Investigating the Work of Translating Guidance From Curriculum Materials Into Instructional Interaction

by

Susanna Owens Farmer

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Educational Studies)
in the University of Michigan
2019

Doctoral Committee:

Professor Deborah Loewenberg Ball, Chair
Professor Elizabeth A. Davis
Professor Kevin F. Miller
Associate Professor Chauncey Monte-Sano

Susanna Owens Farmer

owenssh@umich.edu

ORCID iD: 0000-0003-0973-4433

DEDICATION

To my husband, Brittan, my parents, Dan and Helen Owens,

my son, Daniel, and my daughter whom we are looking forward to meeting soon

ACKNOWLEDGEMENTS

I am grateful to the many people who have supported my dissertation work and shaped me as a scholar and as a person during my time in graduate school.

This study would not have been possible without the six teachers who opened their classrooms to me and who made time to participate in this study amidst their many other responsibilities. I am grateful for the opportunity to observe and talk with them about their teaching across an entire school year. I learned so much from them.

I am indebted to Nell Duke and Anne-Lise Halvorsen for making it possible for me to do this study within the context of their own research project. They allowed me to take on the role of a researcher who was independent from the Project PLACE study while also going out of their way to make sure that I had access to any Project PLACE resources or data that might be helpful for my study. They laid the groundwork that enabled me to recruit participants, and they allowed me to experiment with adding some additional features to two of the Project PLACE units. I am so grateful for their generosity. I am also thankful for the help and support of others on the Project PLACE team, including Stephanie Strachan, Katie Revelle, and the Project PLACE coaches who shared information with me about their interactions with teachers.

Many thanks also to Lucas Education Research—specifically Kristin DeVivo and Nathan Warner—for their generous support of this work. The grant I received allowed me to collect an extensive data set that made the design of this study possible.

My dissertation committee—Deborah Ball, Betsy Davis, Chauncey Monte-Sano, and Kevin Miller—was an incredible group of mentors to work with and learn from. I am so grateful

for their kindness and commitment to helping me push my thinking forward and improve my work. I appreciated Kevin's enthusiasm about my study and his insights and questions that helped me refine and communicate my ideas. Chauncey's careful questions and feedback—particularly on the study design, writing, and ways of representing data—were extremely helpful. I am also deeply grateful for the time Betsy spent providing detailed comments on multiple drafts of this long document (!), as well as for her ways of helping me think about how my work relates to the broader field of research on curriculum use. Her questions and feedback were invaluable.

Deborah, my dissertation chair and advisor, has been an amazing mentor throughout the dissertation process and my entire experience in graduate school. I am so thankful for her commitment to me and to my growth, as well as for her patience and flexibility throughout this process (which has included three cross-country moves and the birth of my son!). Deborah's 2008 talk—"The Work of Teaching and the Challenge for Teacher Education"—was the original impetus for my applying to the University of Michigan and ultimately enrolling in the doctoral program, and I am so thankful I had the opportunity to come and learn about the work of teaching directly from her. Not only has Deborah shaped the way I think about research on teaching (including the specifics of this dissertation study), but she has also served as a model of how to teach in ways that treat students—whether they be fifth graders or doctoral candidates—with dignity and kindness.

I have had many other wonderful teachers and mentors during my time at Michigan—all of whose influence I can see in my dissertation work. I have really enjoyed working with Meghan Shaughnessy and Tim Boerst in various contexts throughout graduate school, including the @Practice Project, Dev-TE@M, Elementary Mathematics Laboratory, and in the

undergraduate teacher education program. I have learned so much from them about research, teaching, curriculum development, how to give academic presentations, how to organize and manage research projects, etc. They have also supported me in so many ways throughout my time in graduate school—from helping orient me to the School of Education initially, to allowing me to work remotely during my (long!) dissertation writing stage, to making sure I had everything I needed on the day of the defense (including amazing refreshments—thank you, Meghan!). Thanks also to Merrie Blunk and the others in the 1600 suite for their support—I could not have asked for a better "home" during graduate school.

I am also grateful for other faculty members at Michigan and University of Pennsylvania who have shaped me as a teacher educator and researcher. Matt Ronfeldt provided my first introduction to the study of the practice of teaching, which was a wonderful foundation on which to build. I also learned so much from my research apprenticeship with him. Vilma Mesa introduced me to literature on curriculum use, which helped develop my interest in this area of research. I am also grateful to Janine Remillard and Caroline Ebby for the opportunities and mentorship they provided during my year in Philadelphia.

I am extremely thankful for an amazing group of fellow graduate students, especially Anne Bordonaro, Annick Rougée, Claudia Cameratti-Baeza, Esther Enright, Lindsey Mann, Mandy Benedict-Chambers, and Martha Curren-Preis. I have learned so much from each of them and am grateful for their support and friendship. Many thanks to Annick for meeting with me remotely and providing ongoing encouragement until the very end. I am also deeply grateful to Lindsey, who has shaped this study in so many ways—including by teaching me how to collect video and interview data (through her mentorship in the Study of Beginning Mathematics Teaching), providing input on ways of analyzing and interpreting the data, patiently helping me

formulate and improve my ideas, and providing moral support along the way. I am thankful for the ways she has challenged and shaped my thinking—both about this study specifically and about education and society more generally.

I also want to thank the members of Trinity Church in Nashville, Knox Presbyterian Church in Ann Arbor, Covenant Community Church in Philadelphia, Jubilee Community Church in Minneapolis, and Sixth Avenue Church of God in Decatur, Alabama for seeing me through each stage of the graduate school process—from deciding whether or not to go to graduate school to being "really close to being done" for much longer than probably made sense to anyone outside of academia! I am thankful for the children of Sixth Avenue who have given me much food for thought as I have "translated" a Sunday School curriculum when teaching them this year. Sincere thanks also to Rachel Barnard, Melodie Marske, Esther Liu, and the members of Graduate Christian Fellowship, who faithfully supported and prayed for me along the way. I am so grateful for all of these friends, who helped me keep things in perspective and understand graduate school and dissertation work as a context for continuing to learn and practice what is most important—loving God and others.

Finally, I want to thank my family for their constant encouragement throughout this process—including Brittan and Daniel; my mom, dad, and sister Mary Frances; my honorary sister Sarah; and my wonderful in-laws and extended family. I would not have started or finished my graduate studies without their support. I especially want to acknowledge my mother, Helen Owens, and the ways she has encouraged and influenced me as a teacher, thinker, and writer. I am thankful for our many conversations about teaching and education over the years, including many conversations about the ideas in this dissertation, and I am also so grateful for her willingness to read and edit multiple drafts of this document!

I don’t have words enough to thank my husband Brittan, who has been a steady source of love and encouragement and who has made many sacrifices to help me get to the finish line. He has supported me so well throughout the dissertation process— including by listening, praying, keeping our household running smoothly, being patient with me when I was “in the zone” at odd and inconvenient times, being such a great dad to Daniel, and staying committed to helping me see this through to the end (even more committed than I was at several points). I am so thankful that God brought us together during our time in graduate school, and I am looking forward to starting our next chapter together. Ultimately, I am thankful to God—the source of all good gifts, including the amazing people He has placed in my life and the experiences He has enabled me to have. I pray that I would steward these gifts well.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

Curriculum materials containing detailed lesson designs are resources that teachers in the elementary grades often use and are sometimes required to use. This instructional guidance can be helpful in many ways, but challenges exist in using it. First, externally-developed curricular guidance cannot fully account for specifics in particular instructional contexts. Second, this guidance is inherently incomplete, leaving teachers to determine how to do the parts of teaching the lesson left unspecified. In this dissertation, I investigated the work involved in following externally-developed lesson plans and analyzed what is entailed in this work.

I conceive of the work of teaching from a lesson plan as a process of *translation* in which teachers convert the written guidance into instructional interaction. I studied the work of translation by analyzing lessons of six second-grade teachers who were teaching a project-based social studies and literacy curriculum. I qualitatively analyzed 31 lesson videos, including multiple teachers' translations of the same 10 lesson plans. My analysis focused on how teachers translated the steps of the plans, as well as how these translations related to the high-level goals of the curriculum, including the learning goals, principles of project-based instruction, and the time frame in which the curriculum should be taught.

Teachers translated the lesson plans primarily by *filling in* the guidance: doing more or less what was called for, which always included elements (e.g., use of specific instructional techniques, improvised talk) that were not guided by the plans. Filling in the guidance typically involved elaborating on what was specified, filtering out details from the guidance, and/or

making small changes to sequence or to student materials. Lesson translations also usually involved one or more significant departures from aspects of the plan.

At times, teachers' translations of particular parts of the lesson plans clearly did or did not reflect the high-level goals of the curriculum. However, for many aspects of the translations, the relationship to the high-level guidance was unclear. In other words, the high-level guidance did not consistently guide significant parts of the translation work. Teachers' use of time in their translations also affected the extent to which their translations reflected particular goals of the curriculum.

This study provides insight into the complex work involved in lesson translation, challenging the taken-for-granted idea that following a plan is a straightforward process. These findings have implications for curriculum design, teacher education, and professional support.

Chapter 1

The Research Problem

As a graduate teaching assistant for an elementary mathematics methods course, one of my responsibilities was to provide feedback on videos of preservice teachers' instruction—specifically, their orchestration of an instructional activity called Number Talks (Parrish, 2014). Number Talks are short, whole-class discussions of a set of mental math problems that have been strategically chosen to illuminate one specific mathematical point (Sleep, 2012). To prepare our preservice teachers to lead Number Talks, the course instructor and I provided a lot of support for the instructional design: we offered sets of problems preservice teachers could use, we articulated the mathematical point of each set of problems, and we prescribed a very specific sequence of steps that preservice teachers should use to set up and structure their discussions. Because the interactive parts of the discussion could not be fully planned in advance, we also provided a list of different teacher moves that could be used for particular purposes during the discussion.

For the most part, the preservice teachers seemed to "buy in" to what we were asking them to do and seemed to understand the basic instructional design—including the mathematical point of the tasks they had chosen and the sequence of steps designed to help them teach to this point. They also generally seemed interested in and willing to try several of the teacher moves we had provided. Even so, as I watched the videos of their interactions with children, I was often struck by how difficult the work of leading a Number Talk was—even with the different kinds of support we had provided. Indeed, even when preservice teachers followed the steps we had

given, used some of the teacher moves we had suggested, and seemed to have a good understanding of the mathematical point of the problems they had chosen, they sometimes still had difficulty steering instruction to this point in the moment (Sleep, 2012). They were following the guidance we had given them, but the guidance alone was not enough.

Observing the challenges preservice teachers experienced as they used the guidance that we had provided in the interactive work of teaching reminded me of my own experiences as a graduate student instructor. The first university-level course I taught was a course called Children as Sense-makers. Its design was quite different from any of the courses I had taken in my own teacher preparation program, so I worked hard to make sure that I understood the design as I prepared to teach it. Fortunately, I had a lot of support for this work. The course had two sections, and the other instructor, who had played a role in the original design of the course, created quite detailed lesson plans that I could follow. We also met to discuss and revise each lesson plan before we taught it.

These plans were incredibly helpful resources for me as I prepared to teach, and I was committed to using them, but I still often found myself with many questions about what particular aspects of the lessons would (or should) actually look like *in practice.* Thankfully, I had the opportunity to observe the other section of the course before teaching my own. As I prepared to teach each week, I was often eager to see how the other instructor taught certain parts of the lesson and how the preservice teachers responded—doing this prepared me for my own teaching in a way that simply working with the lesson plan could not. And even observing a more experienced instructor, of course, did not eliminate—or provide complete guidance for—many of the problems of practice I encountered when actually teaching from the lesson plans myself.

I describe each of these examples to make a point: the work of converting the guidance contained in a lesson plan into instructional interaction is complex—even when detailed guidance is provided and even when the teacher is attempting to follow it. This purpose of this dissertation is to explore why this is the case by better articulating what is actually involved in following externally-developed lesson plans in the course of orchestrating instructional interactions with students. In this chapter, I try to lay out this problem space by describing—from a teacher's perspective—the benefits and the challenges of working with externally-developed lesson plans. I then explain how, in this dissertation study, I went about investigating what is involved in the work of converting the guidance from externally-developed lesson plans into instructional interaction.

Benefits of Teaching With Curriculum Materials

Access to Materials and Ideas

Curriculum materials for the elementary grades often contain detailed instructional guidance for teachers along with the materials designed for student use, and there are several ways in which teachers might find this type of resource to be helpful.[1] Most fundamentally, the combination of instructional materials and instructional guidance provided in curriculum materials makes it possible for teachers to prepare for instruction without having to start from scratch, a form of professional support that most school teachers—from novice to experienced—seem to appreciate[2] (Grossman & Thompson, 2008; Jackson, 1990; Kauffman, Johnson, Kardos, Liu, & Peske, 2002; Woodward & Elliott, 1990). Not only do curriculum materials save teachers

[1] In this chapter, I focus primarily on the ways that working with curriculum materials might benefit teachers, but there can also be benefits for students. For instance, when teachers across a school or district use the same curriculum program, they can support the coherence of students' instructional experiences across grade levels and in situations in which students must move to a different classroom or school partway through the school year.

[2] This is assuming that teachers feel that they have the autonomy to use (or not use) the materials in ways they think are best. I discuss challenges with issues related to autonomy later in this chapter.

time and effort as they plan for instruction, but they also supply ideas that teachers might not have thought of on their own, as well as instructional materials they might not have been able to develop or gather themselves. By working with the guidance in curriculum materials to plan for instruction, teachers are able to have access to others' ideas for how to organize, represent, and help students work on content.

Furthermore, when teachers work with a particular curriculum across a sequence of lessons or instructional units, they have access to others' ideas for how to create a coherent progression of instructional experiences for students. These ideas can be particularly helpful if the curriculum materials are aligned to the content that teachers are responsible for teaching.

Representations of Innovative Instructional Approaches

In cases where teachers are attempting to transition to an instructional approach that is new to them, access to others' ideas for instructional design is particularly important. By providing specific lesson plans that reflect the core principles of an approach, the guidance contained in curriculum materials can help teachers understand what those principles could actually look like in practice (Beyer & Davis, 2009; Brown, 2009; Remillard & Reinke, 2012; Schneider & Krajcik, 2002). Literature on teachers' use of innovative curricula contains numerous examples of teachers who credit a particular set of curriculum materials with enabling them to teach in a new way that they believed to be worthwhile[3] (Ball, 1990; Cohen, 1990; Collopy, 2003; Remillard, 1999; see also the introductions of Heaton, 2000, and Remillard,

[3] The extent to which teachers' practice actually *does* shift to reflect the principles of the approach represented in innovative curriculum materials is a separate question. Here, I am simply making the point that, if teachers believe a particular instructional approach to be worthwhile, they are likely to view curriculum materials that reflect that approach as a useful professional tool. Similarly, a positive experience teaching with materials that reflect an innovative approach can help teachers come to see that approach as worthwhile.

1996, for first-person accounts of researchers' positive experiences with the innovative curriculum materials they used as classroom teachers).

Ways of Storing and Sharing Professional Knowledge

Not only do curriculum materials expose teachers to others' ideas for how to design instruction, but they also contain ideas that have already been vetted in some way—that is, they have been informed (at least to some degree) by the professional knowledge and experience of others, such as experts in content and/or learning theory as well as practitioners who have taught the curriculum. When curriculum materials are designed and revised to incorporate insights gained through experiences of those who have already used them, they serve as a tool for storing and sharing professional knowledge (Ball, Sleep, Boerst, & Bass, 2009; Berk & Hiebert, 2009; Krajcik, McNeill, & Reiser, 2008; Morris, 2012; Morris & Hiebert, 2011). Teachers who use the guidance contained in the materials can then draw on professional expertise and experience that goes beyond their own—something that may be particularly helpful for new teachers or those who are teaching something for the first time (Ball & Feiman-Nemser, 1988; Kauffman et al., 2002; Remillard & Bryans, 2004).

Avenues for Professional Learning

The guidance contained in curriculum materials is not only useful for supporting the teaching of the particular lessons in the curriculum; it can also serve as a tool for teacher learning more generally. By considering the instructional guidance suggested by others—and by experiencing what happens when they try out these ideas with students—teachers can develop knowledge and practices that they can use in their teaching beyond the specific lessons from the curriculum (Collopy, 2003; Remillard, 2000). These learning opportunities may be particularly productive when teachers have opportunities to work with multiple kinds of curriculum materials

and therefore have exposure to different ways of teaching particular content (Valencia, Place, Martin, & Grossman, 2006).[4] Opportunities for teacher learning through curriculum materials may also be enhanced when materials are designed to be "educative" for teachers—supplementing lesson plans with other elements that are specifically intended to promote teacher learning (Ball & Cohen, 1996; Davis & Krajcik, 2005; Davis, Palincsar, Smith, Arias, & Kademian, 2017). Even without deliberately designed educative supports, though, the process of reading and using curriculum guidance can provide opportunities for teachers' professional growth in ways that extend beyond simply supporting the teaching of particular lessons (Ball & Feiman-Nemser, 1988; Remillard, 2000; Remillard & Reinke, 2012).

Challenges Involved With Teaching With Curriculum Materials

Undoubtedly, curriculum materials, and the guidance contained within them, serve as important tools for teaching. Yet, as teachers work with this guidance in their instruction, they must deal with two fundamental challenges. First, because there are situations in which the guidance might not be appropriate or "best" (either generally or in a particular situation), teachers must determine when to depart from the guidance and what to do instead. Second, because the guidance for instruction that can be provided in lesson plans is inherently incomplete, teachers must figure out how to do the parts of instruction for which there is no guidance.

Dealing With Situations in Which the Guidance Isn't "Right"

Dealing with general weaknesses or problems in the guidance. One reality that teachers must face as they work with curriculum materials is that the quality of the guidance they contain cannot be assured. Despite the fact that the guidance contained in curriculum materials is

[4] Indeed, Valencia, Place, Martin, and Grossman (2006) suggest that, if beginning teachers only have experience with one curriculum—especially if they are required to follow it—this may actually stunt their professional growth.

ideally based on professional knowledge and expertise, there is a wide range of quality among (and even within) the actual materials that exist; materials may contain errors or provide instructional guidance that is generally unsound (Woodward & Elliot, 1990). For instance, in an analysis of middle school science curriculum programs commonly used in the United States, Kesidou and Roseman (2002) identified substantial weaknesses, including lack of focus on the key ideas outlined in national or state learning goals, failure to guide teaching in ways that account for common patterns of student thinking, and lack of support for scaffolding student learning. One reason for this is that, in the United States, the process for developing and publishing many curriculum materials is driven by market forces that are often at odds with the processes that are most likely to produce curricula that are coherent and research-based (Reys & Reys, 2006).

Many have also critiqued curriculum materials for the biases they reflect—including underrepresentation of diverse groups, superficial treatment of underrepresented groups' histories and perspectives, and lack of attention to or sanitized representations of societal issues and injustices (Gay, 2000; Sleeter, 2017). Curriculum materials inherently embody ideas about what should be taught and whose perspectives should be heard, and there are often reasons to take issue with the decisions that have been made by curriculum developers. Part of the challenge involved with teaching with curriculum materials, therefore, involves being able to recognize these types of issues and to figure out how to address them when using the materials. When teachers do not do this, the problematic aspects of the guidance can show up in—and have a negative influence on the quality of—classroom instruction and, in turn, student learning (Durkin, 1974; Shannon, 1987; Sleeter, 2017; Woodward & Elliot, 1990).

Tailoring guidance to particular students. Even when the quality of the guidance is generally good, there are still situations in which teachers need to depart from aspects of the guidance. This is because the guidance contained in curriculum materials—no matter how sound it is—cannot be fully responsive to the particular students and situations in which teachers are teaching (Ben-Peretz, 1990; Woodward & Elliot, 1990). For example, since curriculum materials are typically not tailored to the specific social and cultural identities that students bring to classrooms, many have argued that it is essential that teachers have the ability and flexibility to modify guidance from curriculum materials in ways that are culturally responsive to their particular group of students (e.g., by using instructional examples that are grounded in students' personal experiences) (Gay, 2000; Ladson-Billings 1994; Minor, 2018). Teachers must also tailor the guidance in curriculum materials to accommodate the range of prior knowledge, skill, and interest that their students bring to the classroom (Ben-Peretz, 1990)—a role that teachers seem to view (at least to some extent) as inherent to their use of curriculum guidance (Ben-Peretz, 1990; Jackson, 1990; Kauffman et al., 2002).

Tailoring guidance to students involves departing from aspects of the guidance, but this does not require teachers to dismiss the guidance altogether. Monte-Sano, De La Paz, and Felton's (2014) study of experienced teachers' implementation of a disciplinary literacy curriculum provides an example of how teachers were able to tailor the curriculum guidance to meet their students' needs in the course of teaching in ways that were faithful to the developers' design. As the teachers taught the curriculum, they added in additional support for their students (e.g., helping students develop background knowledge that would prepare them to read the historical texts contained in the curriculum; highlighting how the activities in the curriculum connected to historical thinking), and they also modified some of the recommendations (e.g.,

recommendations for when to transition from guided practice to independent practice with the skills being taught). By modifying or going beyond the guidance based on their perceptions of their students' needs, these teachers were able to help the students in their classes participate in the activities specified by the curriculum and accomplish the ambitious goals it set forth.

Tailoring guidance to other aspects of the instructional situation. While tailoring guidance to fit the students is certainly essential, it is important to acknowledge that part of teachers' tailoring work also involves fitting the guidance to the realities and constraints of their particular instructional situation (Ben-Peretz, 1990). Many characteristics of the teacher's instructional situation—such as time available, the nature of the instructional space, access to classroom materials, and so forth—influence instruction (Kennedy, 2010) and therefore factor into considerations about whether the guidance contained in curriculum materials is appropriate for a particular situation. Some of these situational factors, such as whether it is raining on a day that the curriculum calls for an outdoor activity (an example that Ben-Peretz, 1990, cites when talking about how teachers departed from the guidance in a science curriculum), are specific not only to a particular classroom but even to a particular day or moment. Indeed, because there is so much variation inherently built into the instructional system in which teachers are teaching (e.g., variation in terms of students, situational factors, and so forth), the work of teaching can never be completely routinized or prescribed but instead requires teachers to draw on adaptive expertise (Hatano & Inagaki, 1986) to determine the best course of action in a particular situation.

