

*Developing a complex portrait of content teaching for multilingual learners via nonlinear theoretical understandings*

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**Developing a Complex Portrait of Content Teaching for Multilingual Learners via Non-Linear Theoretical Understandings**

Kara Mitchell Viesca,  
University of Nebraska Lincoln

Kathryn Strom  
California State University, East Bay

Svenja Hammer  
Leuphana University Lüneburg, Germany

Jessica Masterson  
University of Nebraska Lincoln

Cindy Hammer Linzell  
University of Nebraska Lincoln

Jessica Mitchell-McCollough  
University of Nebraska Lincoln

Naomi Flynn  
University of Reading, UK

Abstract: Utilizing a complex theory of teacher learning and practice, this chapter analyzes ~120 empirical studies of content teacher development (both pre- and inservice) for working with multilingual learners as well as research on content teaching for multilingual students. Our analysis identified three dimensions of quality content teaching for multilingual learners that are complex and intricately connected: context, orientations and pedagogy. This chapter explores the results of our literature analysis and argues for improving content teaching for multilingual students through improved theoretically grounded research that embraces, explores and accounts for the expansive complexities inherent in teacher learning and practice.

The under-preparation of content teachers to work with multilingual students<sup>1</sup> is a well-documented issue (Faltis & Valdés, 2016; Freeman & Freeman, 2014). However, as Faltis and Valdés (2016) argue, there is little consensus among teacher educators regarding what knowledge, skills and inclinations content teachers of multilingual students should have to be “good” and “effective.” They also highlight the variety of research that exists on the topic—some empirical, some informed by non-empirical work—and suggest that, “more and better research is needed if teacher educators are to be better informed about how to most effectively prepare preservice teachers for teaching in linguistically diverse classrooms” (p. 551).

Building on this argument of needing more and better research, specifically regarding how it may impact content classroom teaching with multilingual students, we examined existing research that might inform improved teacher learning and practice. From our review, we argue that future research needs to be strengthened through more theoretically guided, grounded and reasoned research. Particularly, our analysis of the current, mainly U.S.-based, English-medium literature illustrates how understanding and reasoning through a contemporary body of empirical research with an ontologically different theoretical perspective of teacher learning and practice can offer forward directions for developing a complex portrait of content teaching for multilingual learners. We posit that such a complex portrait can positively impact content teaching practices in educational settings with multilingual students via improved research and practice grounded in the reality of the highly situated constellations of relationships and interconnections of teaching, learning and practice. Complexifying our understandings of teacher learning, quality practice, and their relationships provides the field with necessary tools to re-conceptualize change in practice, as well as how it is evidenced and analyzed, for content teachers of multilingual learners and beyond.

### **Theoretical Foundations**

Despite the immense complexity of teacher development, dominant research and policy perspectives in this area largely remain reductionist and transactional, positioning the teacher as an autonomous actor/empty vessel who takes her learning from her preservice instruction or a professional development (PD) activity and merely transfers it into classroom practice (Opfer & Pedder, 2011; Strom, 2015). However, an emerging body of literature in teacher education reframes teacher learning and practice as emergent phenomena (Ell, Haigh, Cochran-Smith, Grudnoff, Ludlow, & Hill, 2017; Strom, Martin, & Villegas, 2018) that are jointly constructed from the negotiations of multiple situated elements (Anderson & Stillman, 2010; Gatti, 2016), which include not just the teacher and her students, but also other classroom, school, district, and policy-level factors (Strom, 2015; Strom & Martin, 2016). To frame and interpret this review of literature, we draw on insights from rhizomatics (Deleuze & Guattari, 1987; Strom, 2015), a critical theory of complexity that provides important conceptual tools for developing a different ontological perspective of teaching and learning about teaching (and the relationship between the two). Rhizomatics, which is based on the figuration of the rhizome, offers an alternative worldview that critiques linear, binary Western thinking patterns and instead emphasizes heterogeneity, connection, multiplicity, and flux (Deleuze & Guattari, 1987).

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<sup>1</sup> We use the term “multilingual students” to refer to students whose daily lived realities include the use of multiple languages across home, family, friends and community. Most often these students are labeled “English learners” at school. We reject that label for the deficit perspectives it promotes regarding multilingualism as well as the way it participates in the hegemony of English.

One of the key concepts of rhizomatics, *assemblage*, provides an analytic apparatus to examine teaching phenomena from a complex, critical lens (Strom, 2015; Strom & Martin, 2017). An assemblage is a multiplicity, or a constellation of elements that includes people, things, spaces, ideas, sets of circumstances, histories, power relations, and so on. An assemblage is both a substantive (a noun) and a process (a doing) (Deleuze & Guattari, 1987). It is the constellation of the things and forces that comprise it, and it also refers to the ways that the components of a particular assemblage work together to do something. Applied to teaching, then, we could consider the teacher as part of a situated assemblage, together with her students, the content and pedagogy, her classroom space and materials, people and other elements in the larger school context, sociocultural/historic conditions, current educational policies and other political elements, and so on (Strom, 2015; Strom & Martin, 2017). These elements, both human and nonhuman all collectively shape the functioning of a teaching assemblage (Strom, 2015).

Overall, we argue that the concept of assemblage helps to bridge multiple ontological shifts that we suggest better attend to the complexity of teaching (Strom & Martin, 2017). Specifically, an assemblage view moves the central referent in studying teaching from the *teacher* to the *teaching multiplicity*. It also provides a collective or distributed view of agency--that is, teaching is not done by an autonomous teacher, but is the joint product of the entire assemblage. Thus the agency is distributed, though not always equally. Moreover, this agency is shared by both human and material factors including the dimensions that we outline in the review of literature that follows. These teaching-assemblages are also *mobile*--teaching and all the elements that comprise it are not static, but are vital and dynamic. Further, they not only morph from moment to moment, but are also interdependent and change-in-relation-to the rest of the assemblage. Thus teaching is an emergent, situated, temporal phenomenon in continual flux. Finally, assemblages are defined by their heterogeneity (Deleuze & Guattari, 1987).

From an assemblage perspective, *difference* is the reigning characteristic of educational activity. Because teaching activity is produced by heterogeneous assemblages (specific sets of actors, materials, and conditions/forces which, together, are continually differentiating in relation to each other) the teaching (and teacher) “becomes different” depending on the situated functioning of that specific teaching-assemblage. The “products” (e.g., teaching practices and learning) are jointly constructed by these continually differentiating elements, which means that the teaching practices are always hybrid. Moreover, from a rhizomatic perspective, difference is a creative, generative force—more heterogeneity introduced into an assemblage means the possibilities for new forms of teaching and learning are expanded (Strom & Martin, 2017). This last shift concerning difference and hybridity is particularly significant in the context of the education of multilingual learners, who bring with them a profusion of difference in terms of linguistic resources, background experiences, and cultural funds of knowledge. Thus, a rhizomatic perspective and the concept of assemblage not only offers ways to analyze the multiple dimensions of teaching of multilingual learners that we discuss in this paper, but they also provide an ontologically different, and fundamentally assets-based, way to view multilingual learners and their contributions to classrooms.

