2017; Ricklefs, 2017). Better understanding these questions can help truly transform DLI education to reach its potential for equity.

DLI education has great potential to challenge and disrupt inequities in U.S. language education that stem from our settler-colonial past. However, for this potential to be realized, supporting teacher candidates in developing ideological clarity is critical. As DLI teacher candidates attune to multiplicity as a resource to connect their own experiences with an explicit study of ideologies, they can be prepared to enact teaching that avoids reproducing the status quo and to cultivate relationships that nurture students' identities and expand students' perspectives. Thus, DLI classrooms could become spaces of belonging where students from all backgrounds are welcome to share their language and cultural practices as valuable resources for learning together in community.

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APPENDIX A

Transcript Conventions

Adapted from Jefferson (2004)⁵

Lengthened syllable	:
Word cutoff	-
Latched talk	=
Overlapping speech	[]
Paralinguistic behavior	(behavior)
Stress	<u>underline</u>
Continuing intonation	,
Falling intonation	.
Rising intonation	?
Short untimed pause	(.)
Pause (tenths of a second)	(0.X)
Translation or oral transcription	{translation}

⁵Jefferson, G. (2004). Glossary of transcript symbols. In G. H. Lerner (Ed.), *Conversation analysis: Studies from the first generation* (pp. 24-31). John Benjamins. DOI: 10.1075/pbns.125.02jef

APPENDIX B

DLI Methods Course Autobiography Assignment

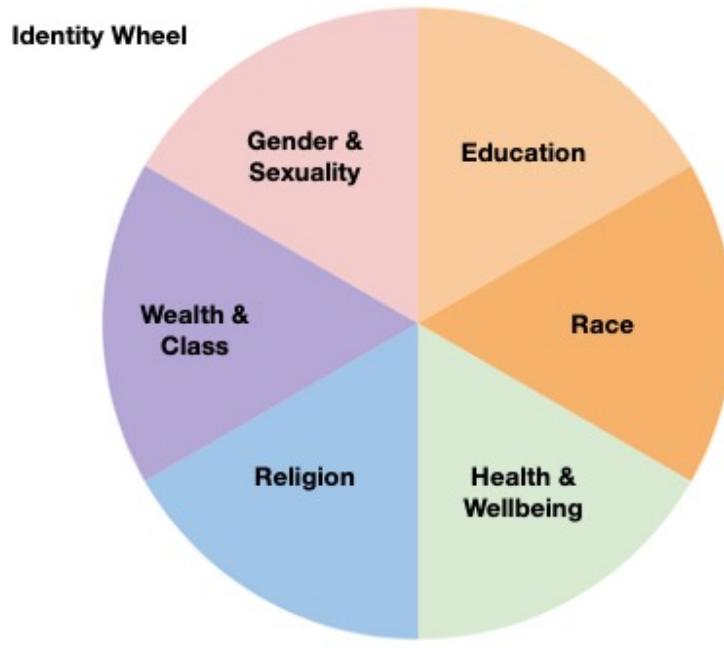
Part 1:

- **Think about:** Who you are and how you would describe your experiences in your home, community, and K-12 school cultures.
- **Read** the questions for the section "Me".
- **Write** 5-7 sentences to tell a story that answers the questions.
- **Repeat** #2-3 for the sections "My Family and Community," "My Schooling," and "My Language."

Me	<ol style="list-style-type: none"> 1. What is your name? Where did it come from? 2. How would you describe yourself to someone who has never met you before?
My Family and Community	<ol style="list-style-type: none"> 1. How would you describe your roots (e.g., ancestry, linguistic background, family history, etc.)? 2. What was it like to grow up in your family? 3. Describe the neighborhood you grew up in. How did people in your neighborhood relate to one another? What did your family and close friends think of people who weren't a part of your neighborhood? 4. How would you describe different communities you were a part of growing up? (e.g., sports teams, neighborhood, etc.)
My Schooling	<ol style="list-style-type: none"> 1. Describe your educational background. 2. Describe your K-12 school(s). What did it look like/feel like/sound like? How did spending time on your school grounds feel to students? Teachers? Parents? Outsiders? What beliefs and values shaped how people in your school interacted with one another? What were some of the invisible or unwritten social "rules" in your school--things most people just sort of knew to do (or avoid doing).
My Language	<ol style="list-style-type: none"> 1. What language(s) did you speak in your home growing up? With whom? 2. What other language(s) do you speak? How did you learn them? 3. What language(s) did people speak at school, when, and with whom? 4. What language(s) did people in your communities speak, when, and with whom?

Part 2:

- Choose a pie piece from the identity wheel.
- Read the questions for that pie piece.
- Write 5-7 sentences to tell a story that answers the questions.
- Repeat for at least 3 other pie pieces. (4 pie pieces total)



Gender & Sexuality	<ol style="list-style-type: none"> 1. To the extent that you are comfortable, discuss how you identify with and think about issues of gender and sexuality. 2. What role did gender norms play in your family? (e.g., how did gender influence what was "normal" or "expected" in your family?) 3. How were differences about gender and sexuality addressed in home? Community? K-12 schooling? 4. What did your family, people at school, and people in your community believe about the relationship between gender and work and careers?
Education	<ol style="list-style-type: none"> 1. What kinds of formal educational experiences have you and your family members had? 2. What kinds of learning did you, your family, and your friends do outside of school? 3. What did your family, your community, and people at school believe about education?
Race	<ol style="list-style-type: none"> 1. What was the racial makeup of the different spaces you were in (family, community, school)? 2. How did your family talk about race (if at all)? 3. How did people in your school or community talk about race (if at all)? 4. Were there stereotypes in your school about "types" of kids that took certain classes? 5. What did kids think about people outside of their peer group?

Health & Wellbeing	<ol style="list-style-type: none"> 1. What role have ability/disability and health (physical, mental, emotional, and spiritual) played in your family (if at all)? 2. What role have ability/disability and health played in the different communities you are a part of (if at all)? 3. What role have ability/disability and health played in your school experiences? 4. What role has neurodivergence played in your life (if at all)?
Religion	<ol style="list-style-type: none"> 1. What role did religion play in your family? 2. What role did religion play in the different communities you were a part of? 3. What role did religion play in your schools? 4. How did religion shape your own experiences in your family, your community, and at school?
Wealth & Class	<ol style="list-style-type: none"> 1. What role did money play in your family? How did your family's access to resources influence what you value and the experiences you have had? 2. What role did money play in your school? How did your school's access to resources shape the experiences you had, what the school valued, etc.? 3. What kinds of communities were your school(s) located in? How did the school(s) interact with the communities?

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