Other reasons for departing from the guidance. In addition to departing from the guidance in order to avoid problematic aspects or to tailor it to particular students and situations, there are also other reasons that teachers might decide to depart from aspects of the guidance. Teachers may simply have other ideas about how to teach the content—or about what content to

teach—that they prefer to use instead of what is recommended in the guidance. Or, they may think that the guidance is not a good fit for them personally, due to their own professional capacities or knowledge (Brown, 2009). Regardless of why the teacher chooses to depart from aspects of the guidance in the curriculum, however, part of the work involved with using curriculum materials involves figuring out when to depart from the guidance and what to do instead. This work also includes figuring out how to integrate the departures from parts of the guidance into use of other parts of the guidance.

Working in environments that constrain teachers from using the guidance in ways they think are best. The challenges of working with aspects of curriculum guidance that don't seem "right" or best for a particular situation can be exacerbated by environmental factors that undermine teachers' autonomy to depart from the curriculum. For instance, when teachers are mandated to strictly adhere to a particular curriculum program (a policy that reflects the problematic idea that it is possible to create "teacher-proof" curricula, see Shulman, 1983), they may feel pressure to follow its guidance even when they perceive it to be inappropriate for their students' needs. Furthermore, when teachers are not given adequate time to plan for instruction, they may be forced to rely on the curriculum guidance without having opportunities to employ their own professional skills in the process of instructional design (Apple & Junck, 1990). These features of the environments in which teachers work can add to the challenges that they face when working with the guidance contained in curriculum materials.

Summary. Fundamentally, all of these arguments are based on the idea that using the guidance from curriculum materials does not and cannot exempt teachers from their responsibility to ultimately determine what happens in their classrooms. As Connelly (1972) points out, curriculum developers and teachers have fundamentally different roles:

> The strength and major contribution of a developer are that he works with and can translate involved ideas into a form useful for teachers and students. However, the developer cannot imagine, let alone account for, the full range of teaching situations that arise. It is here that the teacher's experience and wisdom enter into curriculum planning in a way that cannot adequately be replaced. The characteristics and needs of the actual classroom situation are the first and final factors in determining what should be done in that classroom. The teacher is inescapably the arbiter between the demands of the curriculum materials and of the instructional situation. (p. 164)

Ben-Peretz and others argue that it is important for teachers (and others) to see their role as being "full partners in the process of curriculum development" rather than to view themselves as simply implementers or transmitters of externally-developed curriculum plans (Ben Peretz, 1990, p. 57; see also Shannon, 1987; Woodward & Elliot, 1990; Zumwalt, 1989).

The point I am making is related but slightly different. I argue that—regardless of whether or not teachers view themselves as "full partners" with their curriculum materials, and even regardless of the degree to which teachers are permitted to have autonomy in their use of the materials—the realities of teaching make it such that the process of using curriculum guidance inevitably requires teachers to depart from some aspects of the guidance, and therefore requires teachers to exercise a measure of professional judgment and autonomy. Although the ways in which teachers do this may vary based on their views of their role or their understandings of the constraints placed on them, the fact remains, that, as Connelly says: "The teacher is inescapably the arbiter between the demands of the curriculum materials and of the instructional situation" (Connelly, 1972, p. 164).

Determining How to Do the Parts of the Work That Are Not Guided

Many of the challenges of using guidance from curriculum materials relate to the reality that at times, for a variety of reasons, teachers will need or decide to depart from aspects of the guidance. However, another issue with using guidance found in curriculum materials is that it is inevitably incomplete; that is, it can never provide comprehensive guidance for how to do the instructional activities it recommends. While the incompleteness of the guidance is not a problem in and of itself, it can become an issue—especially when teachers are relying on the guidance to help them do something new or different in their instruction. Heaton (2000) illustrates this in a reflection on her experience of attempting to teach a mathematics lesson on patterns by following the guidance contained in a set of "reform-based" curriculum materials:

> That evening, I was distraught and troubled by the day's events. My mind was filled with questions. Was I teaching? Were students learning? Why was I unable to get an interesting discussion started? Why was I asking students about patterns anyway? What was a pattern? . . . I had planned a reasonable lesson. I had trusted that the teacher's guide was going to help me through it. It was letting me down. It was, at once, too much and not enough of a guide. It had given me enough guidance to lead me to believe we could do this activity even though I failed to acquire any broader sense of its purpose. In the midst of teaching, I found myself lost with a guide.
>
> As soon as I heard students' responses, I realized I did not know what I meant by "pattern." I had not considered that there might be a mathematical sense of patterns that was different from other, more familiar notions. I also did not understand why I was asking the question ["What patterns do you notice?"]. I

> initially asked the question because it was in the teacher's guide and, given what I knew about the reforms, it had seemed consistent with my goals. . . . The script in the CSMP teacher's guide was designed with questions for me to initiate but I was frustrated by the little help it offered in figuring out what to do next in the situation, especially when what students said did not match the script I had before me. (pp. 28-29)

In this reflection, Heaton encounters the challenges involved with using an externally-developed lesson plan as a resource for guiding instructional interactions with students; inevitably, as the teacher does what the plan is guiding her to do, there will be parts of the interaction that the lesson plan cannot guide.

Later in her reflection, Heaton tries to imagine how teacher's guides might be designed to provide different or better guidance for these situations—for example, by more fully explaining the purposes of the activities it recommends. But even with more or different guidance, the fact remains that a written lesson plan can never fully guide the work teachers must do as they interact with their students.

This reality—along with the reality that teachers will also depart from the guidance at times—led Ben-Peretz (1990) to argue that there are fundamentally two levels of curriculum development: the level at which curriculum writers create the materials and the level at which teachers further develop the curriculum (i.e., determining how it actually plays out in their classrooms) as they use it with their students. By describing curriculum development in this way, Ben-Peretz is implying that teachers must do complex work to use the guidance from curriculum materials in instruction.

Teaching From Curriculum Materials as a Process of Translation

In this dissertation, I focus on learning more about the nature of the work—particularly in cases in which teachers have chosen to closely follow the guidance of an externally-developed curriculum program. Unlike some (Shannon, 1987; Woodward & Elliott, 1990; Zumwalt, 1989), I do not take the view that working from externally-developed lesson plans is inherently de-professionalizing or inferior to developing one's own curriculum. Instead, I take the view that, like developing one's own curriculum, using externally-developed materials in the local context of one's classroom demands professional work—even in cases where teachers are attempting to stay close to the guidance offered in them. At the least, it involves judgment, imagination, knowledge of different kinds, and regularly, management of constraints and dilemmas of time, resources, and contexts. This study was designed to provide a close investigation of this ubiquitous work and the way it fits into the work of teaching more broadly.

I describe and analyze what the work of teaching with externally-developed curriculum materials entails by examining how lessons contained in a particular curriculum program played out in six different second-grade classrooms. Other studies have provided important insights into how teachers interpret, evaluate, and work with curriculum guidance to make decisions about instructional design; my study complements this work by focusing on primarily on the instructional interactions themselves and understanding what is involved in converting guidance from curriculum materials into these interactions. Indeed, while one important question to consider when studying the teacher-curriculum relationship is how teachers do and do not use the guidance that is provided in the curriculum (which is a function of how they interpret, evaluate, and decide whether or not to adapt it), another important question focuses more on how the guidance that is provided in the curriculum fits into the interactive work of teaching more

generally—and what work is involved in this. This second question, which is the focus of my study, is certainly connected to the first, but it puts the focus more on the instructional interactions themselves than on the planning or design processes that influence them.

The analysis in my dissertation is framed through the metaphor of *translation*.[5] I conceive the processes of using externally-developed curricula as requiring professional and practical translation—from text to action, from prediction and prescription to real-time action, from general to contextualized. I began to use this metaphor in early rounds of data analysis, as I was seeking to characterize what I was seeing as I observed the same lesson plans play out in different classrooms. It became a helpful frame for my analysis; the definitions of the term seem to capture important elements of the nature of the phenomenon I am seeking to understand.

One meaning of the term *translation* relates specifically to translating from one language to another. The analogy to language translation highlights important things about the nature of teaching from an externally-developed lesson plan that have already been identified in curriculum-use literature (which I review in the next chapter). This analogy calls attention to the fact that, when a teacher brings a lesson plan to life in instruction, she is responsible both for making sense of the plan for herself (as a translator would do with the original text) as well as determining how to teach the plan in ways that make sense for her students and in her context (as a translator would do when translating the text for a particular audience). In language translation, the most literal translation is not always the most comprehensible (due to figures of speech, languages that do not share the same sentence structure, cultural references that may not be understood by the audience, and so forth), and sometimes a literal translation is not even possible

[5] Remillard (1999, 2005) has used the term "translate"—along with the terms "alter" and "adapt" when describing Ben-Peretz's idea of two levels of curriculum development. However, she does not expound on what it might mean to translate guidance from curriculum materials into instructional interactions.

(if one language lacks a word with the same meaning as the word being translated, for example). Likewise, translation of lesson plans may sometimes involve departing from some of the details in order to follow the guidance in a broader sense in ways that are likely to be more productive—or more feasible—in a particular situation. This translation work involves interpreting the guidance for the "big picture" purposes of the lesson as well as the details.

Just as there are different approaches to language translation—ranging from more to less literal—there are multiple ways to translate guidance from curriculum materials, ranging from sticking close to the details of the lesson plan to following the guidance in a broader sense, which may allow many of the details to get lost in translation. While a teacher may favor a general approach to lesson translation, part of the work of translation involves determining when to stay close to the details and when to translate in a less literal way in order to best support student learning.

One of the other meanings of the word *translation* offers an analogy for another aspect of the work of using guidance from externally-developed curriculum materials in teaching that has possibly received less attention in curriculum-use literature: the work involved in converting the written guidance into instructional interaction. *Translation* can be defined as: "The expression or rendering of a thing in another medium or form; the conversion or adaptation of a thing to another system, context, or use" (Oxford English Dictionary, 2009). The "rendering of a thing in another medium or form" is a fundamental—and non-trivial—part of the work teachers must do when teaching from a lesson plan. Indeed, there is often quite complex work involved in taking the written guidance from the plan and converting it into actual interactions with particular students that take place in a particular space and time. Regardless of how closely a teacher sticks to the plan when doing this work, a transformation always happens as the guidance in lesson

plays out through words, actions, and interactions. While a lesson plan may provide a blueprint for instruction (Brown, 2009), the actual lesson as it is being taught includes many more dimensions and much more complexity and specificity than what is represented in the plan. As teachers translate the guidance into instructional interaction, they must do all of the parts of the work that are not guided in the plan. And, in the course of doing so, some of the details contained in the plan might be missed or forgotten—another reason why some of the guidance might be lost in translation. This aspect of translation—in addition to the aspect that involves adapting guidance for particular students and situations—also accounts for why the same lesson plan might play out very differently in different situations, even when the teacher(s) are following the guidance.

Investigating Translation in the Case of Project PLACE

In this study, I seek to gain insight into what is involved in translating guidance from curriculum materials into instructional interaction by examining the nature of six second-grade teachers' translations of lessons contained within a particular curriculum program: the Project-approach to Literacy and Civic Engagement (Project PLACE) curriculum. The Project PLACE curriculum consisted of a set of detailed unit and lesson plans that were designed to enable teachers to (1) teach grade-level social studies and content-literacy standards, (2) using a project-based approach, (3) within a feasible time frame (i.e., four 20-lesson units). Each of the teachers I observed was a participant in a research project focused on measuring the efficacy of the curriculum on students' learning and motivation and had therefore agreed to implement the lesson plans in service of accomplishing these "high-level" goals. In order to learn more about the work this entailed, my study focused on the following questions:

1. How did teachers translate the step-by-step guidance from the Project PLACE lesson plans into instructional interactions?
2. How did teachers' translations of the steps in the lesson plans relate to the high-level guidance provided by Project PLACE pertaining to the learning goals of the curriculum, the instructional approach to be used, and the time frame in which the curriculum should be taught?

The answers to these questions offer insights into how teachers' work with curriculum might be supported, how to help preservice teachers learn to work with curriculum, and how to develop curriculum that offers usable guidance to teachers.

Overview of the Dissertation

This dissertation is organized in seven chapters. In Chapter 2, I build on the ideas in this chapter to explain the theoretical and empirical foundations on which this study is based. In Chapter 3, I describe the context for the study (the Project PLACE research project) in more detail and explain the methods I used to develop ideas about what is involved in curriculum translation, using data from the case of Project PLACE. In Chapter 4, I present the findings that respond to my first research question. This chapter focuses on describing what processes teachers used as they translated guidance contained in the Project PLACE lesson plans into instructional interactions. In Chapter 5, I present the findings that respond to my second question—turning my focus to how teachers' translations of lesson-level guidance reflected higher-level guidance that was also provided by Project PLACE. In Chapter 6, I discuss my findings in light of existing literature on curriculum use, and in Chapter 7, I offer conclusions and implications for curriculum development, teacher education and professional support, and future research.

Chapter 2

Conceptual Framework and Literature Review

Researchers have long been interested in what teachers do with the guidance contained in curriculum materials (Cronbach, 1955; Fullan & Pomfret, 1977; Remillard, Herbel-Eisenmann, & Lloyd, 2009). This purpose of this study is to contribute to this area of inquiry by describing the work of teaching that is involved in translating guidance from externally-developed lesson plans into instructional interaction. I propose the metaphor of *translation* as a useful frame for thinking about what teachers do with guidance from curriculum materials in instruction, and I seek to develop this concept through analysis of teachers' translations of the lesson plans contained in the Project PLACE curriculum.

This study builds on many of the findings and theoretical assumptions of existing research on teachers and curriculum materials. In this chapter, I describe the literature that grounds this study, and I also identify gaps in the existing literature that this study is designed to address.

Issues With Viewing Curriculum Use as "Implementation"

Research that investigates what teachers do with curriculum materials has its roots in studies that sought to better understand the link between curricular innovations and student learning—including understanding why many curricular innovations failed to improve student learning outcomes in ways that curriculum developers and researchers had hoped (Cuban, 1993; Fullan & Pomfret, 1977). In much of the literature that seeks to connect curricular innovations to student learning outcomes, the word "implement" is used to characterize what teachers do with

curriculum materials. While it makes sense to use the word "implementation" in these contexts, use of this term also oversimplifies the nature of the work teachers do when using curriculum materials in instruction. Lloyd, Remillard, and Herbal-Eisenmann (2009) point out two problems with conceptualizing teachers' curriculum use as a process of implementation:

> First, [the term "implementation"] assumes that embedded in these resources is everything a teacher would need to enact the curriculum precisely as envisioned by the designers. Second, this view of implementation suggests that the process of putting the ideas captured in previously designed curriculum materials into practice is a straightforward one and does not involve substantial engagement, interpretation, and decision-making on the part of the teacher. (pp. 7-8)

In this dissertation, I seek to address this issue by introducing the concept of translation as an alternative to using the idea of implementation—a concept that represents a more complex picture of what teachers do with curriculum guidance in instruction. Even so, the concept of curriculum translation that I develop is informed by insights from literature that focuses on curriculum implementation: specifically (1) that it appears to be impossible to implement written guidance contained in curriculum materials with fidelity, and (2) that implementation of detailed guidance in curriculum materials does not necessarily produce instruction that reflects the underlying principles or orientations that the guidance is designed to embody (nor does instruction that reflects the underlying principles or orientations necessarily involve implementing the detailed guidance).

It Appears to Be Impossible to Implement Written Guidance With Fidelity

When characterizing different perspectives on curriculum use, Remillard (2005) suggests that some assume that "isomorphism between written curriculum materials and the enacted

curriculum is possible" (p. 216). However, literature on curriculum implementation over the past several decades suggests that this is not the case.[6] If such an isomorphism were possible, finding ways to measure "fidelity of implementation" to a curriculum program would be a straightforward process. Yet, for decades, curriculum implementation researchers have struggled to find good ways to conceptualize and measure fidelity of implementation. [7]

In an early review of research on curriculum implementation, Fullan and Pomfret (1977) argued that researchers often did not adequately specify the criteria that needed to be in place to determine the extent to which an innovation had been implemented with fidelity. O'Donnell (2008) raised this issue again three decades later in another review of research on curriculum implementation, calling for implementation researchers to more clearly "specify the critical components and processes necessary for implementing the curriculum implementation with fidelity" (p. 53) when creating constructs for fidelity of implementation. In highlighting this issue, the authors of both of these reviews make the assumption that it is impossible (or, at least, unrealistic) for teachers to follow all of the detailed guidance contained in a written curriculum; therefore, they emphasize that researchers need to clearly define what "counts" as faithful implementation of the curriculum design when seeking to relate curriculum implementation to student outcomes.

[6] In the previous chapter, I suggest several reasons why teachers might need to (or choose to) depart from written guidance.

[7] Although I do not discuss it in this review, there is also a body of curriculum implementation research that acknowledges this reality and therefore characterizes curriculum implementation as a process of "mutual adaptation" (McLaughlin, 1976). Research conducted from this perspective is focused on examining the nature of local adaptations that are made to curriculum innovation rather than determining a level of fidelity to the original design (Snyder, Bolin, & Zumwalt, 1992).

Implementing Detailed Guidance Is Not the Same as Reflecting the Larger Vision

When describing the need to adequately articulate the construct of fidelity to a curriculum innovation, Fullan and Pomfret (1977) also pointed out that it easy to oversimplify what should count as faithful implementation. They raised the concern that it is possible for implementation researchers to measure "the mechanical use of an innovation" (p. 365) without actually being able to capture whether teachers were operating according to the philosophy or values underlying the innovation. This concern reflects the idea that, even if teachers do implement some (or many) of the details of an innovation in their instruction, this does not necessarily mean that their instruction reflects the larger vision that the curriculum guidance is designed to embody.

In their study of implementation of "*Standards*-based" mathematics curriculum programs (i.e., programs designed to reflect the National Council of Teachers of Mathematics *Principles and Standards for School Mathematics*, National Council of Teachers of Mathematics [NCTM], 2000), Chval, Chavez, Reys, and Tarr (2009) attempted to deal with this issue by creating a construct called "textbook integrity" (p. 72) to use in place of a measure of fidelity of implementation. This construct did not attempt to determine the extent to which teachers followed the detailed guidance in the *Standards*-based textbooks; rather, it sought to determine whether teachers met a threshold of using the guidance from the textbook to an extent that they should be included in a study of the textbook's effects on student learning. When operationalizing the construct of textbook integrity, Chval and colleagues not only tried to account for the extent to which teachers actually used the textbook (both in terms of the frequency of use and the extent to which they covered what was in the textbook) but also whether teachers' instruction could be characterized as being consistent with the pedagogical orientation of the textbook. In other words, because Chval and colleagues acknowledged that

teachers may use the guidance in the textbook (i.e., the lesson plans and student resources) in ways that did not actually reflect the pedagogical orientation that the textbook was designed to embody, they included "consistency with the pedagogical orientation" as a distinct but essential component of "textbook integrity."

S. Brown, Pitvorec, Ditto, and Kelso (2009), who also studied teachers' implementation of a *Standards*-based mathematics curriculum, critiqued Chval and colleagues' construct of textbook integrity. They pointed out that, by including a measure of the extent to which teachers' instruction was consistent with the pedagogical orientation of the textbook, Chval and colleagues were assuming that each of the lesson plans included in *Standards*-based mathematics curricula clearly reflected the pedagogical orientation of the *Standards*. They pointed out that this was not necessarily the case; even though *Standards*-based curricula were designed to reflect the pedagogical orientation outlined in the *Standards*, some of the written guidance in the individual lessons might reflect this orientation better or more explicitly than others. Because Brown et al. acknowledged that there may be a disconnect between the overarching vision of a *Standards*-based curriculum and the detailed guidance provided in the lesson plans, they attempted to reconceive fidelity of implementation in a way that would take this reality into account.

In their study, they differentiated between the authors' intended lesson (that is, the authors' visions of a lesson that would embody the overarching pedagogical orientation of the *Standards)* and the written lessons themselves (Brown et al., 2009). When analyzing teachers' instruction, therefore, Brown and colleagues drew a distinction between implementing the written lessons with fidelity (i.e., the extent to which teachers did what was called for in the lesson steps) and the extent to which teachers' instruction reflected the authors' intentions for the lesson. They found that these two forms of fidelity were not closely related. That is, they found

both that "teachers can carefully follow the lesson steps . . . without the students and teacher engaging in the authors' intended opportunities to learn" (pp. 382-383) *and* that the level of fidelity to the author's intended lesson did not predict how closely teachers followed the actual written lesson. The findings of this study are important because they highlight the idea that, when teachers' instruction fails to reflect the designers' intentions, this may not only be a function of teachers' decisions or adaptations but also of limitations of the lesson-level guidance provided in the curriculum.

Curriculum Use as Tool-Mediated Action

In light of the issues that arise when attempting to conceive of curriculum use as a process of implementation, I argue that it is helpful to view "curriculum implementation"—that is, the attempt to follow lesson plans developed by others—instead as a process of translation. The process of curriculum translation could be seen as one of many forms of curriculum use.[8]

The concept of curriculum translation is grounded in sociocultural theories of tool-mediated action (Pea, 1993; Vygotsky, 1978; Wertsch, 1998), which view curriculum materials as cultural tools that mediate teachers' goal-oriented activity of instruction. These theories suggest that capacity for the work of instructional design can be shared across teachers and curriculum materials (Brown, 2009). When analyzing how the activity of instructional design is accomplished or who is responsible for it, therefore, it is not sensible to think about either the tool (the curriculum materials) or the agent (the teacher) in isolation (Wertsch, 1998), but rather as a unit who are involved in a participatory relationship with one another (Remillard, 2005). Wertsch (1998) illustrates this idea by making an analogy to pole vaulting:

[8] Other forms of curriculum use may involve drawing on multiple instructional resources from different sources in order to design a lesson plan. The concept of translation is focused more specifically on the work involved in using a single, externally-developed lesson plan as the basis for the classroom instruction.

> For example, it is futile, if not ridiculous, to try to understand the action of pole vaulting in terms of the mediational means—the pole—or the agent in isolation. The pole by itself does not magically propel vaulters over a cross bar; it must be used skillfully by the agent. At the same time, an agent without a pole or with an inappropriate pole is incapable of participating in the event. (p. 27)

Like the pole, curriculum materials cannot accomplish the work of instructional design for teachers or ultimately determine the quality of the instruction, but they can enable teachers to design instruction in ways that they would not or could not have on their own—including by serving as a starting point that teachers can work from as they design and customize instruction for their particular situation (Brown, 2009).