A rhizomatic perspective is also compatible with, and expands upon, commonly accepted understandings regarding language learning, including the socio-material and mediated nature of learning (Vygotsky, 1978; Martin & Strom, 2015) and the importance of translanguaging (García, 2009). For example, translanguaging, a term that Orellana & García (2014) define as “the ways bilinguals draw on their full linguistic toolkits in order to process information, make meaning, and convey it to others” (p. 386), focuses on language as *process* (rather than a fully-

formed object) that materializes in practice—thus aligning with a rhizomatic emphasis on becoming over being (Deleuze & Guattari, 1987). Moreover, translanguaging is an assemblaging activity: it brings together heterogeneous elements in a particular situation and produces something new—not additive, but qualitatively different—as a result of its interactions. García and Leiva (2014) draw their understanding of translanguaging from Maturana and Varela’s (1973) notion of “autopoiesis,” or creation within a self-organizing system. A rhizomatic perspective expands this notion to “sympoiesis,” or co-organizing (Haraway, 2016). From a critically complex viewpoint, there is no such thing as a self-organizing system; every assemblage or activity system is connected to others. Instead, processes like translanguaging are *sympoietic*: all the elements of language, context, and learner are being produced in relation to each other—they are made collaboratively.

As a final note, while rhizomatics and the notion of teaching as an assemblage have not yet intersected significantly with various bodies of critical theory-informed literature in educational research, we argue that an understanding of a teaching assemblage is incomplete without attending to the human and nonhuman factors that have been identified and researched within expansive and important bodies of research, such as culturally sustaining/relevant/responsive pedagogies (e.g., Gay, 2002; Ladson-Billings, 1995; Paris, 2012), critical race/critical whiteness (e.g., Ladson-Billings & Tate, 1995; Howard & Navarro, 2016; Matias, 2013), intersectional work with critical race and critical disability studies (e.g. Annamma, Jackson, & Morrison, 2017), and so on. While it is not within the scope of this chapter to describe, explore and interact with those important connections, the theoretical perspective we employ is a critical one focused on equity and justice that attends to power and privilege in ways that meaningfully connect with the important work already occurring in educational research around race, gender, sexual orientation, culture, language, ability, and other dimensions of justice. In the sections that follow, we further discuss critically-oriented rhizomatic ideas alongside an analysis of literature regarding teacher development and practices for teaching multilingual learners in mainstream settings.

### **Body of Literature Analyzed**

We defined (and continually *refined*) the scope of the literature we analyzed, which was broadly concerned with research on content teacher development and content teaching for multilingual students in general content classroom settings (thus excluding studies with a specific focus on bilingual education or English as a second language efforts). We included only peer-reviewed, empirical academic journal articles published between 2008 and early 2018 on this topic. To maintain a manageable number of studies, we did not include empirical work published in books, though we acknowledge strong research is published in such outlets as well. We bounded our review with the year 2008, which is significant in our minds, as this was when Lucas and Grinberg published a first-of-its-kind literature review on the preparation of content teachers of multilingual students.

To source articles for the chapter, we first conducted database searches (e.g. ERIC, EBSCO, etc.) of English-language journals with various combinations of general key words and phrases, including “English language learners,” “mainstream classes,” and “linguistically responsive.” We then proceeded with hand searches of relevant journals, for which we sifted through each volume beginning in 2008, looking for studies that met the aforementioned criteria. In total, we ended with 122 articles upon which the following analysis is based. This literature was all published in English and mostly conducted in the U.S., but not exclusively. However, the

focus of this body of research was on multilingual students attending English medium classrooms and learning English along with content in those classrooms, mostly in the U.S.

As we read and analyzed the literature, we attended to main results found, the questions asked, theories used, and assumptions made by researchers. Via this iterative, collaborative process of reading, analysis, discussion, and memoing, our team identified three major dimensions of quality content teaching for multilingual students, which are supported by both the current empirical literature and our theoretical perspective: Pedagogy, Context and Orientations. These dimensions are described below with our synthesis of current research results, followed by an analysis of these results from our theoretical perspective that then expands and complexifies the components and relationships within each dimension, as well as provides forward thinking possibilities for teacher learning and practice within and across these dimensions. In the end, our work presents a complex portrait of content teaching with multilingual students, a foundational tool for future research, policy and practice that can produce and co-construct improved teacher learning and practice.

As we discuss these dimensions below, we focus particularly on the phenomenon of teacher learning and practice as a complex assemblage of teaching, learning, students, context, resources, policies, histories, and so on. While the currently available research was not conducted from the theoretical perspective we employ here, this body of literature offers important insights to consider. This belief aligns with the ontologically-different perspective we are seeking to employ, which shifts us away from binaries like either/or. In other words, we do not seek to argue that research done from our theoretical perspective is right and research using from other perspectives is wrong. We both find value in the work that has been done *and* we argue that there is room to grow and expand from what we know and are currently doing into more complex ways of conceptualizing, investigating and understanding teacher learning and practice. In particular, we argue for attention to process rather than product (on becoming rather than being), for teaching to be understood as an assemblage, and for recognizing, embracing and working within the reality of *difference* as both a constant and as productive (i.e., as a creative force). The analysis below presents current research findings with an interpretation attending to the possibilities of what a complex, non-linear perspective of teacher learning and practice offers.

### **A Complex Portrait: Quality Content Teaching for Multilingual Students**

Our analysis provided important insights into understanding quality teaching for multilingual learners in content-area classrooms, especially when considered as an assemblage, or a set of complex, dynamic interactions and interdependent relationships between teachers, students, and available resources (e.g., teacher expertise, curricula, technology). The three dimensions of quality teaching identified via our investigation are described below: Pedagogy, Context, and Orientations.

#### **Pedagogy**

The research results centered on pedagogy illustrate the value of sociocultural, inquiry-based, and culturally sustaining pedagogies; the connections between content and language instruction; the complexity of assessment; the value of home languages and bilingual supports; and a variety of language development approaches. We provide a brief overview of these research findings corresponding to these identified topics and then an analysis and critique of these studies from our theoretical perspective to illustrate the multifaceted dimension of



pedagogy in relation to a complex portrait, or what we argue is a multifaceted assemblage, of content teaching for multilingual students.

**Sociocultural, Inquiry-Based and Culturally Sustaining Pedagogies.** Several identified studies examined sociocultural instructional practices and their positive impact on multilingual student learning (e.g., Shaw, Lyon, Stoddart, Mosqueda, & Menon, 2014; Swanson, Bianchini, & Lee, 2014; Teemant & Hausman, 2013). Other research focused on the ways specific aspects of sociocultural pedagogy, such as collaboration, dialogue, and other forms of social interaction, affected learning (Brooks & Thruston, 2010; Cole, 2013; Garret & Hong, 2016; Turner, Dominguez, Empson, & Maldonado, 2013; Moore & Schleppegrell, 2014). A further subset of studies examined the types of interactions in the classroom that supported multilingual student learning (Kibler, 2010; Hoffman, Villarreal, DeJulio, Taylor, & Shin, 2017; Im & Martin, 2015) and the types of inquiry-based pedagogies that also supported positive learning gains for multilingual students (Jackson & Ash, 2012; Johnson, Bolshakova, & Waldron, 2016; Manzo, Cruz, Faltis, & de la Torre, 2011; Santau, Maerten-Reivera & Huggins, 2011). Further, the work of Huerta (2011), Pawan (2008), Macelroy (2013), Carbonne and Orellana (2010) and Johnson et al. (2016) illustrated the value of what Paris (2012) calls culturally sustaining pedagogies that attend to culture and community (both inside and outside the classroom) in complex ways. Overall and in combination, these studies suggest the possibilities of a quality teaching-assemblage via attention to pedagogy in complex, interconnected ways. Specifically, together these studies offer a portrait of a suggested pedagogy in content classrooms for multilingual students that is complex and attends to inquiry, interaction, context, culture, discourse and the tangible and intangible resources inside and out of the classroom. These studies suggest pedagogical approaches to support multilingual student learning in content classrooms is deeply active, connected, engaging for students and relevant to their lives outside of school. Yet, individually, some of these studies employ methods that a rhizomatics perspective calls into question, such as posing a teacher learning research question and answering it with student standardized test scores. This issue is taken up further below.

**The Connections Between Content and Language.** Multiple studies examined approaches to teaching content and language, with many providing evidence of a strong relationship between the two, as well as specific ways to combine them (Beal, Adams, & Cohen, 2010; Brown, Ryoo, & Rodriguez, 2010; Carrejo & Reinhartz, 2012; Echevarría, Richards-Tutor, Chinn, & Ratleff, 2011; Jackson & Ash, 2012; Lee, Penfield, & Buxton, 2011; Lara-Alecio, Tong, Irby, Guerrero, Huerta, & Fan, 2012; Echevarría, Richards-Tutor, Canges, & Francis, 2011). Moreover, the findings across these studies show evidence for a strong relationship across content areas such as science, mathematics, and literacy. For instance, Alt, Arizmendi, and Beal (2014) found that math difficulties in multilingual students appear to be related to the language demands of math tasks. In total, these studies illustrate both the opportunity and challenges inherent in integrating language and content teaching for multilingual students.

Pass and Mantero (2009) illustrate some of the challenges in integrating language and content, specifically within the structural inequalities and larger issues across a school. They suggest that quality pedagogy may occur when teachers make content comprehensible and work flexibly with students to build on the linguistic and cultural assets they bring to the classroom, but also be limited by larger contextual issues. This research illustrates also the interconnected nature of the dimensions of quality teaching we identified in our analysis of the literature-- pedagogy, context, and orientations. We do not suggest that they exist as separate and distinct

dimensions, rather, as suggested by Pass and Mantero, in interconnected ways that impact and influence one another. Similarly, as Brown et al. (2010) suggest, we offer that attending to all of the dimensions is important, yet at times, we may focus more on one or the other to improve teacher learning and practice or to simply discuss and clarify meaning (such as in this section). Overall, the studies focusing on teaching content and language suggest an important, yet non-linear relationship, between the development of language and content in content classrooms for multilingual students that are impacted by context.

**The Complexity of Assessment.** Assessment can be an incredibly complex act that is performed in overly simplistic ways (e.g. assessing students only in English on tests created, normed and standardized for monolingual/highly proficient speakers of English). The research we analyzed emphasized this issue attending to the necessary accommodations for students (Clark-Gareca, 2016) and the opportunity for teachers, when given time and support, to learn from student assessments in order to better understand their students' strengths and struggles, which also resulted in changes in teaching practice (Buxton et al., 2013). Alt, Arizmendi, Beal and Hurtado (2013) investigated the complexity of multilingual assessments by studying a Spanish-enhanced standardized mathematical test and found that the Spanish-enhancement was beneficial for Spanish speaking students learning English, although the amount of benefit students received was predicted by the level of the child's language dominance in Spanish. While a smaller constellation of studies, together, they suggest the importance of attending to the complexity of assessing multilingual students as well as the possibilities and opportunities of thoughtful accommodations, multilingual assessments and an emphasis on teachers learning from assessments about student strengths and abilities.

**The Value of Home Languages and Bilingual Supports.** The power of bilingualism and home language supports in the classrooms for multilingual students was illustrated by several studies. In a Value-Added-Model (VAM) study examining features of teacher effectiveness, Loeb, Soland and Fox (2014) found that teachers who were found effective with multilingual students were also found to be effective with other students, or vice versa. However, researchers reported that teachers who were fluent in the students' home language and/or had a bilingual teaching certificate were more effective with multilingual students than non-multilingual students. Two studies looked at students' language choices in instructional environments (Van Laere, Agirdag, & van Braak, 2015; Martínez, 2010) and found complex choices and relationships between content, pedagogy and expansive student linguistic repertoires. Kibler (2014) found that bilingual practices in an English-medium high school supported strong learning outcomes for the student she followed. From this research, we suggest that part of the complex portrait of quality content teaching for multilingual students attends to languages other than English and their use by teachers and students in classrooms.

**Variety of Language Development Approaches.** Specific language development strategies were the foci of a group of studies. For instance, Ajayi (2015) documented benefit in explicit vocabulary instruction. Kieffer and Lesaux (2012) examined an academic language intervention intended to affect morphological awareness and found a positive impact. Similarly, Lesaux, Kieffer, Kelley, and Harris (2014) looked at the outcomes of an academic language intervention focused on vocabulary, reading comprehension and writing development and instruction. They found the intervention had an impact, but varied in significance and meaningfulness, and they did not find an impact on reading comprehension based on the vocabulary work. Vaughn, Martinez, Linan-Thompson, Reutebuch, Carlson, and Francis (2009) found value in instructional practices like structured pairing, vocabulary instruction, graphic

organizers and written responses, connecting these practices to multilingual student test scores. Two studies found positive benefit in teaching multilingual students cognitive strategies (Kim et al., 2011; Olson et al., 2012). Finally, Bunch (2009) suggests attending to the ways students modify their language for audience and purpose in classroom speech events to disrupt the unhelpful focus on either academic language or social language. In combination, these studies illustrate a variety of potentially beneficial approaches that likely could be integrated into varying teaching assemblages in myriad ways across a variety of locations. Particularly, these studies illustrate the value of language development strategies, but none of them alone or collectively suggest there is only one way to do this work well.

**Pedagogy as a Dimension in a Complex Teaching Assemblage.** The research we analyzed provides valuable and interesting findings, particularly when viewed as a whole body of research that illustrates the varied complexities, relationships and productivity of teacher learning and practice in process, as well as in relation to the education of multilingual students. However, there are some notable and important critiques as well as gaps to note that provide forward thinking possibilities for changing teacher practice. We particularly emphasize the assumptions made across various studies that have implications for how teacher learning and practice is understood, researched and resourced.