According to sociocultural theory, tools not only enable human activity, but they also constrain it (Wertsch, 1998). In the case of curriculum materials, the guidance offered not only enables teachers to work with ideas provided by others as they design instruction, but it also constrains teachers' planning, in a sense, by defining parameters that help "provide meaning and coherence within an otherwise enormous range of instructional possibilities" (Brown, 2009, p. 21). In other words, one way that curriculum guidance can assist teachers is by helping provide focus for the process of instructional design that they would not have if they were developing their designs from scratch.[9]

Curriculum Materials as Tools That Require Interpretation

Although the guidance in curriculum materials can constrain teachers' instructional design and interaction in this sense, however, it is important to note that curriculum materials

[9] While Brown (2009) mostly focuses on the positive aspects of the way curriculum materials can constrain instruction, others (see Grossman & Thompson, 2008 for an example) have pointed out that these constraints can have negative consequences as well, such as limiting teachers' instructional repertoires to the ideas provided in the curriculum materials they are using.

cannot constrain teachers' action by forcing teachers to follow the recommendations they provide. Furthermore, even if teachers do choose to follow the recommendations offered, the process of following the recommendations requires interpretation on the teacher's part, which can affect the ways in which the recommendations actually play out in practice. Pentland and Feldman (2008), who study organizational routines, make this point in their article called "Designing routines: On the folly of designing artifacts, while hoping for patterns of action." They do so with the following illustration:

> The symbolic dimension of artifacts relies on interpretation for their impact. Consider the difference between a sign that says 'Employees only – Do not enter' and a locked door. . . . [T]he sign relies much more on the interpretation than does the locked door. Some of the artifacts that surround organizational routines are more like locked doors in that they truly constrain action. But the vast majority, such as rules, forms, diagrams, and procedures, are more like the sign in that their meaning is open to a variety of interpretations. (p. 242)

In this analogy, the guidance found in curriculum materials is like the sign on the door—not the locked door. Although curriculum materials are designed to support certain patterns of action (e.g., instructional interactions that reflect a particular vision of instruction), they rely so heavily on interpretation—and on the agency of the people using them—that it is foolish to assume that they themselves will automatically produce the patterns of action that their designers envision.

It is important to note that, while all forms of curriculum guidance require interpretation, guidance that is less elaborated (such as a broad statement of a principle for instruction) leaves more room for a variety of interpretations than guidance that is more elaborated (Cohen & Ball, 2007). This idea is memorably illustrated by a group of case studies that focused on teachers'

practice in an era when a new, innovative mathematics curriculum framework had been instituted in California (Ball, 1990; Cohen, 1990; Peterson, 1990). The teachers in these studies believed that their practice reflected the framework's guidance to "teach for understanding," but the researchers who observed them interpreted their practice much differently, based on their own understandings of the framework. These case studies also highlight the complexities involved in interpreting overarching visions for instruction—like the visions articulated in California's *Mathematics Curriculum* Framework document—and reflecting them in practice. When describing "The Case of Carol Turner," Ball (1990) argues that "Because visions of mathematics and mathematical pedagogy represented in the *Framework* are multiple, Carol could be seen at once as complying with the *Framework*, or as subtly contradicting it" (p. 247). Indeed, when high-level guidance for instruction contains multiple facets, it is possible for instructional practice to seemingly reflect and undermine some parts of these visions simultaneously.

Factors That Shape Teachers' Translations of Curriculum Guidance

Because translating curriculum guidance into practice requires interpretation and depends on the agency of the teacher, both teacher characteristics and characteristics of curriculum materials shape the ways in which teachers use curriculum materials to design instruction. Other factors, such as contextual factors and students' responses during instruction, also shape teachers' curriculum use (Beyer & Davis, 2012a; Remillard, 2005). This dissertation is not primarily focused on identifying the factors that influence teachers' curriculum use, but rather is focused on describing the process of curriculum translation itself. Nevertheless, it is important to acknowledge that teachers' translations are influenced by these kinds of factors.

In the next section, I outline factors influencing teachers' translations that have been identified in the literature, including teacher characteristics, characteristics of curriculum

materials, and contextual factors. I also discuss the relationship between the plans teachers make as they work with guidance from curriculum materials and the instructional interactions that actually play out in classrooms. To organize this section, I draw on Remillard's (2005) framework of components of the teacher-curriculum relationship, which provides a comprehensive representation of the factors that shape teachers' curriculum translation. I close this section by explaining how the concept of translation relates to Remillard's framework.

Remillard's (2005) Framework of Components of the Teacher-Curriculum Relationship

In an extensive review of literature on teachers' use of mathematics curriculum materials,[10] Remillard (2005) presents a framework that identifies many of the factors that influence what she calls the "participatory relationship" between teachers and curriculum materials (see Figure 2.1). In this framework, Remillard (2005) highlights two sets of factors—teacher characteristics and characteristics of the curriculum (and teachers' perceptions of these characteristics)—that shape (and can be shaped by) the ways in which teachers participate with curriculum materials in instruction. Her framework also acknowledges that contextual factors play a role in shaping the ways in which teachers participate with curriculum materials as they design instruction. She also draws a distinction between the planned curriculum and the enacted curriculum, pointing out that the planned curriculum does not determine the curriculum that is actually enacted, but rather shapes it, along with the influences of students and context. In this sense, the planned curriculum can be seen as yet another factor that shapes the nature of the instructional interactions teachers have with students.

[10] Because much of the recent literature on curriculum use has happened in the context of studying teachers' use of mathematics and science curriculum programs that were designed to embody particular reforms (Remillard, 2005; Remillard, Herbel-Eisenmann, & Lloyd, 2009), many of the theoretical frameworks I discuss are based on insights from teachers' use of mathematics and science curriculum programs. However, these frameworks are applicable across disciplines.

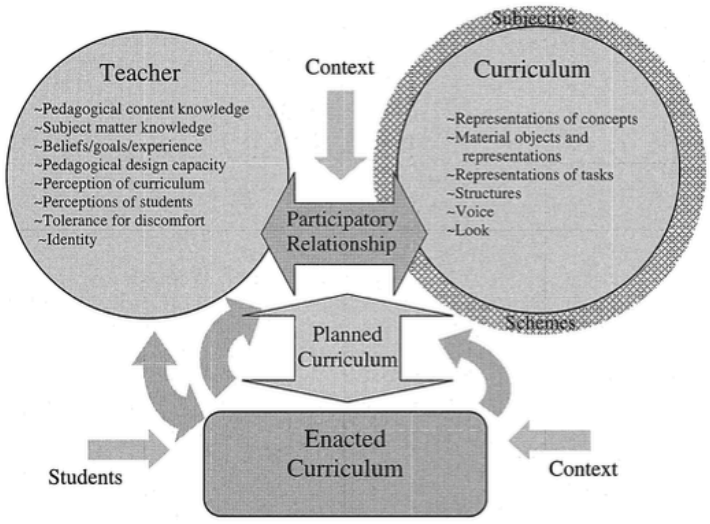

Figure 2.1 Remillard's (2005) framework of components of the teacher-curriculum relationship Reprinted from "Examining key concepts in teachers' use of mathematics curricula," by J. T. Remillard, 2005*, Review of Educational Research, 75*(2), 211-246.

Teacher characteristics. Many who study teachers' curriculum use have focused on teacher characteristics that seem to influence how teachers use the curriculum guidance that is offered to them, including teachers'

- subject matter knowledge and pedagogical content knowledge (Beyer & Davis, 2012b; Hill & Charalambous, 2012a; Hill & Charalambous, 2012b; Lewis & Blunk, 2012; Monte-Sano, De La Paz, & Felton, 2014; Sleep & Eskelson, 2012; Valencia, Place, Martin, & Grossman, 2006),
- pedagogical orientations and goals[11] (Collopy, 2003; Davis, Janssen, & Van Driel, 2016; Durkin, 1984; Remillard, 1999; Sleep & Eskelson, 2012; Wilson, 1990),
- identities (Beyer & Davis, 2009; Drake & Sherin, 2006),

[11] Davis, Janssen, and Van Driel (2016) make the important point that teachers have multiple goals—both related to their pedagogical orientation and to other aspects of their classroom ecology—that may be inconsistent with one another or may be in tension with one another at times.

- orientations toward curriculum (Collopy, 2003; Forbes & Davis, 2008; Remillard & Bryans, 2004), and
- perceptions of students and their needs (Eisenmann & Even, 2009; Monte-Sano, De La Paz, & Felton, 2014).

Brown (2009) also argues that an additional factor, a construct he calls teachers' "pedagogical design capacity," plays an important role—distinct from other teacher characteristics—in influencing what teachers do with the guidance they're using. Brown defines pedagogical design capacity as "a teacher's capacity to perceive and mobilize existing resources in order to craft instructional episodes" (Brown, 2009, p. 29). He explains that this construct is meant to highlight the fact that the teacher-curriculum relationship is not only influenced by the personal and professional resources that teachers bring (such as pedagogical content knowledge, teaching skill, and so forth) but also what they are able to do with those resources as they interact with students.

Characteristics of curriculum materials. Remillard's framework also acknowledges that the characteristics of the materials themselves (and teachers' perceptions of these characteristics) also have a significant influence on the ways in which teachers interpret and use them as they plan and enact instruction. Remillard (2005, see also Remillard, 2012) mentions several of these characteristics—including the ways in which the curriculum represents tasks and concepts, the nature of the student instructional materials provided in the curriculum, the structure of the curriculum, the "voice" of the curriculum (Herbel-Eisenmann, 2007), and the visual dimension of the curriculum, such as the fonts, colors, images used, and so forth.

A growing body of literature has also begun to examine the influence of "educative supports" contained in curricula, elements that are designed specifically to promote teacher

learning (Davis & Krajcik, 2005; Davis et al., 2017). These studies have suggested that educative supports in reform-based curriculum materials can help teachers teach in ways that are consistent with the reforms (depending of course, on whether teachers make use of these supports) (Schneider & Krajcik, 2002) but that they may not be enough on their own to fully equip teachers to deal with the most challenging aspects of reform-based teaching (Schneider, Krajcik, & Blumenfeld, 2005). Research on teachers' use of educative supports has also begun to identify the ways in which different forms of support (e.g., general information versus lesson-specific supports) can be useful and for what purposes (Arias, Bismack, Davis, & Palincsar, 2016; Beyer & Davis, 2009; Bismack, Arias, Davis, & Palincsar, 2015).

Contextual factors. Remillard's model also represents the idea that teachers' instructional or institutional contexts also influence teachers' curriculum use. For instance, mandates to follow a certain curriculum (Valencia, Place, Martin, & Grossman, 2006) or lack of professional support or planning time (Manouchehri & Goodman, 1998) play a role in the ways in which teachers translate curriculum guidance into instructional interaction. McClain, Zhao, Visnovski, and Bowen (2009) make the point that it is not merely features of these contexts themselves that influence how teachers use curriculum materials within them, but also teachers' perceptions of their contexts, including their perceptions of how the contexts in which they are teaching support or constrain their use of the materials.

The influence of the planned curriculum on the enacted curriculum. Another idea that Remillard's model highlights is that the "planned curriculum"—that is, what teachers plan to do in the classroom—influences, but does not completely determine, what actually happens in the classroom as teachers interact with students (what Remillard calls the "enacted curriculum"). In a literature review on how curriculum influences student learning in mathematics, Stein,

Remillard, and Smith (2007) argue that that the curriculum that is written in curriculum materials ("the written curriculum") undergoes one transformation as the teacher plans for instruction ("the planned curriculum") and then undergoes another transformation as the teacher actually implements these plans ("the enacted curriculum"), which is what ultimately influences student learning. As the teacher enacts the curriculum and perceives what students are learning, these experiences then influence the ways in which the teacher transforms the written curriculum into the planned curriculum in future lessons. Remillard (2005) emphasizes that the planned curriculum is not the only influence on the enacted curriculum—students' responses during the lesson as well as contextual factors both play a role in determining how the planned curriculum plays out in practice.

How Remillard's (2005) Framework Relates to the Concept of Lesson Translation

Remillard's (2005) framework of components of the teacher-curriculum relationship provides a helpful overview of the elements that shape the ways in which teachers interact with curriculum materials to produce instruction. The ideas and relationships represented in the model provide an important explanation of *why* teachers do what they do with curriculum guidance in their instructional interactions (e.g., by suggesting that various characteristics, such as pedagogical content knowledge, influence how teachers use curriculum materials in instruction). However, this model does not attempt to unpack exactly *what* teachers do with the curriculum guidance as they orchestrate the instructional interactions that play out in their classrooms. Indeed, although this framework depicts the relationship between the teacher and curriculum materials as a "participatory relationship" that shapes the planned curriculum and ultimately the enacted curriculum, the framework is not designed to characterize specific ways in which teachers "participate with" the curriculum materials—especially during the instructional

interactions as they are unfolding. Remillard (2005) argues that "continued examination and explication" (p. 238) of this participatory relationship is needed.

The goal of this dissertation is to provide additional insight into a specific part of the participatory relationship. The concept of translation, which I develop in this dissertation through analysis of data, is designed to characterize the kinds of work that are involved in taking up guidance from curriculum materials in teaching. In other words, this dissertation focuses on instructional interactions between teachers and students—which are represented by the "enacted curriculum" in Remillard's (2005) framework—and investigates what teachers have to do to convert guidance from curriculum materials (and the modifications they have made to this guidance in planning, and so forth) into these interactions. The concept of translation, as I define it in this dissertation, is consistent with Remillard's (2005) model, but its focus is on the interactive parts of the work of teaching and on describing how teachers' use of (or participation with) curriculum guidance fits into this work.

Recent research has provided insight into what teachers do as they "participate with" curriculum materials (Remillard, 2005) in planning and instruction. I turn next to reviewing this literature and identifying gaps that this dissertation is designed to address.

What Do Teachers Do With the Guidance Contained in Curriculum Materials?

In the past decade, researchers have focused on various facets of the question "what do teachers do with the guidance contained in curriculum materials?" In this section, I describe three frameworks that describe how teachers interact with curriculum guidance in planning and/or instruction: Sherin and Drake's (2009) curriculum strategy framework, Brown's (2009) scale of types of curriculum use, and Forbes and Davis's (2010) curriculum design for inquiry framework. I also discuss Remillard's (1999) concept of curriculum mapping, which seeks to

articulate what teachers do with curriculum guidance in a longer-term sense. I then describe how the concept of translation complements these ideas.

Reading, Evaluating, and Adapting Curriculum Guidance: Sherin and Drake's (2009) Curriculum Strategy Framework

In a study of teachers' use of a reform-based mathematics curriculum program, Sherin and Drake (2009) sought to identify patterns in the ways different teachers used the curriculum. Their data analysis led to the development of the curriculum strategy framework, which is meant to apply to curriculum use across disciplines. They argue that there are three types of interpretive activities that teacher engage in when using curriculum:

- *reading* the written materials to digest the information and guidance it contains,
- *evaluating* both the written materials and the classroom events that play out as they use the materials, and
- *adapting* the materials based on their reading and evaluation of the materials and on their evaluation of the lesson as it is playing out.

In their study, they found that different teachers exhibited different patterns in how they worked with the curriculum materials. For example, when reading the materials, some teachers read for the purpose of getting a broad overview, while others read to get detailed information about how to teach the lesson. When evaluating the guidance contained in the materials, some teachers primarily evaluated the guidance with themselves in mind (e.g., asking whether or not they themselves understood the mathematical ideas contained in the lessons, and so forth) while others evaluated the guidance primarily with their students in mind. Sherin and Drake's (2009) findings extend the findings of other studies which found differences in the ways teachers read and evaluated the curriculum guidance they were using, and which highlighted these processes as

important parts of the ways teachers interact with curriculum materials (Collopy, 2003; Remillard, 1999, 2000).

According to Sherin and Drake (2009), teachers' ways of reading and evaluating curriculum materials influence how they engage in a third interpretive activity: *adapting* the materials. While they acknowledge that lessons can never be implemented exactly as written and always include changes from the written plan, Sherin and Drake define adaptation as "*significant* changes that teachers make in the intended curriculum, e.g., changes in the structure of a lesson, in the activities that comprise the lesson, or in the purpose of the lesson" (p. 486). They argue that these kinds of significant adaptations fall along a continuum that includes the following:

- creating new lesson components,
- replacing a component from the guidance with something different, and
- omitting components from the lesson altogether.

In an earlier analysis, Drake and Sherin (2006) referred to these three types of adaptations as "activity-level" or structural adaptations, and they also identified ten other types of adaptations that occurred within an activity, including:

> changing terminology, changing the order of activities, changing the materials used, changing the participant structures (individual to group or vice versa), increasing student control over an activity, increasing teacher control over an activity, changing the amount of time spent on an activity, and omitting, adding, or changing particular problems (p. 163).

As with the other types of interpretive activities, Sherin and Drake (2009) found that teachers tended to make different kinds of adaptations at different times. For instance, while teachers made changes to the *activities* in the written materials before, during, and after instruction, they

usually only made adaptations to the *mathematics* of the lessons during instruction (Sherin & Drake, 2009). They also found that there were different patterns across teachers; for instance, some teachers tended to add activities while others often tended to omit.

Contributions and limitations of Sherin and Drake's (2009) curriculum strategy framework. Sherin and Drake's curriculum strategy framework offers important contributions by characterizing the types of interpretative work teachers do to use guidance from curriculum materials. They point out that the three interpretive activities teachers use—reading, evaluating, and adapting—can be done in different ways and at different times, including while preparing for a lesson, during the course of a lesson, and when reflecting on how the lesson went. However, the limitation of this framework is that its focus is primarily on teachers' interpretations and decision-making regarding the use of the curriculum. The part of their framework that is most directly related to the actual translation of the curriculum guidance—teachers' adaptations of the curriculum—does not attempt to encompass everything teachers do with the guidance during instruction, but rather focuses on characterizing the types of significant changes they make to the lesson plan. By focusing only on teachers' significant adaptations, Sherin and Drake's framework does not represent other parts of the work teachers do as they translate guidance from curriculum materials into instructional interactions—especially the parts of the work teachers do when they are *not* making significant changes to the plan (e.g., supporting students' work on the activities outlined in the curriculum).

Offloading, Adapting, and Improvising With Materials: Brown's (2009) Scale of Types of Curriculum Use

In his theoretical chapter on the teacher-tool relationship, Brown (2009) gives more attention to the idea that there is creative work involved with using guidance from curriculum

materials—even in situations where the teacher is not choosing to significantly adapt the guidance that was offered. To illustrate this idea, Brown compares teachers' use of curriculum materials to different jazz performers' renditions of the same piece of music: while there are essential similarities among the renditions that make it clear that the performers are playing the same song, there are also all kinds of variation—both obvious and subtle—between the different renditions. Brown argues that, with both musical performance and teaching from lesson plans, "a great deal of the creative work takes place during the performance" (p. 17).

To describe the ways in which teachers use guidance from curriculum materials when doing this work, Brown (2009) provides a scale that characterizes the ways teachers can appropriate guidance from curriculum materials in instruction. The scale includes the following types of ways teachers use curriculum:

- teachers offload "a large degree of agency for guiding instructional activity onto the materials" (p. 24), which involves "using the materials in a literal fashion" (p. 25);
- teachers adapt curriculum materials "in ways that reflect contributions of both the materials and [the teacher's] personal resources" (p. 25); or
- teachers improvise with materials, which entails shifting the majority of the agency for guiding instructional activity off of the materials and onto the teacher.

According to Brown, these three types of interactions represent "the different ways in which materials may contribute to the craft of instruction" (pp. 25-26). Brown does not intend for these categories to characterize different teachers' general approaches to using curriculum guidance; rather, he explains that teachers may (and often do) move along the continuum at different points within a single lesson. He also does not intend his framework to relate to the designers' intent for the guidance—he explains that, while "offloading" refers to using the guidance in a literal

fashion, it does not necessarily mean that the instruction will play out in ways that the designers intended. Similarly, a teacher's adaptations and improvisations may or may not be compatible with what the designers envisioned. In other words, this scale describes the decisions the teacher makes about how to use the guidance when designing instruction, but it does not evaluate whether or not these decisions are productive from the standpoint of the curriculum developer.

Contributions and limitations of Brown's (2009) scale of types of curriculum use.

Brown's offload-adapt-improvise continuum illuminates important distinctions among the ways in which teachers choose to work with curriculum materials in designing instruction (both when preparing for instruction and during the interactive work), but this framework focuses primarily on teachers' agency in the process of instructional design rather than on what is involved in actually translating the guidance into instructional interaction. Indeed, when a teacher chooses to "offload" agency onto the materials, the teacher may be choosing to rely on the materials to guide instruction without departing from the guidance in any significant way, but even in this situation, the teacher must do quite a bit that the curriculum materials cannot do for the teacher in order to actually translate the guidance into instruction. For example, a teacher can structure a whole-class interaction according to the guidance provided in the lesson plan, but even then, the plan cannot fully guide the work of responding to particular students' contributions or questions. Regardless of whether the teacher is offloading, adapting, or improvising with the curriculum materials, the work of translation is required in order to convert the curriculum's lesson designs into instructional interaction.

Mobilizing and Adapting Curriculum Materials: Forbes and Davis's (2010) Curriculum Design for Inquiry Framework

Forbes and Davis (2010) expanded on Brown's (2009) offload-adapt-improvise framework to develop a framework that characterized how teachers used curriculum materials to plan inquiry-based science lessons. In their study, they used this framework to analyze science lesson plans developed by preservice teachers. Building on Brown's scale, Forbes and Davis developed a framework with three dimensions:

- a dimension pertaining to the extent of adaptation of curriculum guidance (which is comparable to Brown's offload-adapt-improvise scale);
- a dimension pertaining to mobilization of curricular resources (i.e., a scale which indicates whether preservice teachers were working with one set of curriculum materials or were mobilizing multiple sources of guidance in the design of their lessons); and
- a dimension pertaining to the inquiry orientation of the design decisions (i.e., a scale that indicates whether adaptations made the lesson more or less inquiry oriented than the curriculum guidance they were using).

Contributions and limitations of Forbes and Davis's (2010) curriculum design for inquiry framework. By adding these additional dimensions to Brown's framework, Forbes and Davis not only expanded the utility of the framework to include situations in which teachers were working with more than one source of curriculum guidance, but they also expanded the model to indicate the extent to which teachers' ways of working with the details of the guidance, such as the steps in the lesson plan(s) they were using to design lessons, were consistent with a form of "bigger picture" guidance. Specifically, this framework measured whether preservice teachers' lesson plans reflected guidance pertaining to inquiry-oriented instruction, which was

provided through preservice teachers' methods coursework and is articulated in science education reform documents. Although this framework was designed to be used for inquiry-oriented science instruction, presumably the "inquiry orientation" dimension of the framework could be applied to represent other kinds of high-level guidance as well (e.g., guidance pertaining to inquiry-oriented instruction in other disciplines).