A major issue that emerged from the literature we examined is the use of student test scores in the studies. First, several studies assume that student test scores are accurate representations of multilingual student knowledge (e.g., Lesaux et al., 2014, Santau et al., 2011; Beal et al., 2010). However, we know that, due to the complexity of bilingual language development that includes varied student cultural and linguistic experiences and repertoires, tests are often indicators of varied linguistic and cultural knowledge rather than knowledge of mathematics, science, and so on. (Alt et al., 2013; Basterra, Trumbull, & Solano-Flores, 2011).

Second, multiple studies asked questions about teacher learning, and then answered those questions with data drawn from student standardized test scores (e.g., Shaw et al., 2014; Olson, 2012). This is something that occurred across the studies discussed in all three of our dimensions (pedagogy, context and orientations), but was especially prevalent in Pedagogy. While we agree that student test scores are part of a complex portrait of quality teaching, we question the linear connections that are drawn quite extensively between teacher learning and practice to student test scores. We suggest that the opportunity exists to disrupt a “representational” view of reality—that something like student test scores can accurately reflect complex, relationship, multiplistic, highly mediated phenomena like teacher learning and practice. Instead, there are multiple processes of transformation implicated on the nomadic path to those test scores, including negotiations with/among/between teachers, learning, activity, resources, context, students, policies, curriculum, and other actors. Instead of focusing on the product of test scores as indicators of teacher learning, we suggest adopting a process-oriented view that attends to the complexities and productivity of these complex, varied and multifaceted negotiations. Certainly test scores may tell us *something*, particularly when those tests account for the complexity of multilingual and multicultural assessment. However, the use of student test scores as the definitive answer to questions of teacher learning is problematic.

Additional problematic assumptions about what student test scores can do were also found throughout this body of literature. For example, Loeb and colleagues (2014) assume student test scores are a valuable way to measure teacher effectiveness using a value-added model, and Llosa et al. (2016) assume that curriculum and professional development effectiveness is possible to ascertain with student test scores. Yet, Llosa and colleagues (2016)

do examine test scores from a more complex perspective by disaggregating data along English proficiency levels, something that is often overlooked in multilingual student test score use and analyses. Similarly, Olson (2012) uses tests in Spanish as well as English for a slightly more complex set of data, but still assumes that standardized test scores for students can indicate teacher learning. Overall, the dominant role that student test scores played in research regarding pedagogy illustrates an overly simplistic sense of how quality pedagogy is constructed and enacted.

Similarly, studies made reductive assumptions by suggesting that teacher learning is observable in teacher practices via a rubric (e.g., Hoffman et al., 2017; Manzo et al., 2011). We see two major theoretical implications here. First, this assumes a linear, one-to-one correspondence between learning and practice (similar to the issues described above with the use of student test scores). Second, such an assumption illustrates the desire to reproduce sameness (e.g., with an observation ‘checklist’). In the complexity of teaching and learning in content classrooms with multilingual students, these simplistic assumptions are problematic and further explored below.

In total, the research examining the dimension of pedagogy for multilingual students in content classrooms offers promising opportunities via sociocultural instructional practices that are inquiry-based and dialogic, in integrating language and content, and in using assessment in thoughtful ways, as well as in attending to bilingualism and home languages in classroom practices. We also see the possibilities and opportunities for future research to move into more non-linear spaces—to emphasize a process-oriented perspective of pedagogy that embraces the varied components of the entire assemblage of quality teaching, learning and practice for both teachers and multilingual students in content classrooms. Specifically, in moving away from a focus on overly linear relationships between teacher learning and student test scores and between teacher learning and teacher practice, pedagogy can be conceived, researched and enacted as a complex assemblage that varies in time, space, location and among the variety of actors, discourses, and resources with which it is constructed. Thus, we also can embrace the productive possibilities of difference across pedagogical approaches and in the variety of contexts and with the variety of teachers, students and learning spaces where quality content teaching can occur. This is not to say that a quality pedagogy for content teaching for multilingual students is a pedagogy where anything goes. We do suggest, however, that, guided by the principles and findings from this research, an approach that moves toward improving teaching and learning in content classrooms is one that embraces that complexity and shifts away from a focus on linear relationships (e.g. teacher learning tied directly to student learning) and towards understanding and embracing the entire complex assemblage of teaching, learning and practice. On the one hand, we realize that the incredible complexity that characterizes teaching, learning, and practice cannot be fully analyzed and researched in every study and peer-reviewed journal article. On the other, however, theoretical and methodological approaches that embrace, connect with and build on the inherent complexity in this work will move our understandings of quality pedagogy in content classrooms forward.

## **Context**

From an assemblage perspective, and as demonstrated by multiple studies in this review, the dimension of *context* plays an important role in quality teaching of multilingual learners, though it is not always the explicit focus of study. While “context” might denote a range of elements, the literature we examined interpreted context almost solely as educational policy,

although elements of historical context and culture are implicated therein. Mainly, the studies we analyzed described “top-down” or formal policies, which routinely focused on local, state, and/or national educational policies and how their enactment impacted achievement outcomes for multilingual learners (e.g., Battey et al., 2013; Enright & Gilliland, 2011; Lopez, Scanlan, & Gundrum, 2013; Pease-Alvarez, Samway, & Cifka-Herrera, 2010). However, some studies also looked at policies within the classroom or building level (e.g. Kanno & Kangas, 2014; Mitchell, 2012). As they highlight the power of educational policy initiatives across varying levels, together these studies also underscore the necessity of a cautious and thoughtful approach to policy development and implementation.

In terms of the results of the research a variety of findings are important to highlight. The majority of studies we identified as contributing to the dimension of context described mandated, or top-down, policies and their impacts on students and/or teachers. Enright and Gilliland (2011) looked at 2001’s No Child Left Behind Act, finding that students in content classrooms learned that the *performance* or *display* of their knowledge and skills was more important than their actual proficiencies. Lopez, Scanlan, & Gundrum (2013) examined course requirements for U.S. teachers of multilingual learners and connected those to student test scores suggesting a complex relationship between policy requirements and outcomes on standardized tests. At the state level, Battey et al., (2013) describe the relatively minor impact of Arizona’s HB 2064 (mandating tracking and separation of English language instruction from content instruction for multilingual learners) on math teachers’ classroom practices. Pease-Alvarez et al., (2010) found that 63% of the teachers in their study viewed the mandated literacy curriculum, Open Court Reading, negatively. While each of these studies looks at a different policy from a different angle examining different kinds of impacts, they all document and illustrate the inherent complexity of policy implementation across contexts.

Further complexities were highlighted in studies examining *de facto* outcomes for multilingual students of local policies illustrating challenges like exclusion from Advanced Placement courses (Kanno & Kangas, 2014), insufficient levels of English proficiency being attained and then multilingual students being treated as monolingual in the education system (Mitchell, 2012), limiting school level discourses that impact roles, responsibilities and power for teachers and multilingual students (English, 2009) and fewer opportunities to learn for multilingual students that are associated with higher student performance (Abedi & Herman, 2010). Underscoring the gravity of these issues, Mosqueda and Maldonado (2013) found that access to more rigorous coursework is a key predictor of Latinx students’ academic achievement in mathematics. One study did illustrate policy successes in positive, context specific and locally developed PD that specialized staff support and provided access to appropriate instructional resources for teachers (Elfers, Lucero, Stritikus, & Knapp, 2013).

In total, the research we analyzed related to the dimension of context highlights the complexity of this dimension, yet largely focuses on one aspect of that dimension: policy. While studies across our review attended to context in myriad ways, the studies with a major focus on context mainly emphasized policy. However, in terms of what we consider the dimension of context to encompass, this attention to policy is important, but only a small portion of an much more complex contextual assemblage which we argue should also include attention to historical events and perspectives, local, national and global contexts, the material and immaterial within and across any given time and space, the context of content (e.g. mathematics, science, social studies, etc.), socio-political movements and broader societal perspectives/narratives (e.g. majoritarian stories (Love, 2004), as well as culture (e.g. in schools, districts, families,

communities, etc.). To date, this has not extensively been the focus in our field (as evidenced by less than 10% of the studies in our review having an overt focus on context), however, we argue that expanded, nuanced, centered and complex investigations of context are necessary.

**Context as a Dimension in a Complex Teaching Assemblage.** As the studies analyzed here show, policy is a major shaping force in teaching assemblages. It acts as an agent in the teaching process, influencing teachers, for example, to focus on content to be tested (Johnson et al, 2016), to emphasize performance over learning (Enright & Gilliland, 2011), and to use materials that are out of step with research on literacy and language for multilingual learners (Pease-Alvarez et al., 2010). Policies also construct students in particular ways, whether positioning them from a deficient lens as non-proficient English speakers rather than multilingual learners (Mitchell, 2012) or by constructing multilingual learners as a homogenous group, rather than one rich in difference (English, 2009).

From a rhizomatic perspective, which emphasizes the productivity of relationality and the criticality of situatedness, policies that allow adaptation to local contexts and populations of learners are required (Elfers et al., 2013; English, 2009). However, the majority of policies described in the literature reviewed were disconnected from local contexts, as well as local student needs and teacher knowledge. The studies, at times, positioned schools, students, and teachers in a passive role, with policy to be “done to” them. This position is problematic, since it ignores the agency of both teachers and students: teachers are expected to implement the policy in their lessons, and students are expected to participate actively in them. That teachers typically have no voice in policy is especially problematic and also contradictory, since educational policy tends to position teachers as autonomous actors with complete control over their own teaching and over students’ learning (as evidenced, for example, by the use of student tests as proxies of teaching quality, a practice we critiqued above, see also Strom, 2015).

It is also problematic that, when examining the body of literature we amassed for this review, so few studies substantially investigated contextual factors (less than 10% of the studies reviewed) and those mostly focused on educational policy. Moreover, even this contextual factor was discussed largely as a neutral force, rather than one connected up to specific power relations. One of our key arguments in using a rhizomatic framework is to emphasize that the education of multilingual learners by no means occurs in isolation. It is entangled with, and produced by, historic conditions (Matsuda, Lawrence, Delgado, & Crenshaw, 1993), the current socio-political climate and specific related events, culture, and so on. We would argue that sociopolitical dimensions of multilingual learner education are particularly important (Lucas & Villegas, 2011). As such, researchers must take care not to treat policies as neutral, but to account for them as plugged into particular flows of power that suffuse teaching-assemblages which constrain and enable teaching and learning while producing teachers and multilingual students in specific ways. Further, while the studies in this review that researched dimensions attending to context that focused mainly on policy, they did also attend to other contextual factors like classroom practices, etc. In the end, we are seeking here to argue (and the research reviewed here suggests) that contextual elements are both complex and necessary to attend to. But we also seek to extend that argument to push research, teaching and practice forward to pay more extensive, overt and expansive attention to the dimension of context in improving teaching for multilingual students by attending to the variety of material and immaterial conditions across time and space that impact teaching and learning in varying geographies and assemblages. While no study can do all of these things, we do suggest that more research explicitly and overtly focused on the various

facets of the dimension of context in quality teaching for multilingual students in content classroom would be a welcomed, necessary and important expansion of the research in our field.

### **Orientations**

A substantial amount of research literature examines the attitudes<sup>2</sup>, beliefs and perspectives of teachers towards students, their practices as well as teacher preparedness to teach multilingual students. However, based on our theoretical perspective, which emphasizes that the teacher is a multiplicity that includes the experiences and knowledge from her preparation (Strom, 2015), in this section we have also included research regarding teacher learning. Not only is it clear that teacher beliefs, attitudes and ideologies matter in terms of their relationship to multilingual students, but they also work in co-construction with teacher learning opportunities as well as with practice. As Freire (2000) notes, the relationship between teacher learning and practice is also recursive: “The teacher is no longer merely the-one-who-teaches, but one who is himself taught in dialogue with the students, who in turn while being taught also teach” (p. 80). Therefore, to capture these ideas, we adopt the term “teacher-learner orientations,” which, as the research reviewed in this section shows, are of critical importance in the teaching of multilingual learners. Together, the research analyzed in this section examines teachers’ perceptions towards multilingual students, teachers perceptions of preparedness to teach multilingual learners, teacher-learner orientations, and teacher knowledge.

**Teacher Perceptions Towards Multilingual Students.** Several studies examined teacher perceptions regarding multilingual students. One study documented prevailing negative perspectives towards multilingual students (Vázquez-Montilla, Just, & Triscari, 2014), while another study illustrated teacher belief in a myth that math is the easiest subject for multilingual learners (Hanson-Thomas & Cavagnetto, 2010). In contrast, teachers with humanizing perspectives were found to have a positive impact on student outcomes, as shown in Lewis et al. (2012), who explored student perspectives of teachers attitudes of care. These researchers found that caring teachers bolstered can-do attitudes in multilingual students in math, which also positively impacted math test scores. There is also promising evidence that teachers can change their deficit views of multilingual students (Catalano, Reeves, & Wessels, 2017; Johnson et al., 2016; Mellom, Straubhaar, Balderas, Ariail, & Portes, 2018). Further, multiple studies showed that PD opportunities regarding multilingual learners may be a powerful way to change teachers’ beliefs (Pettit, 2011; Kibler & Roman, 2013; Molle, 2013). However, changes from PD do not necessarily occur in a linear manner, nor are they always sufficient (Kibler & Roman, 2013; Molle, 2013). Further complicating the notion of changing beliefs, Catalano, Reeves, and Wessels (2017) found preservice teachers’ changes in beliefs, but also a lasting commitment to ethnocentrism. Similarly, Tandon, Viesca, Hueston, and Milbourn (2017) examined preservice teachers perspectives regarding linguistically responsive teaching and found little change overtime. Bustos-Flores and Smith (2009) found that teachers’ attitudes are influenced by multiple factors and to varying degrees. These researchers also found that teachers with some degree of bilingualism themselves may have more positive beliefs about multilingual students than those without. However, this is not always the case, as Buxton, Salinas, Mahotiere, Lee, and Secada (2013) demonstrate. They reported that even teachers from the same cultural and linguistic background are capable of holding deficit ideologies towards multilingual students, likely due to generational shifts that make teachers perceive of students as less like them. Five