Forbes and Davis's (2010) framework is similar to Brown's in that it focuses on primarily on teachers' instructional design decisions rather than on the work involved in using guidance from curriculum materials in instructional interactions. Indeed, Forbes and Davis (2010) used this framework to analyze preservice teachers' lesson plans—they did not attempt to investigate how preservice teachers' actual instructional interactions would have looked in terms of these dimensions (particularly dimensions of adaptation and inquiry orientation). The possible differences between teachers' plans and instruction, which are not captured in this framework, may be significant. Furthermore, even if teachers stay close to their plans in instruction, the work teachers do when translating their plans into instructional interaction encompasses much more than what can be written in their lesson plans. The concept of translation, which focuses more squarely on the work of using guidance in instructional interaction, is intended to describe this specific aspect (i.e., use of curriculum guidance in instructional interaction) of teachers' curriculum use.

Remillard's (1999) Concept of Curriculum Mapping and Studies of Curriculum Coverage

Much of the literature that focuses on teachers' interactions with curriculum materials focuses at the lesson level—attempting to describe what teachers do with the guidance as they teach lessons as well as what factors influence their decisions. However, Remillard (1999) also focuses on a longer-term aspect of curriculum use, a process she calls "curriculum mapping."

She explains that curriculum mapping is an arena of teachers' curriculum use that "involves making choices that determine the organization and content of the curriculum" over the course of the school year (p. 322). In other words, curriculum mapping concerns decisions about how to organize and sequence work on various parts of the content across the school year, including how to much time to allocate to different parts. Remillard argues that curriculum mapping is an area that requires less interpretation than other aspects of teachers' curriculum use—in her study, it was relatively straightforward to determine when teachers had used the curriculum map provided in their textbook and when they had done something different. She also points out that teachers' curriculum-mapping decisions can be both conscious and unconscious; often, the ways in which lessons unfold end up leading to adjustments in teachers' curriculum maps.

Others have also alluded to this aspect of curriculum use by focusing on questions related to teachers' curriculum coverage. In a study of teachers' decisions about content and the factors that influence them, Floden, Porter, Schmidt, Freeman, and Schwille (1981) found that teachers reported that external pressures like tests and district objectives were stronger influences on their decisions about curriculum coverage than influences like what was contained in their textbooks. They also found that, even when external pressures made teachers feel obligated to add new topics to their curriculum, teachers were very reluctant to omit any of the topics they had already been teaching. This suggests that teachers might feel compelled to prioritize breadth over depth when making decisions about curricular coverage, which may lead to exposing students to content without supporting them in actually mastering it (Porter, 1989).

Even so, other research suggests that teachers' curriculum coverage is determined by both intentional decisions to prioritize some content over others as well as possibly less intentional factors, such as running out of time to teach the topics that are included at the end of

the curriculum. For instance, in an analysis of teachers' coverage of a middle school math curriculum, Tarr, Chávez, Reys, and Reys (2006) found that different teachers made different decisions about what to teach or omit. When reporting on the patterns of nine teachers who used a popular textbook series to guide their mathematics instruction, they found that all nine teachers omitted the final lessons in their textbook (possibly suggesting a less-intentional decision on the teachers' part) but that eight of the nine teachers also omitted content from the first half of the textbook, which suggests a more intentional decision on the teachers' part. They also found that teachers tended to spend much more time on some strands of mathematics content than others.

Implications of studies of curriculum mapping and curriculum coverage for developing the concept of translation. Like many others who study curriculum use in teaching, I am conceiving of and studying teachers' translations of curriculum primarily at the lesson level. However, curriculum translation could also be thought of on a larger scale—that is, translation of a unit or an entire curriculum. Examining teachers' translation of a curriculum program at both the lesson level as well as at the unit level or level of the entire school year could provide insight into the ways in which teachers' daily translations relate to their longer-term work of curriculum mapping or curriculum coverage. I explore this relationship in Chapter 5 of this dissertation, which focuses on how teachers' lesson translations reflected higher-level guidance provided by Project PLACE, including guidance for the time frame in which the Project PLACE curriculum was to be taught.

The Theory of Instruction That Underlies This Study

The literature I have reviewed up to this point has put the relationship between the teacher and curriculum materials in the foreground; it focuses on describing how teachers use curriculum materials in planning and instruction and the factors that influence teachers'

curriculum use. Because my study is focused on what is involved in translating curriculum materials into *instruction*, however, it is also important to consider research that puts instruction—rather than the teacher-curriculum relationship—in the foreground. Indeed, it is helpful to consider the nature of instructional practice itself in order to understand the role guidance from curriculum might play in instructional practice.

In the next section, I describe the theory of instruction that underlies this study, and I highlight some characteristics of instruction that seem particularly relevant to questions about what is involved in translating guidance from curriculum materials into instruction. Specifically, I argue that instruction is inherently interactive, and therefore it requires the exercise of professional judgment and improvisation. While instruction isn't completely context dependent, it also cannot be fully specified from the outside. This is the reason why, as I argued in the previous chapter, guidance from curriculum materials is never "enough" and is never completely appropriate for the particular instructional situations in which teachers are using it.

Instruction as Interaction

When considering the role of curriculum materials in instruction, it can be tempting to think of the guidance in the curriculum as representing the things that teachers should say or do to students to help them learn. This view assumes a relatively linear view of instruction—teachers say and do things *to* students to promote student learning. However, this dissertation is based on a more complex view of instruction—the view that instruction consists of a stream of interactions among teacher and students around content that happen within environments over time (Cohen, Raudenbush, & Ball, 2003, see Figure 2.2; see also Lampert, 2001).

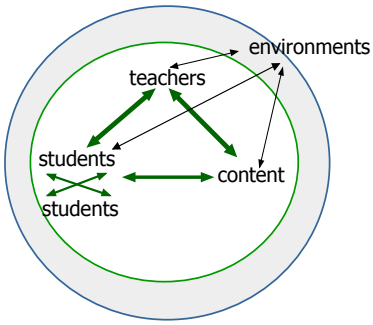

Figure 2.2 Model of instruction as interaction
Adapted from "Resources, Instruction, and Research," by D. K. Cohen, S. W. Raudenbush, & D. L. Ball, 2003, *Educational Evaluation and Policy Analysis, 25*(2), p. 124.

According to this view, all of the elements in the system—students, teachers, the content being focused on in the classroom, and environments in which the classroom is situated—have ongoing interactions with one another that shape the learning that happens in the classroom over time. To offer an illustration of a few of the many kinds of interactions involved in instruction: if a teacher wants to help students learn a disciplinary practice, such as how to write a persuasive essay, she says and does things in the classroom (e.g., assigns tasks, explains or models the practice, offers feedback on student work, and so forth) that shape the ways in which her students interact with this particular content in order to help them learn it. The actions she takes, however, are also inevitably shaped by the other elements of the system: her own understandings of the practice of writing persuasive essays and what constitutes "quality" in a persuasive essay (which is depicted by the teacher/content relationship in the diagram), as well as her perceptions of her students (both as individuals and as a group) and how they seem to be doing with the content as she works with them on it over time (which is represented by the teacher/student relationship in the diagram). Students' experiences are also shaped by their interactions with their peers (e.g., their observations of their peers' contributions in class, possibly their opportunities to see examples of their peers' work or to work with their peers, and so forth).

The actions the teacher takes are also shaped by her interpretations of elements of the broader environments in which her classroom is situated. These elements might include, for example, the teacher's interpretations of how the content is represented in the curriculum, her understanding of whether and how this content will be assessed on standardized tests, and her perceptions of what school administration and the students' families value, to name a few. Thus, the actions the teacher takes to get the students to connect with the content in ways that will help them learn it are continually being influenced by her interpretations of the content, students, and environments in which she is working.

Implications for curriculum translation. The theory of instruction I have described above—which is consistent with theories of the teacher-curriculum relationship (such as the framework presented in Remillard, 2005) but which puts the interactive nature of instruction in the foreground—highlights a few ideas that have implications for understanding curriculum translation. First, according to this theory, guidance contained in curriculum materials is an element of the teacher's environment—a source of guidance that can shape the interactions she has with students around content. While the curriculum can have an important influence on the interactions within the instructional triangle, it is certainly never the *only* influence. Indeed, all of the other elements of the triangle (as well as other elements in the environment) will play a role in shaping what the teacher does with the guidance from the curriculum in instruction.

This theory of instruction—which depicts the elements of the instructional triangle as being connected by bi-directional arrows—also highlights the role of interpretation in instructional interaction. As a teacher interacts with the other elements of the instructional system, her actions are based on her interpretations of all of these elements (including, but not limited to, her interpretations of the curriculum materials). These interpretations, which happen

moment-by-moment and over time, will influence the ways in which the guidance from the curriculum is translated into the stream of interactions that comprise instruction.

Features of Instruction That Influence How Curriculum Guidance Can Be Used

Within the larger frame of "instruction as interaction," several specific features of instruction are important to consider when seeking to understand the role curriculum guidance might play. While this list is far from comprehensive, these four features of the nature of instruction are relevant when considering how guidance from curriculum materials might fit into instruction:

- instruction requires professional judgment,
- instruction is bound by time,
- instruction involves improvisation, and
- instruction is not wholly context dependent.

After briefly describing each of these features of instruction, I explain some of their implications for considering what might be involved in curriculum translation.

Instruction requires professional judgment. As teachers work within the complex system of instruction described above—working to shape the interactions students have with content in ways that result in students' learning—it is important to note that they are required to exercise professional judgment and discretion. This is because, in the words of Ball and Cohen (1999), "teaching occurs in particulars—particular students interacting with particular teachers over particular ideas in particular circumstances" (p. 10). Because teaching occurs in a system of complex interactions among "particulars," teachers have to determine what is most appropriate or wise in each specific situation without being able to rely on anything outside of the situation to fully guide them. Even though teachers' decisions are certainly informed by knowledge or

guidance from outside of their specific situation, the moment-by-moment interactions teachers have with students in the classroom are dense with what Ball (2018) calls "discretionary spaces"—situations where the nature of the actions the teacher must take are so dependent upon the "particulars" that the teacher is required to exercise discretion when determining what to do (a process which can involve conscious decision making as well as simply relying on habitual actions to guide action in a particular situation). For instance, as Ball illustrates, the decision about how to respond to a student's contribution in a specific moment requires the teacher to take many "particulars" of the situation into account—including her interpretations of the content of the contribution and how it relates to the content being taught, the student and how she is positioned socially in the class, the other students and how they are positioned, what has come before and what is yet to come in the lesson, and so forth.

Many scholars have described this feature of teaching—and of professional practice more broadly—when making arguments about why theoretical or professional knowledge or technique is insufficient for fully guiding professional practice (Shulman, 1998; Schön, 1983). Schön (1983) says it this way:

> In the varied topography of professional practice, there is a high, hard ground where practitioners can make effective use of research-based theory and technique, and there is a swampy lowland where situations are confusing 'messes' incapable of technical solution. (p. 42)

In the "swampy lowland," not only do clear-cut, technical solutions not exist, but the nature of the problems themselves must be defined by the practitioner, as the practitioner makes sense of all of the "messy" particulars of the situation—including the technical, moral, and practical dimensions of the work. Furthermore, these situations can involve conflicts in values or goals

(Schön, 1983; Lampert, 2001; Lampert, 1985). When teachers (or professionals more generally) are faced with these kinds of problems of practice, they must act—all the while knowing that there is not a straightforward, technical solution. Managing these types of problems, therefore, requires the teacher to exercise professional judgment.

Implications for curriculum translation. The judgments the teacher needs to make will at times result in departing from the guidance contained in the curriculum, and at times they will also happen in the course of following the guidance. Because professional judgment is a defining feature of teaching practice, it is also an inherent part of the work of translating guidance from curriculum materials into instructional interactions.

Instruction is bound by time. One reason why it can be so difficult to manage problems of practice in teaching is because many of them must be dealt with in real time. Because classroom instruction is bound by time, the problems of practice that teachers face within a given lesson are urgent— while teaching a lesson, there is no time to pause to reflect or analyze the situation before determining next steps, nor are there opportunities to go back and undo something in instruction that has already been done (Lewis, 2007). As Lewis points out, the urgency with which teachers have to manage problems of practice is compounded by the fact that classroom teachers—unlike practitioners in some of the other professions—work with a large group of "clients" (i.e., students) at the same time. Thus, professional judgments must not only be made with regard to what will work best for each student as an individual but also with consideration to how to best support the learning of the group of a whole.

Instruction is also bound by time in the sense that the amount of instructional time available each day and each school year is fixed, which inherently limits what teachers are able to do with their students. Ben-Peretz (1990) acknowledges that time is a resource that places a

powerful constraint on teachers' instruction but that is often overlooked in educational research. In explaining why more attention is not given to the issue of time constraints, she quotes Fullan, who says: "Time is ignored because it is a problem that cannot be solved. There will never be enough of it" (Fullan, 1982, p. 69, as cited in Ben-Peretz, 1990, p. 61). The reality that instruction is bound by time means that teachers are not free to do everything that they think would be beneficial for their students' learning, nor are they able to pause to reflect or to revise what they have already done during their daily, real-time instructional interactions with students.

Implications for curriculum translation. The reality that instruction is bound by time means that part of teachers' translation work involves managing the limited resource of time—both within a lesson and on a larger scale. The reality that teaching occurs in real time also means the guidance provided to teachers may not be accessible to teachers during their actual interactions with students in the same way that it is accessible to them as they prepare for instruction. In other words, during their instructional interactions with students, teachers often will not have time to carefully read or analyze the plan to consider how they might proceed with the translation in light of what has already played out.

Instruction involves improvisation. Because instruction is interactive and happens in real time, another of its defining characteristics is that it requires improvisation. Borko and Livingston (1989) describe the improvisational nature of classroom teaching by using the metaphor of improvisational acting. They point out that, because improvisational acting involves being responsive to events that are unknown in advance (e.g., participation from the audience, the improvised actions of other actors), improvisational actors do not use a script; rather, they have general guidelines about the situation and their role. Within the bounds of these guidelines, they draw on a repertoire of routines to guide their actions while simultaneously being

responsive to the audience and the other actors as they perform. Borko and Livingston see this as a useful metaphor for teaching because, while teachers can enter the classroom with plans and instructional routines, they cannot script their instruction in advance but instead must interact with and be responsive to students to create the lesson that ultimately plays out.

Implications for curriculum translation. In the previous chapter, I explained that one meaning of the term "translation" is to convert something from one form or medium to another. In the case of curriculum translation, this involves converting a set of lesson steps (a form that in some ways resembles a script, even if it does not specify exactly what teachers should say) into instructional interaction, a form that inherently involves some level of improvisation.

Instruction is not wholly context dependent. If instruction is interactive and requires professional judgment and improvisation, does this mean that it is impossible for teaching practice to be guided or specified from the outside? Ball and Forzani (2009) acknowledge that there is indeed a "dominant contemporary view of teaching as highly improvisational and wholly context dependent" (p. 503), which implies that it is impossible for those outside a particular teaching situation to specify what teachers should do. However, Ball and Forzani, along with others, push back on this view. To counter the assumption that improvisational work must be invented on the spot, Lampert and Graziani (2009) explore what goes in to preparing people to participate in improvised activities. They then apply these insights to thinking about how to prepare preservice teachers for the interactive, improvisational work of teaching.

Lampert and Graziani (2009) describe how carefully designed instructional activities can specify certain parts of instruction: "how teacher, content, and diverse students would interact within work on authentic problems, how materials of instruction would be used, how the space would be arranged, and how the teacher would move around the room" (p. 493). By making

these elements of instruction stable for novices, they can then enable novices to rehearse the instructional activities with a focus on learning to do "the dynamic work of responding to student thinking" (p. 493). In other words, the "dynamic" parts of teaching—that is, those that required the most responsiveness and professional judgment—could be done *within* the more stable, prescribed parts of the instructional activity. In this way, the prescribed parts of the instructional activity would not conflict with teachers' need for flexibility in their instruction; rather, they would serve as a base from which teachers could learn how do the parts of instruction that required flexibility.

Implications for curriculum translation. The idea that instruction is not wholly context dependent suggests that curriculum materials can play a meaningful and useful role in guiding instructional interactions. Indeed, as I mentioned in the previous chapter, my view is that the quality of instruction is not inherently better if teachers develop instructional plans from scratch than if they work with lesson plans created by others. However, because instruction is inherently interactive and improvisational, the nature of the guidance provided will affect how usable it is in practice. If guidance is not designed to support the interactive and improvisational nature of instruction, it may be more difficult to translate into instructional interactions. Therefore, one goal of this study is to better understand the relationship between the guidance provided in the curriculum and the improvisational work teachers do as they teach.

Summary: Foundations for a Study of Curriculum Translation

The literature I have reviewed in this chapter provides important foundations for this investigation of teachers' translation of curriculum guidance and for further development of the concept of translation. As the literature overwhelmingly indicates, curriculum translation certainly involves adaptation—situations in which teachers depart from aspects of the guidance.

However, translation must also involve more than adaptation, and my goal is to contribute to the existing literature by highlighting other elements of the work involved in translating lesson-level guidance into instructional interactions. My dissertation also seeks to contribute insights into the ways in which teachers' translation of lesson-level guidance relates to the higher-level guidance provided by the curriculum. Existing literature has suggested that following lesson-level guidance does not necessarily result in accomplishing the larger vision of the curriculum, and this dissertation seeks to further explore how teachers' translations relate to the various types of guidance (both detailed and high-level) that are contained in the curriculum materials. In the next chapter, I explain how I went about investigating these ideas.

Chapter 3

Study Design and Methods

Introduction

To learn about how teachers translated guidance from curriculum materials into instruction, I set out to study cases of instruction in which teachers were using externally-developed lesson plans to guide their instruction and were attempting to stay relatively close to these plans. I could gain important insights into lesson translation by studying the teaching of different teachers who were translating the same lesson plans. By studying instruction in multiple classrooms in which the same curriculum materials were being used, I would notice more about translation than if I observed teachers who were drawing on guidance from a variety of different curriculum programs or who were primarily developing their own lesson plans.

I found a productive site for my investigation in the context of another research project—an experimental study of a project-based curriculum intervention and its effects on second graders' social studies and content-literacy learning. In this study, the teachers who had been randomly assigned to the experimental group were asked to teach a project-based, standards-based curriculum consisting of four highly detailed unit plans that were developed by the researchers. I thought that these teachers would be an interesting group of participants for my study—not only because they were provided with the same set of curriculum materials but also because they had agreed to follow them for the purposes of the experimental study they were participating in. Therefore, I knew that they would be using the lesson plans provided in the curriculum as the basis for their daily instruction.

Using this intervention study as the site for my own research, I was able to observe 64 lessons throughout the 2014-2015 school year, interview the six teachers who taught them, and collect other data that provided additional context for the instruction I observed. I considered each lesson I observed to be a case of translation of guidance from curriculum materials. These cases of translation were nested, in a sense, within teachers, all of which were nested within the context of the Project PLACE research study. When answering my research questions, I did make some observations about patterns that were specific to the teachers I observed, as well as about characteristics of specific Project PLACE lessons; however, this study is not primarily focused on making claims about teachers or a particular set of curriculum materials, but rather about the nature of curriculum translation itself. In this chapter, I describe the design of my study and outline the methods I used to collect and analyze these data.

Study Context: The Project PLACE Research Study

The instruction I investigated for this study occurred in the context of the Project PLACE research study (**P**roject-approach to **L**iteracy **A**nd **C**ivics **E**ngagement), conducted by Nell Duke and Anne-Lise Halvorsen (Duke, Halvorsen, Strachan, Kim, & Konstantopoulos, 2018). The goal of the Project PLACE study was to test the efficacy of project-based, social studies and content-literacy instruction. For this project, Duke and Halvorsen recruited pairs of second-grade teachers (specifically from schools with high percentages of low-SES students) and then randomly assigned one teacher to use a project-based curriculum and the other to continue teaching as he or she had in the past. Students from each of these classrooms were tested at the beginning and end of the year to investigate the effects of the project-based curriculum on their social studies and content-literacy learning as well as their motivation.

To enable teachers in the experimental group to provide the same project-based intervention to their students, Duke, Halvorsen, and their research team designed four instructional units that embodied central features of a project-based approach to instruction. Specifically, these units were designed such that

1. students would work on a project over an extend period of time (i.e., the project would be the curriculum rather than a supplement to the curriculum);
2. students would work on the project for a "real-world" purpose rather than a "school" purpose (i.e., to meet a need in the community—not to earn a good grade);
3. students would create products for an authentic audience (i.e., audience outside of teacher or school, e.g., community members);
4. students would work on multiple content areas at the same time;
5. students would get some level of choice, autonomy, and responsibility in terms of how to go about the project.[12]

The Project PLACE curriculum was interdisciplinary—designed to address virtually all of the social studies content standards for second grade as well as ELA standards pertaining to content-area literacy. The curriculum contained four units:

1. Economics and Literacy Project: Producers and Producing in Our Community,
2. Geography and Literacy Project: Brochure about the Local Community,
3. History and Literacy Project: Postcards about the Community's Past, and
4. Civics and Government and Literacy Project: The Park/Public Space Proposal Project.

Teachers in the experimental group were asked to teach these units in place of their "business as usual" social studies lessons.

[12] This list of criteria was presented and explained in the introductory Project PLACE Professional Development session.

When developing the Project PLACE curriculum, Duke and colleagues not only designed it around the principles of project-based instruction listed above, but they also designed it so that the projects "included explicit instruction, involved domain-specific research-supported instructional practices, and were closely aligned to standards" (Duke et al., 2018, p. 17).

Project PLACE Curriculum Materials

Session plans. To support teachers in teaching these units, the Project PLACE research team developed highly detailed unit and session[13] plans (See Appendix A for an example of a session plan). Each unit plan originally included 20 sessions; however, the research team ultimately provided shortened versions of the third and fourth units (i.e., a 12-session version of the history unit and a 11- or 6-session version of the civics unit) to accommodate teachers who were not able to make enough time in their schedules to teach all 80 sessions. Each session typically followed the same three-part format:

1. whole group instruction and discussion (meant to last roughly 10 minutes),
2. guided small group or individual instruction (meant to last roughly 20-30 minutes), and
3. whole group review and reflection (meant to last roughly 10 minutes).

These sessions were designed to build on one another to support students' work on a long-term project that that would culminate at the end of the unit.