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<sup>2</sup> We use the term “orientation” interchangeably with attitudes, beliefs and perspectives here, but recognize that these terms are not always used interchangeably with agreed upon definitions.

studies provide direct evidence for the complex relationship between teacher beliefs and practice (Bacon, 2018; Gleeson & Davison, 2016; Huerta, 2011; Pass & Mantero, 2009; Pease-Alvarez et al., 2010). Pass and Mantero (2009), for example, found a disconnect between teachers' stated beliefs and their actual classroom practices with multilingual students. Bacon (2018) also found a complex relationship between teacher ideologies and practices, and suggests the benefit of contextualizing ideologies broadly beyond individual dispositions and in relationship to practice.

**Teachers' Perceptions of Preparedness to Teach Multilingual Learners.** Multiple researchers found that teachers often feel under-prepared to teach multilingual learners in mainstream classrooms (O'Neal, Ringler, & Rodriguez, 2008; Polat, 2010; Coady, Harper, & de Jong, 2011). Others have reported that preservice preparation may increase the sense that they are prepared, but not fully (Turgut, Sahin & Huerta, 2016; Schall-Leckrone & McQuillan; Coady et al., 2011). Ross (2014) found a positive correlation between teachers' engagement in PD and a heightened sense of effectiveness with multilingual students. Some studies look at perceptions teacher have not just regarding students, but their learning and their role in the classroom and the relationship between beliefs and practice (Cheatham, Jimenez-Silva, Wodrich, & Kasai, 2014; Garrett & Hong, 2016). Two other studies examined teachers' perceptions of their own role in teaching multilingual learners (Yoon, 2008; Ortega, Luft & Wong, 2013). Yoon (2008) found that teachers positioned themselves in a variety of ways; as a teacher for all students, as a teacher for regular education students or as a teacher for a single subject. Similarly, Ortega et al. (2013) found that the focal teacher's beliefs about her role were impacted by multiple student, contextual, and policy factors, including the level of participation by multilingual learners in lessons, changes in the teacher's position, and her own perception of the power and agency she had in her classroom.

**Teacher-Learner Orientations.** Learning formats (e.g., face-to-face, online and/or hybrid courses) and a variety of assignments were examined for their ability to help teachers apply theory to practice as well as develop assets-based perspectives (Walker, Mahon, & Dray, 2017; Choi & Morrison, 2014; Lavery, Nutta, & Youngblood, 2018). Several studies discussed implementing specific interventions in a course or PD session or series, such as immersing participants in a foreign language (Zhang & Pelttari, 2014), modeling research-based strategies (Andrews & Weisenburg, 2013), engaging in reflection and data analysis (Li & Peters, 2016), conducting narrative inquiry (Pu, 2012), science specific interventions focused on literacy (Lee, Maerten-Rivera, Penfield, LeRoy, & Secada, 2008; Lee, Adamson, Maerten-Rivera, Lewis, Thornton & LeRoy, 2008), inquiry based teaching (Adamson, Santau, & Lee, 2013) and pedagogy (Heller, Daehler, Wong, Shinohara & Miratrix, 2012). Many of these interventions, even brief ones, impacted teachers (and students) positively. However, other studies point to the complexity of teacher learning, even when in-depth opportunities are offered (Adamson, Santau & Lee, 2013). The impacts and outcomes of particular PD models were explored (Lee et al., 2016; Short, Echevarría & Richards-Tutor, 2011; DaSilva Iddings & Rose, 2012; Lys, Ringler, & O'Neal 2009; Aguirre-Muñoz, Park, Amabisca & Boscardin, 2008) finding positive impacts on teacher and student learning. However, as Short et al. (2011) found, contextual elements also affected teachers' ability to fully implement their model, including accountability pressures and shifting teacher commitments. Addressing the complexity and non-linearity of teacher learning, Aguirre-Muñoz et al. (2008) explored the impact of a Systemic Functional Linguistics (SFL) focused PD. Although teachers did shift in their approach to evaluating and offering feedback on student papers, and providing feedback, the authors found that teachers infused SFL into their practices to varying degrees, providing further evidence that what teachers learn in a PD does not



necessarily transfer into practice in a linear manner (e.g., Echevarría et al., 2011). As these teacher learning studies in combination illustrate, teacher learning and its relationship to practice is a complex phenomenon that may appear more or less successful in a variety of contexts and situations depending on the work done with teachers and the learning outcomes that are emphasized.

A variety of studies examined various forms of collaboration among educators and the impacts of that on content teacher learning for working with multilingual students, suggesting the value of teacher learning-practice in connection with other educators. Studies conducted with both preservice (Jimenez-Silva & Olson, 2012; Galguera, 2011) teachers, as well as in-service teachers (Brancard & Quinnwilliams, 2012) found that collaborative PD opportunities supported learning. A relatively large subset of studies found that collaborative PD between mainstream teachers and language specialists was productive in multiple ways for teacher learning, practice and the development of a shared sense of responsibility for teaching multilingual students (Babinski, Amendum, Knotek, Sánchez, & Malone, 2018; DelliCarpini & Alonso, 2014; English, 2009; Martin-Beltrán & Percy, 2014; Percy & Martin-Beltrán, 2012; Percy, Martin-Beltrán, Silverman & Nunn, 2015; Russell, 2014; Russell, 2015; Vázquez, López, Segador & Mohedano, 2015). Other studies highlighted the productivity of various configurations of difference and heterogeneity in partnership (Molle, 2013; Estapa, Pinnow, & Chval, 2016; Collins & Liang, 2014), illustrating the value of teachers learning to talk across difference and engage with tools and perspectives that push their thinking. Another set of studies demonstrated that teachers learn a great deal from working with students, both in preservice (Daniel, 2014; Fitts & Gross, 2012; Master, Loeb, Whitney & Wyckoff, 2012; Mitchell, Homza, & Ngo, 2012) and in-service experiences (Sowa, 2009). Beyond working with individual teachers, students can also provide valuable information regarding frequently used pedagogical models, such as SIOP. In a study conducted by Braden, Wassell, Scantelbury and Grover (2016), the researchers focused on student agency and voice in the science classroom, learning that while SIOP can and does attend to some aspects of quality teaching, it does not fully recognize students' and families' funds of knowledge, nor fully develop a relationship between science and students' lives outside of school.

**Teacher Knowledge Orientations.** The studies addressing teacher knowledge, collectively, suggest important aspects of the knowledge base for teacher-learner orientations for teaching multilingual learners. One important dimension of this knowledge base includes knowing how to support literacy and language development in the content areas (Cho & Reich, 2008; Chval, Pinnow, & Thomas, 2015; Matuchniak, Olson & Scarcella, 2014; Pawan, 2008; Sangster, Anderson & O'Hara, 2013). Other work, such as a study by Schleppegrell, Greer, and Taylor (2008), suggests that metalinguistic strategies are an important part of supporting language and content development. However, knowledge of language also needs to go hand in hand with knowledge of content and students, as Turkan, Sahin, and Huerta (2016) demonstrate. Some studies examined teachers' perspectives of the knowledge required for teaching multilingual students. Interestingly, when teachers' perspectives are taken into account, they do not always agree with research literature. Faltis, Arias, and Ramírez-Marín (2010) studied both what the literature suggests the knowledge base for content teachers of multilingual learners should be and secondary teachers' perspectives of those competencies, finding some differences and tensions between the teachers perspectives and the literature. However, Bowers, Fitts, Quirk, and Jung (2010), examining teacher perspectives of the effectiveness of various approaches in working with multilingual students, found that teachers preferred research-based instructional

strategies that combined cognitive and metacognitive comprehension strategy instruction with direct instruction for academic language.

Across the studies analyzed as part of the dimension of orientation, we see a great deal of complexity and opportunity that should be accounted for. Specifically, these studies suggest the importance of teacher orientations towards students, their practice, and their learning, particularly from a critical perspective that attends to issues of power, privilege and inequity. Further, this research illustrates the value and productivity of collaborating across difference, particularly when different groups of educators work and learn together across a variety of disciplines. Finally, this research suggests that there is more work to do to help teachers feel prepared to teach multilingual students well.

**Orientations as a Dimension in a Complex Teaching Assemblage.** From a rhizomatic perspective, the teacher is herself an assemblage (Strom, 2015). The works we reviewed illuminated multiple possible dimensions of a teacher assemblage and the way those dimensions interacted with other human and contextual elements. The teacher is not an empty vessel—she brings her a particular political location (Bustos-Flores & Smith, 2009), background variables such as gender (Pettit, 2011), and previous knowledge and practices learned in preservice preparation (Turgut et al., 2016) as well as professional development (e.g., Bowers et al., 2010; Chval et al., 2014). Teacher’s attitudes (Kibler & Roman, 2013), orientations toward multilingual learners (Huerta, 2011; Tandon et al., 2017) and beliefs (Pass & Montero, 2009; Coady et al., 2011; Yoon, 2008) also are dimensions of the teacher multiplicity that, when coming into composition with elements like learning activities and teaching practices, influence the teaching of multilingual learners. For instance, teachers’ pre-existing attitudes about multilingual students can affect whether professional development for multilingual learners results in changes in practice (Kibler & Roman, 2013), while orientations, such as having a humanizing approach, can affect student learning (Huerta, 2011). Finally, beliefs can also be a powerful shaping force of the teacher multiplicity. For instance, Yoon (2008) found that beliefs teachers held about themselves as either teachers of content or teachers of all students impacted student participation levels and student perceptions of themselves as powerful or powerless. Other studies found that deficit beliefs were an influential part of the teacher multiplicity (e.g., Vázquez-Montilla et al., 2014). Multiple authors suggested that, to truly teach multilingual students in ways that would result in powerful learning, teachers must disrupt these deficit perspectives and develop affirming attitudes (e.g., Choi & Morrison 2014; Mitchell, 2012; Pawan 2008).

Teacher multiplicities, however, are not static; they are *sympoietic*, or constantly changing in relation to the other elements to which they are connected (Haraway, 2016). For instance, interactions between elements of the teacher multiplicity and learning activities, contextual factors, teacher racialization (Matias, 2015) and students can produce new understandings about students and even change deficit mindsets over time, as shown by researchers such as Mellom and colleagues (2018). The notion of connection also corresponds to a shift away from binary thinking, which has characterized more traditional notions of teaching multilingual learners. However, as the literature reviewed here demonstrates, there is an emerging knowledge base about teaching multilingual learners that pursues connections, rather than separations, embracing the power of a “both/and” (rather than an “either/or”) perspective. For example, studies emphasized the importance of teaching *both* content and language simultaneously (Carrejo & Reinhartz, 2012; Chval et al., 2015; Lara-Alecio et al., 2012; Lee & Maerten-Rivera, 2012), rather than seeing them as two separate instructional areas. Other

examples included examining the entanglement of beliefs and practice (Huerta 2011), bringing together language and pedagogy (Galguera 2011), and working across content areas (Lee et al., 2008a; Vasquez et al., 2015). Others worked across traditional teacher boundaries, bringing together mixtures of mainstream and ESL teachers (DelliCarpini & Alonso 2014; Martin-Beltrán & Peercy, 2014; Russell, 2014; Russell 2015).

As our theoretical approach suggests, introducing difference into a multiplicity also produces conditions for growth and change. For example, Macleroy (2013) found that when teachers introduced a profusion of difference in terms of perspectives, texts, and media, as well as the space to practice, multilingual students gained more sophisticated literacy skills. This was also true for teacher learning, as Molle (2013) reported that introducing a variety of different perspectives and ideas was productive for building teacher knowledge. Further, the introduction of difference into a multiplicity could also explain the productiveness of the various collaborations discussed in the studies reviewed, including between preservice teachers and young people (Fitts & Gross, 2012), mainstream and ESL teachers (e.g., DelliCarpini & Alonso, 2014), content areas (Lee et al., 2008a) and different classrooms (Brancard & QuinnWilliams, 2012; Jimenez-Silva & Olson, 2012). These studies demonstrated that bringing different sets of knowledges, practices, and tools together produced emergent learning and practices that were supportive for multilingual learners.

There were also examples of specific elements that served as productive conditions. For instance, teachers who brought affirming orientations toward multilingual learners as part of their own orientations also were more likely to have higher student achievement (Master et al., 2016). Two other studies (Li & Peters, 2016; Sowa, 2009) showed that when teachers were active agents in their research, they co-constructed learning more meaningfully. As an illustration, Sowa (2009) demonstrated that teachers engaging in action research not only changed their practices, but also their beliefs. Unfortunately, many studies examined one “slice” of the teacher multiplicity without acknowledging or connecting to other aspects of the teacher multiplicity. Some studies also reported that interactions with elements of the teacher multiplicity and target activities were shaped by contextual factors—rather than beginning with this assumption. We take up this point in the discussion.