The session plans were written in a fairly conventional format for elementary-level curriculum materials. Each plan included

- session objectives;
- a list of academic standards that the session was designed to address;

[13] Project PLACE referred to daily lessons as "sessions" to highlight that they may seem different from what might traditionally be thought of as a "lesson" (in that they included quite a bit of independent and group work on a longer-term project, for example). In this dissertation, I use the words "session" and "lesson" interchangeably.

- a list of materials needed for the session;
- a sequence of detailed lesson steps, written in a numbered list and divided into the three lesson segments (whole group instruction and discussion, guided small group or individual instruction, and whole group review and reflection);
- a list of vocabulary words that were relevant to the lesson and "child friendly" definitions of these words; and
- sidebars that included instructional tips or other suggestions.

Unit plans. In addition to the session plans, each unit plan contained introductory information about the project, including an abstract, information about the format of the sessions, information about bulletin boards that teachers were to construct in their classrooms throughout the unit, suggestions for "teaching during transitions," and instructions for things to do before the teaching the unit. Comprehensive lists of the academic standards and vocabulary words and definitions that were relevant to the unit were also included. A template of a letter to send home to families was also included in some of the unit plans.

Student materials. Materials for students were provided with each unit, including handouts and student texts. Other instructional materials, such as posters and historical artifacts, were also included.

No student assessments were included in the curriculum materials, nor was there specific guidance for teachers about how to assess students' work. Due to the nature of the experimental design of the study, teachers were not allowed to see the pre- or post-assessments administered by Project PLACE to determine the efficacy of the intervention. In the introductory professional development session, the Project PLACE team explained that teachers could develop their own assessments as needed.

Features added to the history and civics units. I was not involved in the development of the Project PLACE materials; however, as I began collecting data, I became curious about how teachers might interact with certain features that were not originally included in the materials, such as rationales for lesson activities.[14] I also wondered whether adjustments in the formatting of the lesson plans might change the ways in which teachers interacted with them. So, in the third and fourth units (history and civics), I collaborated with the Project PLACE research team to make some adjustments. We added

- rationales for selected lesson recommendations (including rationales related to an activity's importance for the overall project, principles of project-based learning, and the academic standards/learning goals the activity was designed to address);
- recommendations to help teachers facilitate activities in ways that would support students in being able to work on them productively without doing key parts of the work for students (Note: These supports were generally coupled with supports that explained the instructional point of the activity and were sometimes phrased as "contingency scripts", see Remillard & Reinke, 2012);
- brief headings for each recommendation in the lesson plan (bold and highlighted in gray); and
- a unit overview sheet, which listed each of the lessons in the unit, their objectives, and a brief description of what students would be working on during each lesson.

The Project PLACE research team incorporated these changes into the versions of the history and civics units that they distributed to teachers in the study. (The example lesson plan in Appendix A includes these features.) As far as I know, based on my interactions with teachers

[14] Rationales for lesson activities are one type of feature that Davis and Krajcik (2005) and Ball and Cohen (1996) recommend as being educative for teachers.

about these additional features during interviews, teachers were not aware that I had a role in developing these features.

Characterizing the Project PLACE curriculum according to Ben-Peretz's (1990) curricular distinctions. Ben-Peretz (1990) outlines four types of curricular distinctions that can be used to characterize specific curriculum programs and the situations in which teachers use them:

1. mandated versus open (self-initiated) curricula;
2. structured, sequential versus unstructured, modular curricula;
3. detailed versus general curricula (with detailed curricula including recommendations for things such as time allocations and instructional strategies); and
4. the anticipated period of teaching time covered (i.e., ranging from one or two lesson periods to an entire school year or multiple years).

For the teachers I observed, the Project PLACE curriculum was mandated (aside from the fact that teachers agreed to participate in the study), and teachers' implementation was monitored relatively closely. The Project PLACE curriculum could also be characterized as "structured, sequential." All four units were designed to be taught in a particular sequence, and the lessons within each unit built on one another and therefore were designed to be taught in the sequence that was provided in the unit plans. The guidance contained in the lesson plans was detailed—it included recommendations for time allocations and specified instructional strategies, tasks, and representations of content that should be used. The Project PLACE curriculum was also intended to cover a lengthy period of time—80 lessons in total, which teachers were advised to teach over the course of the school year, 3-4 lessons per week.

Professional Development and Coaching Provided by Project PLACE

Introductory professional development. In addition to providing teachers with curriculum materials, Project PLACE also offered professional development and coaching to support the implementation of the Project PLACE units. All experimental group teachers participated in a three-hour introductory professional development session that introduced the research study, project-based approaches to instruction, the Project PLACE curriculum, and the first unit. In this session, teachers also learned about the nature of assessments that would be used at the beginning and end of the study; however, they were not given access to the assessments themselves.

In this introductory professional development session, the researchers/curriculum developers explained the rationales behind many of the design features of the curriculum—including the five features of project-based instruction that they had outlined and how they differed from more conventional elementary-grades instruction. Their rationales were often connected to findings from research on teaching and learning. For instance, they explained that research suggested that students produce higher-quality writing when they are writing for authentic audiences as opposed to writing for school assignments where their teacher is their primary audience. The Project PLACE researchers/developers also explained that the lessons included quite a bit of small-group learning time as well as reflection and review times at the end of each lesson because research had shown these types of activities to be effective for student learning.

Webinars. In addition to the introductory professional development, teachers also had access to webinars (each less than an hour) that were designed to orient teachers to each unit (other than the economics unit, which was introduced in the face-to-face professional

development). These webinars focused primarily on introducing the project for the unit and outlining the academic standards the project was designed to address. In the webinars, the curriculum developers interpreted several of the standards that were addressed in the unit and described how different activities in the unit would provide opportunities for work on those standards.

Some of the teachers in my study reported watching the webinars and finding them to be helpful as they prepared for each unit, but others reported that they did not watch the webinars—either because they did not find them to be helpful or because they didn't know about them. Teachers who did not find the webinars to be helpful explained that the lesson plans themselves provided them with all of the information they needed to teach the lessons.

Instructional coaches. In addition to the professional development session and webinars, each teacher also had access to an instructional coach (a research assistant who also observed him or her to assess fidelity of implementation to the intervention). These coaches, most of whom were graduate students and all of whom were former teachers, observed multiple times per unit. They monitored teachers' curriculum pacing and ensured they had the materials they needed. At times, coaches also gave feedback on implementation (e.g., encouraging teachers to attend to aspects of the guidance that they had missed or modified). Three of the six coaches working with the teachers who were participants in my study also helped arrange logistical elements of the units (e.g., helping plan a field trip or recruiting a community member to visit the class).

The Project PLACE team encouraged teachers to reach out to their coaches for support when they needed it; some teachers did this somewhat frequently while others rarely consulted their coaches at all. When teachers did initiate contact with their coaches, they usually did so to

ask questions about the instructional materials (e.g., materials that seemed to be missing) or to check to make sure that certain adaptations or ways of carrying out the lesson plans would be permissible in terms of implementation. They also asked coaches for examples of what the final products of the project should look like or ideas about how to carry out elements of the project that were not specified in the curriculum materials (e.g., ideas about what good their class might be able to produce for the economics project). One teacher also sometimes consulted his coach on instructional matters (e.g., how to group students for small group work). Most of teachers' interactions with coaches happened in brief check-ins before or after a lesson and via email.

Why Is This a Good Site for Exploring My Research Questions?

As I mentioned at the beginning of this chapter, I chose the Project PLACE study as the context in which to explore my research questions for several reasons. First, teachers were teaching the same grade level and content, using the same curriculum, and working in somewhat similar environments (i.e., serving populations of students that had certain similarities and teaching in schools whose administrators supported their participation in the study, at least enough to allow them to participate). By holding these elements somewhat constant, I could focus on the parts of translating the curriculum guidance that were not related to variation in these areas. Furthermore, teachers had agreed to follow the curriculum materials. Based on my understandings of curriculum use from existing research, I did not expect this to mean that teachers would not adapt or depart from the guidance, but the fact that teachers had agreed to work closely with the lesson plans meant that their instruction would provide relatively clear-cut cases of curriculum translation.

There are certainly limitations involved in exclusively using examples from Project PLACE to investigate curriculum translation (which I discuss at the end of this chapter), but

because my goal was to develop a theory of translation rather than to test it (Eisenhardt & Graebner, 2007), I determined that the benefits outweighed the limitations. Indeed, to develop a theory of translation of curriculum guidance, I wanted to focus on cases in which I knew the teachers would be (more or less) attempting to translate the guidance from the lesson plan (rather than, for instance, taking some ideas and materials from the curriculum and using them as resources for designing their own lessons). Therefore, using the Project PLACE research study as the context for my study kept me closer to the phenomenon that I was trying to study than other contexts might have.

Study Design and Methods of Data Collection

Study Participants

Participant selection. To investigate my research questions, I recruited some of the teachers who were in the experimental group of Project PLACE to serve as participants in my study. I originally planned to survey all teachers in the experimental group throughout the year and then select 4-6 participants from within that larger group to video-record and interview. I planned to use teachers' responses to an introductory survey to select a group of "focal participants" that included purposeful variation (Merriam, 2009). However, because I did not receive permission to recruit teachers from all of the districts that were participating in Project PLACE, I was not able to carry out this two-level study design.

In the four districts where I did receive permission to recruit, there were seven teachers in the experimental group of Project PLACE. Six of the seven agreed to be participants in my study (See Table 3.1). These six participants were similar across several dimensions: all were experienced teachers who were interested in learning about project-based instruction but did not have much (if any) experience with it. All participants were also White teachers who taught

racially and ethnically diverse groups of children. Although participants taught in communities of different sizes, all schools were in somewhat industrial, blue-collar areas. These schools were selected for participation in the Project PLACE study because they were served "communities with a high proportion of children of poverty and a history of low student achievement in social studies, reading, and writing" (Duke et al., 2018, p. 30).

Table 3.1
Study Participants

Pseudonym	*School district/ Community*	*Years of teaching experience*	*Years teaching 2nd grade*	*Familiarity with PBI prior to the intervention*	*"I would like to learn more about how to use PBI in my classroom"*
Ms. Brevard	Medium-sized city, District A	7	2	Not familiar	Agree
Mr. Costa	Suburban city, District B	9	3	Had heard of approach but didn't know much about it.	Agree
Ms. Foster	Medium-sized city, District C	15	1	Had heard of approach but didn't know much about it.	Strongly agree
Mr. Kopp	Suburban city, District B	14	11	Somewhat familiar	Agree
Ms. Parrish	Suburban city, District B	7	1	Had heard of approach but didn't know much about it.	Strongly agree
Ms. Rawski	Small city, District D	16	13	Had heard of approach but didn't know much about it.	Strongly agree

Participant profiles. Based on the introductory survey as well as the subsequent surveys and interviews, I was able to learn quite a bit about the participants in my study, including their perspectives on project-based instruction (both prior to and throughout the course of the study) as well as their perceptions of the teaching contexts in which they worked. I also gathered some information about other characteristics of participants—such as their pedagogical content knowledge related to the content of the curriculum—by observing their instruction and discussing it with them afterwards.

The goal of my study was not to determine how particular characteristics of the teachers or their teaching situations influenced the nature of their translations—characteristics such as teachers' attitudes towards project-based instruction or the extent to which the Project PLACE curriculum aligned with other priorities at their schools. However, because curriculum-use research emphasizes that these kinds of characteristics do influence (and are influenced by) the ways in which teachers interact with the guidance in curriculum materials (Brown, 2009; Remillard, 2005), I found it useful to gather data about characteristics of the teachers and their environments to provide context for my analysis of teachers' translations. Collecting data about some of the similarities and differences among teachers was useful because, while I was not able to select participants with purposeful variation in mind, this contextual information about participants did suggest that there were meaningful differences among them that would be valuable as I sought to gain insights about translation that would be applicable across teachers or contexts. Brief profiles of each of the six participants follow.

Ms. Brevard. Ms. Brevard was not at all familiar with project-based instruction at the beginning of the study. By the end of the first unit, though, she was enthusiastic about the approach and the fact that it was more "hands-on" than what she did with her students using her previous social studies curriculum. She explained that, with PBI, her students were able to "actually put the ideas that they're learning to work." She also acknowledged that PBI was more time consuming than what she had done previously, and she admitted that if she were not participating in the Project PLACE study, the Project PLACE units would probably not have been as high a priority in her weekly classroom schedule. By the end of the year, Ms. Brevard stated that, although she and her students liked some Project PLACE projects better than others, she generally thought that PBI was "a great way to teach," and she planned to teach the Project

PLACE units again in the future. Although Ms. Brevard did not talk much about her school context in her interviews, she did seem to suggest that her principal was supportive of her involvement with Project PLACE.

Mr. Costa. Prior to his participation in Project PLACE, Mr. Costa reported having a little bit of experience using projects in his science teaching. However, the projects in the Project PLACE units were much more extensive than the projects his students had done in the past. By the end of the first unit, he saw PBI as "more fun to do and more real-world applicable" than other approaches to instruction, but he also thought that it was a difficult approach to use with students who struggled academically or who lacked the ability to work independently or in small groups. He was also concerned about the amount of instructional and planning time that PBI required. Throughout the year, Mr. Costa was concerned about balancing his commitment to Project PLACE with obligations to teach other subjects that were high priorities at his school. By the end of the year, he seemed ambivalent and somewhat skeptical about the Project PLACE curriculum, saying that it was "better than nothing" but that there were other available resources that "teach these same skills that aren't project-based and that [are] much more streamlined." When I asked him if he would teach the curriculum again, he said that it depended on what the results were (i.e., student test scores) and what curriculum his district mandated.

Ms. Foster. As soon as Ms. Foster was introduced to the Project PLACE curriculum, she was extremely enthusiastic about teaching it and using a project-based approach more generally. At the end of the first unit, she described how motivating it was for students to have a "really cool thing at the end" to work toward throughout the unit. She also felt that PBI was "really good for all the different levels of students that you have in a classroom." In later interviews, Ms. Foster acknowledged that she was not the strongest writing teacher and she explained that the

Project PLACE materials were helping her find better ways to teach writing. She also liked that students' writing for Project PLACE was intended for an audience outside of school; she acknowledged that this helped make writing assignments more meaningful for students. However, like other teachers, Ms. Foster struggled to balance her teaching of the Project PLACE curriculum (which took much longer than recommended in her classroom) and the other school subjects. Even so, at the end of the year, Ms. Foster was looking forward to teaching the units again, and she mentioned that, even if she ended up teaching a different grade level, she would try to modify them so that they would work for that grade level.

Mr. Kopp. Mr. Kopp, who also taught in Mr. Costa's school district, had some similar concerns as Mr. Costa about Project PLACE (and PBI more generally); namely that it was time consuming and hard to balance with all of the other important things he needed to teach—especially for students who were reading below grade level. In general, however, he was positive about PBI as an approach, noting the benefits of writing to "a real audience," going through the "process of figuring out what you need to make some kind of product," and using "teamwork." Throughout the year, he described a tension between wanting his students to be able to experience PBI and needing to spend instructional time on other priorities. He hoped that, in the future, he could manage this tension better by using pieces of the Project PLACE units but not teaching the entire units as written.

Ms. Parrish. Ms. Parrish, who had previously served as a literacy coach in her district and who was confident about her teaching, had a positive impression of PBI at the beginning of the study but had never tried it herself. When I asked her what she thought about PBI at the end of the first unit, she praised the Project PLACE materials, saying:

> It's so much easier that I thought it was going to be. I know it was because someone broke it down into steps and had taken time to do their research and try it on other people before they handed it to me, but that's what I needed to get started. We've been told before. I can recall sitting in meetings and being told by the higher ups "project-based learning, that's the way you need to go" . . . but nobody does it because nobody ever takes the time to sit down and plan it out and find all the meaningful pieces and "how can I integrate the literacy?" or everything that the Project PLACE people did. So just to be able to have it handed to me was, "okay, I can do this because somebody already did all the leg work."

She went on to explain that she appreciated that PBI included an authentic purpose or goal for students' work as well as ties to the community. Throughout the year, she seemed enthusiastic about the Project PLACE units, and even though she was in the same district as Mr. Costa and Mr. Kopp, she did not express the concerns about time constraints and conflicting priorities that they did. At the end of the year, however, she did say that she would only be able to teach the units again if she had explicit permission from her administrators, explaining that teachers in their district had very little autonomy in terms of the curriculum programs they could use.

Ms. Rawski. Like Ms. Parrish, Ms. Rawski had also held instructional leadership roles in her district, including work as a literacy specialist. She began the year interested in PBI but a little concerned about the amount of small-group work it might involve. Once she started teaching the units, though, she was generally positive about them. At the end of the year, she explained that she thought PBI was more meaningful for students because it "gives them something to work towards" and be proud of. She also said that she appreciated that Project PLACE had designed the projects, rather than leaving it up to the teacher or students to create

them. At the end of the year, Ms. Rawski was looking forward to using the Project PLACE materials again the following year.

Another notable detail about Ms. Rawski was that she was experienced with the Lucy Calkins Writing Workshop framework (Calkins, 1994), and she used this structure regularly with her class outside of Project PLACE lessons. Ms. Rawski found that, because the writing activities in the Project PLACE lessons were structured in ways that were similar to Writing Workshop, both her and her students' experience with Writing Workshop prepared them well for the writing activities contained in the Project PLACE curriculum.

Participants' approaches to reading Project PLACE guidance. Another source of variation among participants that I observed throughout the course of the study—through lesson observation and post-lesson interviews—was participants' approaches to reading the Project PLACE curriculum materials. As could be expected based on findings of existing research (see Sherin & Drake, 2009 for a review of some of this research), there were differences in how and when participants read the materials. All teachers reported reading the lesson plans carefully before teaching, but they differed in the ways that they accessed them during instruction. Mr. Kopp, Ms. Rawski, Ms. Parrish, and Mr. Costa typically kept the lesson plans in front of them during the whole-class parts of instruction and referred back to the plans at times as they interacted with students. Generally, Ms. Foster and Ms. Brevard seemed to refer to the lesson plans less often than the other teachers during instruction, often relying on their memories of the guidance rather than referring back to the written guidance itself.

In post-lesson and post-unit interviews, I also asked teachers about whether they used the parts of the lesson plans besides the lesson steps, such as the standards and lesson objectives. Generally, teachers reported skimming or reading these (though I am not sure how much

attention they paid to them), although Ms. Parrish made a comment at one point that she didn't read them because she trusted the lesson plan to reflect them. Ms. Rawski, on the other hand, seemed more attuned to the standards than some of the others, sometimes commenting on how she liked the curriculum because it was able to address so many standards in such a natural way. Most teachers reported finding the lesson objectives to be helpful as they prepared for teaching the lesson, although some indicated that the details of the plans themselves were what they paid the most attention to.

Summary. There were many similarities among the participants in my study, but there was also meaningful variation. Although all participants were at least reasonably interested in project-based instruction at the beginning of the school year, some were much more enthusiastic about Project PLACE than others as the year progressed. Ms. Parrish and Ms. Foster were incredibly enthusiastic about Project PLACE throughout the entire duration of the study, and Ms. Rawski became enthusiastic about it once she began to teach it and realized that some of her initial concerns had been unfounded. Others, particularly Mr. Kopp and Ms. Brevard, liked the curriculum but thought that it was difficult to use within the constraints of their teaching situation. Mr. Costa was the only teacher in the study who repeatedly expressed doubts about whether the Project PLACE curriculum—and the project-based approach it reflected—was a good way to meet his students' needs.

Participants also differed in the ways in which they read the guidance provided by Project PLACE; some seemed more attuned than others to both the details in the guidance and the high-level guidance, such as the academic standards. Four of the six typically consulted the lesson plans during instruction, but two (Ms. Brevard and Ms. Foster) generally did not. Although I didn't systematically investigate the effects of these differences on teachers' translations, I was

aware—based on what I knew from existing research as well as on what I observed—that these differences affected the ways in which teachers translated guidance from the curriculum materials.

My relationship with participants. Although my study was conducted in the context of the Project PLACE study, I myself was not a member of the Project PLACE research team. I did not play a role in developing the curriculum units (other than adding additional supports to the history and civics units), nor was my research connected to the experimental study itself. Therefore, I tried to position myself, when observing and interviewing teachers, as an observer who was independent from Project PLACE. I assured teachers that, unlike their Project PLACE coaches, I was not concerned about the extent to which they implemented the curriculum with fidelity—rather, I was interested in understanding all of the work they had to do to teach the Project PLACE units in their classrooms, and I was interested in understanding how the design of the curriculum materials supported this work (or not). I assured teachers that the data I collected for my study would be confidential, and I would not share it with the Project PLACE research team. When working with teachers, I tried to also position myself as a fellow teacher who was familiar with the complexities and challenges of teaching and who was not attempting to make judgments about how they were managing this work in their classrooms. In instances in which teachers did express to me that they were unhappy with a particular decision they had made or with the way a particular part of a lesson played out (which happened regularly, particularly with certain teachers), I tried to maintain an empathetic and supportive stance.

How my identity may have shaped my relationships with participants and my research. My relationship with my participants as well as my interpretations of the data were certainly also shaped by my own identity as a researcher. As a former elementary school teacher

who taught in school settings similar to the ones I was observing, I could relate to the participants in my study in many ways. However, I was also sometimes surprised by the ways they viewed and approached their work that were different from how I had viewed and approached my own teaching. In post-lesson interviews, I sometimes found that particular assumptions I had made about teachers' perspectives were wrong, and I tried to make sure to conduct the interviews in ways that allowed me to learn about their perspectives without revealing my own. In general, I tried to refer to my own perspectives and experiences as an elementary school teacher only when I thought they would help me reflect or relate to perspectives or experiences that my participants shared in their interviews.

As a White, middle-class woman, I shared aspects of the social identities of the teachers I observed (as all teachers were White and middle class and four of the six were women), which may have influenced the nature of our relationship and interactions. As a doctoral student and researcher, I may also have been seen as an "outsider" in some ways, which may have also influenced what teachers did or didn't share with me during interviews as well as potentially how they taught when I observed.

Data Sources

Throughout the 2014-2015 school year, I collected multiple types of data, including

- Video-records of Project PLACE lessons,
- Post-lesson interviews with teachers,
- Post-unit interviews with teachers, and
- Surveys and lesson logs (including an introductory survey, pre-unit surveys, and post-lesson logs, which teachers completed 3-5 times per unit).

The purpose of collecting lesson video data was to enable me to investigate how teachers translated the guidance from the Project PLACE curriculum materials into instruction. The purpose of the survey, log, and interview data was to provide information about the decisions the teachers made when working with the Project PLACE materials, relevant context and background information, and teachers' opinions about the Project PLACE materials and Project-Based Instruction more generally. Some of the survey, log, and interview data I collected (e.g., data about teachers' opinions of the materials) was for the purposes of the larger study rather than to answer the research questions I focus on in this dissertation, but the interview data pertaining to teachers' translations was useful for providing additional context for what I saw in the lesson video and to provide information about parts of the teachers' translation of the curriculum that I did not directly observe.

In addition to the observation, interview, and log data I collected from teachers, I also collected data about the specific supports teachers had received for teaching Project PLACE units, including artifacts (e.g., unit plans, e-mails between teachers and instructional coaches), videos of professional development sessions and webinars, and coaching logs in which Project PLACE coaches summarized the kinds of support they offered to teachers throughout the year. Although my goal was to collect data from coaches that would give me a relatively complete picture of their interactions with teachers, the data I ended up collecting from coaches was uneven, and I assume that it was incomplete.

To compensate teachers for their participation in the study, each teacher received $75 for each lesson observation and post-lesson interview and $100 for completing the pre-unit survey, 3-5 lesson logs, and the post-unit interview for each unit.

Sampling decisions during the data collection phase. During the 2014-2015 school year, I attempted to observe each teacher 10-12 times. I was able to do this for every teacher except Mr. Kopp, whom I was only able to observe six times. When scheduling observations with teachers, I tried to gather data on different kinds of lessons, including

- Lessons from each of the four units (because different projects and content might involve different demands for translating);
- Lessons from the beginning, middle, and end of a unit (because lesson translations that occurred later in a unit might be affected by how the earlier part of the unit had unfolded, while the first lesson of the unit might be able to be translated more easily);
- Lessons that involved different kinds of student activities (e.g., writing, reading, working on a handout) and participation structures (e.g., independent work, small group work); and
- Lessons that involved a range of teaching practices (e.g., introducing new content, modeling, leading a whole-class discussion).

When scheduling observations, I also prioritized being able to watch the same Project PLACE lesson being taught in multiple classrooms. This was because I was particularly interested in seeing how different teachers working within different classroom situations translated the same lesson plan.

Description of Data Collection

Lesson observations. I used a digital video camera to record the lessons I observed. Although I tried to capture as much of the classroom as possible, I focused primarily on the teacher, attempting to gather a full picture of the teacher's interactions with students throughout the lesson. This was partly a practical decision, as some students' families had not given them

permission to be video recorded, so I was trying to keep their faces out of the camera, and partly because I was primarily interested in the work the teacher was doing during the lesson. This decision had limitations, though, because it certainly put the teacher's actions in the foreground and may have made some of the interactions between teacher and students harder to observe (Erickson, 2006). Indeed, teacher-student interactions were sometimes difficult to capture—especially when a teacher conferred privately with a student or when the teacher circulated while the class was working in small groups. I was able to address this issue (at least to some extent) in the majority of the lessons I observed by having the teacher wear a wireless microphone, which was generally able to pick up both teacher and student talk. I also audio-recorded all lessons, which sometimes enabled me to capture classroom talk that was inaudible in the video recordings. In some cases, teachers did not finish all of the lesson activities in the block of time that they had allotted for the lesson. In cases in which teachers continued the lesson at another time, I was unable to observe the continuation of the lesson. When possible, I asked teachers to describe how they concluded the lesson during my interviews with them.

In addition to video- and audio-recording each lesson, I made notes in the margin of a lesson plan as the lesson unfolded. The primary purposes of these notes were to (1) remind me about aspects of the lesson (e.g., particular student comments, teacher decisions) that I wanted to discuss with the teacher during the post-lesson interview, and to (2) document information about the classroom/lesson that I was unable to capture on the video. After the lesson, I also took digital photographs of instructional resources that I was unable to capture on video (e.g., pages of trade books that students read during the lesson; posters related to the lesson).

Interviews. To complement the video data and provide additional information about the context of the lesson and teachers' decision making, I conducted post-lesson and post-unit

interviews. These interviews were semi-structured and were designed to last about 40-45 minutes. I had all of these interviews transcribed, and then I reviewed and cleaned each of the transcriptions that were connected to the lessons I selected for analysis (which I describe in the next section).

Post-lesson interviews. The focus of the post-lesson interviews was on the teacher's experiences teaching the lesson (see Appendix B for an example of an interview protocol). I started each interview by asking how things had been going with Project PLACE since my last observation and whether the teacher had any thoughts to share about the lesson. Then, I followed up with more specific questions about the teacher's experiences teaching the lesson, perceptions of how students did with the lesson, opinions about the guidance that was provided for the lesson, and reports of what was involved in preparing to teach the lesson. In my early interviews with teachers, I tried to stay away from asking specific questions about places where the teacher had departed from the guidance because I did not want teachers to get the impression that I was expecting them to follow the plan. Over time, however, after I felt that I had been able to establish relationships with the teachers, I felt freer to ask more specific questions about cases in which the teachers had departed from the guidance.

Towards the end of each post-lesson interview, the teacher and I typically watched one or two clips from the lesson video that I had identified as interesting instances of translation—either because the teacher had done something with the guidance that I thought was unexpected or interesting, or because the teacher seemed to be having to do a lot of instructional work without guidance from the curriculum (e.g., when the teacher seemed to be doing a lot of difficult work to follow the plan's instruction to "circulate and support students" while they worked on an independent activity). I asked the teacher to make general comments about the clip, and then, as

necessary, I followed up with more specific questions about the parts of the clip that had drawn my attention to it (a version of stimulated recall; see Clark & Peterson, 1986).

Throughout my year of data collection, I kept a running memo where I recorded informal notes about what I was noticing, questions I had, and things that seemed to be interesting or important. These notes helped guide revisions to my interview protocols throughout the course of the study.

Post-unit interviews. The post-unit interviews were designed to give me a sense of the teacher's experiences with the unit as a whole and to help me connect the dots about what had happened before, after, and in between the lessons I was able to observe. (See Appendix C for an example of a post-unit interview protocol.) These interviews also gave me an opportunity to ask more general questions about the teacher's perspectives about the design of the units and the resources provided in the curriculum materials. In these interviews, for the purposes of the larger study, I also asked for teachers' perspectives about whether and how the unit enabled them to teach the content of the social studies and literacy standards, and I also asked them to share their perspectives on project-based learning based on their experiences with the unit. For the purposes of this dissertation, the data from these interviews provided helpful context information for the video data that I analyzed as well as some information about teachers' translations of lessons that I was not able to observe.

Selection of Data for Analysis

After completing the data collection phase of the study, I selected a subset of the lesson data to analyze for the purposes of the dissertation. At this stage, I again decided to prioritize lessons for which I had data from multiple teachers so that I could compare different translations of the same lesson plan. There were 10 Project PLACE lessons for which I had data from at least

three classrooms (for a total of 31 lesson videos, see Table 3.2), so I decided to focus my analysis on these lesson videos (and their corresponding post-lesson interviews). I also included all post-unit interviews in my data analysis.[15] To assist with initial data analysis, I transcribed three lessons in their entirety. Although I primarily analyzed the remaining lesson videos using StudioCode software and my own written notes and summaries of the lessons (and thus did not rely on transcription for my analysis), I also had parts of all 31 lessons transcribed for reference.

The set of 10 lesson plans I analyzed included quite a bit of variation in terms of the guidance provided. Although all of these plans were organized around the three-part structure that was typical of Project PLACE lessons, they included a variety of student activities: independent writing, partner reading, and small-group work on social studies and/or ELA-focused tasks. These lessons also included a variety of recommendations for teaching practices, including recommendations for explaining content, reading a text aloud in order to introduce content, modeling a disciplinary practice (e.g., writing a persuasive paragraph or using multiple sources to learn about history), and using examples of student work to highlight effective aspects of writing. Although the formatting of the lesson plans was similar overall, the five lessons from the history and civics units included the additional supports I added: highlighted headings for each lesson recommendation as well as gray boxes with additional information and recommendations for teachers. Table 3.2 shows the specific lessons that I analyzed and the teachers for which data was available.

[15] I did not systematically analyze other data sources, such as surveys, logs, and data from Project PLACE coaches and the introductory professional development session or webinars. Instead, I used these as supplementary data sources that provided relevant context information.

Table 3.2
Lessons Included in the Analysis

Unit	***Lesson Title***	***Teachers observed***					
		Brevard	*Costa*	*Foster*	*Kopp*	*Parrish*	*Rawski*
Producers and producing in our community (economics) (Duke et al., 2014a)	Session 1: What's my opportunity cost?	X		X		X	
	Session 8: Using flow diagrams	X	X	X		X	
Brochure about the local community (geography) (Duke et al., 2014b)	Session 8: Planning human characteristic #2			X		X	X
	Session 9: Writing about human characteristic #2			X		X	X
	Session 15: Mapping our community: Map scales			X	X	X	
Postcards about the community's past (history) (Duke et al., 2015b)	Session 9: Transportation, investigating change over time		X			X	X
	Session 10: Transportation postcard brainstorm	X			X	X	
The park/public space proposal project (civics) (Duke et al., 2015a)	Session 5: What does your local government do for you?	X			X	X	
	Session 10: Analyzing data about use of government services from graphs		X	X			X
	Session 13: Drafting a proposal		X		X		X

Methods of Data Analysis

Preliminary Data Analysis and Revision of Research Questions

The overarching question guiding my preliminary rounds of data analysis was: "How do teachers interact with curriculum materials to carry out the work of teaching Project PLACE units for the first time?" While I ultimately revised this question to reflect more specific foci for my investigation, this question served as a guide for my study design and preliminary analysis (Agee, 2009).

To begin investigating this question, I first indexed lesson videos based roughly on how they corresponded to the steps in the lesson plan. Using StudioCode software, I created a set of lesson-specific tags for each numbered step in each lesson plan. I then used these tags to identify segments of each lesson video that seemed to somehow correspond with each step outlined in the lesson plan. I tagged segments of the video that did not seem to correspond with any of the steps in the lesson plan as "other." In several situations, it was difficult to determine whether or not a

particular segment of the lesson video corresponded with a particular lesson step; I flagged these types of segments by tagging them both with the lesson step tag they seemed most closely related to as well as with the "other" tag. In the data, I also often encountered instances in which a lesson step appeared to play out at different points during the lesson video, interwoven with other lesson steps. In these cases, I tagged multiple non-consecutive segments with the same lesson step tag.

Throughout the process of indexing the video data, I made general notes to keep track of what I was noticing in the videos as well as what was challenging as I attempted to segment them into chunks that corresponded with the lesson steps. I also chose particular lesson steps—and the set of video segments that corresponded with them—to analyze in more depth in order to help advance my thinking about my research question. Specifically, I started by focusing on lesson steps that involved introducing new content or setting students up to work on independent/small group activities. I analyzed the three segments (from the three different classrooms for which I had data for a given lesson) that corresponded with a particular lesson step, as well as relevant interview data that might provide additional information about what was happening in the videos and why. I used the following analytic questions to guide my thinking:

1. What is specified in this step and in the associated student materials? What language is supplied (and where)? What seems to be the intent of the lesson step, and (how) is this intent communicated?
2. Of the recommendations and language supplied, what did the teacher use or not use? Why or why not? (I answered the "why" questions based on post-lesson interview data and/or my own inferences using data from the lesson video and my knowledge of the teacher.)

3. What did the teacher do during this segment that was *not* specified by the materials? How similar or different did this look across the different teachers?
4. What (if anything) is this a case of?

During the process of using these questions to analyze specific segments of data, I began to use the metaphor of translation as a way of thinking about what I was seeing. I also developed a preliminary coding scheme to describe what teachers were doing when translating the guidance, which I continued to revise as I began to analyze translations of entire lesson plans as opposed to focusing on specific lesson steps.

My initial attempts to code the data were informed by Drake and Sherin's (2006) three types of structural curricular adaptations (i.e., omissions, additions, and substitutions to the lesson plan). Indeed, along with identifying places in the lesson videos where teachers appeared to be taking up specific pieces of guidance from the lesson plan, I also attempted to identify what from the guidance that teachers had *not* taken up (i.e., "omissions"), as well as what teachers had included in their lesson translations that was not specified in the plan (i.e., "additions"). However, unlike Drake and Sherin, I did not focus on identifying "omissions" or "additions" at a structural level but instead at a very detailed level. At this fine a grain size, it often did not make sense to try to determine what might count as a "substitution" in teachers' translations. Rather, I tried to focus simply on which details of the guidance had been taken up and which had not—as well as on what had been added to the lesson that was not in the plan and what had been taken up but in a sequence that was different from the sequence contained in the lesson plan.[16]

[16] The type of departure from the guidance that I call "resequencing" is not included in Drake and Sherin's (2006) framework of structural adaptations, but it is included in Forbes and Davis's (2012) coding scheme that identified types of adaptations preservice teachers made to lesson plans contained in curriculum materials as in their lesson planning. Forbes and Davis's (2012) coding scheme include three codes that are somehow related to sequence: duplications, inversions, and relocations.

At the fine-grained level of my analysis, it was also often difficult to distinguish between what should count as an "addition" to the lesson plan versus what should count as a way of taking up what was called for in the guidance. For example, if a lesson plan called for teachers to: "Remind students that the proposal they will write today will have four parts [an introduction, etc.]" (Duke et al, 2015a, pp. 50-51), and a teacher had students volunteer a few ideas of what they might write for some of these parts, should this be considered an *addition* to the plan? (Especially given that it seemed to be a form of support for students' independent work that was not explicitly called for in the plan?) Or should it simply be considered to be a way of taking up the guidance in the plan? These kinds of questions and analytic challenges were at the heart of what I set out to investigate—they seemed to illustrate the idea that translating guidance from curriculum materials into instructional interaction is more complex than simply either taking up or adapting what is in the plan. In my final coding scheme for analyzing lesson translations, I developed a coding category—*filling in the guidance*—to reflect the parts of the work of translation that other terms (such as "taking up" the guidance in instruction) didn't seem to fully capture. I describe the criteria I used for the code *filling in the guidance* later in this chapter, and I define and describe the concept of *filling in the guidance* in more depth in Chapter 4.

Refining research questions based on preliminary data analysis. This process of preliminary data analysis ultimately led me to revise my overarching research question, separating it into two more specific questions that used translation as a frame. The first question, which was most closely related to my preliminary analysis of lesson video data, focused on how teachers translated the detailed, step-by-step guidance in the lesson plans into instructional interactions. However, because the lesson steps were not the only type of guidance Project PLACE had provided to teachers, this analysis seemed incomplete. Indeed, in addition to

providing teachers with guidance for a specific sequence of instruction (i.e., the lesson steps), Project PLACE had also articulated the big picture goals of the curriculum program and explained that the purpose of the detailed guidance in the lesson plans was to help teachers accomplish these big picture goals. For this reason, I thought that it was important to take what I call the "high-level guidance" into account as well as the lesson steps when trying to understand the work involved in translating guidance from curriculum materials.

Therefore, I added a second research question, which focused on how teachers' translations of the step-by-step guidance seemed to relate to the guidance Project PLACE offered pertaining to the high-level goals of the curriculum—specifically the high-level guidance pertaining to (1) what teachers should teach (i.e., the academic standards), (2) how they should teach it (i.e., using the five principles of project-based instruction outlined in the initial professional development session), and (3) how they could accomplish these goals within a reasonable time frame (i.e., a total of 80 lessons that were roughly 45-minute lessons in length).

The first two types of high-level guidance I focus on—the academic standards and principles of project-based instruction—may seem to be more logical types of guidance to focus on than guidance pertaining to time frame. However, I chose to consider guidance pertaining to time frame as a high-level goal due to its relationship with the other high-level goals of the curriculum. In order to teach the curriculum in a way that would enable teachers to address the entire set of academic standards using a project-based approach, teachers needed to be able to teach all of the lessons that were included in the curriculum. If teachers had difficulty teaching the lessons within the general time frame provided by Project PLACE (which many of them did), this could result in preventing them from addressing all of the academic standards they were responsible for addressing—and from working on some of the standards to the extent that the

designers of the curriculum had intended. Furthermore, because teachers were aware of the guidance for time frame as they were teaching the lessons, the nature of their translations was sometimes influenced by the work they did to stay within the time frame. For all of these reasons, I wanted my analysis to include attention to time frame as well as to other forms of high-level guidance that were more easily noticed when observing a single lesson translation.

Another decision I made when determining what forms of high-level guidance to focus on was the decision *not* to focus on the objectives that were listed at the top of the lesson plan. I considered these objectives to be a form of guidance that fell somewhere between the highest-level guidance (i.e., the statements of the academic standards and principles of project-based instruction) and the detailed guidance in the lesson steps. These objectives were often stated behaviorally (e.g., an objective in several of the geography lessons was that students would "Write persuasive text about the local community" [Duke et al., 2014b, pp. 35, 38, 42, 48, 52, 55, 59]) and often seemed to serve as a concise statement of the work students should accomplish in the lesson or the ideas students and teachers should discuss during the lesson. In my initial analysis of teachers' translations in relation to the lesson objectives, I found that the objectives almost always appeared to be accomplished in some sense (at least partially, in the lessons where students did not finish the activities called for in the lesson plans). So, for the purposes of this study I chose to focus on the relationship between lesson steps and the higher-level goals rather than including an additional analysis that examined how translations of the lesson steps related to the objectives stated in the lesson plan.

The two questions that guided the later stages of data analysis were as follows:

1. How did teachers translate the step-by-step guidance from the Project PLACE lesson plans into instructional interactions?

2. How did teachers' translations of the steps in the lesson plans relate to the high-level guidance provided by Project PLACE pertaining to the learning goals of the curriculum, the instructional approach to be used, and the time frame in which the curriculum should be taught?

In the remaining sections, I describe the methods of data analysis that I used in order to answer these two questions.

Investigating the First Research Question: How Teachers Translated the Steps in the Lesson Plans

To understand how teachers translated the step-by-step guidance from Project PLACE lesson plans, I continued with the process I had been using in my preliminary data analysis. Rather than focusing on specific segments within a lesson, I attempted to use my process to analyze entire lesson translations. In doing this, I encountered challenges that led to multiple revisions of my analytic process and coding scheme, when enabled me to finally develop a process and coding scheme that I could use consistently across all 31 lesson translations in my dataset.

Ultimately, I found that I could best represent the lesson translation if I coded both the lesson plan and a description of the lesson video. To do this, I created two-column tables in Microsoft Word for each lesson translation that had the text of the lesson steps in one column and a description of the lesson video in the other column (including partial transcripts, summaries of what I observed, and so forth). Using the highlighting feature in Word, I used different colors to code the text in each column.

Coding the text in the lesson plan. My coding of the text in the lesson plan was focused on representing what pieces of the guidance were and were not taken up in the lesson translation. I used different colors to highlight

- Details of the guidance that were taken up in the lesson translation (in more or less the sequence in which it appeared in the lesson plan);
- Details of the guidance that were taken up in the lesson translation but in a different place in the lesson than what the plan had specified; and
- Details of the guidance that were not taken up in the lesson translation.

I also used a different color to highlight details that were not taken up but that the plan had indicated were optional.

I did this analysis at a very fine grain size. For example, in Figure 3.1 below, I use highlighting to show which parts of the guidance Ms. Foster did and did not take up in her translation of economics session 1 step 11. Ms. Foster took up several parts of the guidance in the lesson step—asking students to share what they would choose to buy and what would be their opportunity cost, so I highlighted these parts of the lesson step in cyan. However, she asked 10 different students to share what they had drawn (rather than two or three students, as the lesson plan specified). In her brief interactions with these students, she didn't ask them how they made their choice or mention anything about the concept of scarcity. Therefore, I highlighted these parts of the lesson step in red.

	Whole group reflection/review 11. Gather students together as a whole group. Have two or three students present their two wants, noting which one they would purchase and which one would be the opportunity cost. Ask children to explain how they made their *choice*. Remind them *scarcity* is when people do not have enough money to buy all their wants.	

Note: Cyan highlighting indicates parts of the guidance in the lesson plan that were taken up in the lesson translation. Red highlighting indicates parts of the guidance that were not taken up in the lesson translation.

Figure 3.1 An example of a color-coded lesson plan, taken from the representation of Ms. Foster's translation of session 1 of the economics unit.

Relationship between the highlighting process and the coding scheme. The process of highlighting the lesson plans helped me work towards developing a final coding scheme but was not the final coding scheme itself. The cyan highlighting indicates the parts of the guidance from the lesson step that were taken up in the lesson translation; the parts of the lesson plan that are highlighted in cyan correspond with the parts of the lesson translation that I coded as instances of *filling in the guidance*. (I will explain this relationship further in the next section). The red highlighting in the lesson plans, which indicates which parts of the guidance were not taken up in instruction, corresponds to two distinct codes in my final coding scheme: *filtering out* and *significantly omitting*. If a teacher took up some of the guidance contained in a lesson step but did not take up all of the details (such as the example in Figure 3.1 above), I coded the parts of the lesson step that were not taken up as the details that were *filtered out*. If a teacher did not take up any part of a lesson step in instruction (i.e., if the entire text of a lesson step was highlighted in red), I counted this as a case of making a *significant omission* to the lesson plan in translation.

The distinction I made between *filtering out details* and *making a significant omission to the lesson plan* could be seen as somewhat arbitrary. Indeed, a good argument could be made that filtering out certain details—such as filtering out the last two sentences in the lesson step in

Figure 3.1—*was* a significant omission from the lesson plan, even though it was not an omission of an entire lesson step. When operationalizing the distinction between *filtering out* and *significantly omitting* for this analysis, however, I tried to rely as much as possible on using the formatting of the lesson steps (rather than my own judgments about what was or was not significant) to distinguish between *filtering out* and *significantly omitting.* Indeed, the formatting of the lesson steps—including developers' decisions about what would go together in one step—served as a form of guidance about what the developers saw as the major "chunks" of the lesson. I wanted to take this form of guidance into account when analyzing translations of the lesson steps.

In answering my second research question—how lesson translations related to high-level guidance—I focused on the significance of teachers' translations in relation to the high-level goals (e.g., by examining how specific parts of teachers' instruction reflected the principles of project-based instruction or particular academic standards), but for this analysis, I tried as much as possible to define "significance" in terms of how it related to the structure of the lesson plan itself.