### **Implications for the Field: New Directions for Research, Practice and Policy**

As our analysis of the literature illustrates, there are many fruitful opportunities to improve teaching and learning in content classrooms for multilingual students and their teachers via complex understandings of teaching as an assemblage and students and teachers as multiplicities. This is not to argue that work done to date is without value. Rather, we argue that recognizing the complexities in teacher learning and practice is an ethical imperative, because binary, individualistic, reductionist thinking is actively harmful (Molle, 2013). Further, this imperative provides a productive opportunity for theoretical work to move forward by expanding understandings of these complexities and resultant harm through interactions with strong, extant critical theoretical work (e.g. critical race theory, critical whiteness, disability crit, etc.) in more complex ways in collaboration with a rhizomatics/critical posthuman perspective. To avoid the harm of binary, individualistic and reductionist thinking in content teaching for multilingual students, our research, practice and policies need to be informed, interact, and be co-constructed with important bodies of critical theoretical work that explore the complexities, intersectionalities, discourses, and historical contexts of teaching, learning and practice with attention to inequitable flows of power and privilege along various axes such as race, gender,

class, language, sexual orientation, ability, and so forth. As such, we suggest that another important future direction to improve content teaching and learning for multilingual students and their teachers is in accounting for the sociopolitical, cultural-historical elements of teaching multilingual students. In the studies reviewed, these elements were at times absent.

In addition to accounting for socio-political and cultural-historical influences, we also argue that future efforts in research, practice and policy need to account for non-linearity in teaching and learning. We need more holistic studies that account for expansive complexity, yet also help us understand detailed intricacies. For instance, many studies featured in this review examined only one “slice” of the issue of teaching multilingual learners—such as types of effective pedagogy for multilingual learners, beliefs of teachers toward multilingual students, or specific policies that affect teaching and learning in linguistically diverse classrooms. We argue that these are all working together, at the same time, and are inextricable from each other. Moreover, many studies leapt over the complex processes involved in teacher learning and teaching practice, attempting to draw a straight line between the learning activity or “intervention” and student test scores (e.g., Lee et al., 2008a; Lee et al., 2014). These studies ignore that, at any given time, there are multiple assemblages concurrently shaping pedagogy: the teacher herself is a multiplicity that shapes the practices that are enacted with multilingual learners, as shown by studies describing the impact of PD (e.g., Lee et al., 2016) and the impact of beliefs (e.g., Pease-Alvarez et al., 2010) on teachers’ practices with multilingual learners. Moreover, multilingual students are also multiplicities who bring their background experiences, funds of knowledge, and current proficiencies (Daniel, 2014; Sowa, 2009), which shape their own learning, and in turn, influence their performance on a test.

There were also studies that made claims about teaching practice without any actual observations of teaching practice (e.g., Gleeson & Davidson, 2016). If teaching is a complex phenomenon that arises from the interaction of multiple elements (Strom, 2015), researchers need to observe this phenomenon at the level of emergence—in the classroom. However, even in observations, researchers should practice caution with the use of overly simplistic checklists and reductionist protocols, since teaching and learning observed in classroom spaces is extremely dynamic and best understood with in-depth, longitudinal analyses. We are not suggesting that ethnographic research is the only research that matters for understanding teacher learning and practice, but we are suggesting that, moving forward, research that is making claims or attending to practice needs to actually observe and engage with the complexity of practice via their research methodology and approaches. Such holistic research can provide in-depth examinations of the disconnects that were present in many of the studies we analyzed, such as Master and colleagues’ (2016) finding that teacher performance on tests regarding content standards did not predict their ability to teach multilingual students, or Sangster and colleagues’ (2013) finding regarding the disconnect between teachers’ beliefs about their linguistic knowledge and their actual linguistic knowledge (as captured by a standardized test). Further exploration of such complexities in a holistic, in-depth manner—such as the multi-method, in-depth examinations employed in studies such as DaSilva Iddings and Rose (2012) and Lesaux et al. (2014)—can help us move our understandings of teacher learning and practice forward in complex, comprehensive and helpful ways for research, practice and policy.

As we embrace complexity to improve teaching and learning for multilingual students in content classrooms, we also need to account for agency more explicitly. Teacher agency has already been discussed and identified as an important factor in our analysis, but one major gap in our analysis is attending to student agency. We argue that seeing multilingual students through a

complex lens as multiplicities with their own agency is incredibly important for improving teaching and learning in content classrooms for multilingual students and their teachers. Specifically, research, practice and policy need to attend to student agency, voice, and students' own heterogeneity and varied life experiences, as well as the various dimensions that interact when students are understood as multiplicities (particularly in the context of understanding the assemblage of content teaching for multilingual students). Further, if the most powerful pedagogies for multilingual learners are ones that are interactive and hinge on social activity, student participation in teaching is necessary. How and whether students themselves choose to participate matters in both teacher and student success (Strom & Martin, 2017). The agency and complexities students bring to classroom learning are incredibly powerful facets of a complex assemblage that are woefully understudied, given their importance in the teaching-learning experience.

Finally, we suggest that there is great opportunity in accounting for teacher change from complex perspectives. We need studies that not only feature holistic methodological designs but also offer the ability to theorize the findings from complex perspectives. Certainly, multiple studies, theories, and methodologies can productively come into conversation and co-construct understandings of quality content teaching for multilingual learners. In fact, our analysis of the literature, where we have brought together varying perspectives, methodologies and findings to explore and understand the dimensions of pedagogy, context and orientations in content teaching for multilingual students, is an example of such opportunities. However, we contend that improved research, policy and practice may come from researchers attending more expansively to these complexities within studies as well as across them. Rhizomatics offers one possibility for doing so, but there are multiple complex frameworks being taken up by teacher education researchers, including complexity theory (Cochran-Smith et al., 2014; Ell et al., 2017) and cultural-historical activity theory (CHAT) (Anderson & Stillman, 2010; Gatti, 2016; Valencia, Martin, Place, & Grossman, 2009). Complex studies without foci on teacher learning and practice offer further models of these possibilities, such as Cochran-Smith and colleagues' (2018) complex investigation into teacher education accountability and Dixon-Román's (2017) posthuman/materialism informed examination of social reproduction and quantification in education.

### **Conclusion**

Moving forward, we see expansive possibilities to draw from a more critical, complex perspective of teacher learning and practice as well as the existing research literature to change and improve teaching of multilingual learners. Several possibilities were explored above, but additional next steps include expanding our research review more expansively outside of US research. Many countries are working to prepare content teachers to teach multilingual students and explicitly seeking to learn from the international research literature is an opportunity for this work to grow further. We also recommend that stakeholders in efforts that impact teacher learning and practice (both in preservice and inservice initiatives) take the time to either utilize existing theories of teaching and learning (such as that forwarded here) or develop their own to overtly guide their work in practice, research and policy development. We encourage all such stakeholders to also be overt regarding those theories and to make their assumptions clear through strong theoretically grounded work. Finally, we suggest the power of embracing difference. We have reviewed a wide variety of studies that have shown impact from a variety of approaches in different content, grade-level and schooling contexts. There are overarching ideas related to *context*, *orientations* and *pedagogy* that provide consistent themes and overall findings

that can and should be applied to teacher learning and practice efforts in locally relevant ways. By embracing difference as productive, these locally meaningful approaches can also disrupt counter-productive efforts towards sameness or overt control over teachers' practice for the purposes of "fidelity." Including the findings of this literature review in work to promote teacher learning and practice is a positive way to look at themes, trends and complexities and then allow stakeholders, including students, to participate in the co-construction of a locally meaningful, relevant and impactful learning.

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