Coding the description of the lesson translation. To analyze the other column of the table—the column containing notes about (and/or transcripts of) the lesson translation, I used the highlighting feature to identify the following types of instructional interactions:

- Instances of *filling in* the guidance from a particular lesson step in the sequence outlined in the plan;
- Instances of *filling in* the guidance from a particular lesson step, but in a sequence that was different from what was outlined in the plan;

- Segments of instruction that did not appear to correspond with a part of the lesson plan (i.e., *significant additions* to the lesson plan); and
- Notes about the instruction that indicated there had been a *change to the student materials* being used in the lesson, or that involved *additional student materials* (including visual displays) that were not called for in the lesson plan.[17]

Figure 3.2, below, is an excerpt from a representation of Ms. Brevard's translation of session 8 of the economics unit. The left-hand column contains my notes from Ms. Brevard's translation (which, in this example, include rough transcriptions of several parts of this segment of the lesson, as well as some more general summaries of what happened during this segment of instruction), and the right-hand column includes the text of the lesson plan.

[17] I did not distinguish between "significant" or "insignificant" changes/additions to student materials (or to instructional sequence) when highlighting the lesson plans. I used the highlighting process to identify all examples of these changes and then later developed criteria to distinguish between "significant" and "insignificant" departures.

	"You're going to make a flow diagram—you guys are going to have the chance work in small groups… to show how something is made from our field trip online…." "So what we're going to do, before we do that, I'm going to model one for you up on the screen." *Modeling takes ~24 minutes, teacher gets student input as teacher creates the diagram – leaves model on the screen as an example during small group work.* What I want you to do, when I put you in a group, is that you're going to make a flow chart, just like we did, of the steps that are used to make Jiffy Mix, from the video we watched yesterday…. "….Where did it start? Mark, do you remember? Raise your hand—what's the biggest ingredient?"… "so that's where your flow chart is going to start."… Everybody's going to get one piece of paper for the group." Teacher says that one person can draw the first step, the next person can draw the next step, etc. Teacher says students will work in groups of 3 and will have 15 minutes. "That's what it took for us to do this together – maybe not quite that long." *(~7:22 minutes)* "You know, before we start, let's make a list of the order, because I have a feeling that some groups are going to struggle with what happened first, then what happened and what happened. So I'm going to make a list."…. "So I'm going to write these, and you guys are going to do the pictures." Teacher asks students about every step – helping jog their memory about each step of the process and then writing the steps on the board as students give their answers.	**Step 3** Tell students you are going to put them in groups to create a flow diagram of the process at the business they visited. Explain that each student should make his/her own diagram; however, children can talk amongst their group members about which step comes first, next, and so on. Remind students to look at the poster/chart paper that you just created to help them remember the elements of a good flow diagram.

Note: In the left-hand column

- Cyan highlighting indicates how the teacher filled in the guidance that was highlighted in cyan in the right-hand column
- Magenta highlighting indicates segments of instruction that did not correspond to any of the guidance in the lesson plan (i.e., significant additions)
- Lime green highlighting indicates places where the instruction included the use of student materials that were different from what was specified in the lesson plan. (i.e., a model of a flow diagram was "added" to the lesson as a resource for students' work; the teacher provided one piece of paper per group rather than providing paper for each student to make a flow diagram, as was specified later in the lesson plan)

In the right-hand column, cyan highlighting indicates guidance that was taken up in instruction and red highlighting indicates guidance that was filtered out.

Figure 3.2 An example of color-coded notes about Ms. Brevard's lesson translation (left-hand column) and lesson plan (right-hand column) from session 8 of the economics unit

Final coding scheme. My final coding scheme included the concepts I developed or adopted/adapted from existing research to describe the process of translation (e.g., filling in, filtering out, significant addition, significant omission) and operationalized them in specific ways. As I analyzed the data, I had begun to conceive of particular parts of teachers' lesson

translations as falling along a continuum that ranged from "filling in" the guidance to "significantly departing" from the guidance in various ways (which I describe in Chapter 4), and I did not consider the boundary between "filling in" and "significantly departing" to be clear. However, for the purposes of data analysis and reporting, I did have to create criteria to distinguish between "filling in" and "significantly departing."

As I describe in Chapter 4, I described the primary process teachers used to translate guidance from the lesson plan as a process of *filling in the guidance*. I used this term to refer to the instructional work teachers do when taking up guidance from the lesson plan and converting it to instructional interaction. *Filling in the guidance*, as I define it, does not necessarily involve translating the guidance in as literal a fashion as possible—it can involve filtering out details and other small departures. However, when teachers made more major departures from the guidance, I did not count these as ways of *filling in*. Instead, I categorized these as "significant departures from the guidance" of various types. Table 3.3 outlines how I operationalized the code for "filling in the guidance" and the codes for four types of "significant departures."

Table 3.3
Ways of Operationalizing "Filling in" and "Significant Departures" From the Guidance

Code	*Description*	*Rationale for coding criteria*	*Examples and Non-examples*
Filling in the guidance	Translating the guidance contained in a lesson step; often involved elaborating on what was explicitly called for, filtering out details (or parts of the lesson step), and/or making minor changes to instructional sequence or student materials	As I describe in Chapter 4, I rarely found examples in which teachers translated the guidance as literally as possible, and even when they did, they had to do instructional work that was not specified in the lesson plan. Therefore, I counted translations as "filling in" as long as there was at least some correspondence between the text of the lesson step and the instructional interactions that played out in the classroom.	*Example:* The first step of geography session 8 asked teachers to: "Remind students of the class project: to create brochures for visitors or people considering moving to the area. Emphasize that the purpose of these brochures is to teach readers about the local community and convince them that this is a great place to visit or live" (Duke et al., 2014b, p. 39). Ms. Rawski filled this in by saying: "Okay, boys and girls, we've been working on making our brochures for the city of Cottage Grove[18] so that visitors to our city want to visit us or maybe even move here." *For non-examples, see the examples of significant additions, significant omissions, significant changes to lesson sequence, and significant modifications or additions to student materials below.*
Significant addition	Adding a segment of instruction at least two minutes in length that was not called for in the lesson plan	Choosing a particular length of time (i.e., two minutes) to serve as the boundary between minor and significant additions to the lesson plan was relatively arbitrary. However, I reasoned that spending at least two minutes of instructional time (out of a 45-minute lesson) on something that was not specified in the plan seemed to reflect a level of attention or emphasis that merited the classification of "significant addition" to the lesson plan. This was especially true given that some of lesson steps in the plans (e.g., "Remind students of their work in session 8: brainstorming about a second characteristic for their brochure maps," Duke et al., 2014b, p. 42) could easily be translated in less than two minutes, which suggested that two minutes of lesson time was a "chunk" that could be equivalent to some of the "chunks" called for in the lesson plan.	*Example:* The geography session 9 lesson plan called for the teacher to review how to take ideas from a planning sheet to draft a piece of writing. Because the planning sheets included boxes to record three facts about a particular topic, and because Ms. Foster had noticed that some students had written opinions rather than (or along with) facts in these boxes, Ms. Foster spent several minutes reviewing the difference between fact and opinion (asking students to determine whether certain statements were facts or opinions and to explain why) before reviewing how to use the planning sheet as a resource for drafting a piece of writing. The lesson plan had not called for any attention to be given to the distinction between fact and opinion.

[18] All names of people and places (except for place names included in the Project PLACE curriculum) are pseudonyms.

			Non-example: In the history session 10 lesson plan, students were to complete a planning sheet in which they were to record three facts about a particular topic. When introducing this activity, Ms. Parrish reminded students to include facts rather than opinions (and gave a brief example of each) but did not spend much time explaining or illustrating the difference between fact and opinion. Because her reference to fact and opinion was so brief, it did not seem to merit the label of "significant addition."
Significant omission	Omitting an entire step from the lesson plan (as opposed to one part of a lesson step)	Curriculum developers organized lesson plans into a set of lesson steps, which seemed to indicate that these were the set of "chunks" of the lesson plan that designers considered to be important.	*Example:* The last step of the geography session 8 lesson plan called for teachers to share examples of student work and highlight effective features. It also called for the teacher to use examples from students' writing as a way to review certain social studies concepts that the class had previously learned about. In Ms. Rawski's lesson translation, she did not do anything that was called for in this step but instead concluded the lesson with a brief summary of what students had done and a preview of what they would do next. *Non-example:* When translating the last step of geography session 8 (described above), Ms. Parrish had students share their work, and she highlighted effective features of it, but she did not use examples from students' work to review social studies concepts that the class had previously learned about. She filled in parts of the lesson step but not others.
Significant change to lesson sequence	Changing the lesson sequence in a way that involved modifying the three-part structure of the lesson plan (i.e., whole group, small group/independent work, whole group)	Curriculum developers used the same three-part structure for all lessons, and they had a rationale for structuring lessons in this way. Therefore, I considered changes to the sequence that involved changes to this structure to be pedagogically significant. Good arguments could be made that some of the other sequence changes in teachers' translations were also pedagogically significant, but for the purposes of this analysis, I relied on the 3-part structure of the lesson plans in order to have a clear-cut criterion for operationalizing "significant" changes to the lesson sequence.	*Example:* Rather than introducing the writing activity in geography session 8 all at once and then having students work on it independently, as the lesson plan specified, Ms. Parrish interspersed the whole-group instruction with time for independent work. She introduced the first part of the activity, then had students work on it independently, then introduced the next part of the activity, then had students work on that part independently, and so forth.

			Non-example 1: When students were working independently, Mr. Costa paused their independent work to clarify the instructions for the activity. I treated this as an *addition* to the lesson rather than a significant change to the sequence because Mr. Costa had not interspersed instructions for whole-group instruction in with independent work; rather, he added a segment of whole-group instruction to the plan (i.e., clarification of the student activity) upon realizing that further clarification was needed as he circulated during students' independent work time. *Non-example 2:* In the whole group instruction/discussion segment of civics session 5, Ms. Brevard rearranged the order in which she introduced and discussed some of the concepts that were outlined in the lesson plan.
Significant modification or addition to student materials	Modifying the student materials provided or called for in the curriculum materials (including using instructional materials that were not called for) in a way that changed that nature of the work students did during a lesson. *Note:* I defined "student materials" to include both materials students worked with directly (e.g., texts, handouts) as well as materials/ representations that teachers were to construct or display during the lesson (e.g., charts, texts to be read aloud).	Teachers made a variety of changes to student materials, some of which seemed to be almost entirely practical (see non-example 2) and some of which seemed to be equivalent to minor elaborations that happened in the course of filling in the guidance rather than significant additions (see non-example 1). To count something as a "significant modification or addition" to the student materials, I decided that it must involve a change in the work students had to do in the lesson (e.g., providing a handout that included text that the lesson plan had called students to write themselves). There were some cases (such as non-example 3), in which a teacher introduced a representation of content that was not called for in the plan—a type of addition that seemed to be pedagogically significant even though it did not involve a change in the work students were responsible for doing. I decided not to count these cases as "significant changes" in terms of the student materials, but if the teacher spent at least two minutes discussing the additional student material, I counted these segments as "significant additions" to the lesson.	*Example:* In civics session 13, Mr. Kopp filled in parts of a planning sheet that was provided in the curriculum (and made copies of this modified version of the handout) so that his students were only responsible for completing parts of it on their own. *Non-example 1:* In civics session 13, Mr. Kopp recorded on chart paper the two questions that students were supposed to think about as they read an informational text. The questions were outlined in the lesson plan, but the lesson plan did not specify that the teachers should display them in writing. *Non-example 2:* In geography session 9, Ms. Rawski had students write their final drafts on paper to paste into their brochures rather than writing them directly on the brochures themselves (as the lesson plan called for). *Non-example 3:* In history session 9, Ms. Parrish used an example of an artifact (her baby book) that was not called for in the lesson plan in order to review what an "artifact" was (which was called for in the plan).

Reliability and credibility with coding the data. When operationalizing the distinction between minor and significant departures of various types for the purposes of research, I attempted to create well-defined criteria that could reliably be used across the data set and across coders. I tested and refined my criteria as I attempted to apply it across the data set, but, for the purposes of this dissertation study, I did not test the reliability of my coding scheme by asking another coder to code the data. Therefore, I cannot speak to the level of interrater reliability for the coding scheme I used. However, it is important to note that my coding scheme reflects only one way of operationalizing the concepts I attempted to develop in this dissertation, and I acknowledge that there are other defensible ways that these same concepts could be operationalized. Furthermore, some of the ways in which I operationalized different categories are closely connected to specific characteristics of the Project PLACE curriculum (e.g., the formatting of the lesson plans and the structure of the lessons). Therefore, investigating teachers' translations of other kinds of curriculum programs would likely necessitate other ways of operationalizing the coding categories. The goal of the dissertation is to develop useful concepts (e.g., *filling in the guidance*) that have value regardless of the exact ways in which they are operationalized for a particular analysis.

Displaying the data. The process I described above was very detailed—I was examining what teachers did with very specific details from the steps in the lesson plans as well as summarizing things they did in their translations that were not explicitly called for in the lesson plans. After doing this, I needed a way to display the data so that it would be easier to notice larger patterns (Coffey & Atkinson, 1996). To do so, I created an excel spreadsheet that summarized each Word document. Each row of the spreadsheet represented a teacher's translation of one lesson plan, and in the columns of the spreadsheet, I indicated

- How many lesson steps were filled in (out of how many total steps);
- How many lesson steps were completely omitted;
- How many segments of instruction were added to the lesson (and brief notes about what was added);
- Whether there were any significant additions or changes to student materials (and brief notes about what was changed or added); and
- Whether the sequence of the lesson was significantly changed (and brief notes about how).

In the spreadsheet, I also created columns that included brief comments about anything about the teachers' ways of filling in the guidance that seemed notable, comments about notable details that were filtered out from the plan (e.g., cases in which teachers used an interesting technique to fill in a piece of guidance; cases in which teachers' translation seemed to reflect the higher-level guidance or not), and other comments about the context of the lesson that seemed important to keep track of (e.g., if the teacher explained in the interview that something about the previous day's lesson had an impact on how they were able to translate the lesson I observed).

This representation of the data gave me more of a bird's eye view of the lesson translations, which I was able to use to describe patterns that I noticed in the data set as a whole, in the translations of specific teachers, and in the translations of specific lesson plans.

Investigating the Second Research Question: How Teachers' Translations Reflected Higher-Level Guidance

Investigating how teachers' translations of lesson steps related to academic standards and principles of project-based instruction. The analysis I did to answer the first research question yielded very specific data about the lesson translations, but it did not involve

attempting to characterize how teachers' translations related to the higher-level guidance provided by Project PLACE. However, in the Word documents and in the Excel spreadsheet that I created during the analysis related to my first research question, I did keep notes about "notable" cases of filling in, which typically either focused on (1) specific instructional techniques teachers used to fill in the guidance from the lesson plans, (2) aspects of teachers' filling in that seemed to be influenced by their specific instructional situation, (3) what had been filtered out when teachers had filled in the guidance, and (4) how teachers' translations related to the higher-level guidance (e.g., instances in which teachers reflected a project-based principle without explicit prompting from the lesson plan, instances in which teachers filled in part of the guidance in way that seemed to be inconsistent with guidance stated in an academic standard, and so forth). I also recorded notes about every significant departure from the lesson steps that I had identified when answering my first research question.

To provide additional context for some of these cases, as well to identify other notable cases that may not have been represented in the subset of lessons that I was able to observe and analyze, I also reviewed the data from teachers' post-lesson and post-unit interviews. Reviewing these data allowed me to consider cases of translation that either the teachers or I had considered notable enough to discuss in the interviews. Using Dedoose software, I tagged all instances in which teachers acknowledged departing from the guidance in some way and provided a justification for their departure, as well as cases where teachers described having considered departing from the guidance but ultimately decided not to. I identified 172 relevant interview excerpts.

As I initially reviewed these notable cases of translation, I identified themes in the data that served as initial answers to my second research question. I then tested these categories by

going back through my notes about each lesson translation and asking whether or not the aspects of the translation that I had identified (including both "notable" details about ways teachers filled in the guidance as well as significant departures from the guidance) fit into one of these categories or seemed to be cases of something else. Through this process, I revised my initial list of categories and ultimately came to the set of categories that I outline and illustrate in Chapter 5.

In this analysis, I did not attempt determine the frequency in which these types of cases appeared in the data. Nor did I attempt to identify every single instance of translation that could be classified as a "case" of one of the categories. Instead, my goal was simply to develop a set of categories that seemed to describe how teachers' translations of lesson-level guidance might relate to the higher-level guidance that was offered. Thus, my findings for this research question simply define each of the categories and provide illustrative examples.

Investigating how teachers' translations of lesson steps related to guidance for time frame. To analyze how teachers' lesson translations related to guidance for the time frame in which the curriculum should be taught, I used data on the lesson translations in conjunction with data from post-lesson interviews to determine whether teachers had translated the lesson only during the time I was able to observe or whether they had done more with the lesson at a later time (i.e., on another day). For lesson translations that spanned at least two days, I recorded notes about aspects of the translation that seemed to contribute to the need to take more time than what was recommended in the curriculum. These notes were informed by comparing lesson translations that took longer than recommended with other teachers' translations of the same lessons (i.e., translations of the same lesson plan that did not take substantially longer than recommended). I then analyzed these notes to identify two ways in which translations could fail to reflect guidance pertaining to time frame by taking longer than recommended. I do not claim

that these two categories provide an exhaustive answer to the question of why teachers' translations might take longer than recommended. Instead, the goal of this analysis was to explore and illustrate ways in which teachers' translation of the guidance contained in lesson steps might relate to the high-level guidance pertaining to the time frame in which the curriculum should be taught.

Limitations of the Study

This study had several limitations. Some are related to the design decisions that I made—each decision had its affordances and limitations. For example, I intentionally chose to hold many things "constant" in order to make the process of curriculum translation more visible. However, these "constants" also meant that I was not able to analyze curriculum translation in other situations, which may have made other aspects of the process of translation more or less visible than they were in the case of Project PLACE. Specifically, the fact that all teachers were using the same curriculum meant that they were all working with the same kinds of guidance. Other curriculum programs are designed quite differently and provide different forms of guidance (e.g., student assessments, more alternatives for teachers to choose from rather than a single prescribed set of lesson steps, more or less detail, different formatting, and so forth), and analyzing cases of translation in which teachers were using different types of materials may have provided insight that I could not gain through examining examples of translations of Project PLACE guidance alone. Also, because I investigated translation in a context in which teachers had agreed to teach the curriculum, there likely wasn't as much variation in teachers' "curriculum mapping" (Remillard, 2005) as there might have been if they had not been in this situation. Indeed, in this study I focus on whether teachers were able to translate the curriculum within the time frame specified by Project PLACE, but the framing of this question assumes that

teachers will teach each lesson in sequence without skipping any lessons, which, to my knowledge, all of the teachers in my study did. If I were not examining cases of translation in which teachers had agreed to stay close to the curriculum, there would have been a much wider variety of translations—including instruction that might not be appropriately classified as a translation of a lesson plan at all. Because the purpose of my study was to develop the concept of translation rather than to define its boundaries, I was not too concerned with the lack of variation in my data set in this regard.

Another design decision that I made was to prioritize collecting (and analyzing) data of multiple teachers teaching the same lessons (as opposed to prioritizing collecting a lot of data from the same teachers). I did this because I believed that seeing at least three different translations of the same lesson plan would push my thinking forward as I sought to describe what was happening as teachers translated the guidance. However, this decision also came with limitations. Specifically, I did not analyze a large number of lesson translations per teacher, nor was I able to analyze a large number of lesson translations per lesson plan. This means that the patterns I explore related to teachers and their tendencies in translation or related to how the lesson plans themselves might influence translation (which I describe at the end of Chapter 4), are very tentative and would need to be tested against more data to be better established.

When collecting data, I also made the decision to focus my time and resources on the lesson translations themselves rather than on what teachers did when preparing to teach the lessons. In post-lesson interviews, I asked teachers about their lesson planning processes, but these self-reports, which happened after the fact, were surely incomplete and also may have inaccurately represented what teachers did when preparing to teach the lesson. For example, teachers did not explain in detail exactly how they interacted with the lesson plans and other

resources provided by Project PLACE when preparing to teach, and their self-reports (e.g., reports of reading the lesson plans "carefully") may have been somewhat different from what I might have concluded if I had used other methods (e.g., observation) to learn about their planning processes. Also, although teachers reported some information in post-lesson interviews about specific plans they had made in advance of teaching the lesson (e.g., plans to do something different from what the plan had recommended, or more specific, contextualized plans about how to go about doing what the plan had recommended), I was not able to collect as much data about what was and was not planned in advance as I could have if I had conducted pre-lesson interviews or made other efforts to learn about teachers' planning processes before they taught the lessons. Because the work of translating lesson plans into instructional interactions is connected to what teachers do as they prepare for instruction, I may have been able to gain more insights into aspects of the work of translation if I had gathered more data about the relationship between teachers' plans for instruction and what actually played out during the translation.

My study is also limited by the fact that my group of participants was determined out of convenience (based on whom I had was allowed to recruit) rather than purposively. Although there was meaningful variation among the teachers in my study, I had hoped to include more variation. For instance, I had hoped to recruit at least one beginning teacher to participate in the study. Perhaps more variation among the participants in my study would have made more things visible in regard to the process of translation.

Another decision I made in the study was to focus primarily on two types of guidance provided by Project PLACE: (1) the "higher-level guidance," which I define as the academic standards, principles of project-based instruction, and guidance pertaining to time frame, and (2) the steps in the lesson plan. However, these were not the only forms of guidance that teachers

had access to during the study. Indeed, guidance was also provided through instructional coaches, the in-person and online professional development sessions, and the front matter contained in the unit plans. For the purposes of analysis, I made the decision to focus primarily on the lesson steps and high-level guidance. I did attempt to learn (through interviews and so forth) whether and how the other forms of guidance had influenced teachers' translations, and I tried to make note of this information in my findings where relevant, but it is likely that I was not able to gather complete information about the ways in which certain forms of guidance (e.g., advice from the instructional coaches) interacted with the forms of guidance that I primarily focus on in my analysis.

Finally, something that could be both a strength and a limitation of the study is my own positioning as someone who was independent from the Project PLACE research team. Because I only became familiar with this curriculum through the course of the study (and through conversations with the developers), I did not always know about the rationales for all of the details of the curriculum design, and I may not have understood the significance of some of the details as the developers themselves would have understood them. My judgments about what was and was not "significant" and "notable" about teachers' translations—both in terms of the pedagogy and structure of the lesson as well as in terms of how the lesson translation related to the higher-level guidance—were influenced by my own understandings and interpretations of the curriculum guidance. In some ways, being independent from the curriculum development team gives me a useful perspective (as I, like the teachers in the study, was relying primarily on the written materials and professional development to help me understand the "vision" of Project PLACE); however, the fact that I was not part of the curriculum development team (and that I was not actually teaching the lessons myself) certainly influenced what I considered to be

significant or notable. I am sure that what I saw as significant or notable (or not) in terms of the high-level guidance was likely different to some extent both from teachers' views and from the views of the curriculum developers.

Preview of Findings Chapters

I turn next to presenting the results of my analysis. In Chapter 4, I answer my first research question by describing the conceptual framework I developed, using insights gained from the data, to characterize the work involved in translating guidance from a lesson plan into instructional interaction. I define and illustrate the fundamental process involved in this work—the process that I call *filling in the guidance*—and describe how it relates to other parts of the work that are typically involved in translating externally-developed lesson plans. I also describe some of the patterns related to lesson translation that I observed in my data set. In Chapter 5, I turn my focus to the second research question—how do teachers' translations of the steps in the lesson plans relate to the high-level guidance that was offered in the curriculum? I start by focusing on how teachers' translations of lesson steps relate to guidance pertaining to the learning goals (i.e., the academic standards) and instructional approach (i.e., five principles of project-based instruction), and I then turn my focus to exploring and illustrating ways in which translations of the steps in the lesson plans can relate to the guidance provided for the time frame in which the curriculum should be taught.

Chapter 4

The Work Involved in Translating Guidance From Lesson Plans

Introduction

In this chapter, I examine, at a very detailed level, the work involved in translating the step-by-step guidance from lesson plans into instructional interactions in the classroom. I start by describing two examples of contrasting cases of translation that I observed—two teachers' translations of the same lesson step. The differences between teachers' translations in each of these examples make visible some aspects of the nature of the work involved in translation that are important but can be easy to overlook.

After presenting these examples and highlighting the different approaches teachers used to translate these particular lesson steps into instructional interaction, I then seek to characterize the different processes that teachers (might) use as they translate the step-by-step guidance contained in a lesson plan into a lesson in their classrooms. I use examples from the data to illustrate each of these processes, and I present a model that outlines them. In this model, I not only try to characterize what is involved in translation when teachers are staying close to the guidance that is provided, but I also acknowledge that, when teachers are translating an entire lesson plan into classroom instruction, there are times when they appear to depart from aspects of the step-by-step guidance in significant[19] ways. Indeed, although all 31 lesson videos I analyzed

[19] Note that, in this chapter, I am attempting to define the "significance" of teachers' departures from the guidance based only on the guidance contained in the steps of the lesson plans (and associated student materials) themselves, rather than on outside criteria, such as developers' intentions or my own ideas about the purposes or rationales for the guidance that was provided in the lesson plans. In the next chapter, I examine the significance of teachers' translations in terms of the high-level guidance that was provided by Project PLACE.

for this investigation were clearly translations of particular Project PLACE lesson plans (rather than lessons that teachers had designed themselves or lessons that were based on the guidance contained in materials other than Project PLACE), some translations appeared to stay much closer to the guidance than others. The model I develop in this chapter to characterize the processes involved in lesson translation accounts for the range of variation that can be observed across different translations of the same lesson plans.

One of the primary purposes of this chapter is to examine the complexity involved in the seemingly straightforward work of "taking up" a piece of guidance contained in a lesson plan. Some of this complexity can be seen in the examples I describe next.

Two Examples of Contrasting Cases of Translation

The steps in the Project PLACE lesson plans contained different amounts of complexity. Some simply specified something teachers should say to students, while others called for teachers to orchestrate various types of student contributions, work, and/or interactions with one another. Regardless of how simple or complex the lesson steps were, though, they required the teacher to engage in translation work. That is, they required teachers to convert the written guidance into the form of instructional interactions. The examples of contrasting cases of translation I describe below illustrate some of the dimensions of this work: first an example of translations of a relatively simple lesson step and then an example of translations of a step that called for more complex kinds of instructional interaction.

Example 1: Ms. Rawski's and Ms. Parrish's Translations of the First Step of Geography Session 8

The first step in the lesson plan for session 8 of the geography unit provided relatively straightforward guidance for how teachers should begin the lesson. The geography unit was

designed around a project in which students were to make brochures about their local community, and, like many Project PLACE lesson plans, the session 8 plan guided teachers to start the session by making a connection to this project. Specifically, the first lesson step called for teachers to

> Remind students of the class project: to create brochures for visitors or people considering moving to the area. Emphasize that the purpose of these brochures is to teach readers about the local community and convince them that this is a great place to visit or live. (Duke et al., 2014b, p. 39)

Both Ms. Rawski and Ms. Parrish took up this part of the guidance in their instruction—they did more or less what the lesson step called for. However, there were striking differences in the ways in which they translated this guidance into instructional interaction. Ms. Rawski spent only 13 seconds translating this lesson step, saying: "Okay, boys and girls, we've been working on making our brochures for the city of Cottage Grove so that visitors to our city want to visit us or maybe even move here." Ms. Rawski did not go into quite the amount of detail that was included in the lesson step—indeed, an argument could be made that she did not take up the guidance to "emphasize" the purpose of the brochures—but she did translate the guidance in a way that reviewed the purpose of the brochures, just as the lesson step had called for her to do.

Ms. Parrish's translation of this guidance was much more elaborate. Rather than translating this guidance into a brief comment, as Ms. Rawski had done, she translated it into a 2.5-minute segment of interactive work with the class in which she used various techniques (e.g., eliciting student contributions, revoicing, rephrasing, connecting to other work the class had been doing, and so forth) to highlight and help students make meaning of the ideas that were included in the written lesson step. The interaction in her classroom played out as follows:

Ms. Parrish: Okay, in social studies, we've been working on a special kind of writing. Who knows what this kind of writing is? It's not a poem. What is it Malia?

Malia: A brochure.

Ms. Parrish: It's gonna be a brochure. Excellent. Who is this brochure gonna be for? Why would people want to read this brochure? Antonio? What's the point of this?

Antonio: If they visit here or if they move here.

Ms. Parrish: Exactly! You told us both reasons! If they're visitors and don't know about our city, or if they're moving here and want to learn about our city, this brochure can teach them; it can give them facts and information about our city.

Student: And to know where the stores are at.

Ms. Parrish: Right, we're going to tell them about human characteristics like stores. You're exactly right. We're going to teach readers about our community. But then, we're going to do something *else* with this. It goes with our persuasive writing that we've been talking about. Remember yesterday, if you were here, we tried to persuade some people that we should have pizza and dessert everyday with lunch? Okay, this is going to persuade people that Oakdale is a great place to live or a great place to visit. What does that mean—"we want to persuade them"—when I say that, what does that mean? Kaya?

Kaya: Mmm.

Ms. Parrish: What's another word for persuade? What are we trying to do? Antonio? *(Aside to a student:* Throw it away.)

Antonio: Talk 'em into it?

Ms. Parrish: Talk 'em into it. Yep, exactly. What's another word for it? Persuade or—

Student: Get them to come.

Ms. Parrish: Yep, exactly.

Student: Get them to come [inaudible].

Student: Convince?

Ms. Parrish: *Convince* is the word I was thinking of, yeah. *Persuade* means to convince. So, Daniel, if I have to *convince* you that dogs are the best things for a pet, I have to change your mind. 'Cause you might think that cats are best. "Convince" means to make them think the same thing *you* think, right? When we're trying to persuade people, we said there are some different starters you could use, like "I think, I feel." With this, we're not going to necessarily use those starters, but we're just going to tell them lots of things about those places that are really good, so then they'll say, "Woah, that looks like a really fun place. I want to go there, definitely!"

Although their translations were quite different, both Ms. Rawski and Ms. Parrish seemed to translate this piece of guidance in ways that seemed to be intuitive to them and sensible in their particular situations. It was not surprising that Ms. Rawski, who was generally concise (both during her lessons and during her interviews), spent little time on this lesson step. Furthermore, during her post-lesson interview, she said that she was very conscious of the need

to budget time during this lesson because she anticipated students' independent work would take a long time; this may have also contributed to her brevity. It was also not surprising that Ms. Parrish, who routinely invited students' participation and who often took time to unpack the meanings of words with her students (whether or not the lesson plans called for it), would do so in this situation. Also, since her class had apparently been working on persuasive writing outside of the Project PLACE lessons, it is not surprising that she would include a connection to this work in her translation of this lesson step.

Even though both teachers' translations were undeniably ways of doing (more or less) what this fairly simple lesson step had called for, their translations looked very different—in terms of the time they spent, the instructional techniques they used to do the work of reminding students what the plan called for them to remind them, and the actual content of their interactions with students. These types of differences make visible some of the dimensions of the work involved in translating (such as use of time and use of particular instructional techniques)—work that the lesson plan cannot fully guide.

For instance, these examples highlight the role of improvisation in the work of translation. Indeed, because this lesson step was so simple and narrow in focus (compared to many of the others in the lesson plan), it is likely that teachers did not plan many of the details of their translations of this step in advance—and they likely didn't even make a lot of conscious decisions in the moment about how to translate this piece of guidance. Although some conscious decisions may have been involved (either beforehand or in the moment), in general, it seems likely that both teachers took the written guidance on the page and used it as the basis for an improvised interaction. This work of improvising interactions based on ideas written in the lesson plan is an example of the work involved in translation.

Example 2: Ms. Rawski's and Mr. Costa's Translations of the Review and Reflection in Civics Session 10

We can see an example of the work involved in translating a somewhat more complex lesson step by comparing Ms. Rawski's and Mr. Costa's translations of the guidance for the "whole group review and reflection" segment at the end of lesson from the civics unit. The civics unit was designed around a project in which students were to write a proposal to their local government calling for a change to a local park or public space. As part of this project, students were to survey members of their community to learn about what changes they thought needed to be made. Then, students were to graph the results of these surveys and include these graphs in their proposals as a way to support the argument they were making.

In civics session 10, to prepare for graphing the results, students practiced analyzing multiple graphs provided in the curriculum. The guidance for the last segment of the lesson was written under a heading that said: "Review what students learned; discuss why authors use graphs and how students can use graphs in their proposals" (Duke et al., 2015a, p. 35). The detailed text of the lesson step called for teachers to do the following:

> Gather the students back together. Ask them what they learned from their **graphs**. Have students discuss **reasons** why **authors** use **graphs**. Remind them that using graphs is one way to summarize and present information. Guide students in understanding that all the graphs are about citizens' use of government services (recycling, park usage, and public schools). Tell students in a couple of days they will be making **graphs** to summarize their survey results for their proposals. (Duke et al., 2015a, p. 35, boldface text in the original)

To summarize, the lesson plan called for teachers to orchestrate a discussion that would connect their work during the lesson (practicing analyzing graphs by answering questions about them on a handout) to an instructional point about why authors might use graphs in their writing,[20] as well as to connect that day's activity to what they would be doing later in their project (making graphs to summarize their survey results for their proposals). During this discussion, the lesson step also guided teachers to make a reference to a piece of social studies content they had focused on earlier in the unit—the idea that one of the roles of the local government is to provide various services for the community.

This lesson step included a lot of detail about *what* teachers should talk about with their students during this part of the lesson. It also included some guidance for the kinds of contributions teachers should elicit from students as well as what teachers themselves should contribute to the conversation. Even with this amount of detail, though, teachers had to do quite a bit of improvisational work in order to translate this guidance into interactions with students. Indeed, both Ms. Rawski's and Mr. Costa's translations of this single paragraph of guidance took more than 10 minutes—an indication of the amount of improvisational work that was involved.

Ms. Rawski and Mr. Costa's translations of this part of the lesson step—which had notable differences as well as some interesting similarities—illustrate the complexities involved in translating this kind of guidance into instructional interaction. Tables 4.1, 4.2, 4.3, and 4.4 include the text of each part of the lesson step and descriptions and/or transcripts of the two

[20] This instructional point was connected to one of the ELA standards that the plan was designed to address: **"**RI.2.7 Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text" (National Governors Association for Best Practices [NGA] & Council of Chief State School Officers [CCSSO], 2010).

teachers' lessons. After each table, I comment on the nature of the work each teacher did to translate that part of the guidance into instructional interaction.

Table 4.1
Descriptions and Transcripts of Ms. Rawski's and Mr. Costa's Translations of Civics Session 10 Step 4a

Description/Transcript of Ms. Rawski's translation	*The text of lesson step 4a*	*Description/Transcript of Mr. Costa's translation*
One of the graphs on the handout is projected on the SmartBoard. **Ms. Rawski:** Okay. Raise your hand if you did the "school attendance in Kalamazoo, Michigan" page. *Several students raised their hands.* *Note: each student in Ms. Rawski's class had only analyzed one of the three graphs included in the handout, so at this point in the lesson, Ms. Rawski had the students share what they had learned about the graph they had analyzed with those who had not analyzed that graph.* **Ms. Rawski:** Okay, so what did you guys learn when you looked at this bar graph? What did you learn about school attendance in Kalamazoo, Michigan? Demarco? **Demarco:** It was more people who went to— **Jamila:** The students attended public schools— **Ms. Rawski:** There's more kids who attend public school— **Jamila:** Instead of private school. **Ms. Rawski:** Instead of private schools. And why did you guys think that is? **Jamila:** Because they don't want to pay. **Ms. Rawski:** You think most families don't want to pay for their kids to go to school. **Demarco:** Because there's more—it's three-hundred forty *[pause]* six —	Gather the students back together. Ask them what they learned from their **graphs**. *Note: the heading of this lesson step, which was written before the text of the lesson step in boldface type and was highlighted in gray, said:* ***"Review what students learned; discuss why authors use graphs and how students can use graphs in their proposals."***	*One of the graphs on the handout is projected on the SmartBoard.* **Mr. Costa:** All right, let's bring it back, let's bring it back. Go ahead and pull out the one that started with "City Parks in Battle Creek and Saginaw." *[Helps students make sure they are looking at the right page of the handout.]* Okay. So, you definitely always want to read the title first 'cause it's going to tell you what you're looking at. How many city parks are in Battle Creek, Michigan and Saginaw, Michigan. What are Battle Creek and Saginaw? They're what? *[pause]* What are they? **Student:** Cities? **Mr. Costa:** They're cities in Michigan. Okay? So here are the number of city parks in Battle Creek *[points to the graph],* Here are the number of city parks in Saginaw. Can anybody tell me what the unit increments are here? Are they 10 again? How much is each line as you go up on that graph? It's critical you pay attention to these things. Louis? **Louis:** Two? **Mr. Costa:** Two! Yeah, this one is two. Is this one a percent? Or is this just a number? **Louis:** A number? **Mr. Costa:** It's just a regular number. Okay, so we can quickly look. It says "Battle Creek and Saginaw are cities in Michigan. Almost 52,000 people live in each city." So their population is very close. *[Refers to the first question on the handout that is projected.]* How many city parks *are* there in Battle Creek, Michigan? What did we say? How many city parks are there? Amira? *[Inaudible]* You're not even paying attention at all, are you? Don't even have the right page out in front of you? Preeda?

Ms. Rawski: Three *thousand* four hundred and ninety-six, so it was a big difference, wasn't there. And Paul, what was something that you noticed about the school attendance in Kalamazoo, Michigan? Something that you told me that you noticed? *[Stops to redirect a student and then rephrases the question to Paul.]* **Paul:** It's 12,000 kids that go to county school, I mean public school, and it's way more kids than that in that school than there is in this school 'cause they've got 12,000 and we've got 600. **Ms. Rawski:** Right, yeah, you noticed that there's *way* more kids in that community than there is in our community, right? All right, very good. *The class then discusses each of the other graphs. The transcript of this portion of the lesson is omitted to conserve space.*		**Preeda:** Twelve? **Mr. Costa:** Twelve, thank you. I can look up here—scan the lines right there, I move over and look—12. *[Writes 12 in the appropriate blank on the handout on the SmartBoard.]* How many city parks are there in Saginaw? Alexis? **Alexis:** Eighteen? **Mr. Costa:** Eighteen. Here's Saginaw, I look up, there's my line—over there, 18. *[Writes 18 in the appropriate blank on the handout on the SmartBoard.]* Okay. What does this graph tell you then? How would we answer it? *[Referring to the next question on the handout.]* I guess there's a few—some people were specific in their answer and some were just more general, and I was leading you guys to answer in a general way. That this graph helps us understand—what? How did you word it? Maurice? **Maurice:** How many parks in Saginaw and Battle Creek. **Mr. Costa:** How many parks in Saginaw and Battle Creek. If you said that, that would work. Did anybody answer it specific in using the data? Using, like a more or less? Logan? **Logan:** We said this graph helps us understand that kids in Saginaw go to schools— **Mr. Costa:** No, stop. You're all confused dude. This is number of *parks*. You're not looking at the title. This is not kids going to school. The other side was school attendance. You had too much going on. I guess this is how you could answer it. What if I said, "This graph helps us understand that Saginaw has *blank* parks than Battle Creek?" Would I say more or less? If I said, "This graph helps us understand that Saginaw has—" **Multiple students:** More! **Mr. Costa:** *More* parks than Battle Creek. If you said a statement like that, that's fine as well. *The class then discusses one of the other graphs. The transcript of this portion of the lesson is omitted to conserve space.*

When teaching this segment of the lesson, Ms. Rawski started by translating the guidance to "Ask [students] what they learned from their graphs" fairly literally. She asked, "Okay, so what did you guys learn when you looked at this bar graph?" After posing an initial question that was similar to the wording in the lesson plan, though, she had to improvise a series of follow-up questions (without guidance from the lesson plan) to lead a conversation about what students learned from their graphs.

For much of this interaction, Ms. Rawski posed questions and called on the students who had raised their hands to answer. At one point, though, Ms. Rawski asked a particular student, Paul, to share a specific observation that he had made about the graph during the independent work time. Later in the interaction, she asked a couple of other students to do something similar. In the post-lesson interview, she explained why she asked these particular students to share their observations, saying:

> I liked—I wanted those kids to say those things especially because they weren't necessarily the kids that always come up with—notice things like that. Paul usually would not even really do the work. For him to notice something like that was really good. . . . It was a good chance for [Paul and a couple of the other kids she had called] to be spotlighted with making a really worthwhile observation, so I was really glad to highlight them.

Ms. Rawski's desire to highlight these students' observations played a role in the ways in which she translated guidance to ask students what they had learned from the graphs.

Mr. Costa's approach to starting the review and reflection was different from Ms. Rawski's. He did not ask an open-ended question about what students had learned from their graphs. Instead, he walked the class through the handout they had just finished working on,

asking specific questions about the graphs prompting students to share their answers to the questions on the handout, and then evaluating their answers. This part of his translation could be viewed as a much less literal way to take up the guidance to "Ask [students] what they learned from their graphs"—or perhaps a translation that was more closely connected to the heading for the lesson step (i.e., "Review what students learned") than the more detailed part of the step. Alternatively, it could be viewed as departure from the guidance in the lesson plan altogether. Indeed, because the lesson plan did not call for teachers and students to go over all of the answers on the handout together or for the teacher to evaluate the quality of students' answers, this part of Mr. Costa's instruction could be seen as a segment of instruction that he added to the plan in his translation.[21]

Whether or not Mr. Costa's translation included an additional segment of instruction or simply a much looser interpretation of the guidance to "ask students what they learned," however, the end result was that the character of his conversation with students—which seemed to be focused on evaluating students' answers to specific questions about the graphs—was different from Ms. Rawski's, which could be characterized as a more open-ended discussion about what students had learned from the graphs and interesting things they had noticed.

In Table 4.2, we see how each of the teachers translated the next part of guidance for the review and reflection—guidance that called for them to continue the discussion and then make an instructional point about why authors sometimes include graphs in their writing.

[21] In my own analysis, I ultimately classified this segment of Mr. Costa's lesson translation as a "significant addition" to the lesson plan. However, I consider this to be an example of a boundary case between the categories of "filling in" and "significant addition" to the lesson plan. Indeed, later in this chapter, I explain that filling in the guidance and making significant additions to the guidance lie on a continuum and that there is not a clear boundary between the two categories.

Table 4.2
Descriptions and Transcripts of Ms. Rawski's and Mr. Costa's Translations of Civics Session 10 Step 4b

Description/Transcript of Ms. Rawski's translation	*The text of lesson step 4b*	*Description/Transcript of Mr. Costa's translation*
Ms. Rawski: So, why do authors use graphs? Why do authors use graphs in their writing? *[pause]* Aaliyah? *[pause]* Why do authors use graphs, Aaliyah? *[Interruption to address a student behavior.]* Aaliyah, why do authors use graphs in their books? **Aaliyah:** To help us. **Ms. Rawski**: How does a graph help us, though, Aaliyah? **Aaliyah**: To know, like, something. **Ms. Rawski**: Michelle, how does a graph help us? *[Student response is inaudible.]* **Ms. Rawski:** Help us know how to do numbers and what? Learn more? *[pause]* If I just said to you, "In Los Angeles, only 6% of the population uses public transportation." Or if I showed you this graph and said *[points to graph]* "Only 6% of the population rides public transportation. Look at this graph." Which one is more memorable to you? My sentence or my graph? **Students**: Graph. **Ms. Rawski**: *Why* is it more memorable? *[Some students respond, but the teacher seems to be asking this as a rhetorical question and continues.]* When you see this, doesn't this kind of show you how little this is and how big this is? It kind of makes a picture in your mind, right? Sometimes seeing that graph really makes it stick in your brain, doesn't it? Yeah.	Have students discuss **reasons** why **authors** use **graphs**. Remind them that using **graphs** is one way to summarize and present information. **Authors** sometimes put them into texts to help readers understand information.	**Mr. Costa**: Why do we use graphs? Why do we use graphs? What's the purpose? Malik? **Malik**: So we'll know which part is the most or less. **Mr. Costa**: Well? It does tell you amounts, right? It's one way to give a quick summary of data. *[Interruption to address a student behavior.]* Okay, again, why do we use graphs? He said to tell what things are more or less. **Student**: To help us understand amounts. **Mr. Costa**: To help us understand amounts of something. All right? To help us get a better understanding and present some sort of information. Why do *authors*—Or I guess, how about this—what kind of genre of writing will authors use graphs in, do you think? What genre? *[pause]* What genre of writing? *[pause]* Like, realistic fiction, fantasies, informational text? What do you think? Henry? **Henry**: Informational texts. **Mr. Costa**: Yeah, informational texts, a lot of the time, will show you graphs. How many of you guys like to look at those science books, and there's almost always graphs that help you see and understand something about whatever that concept is. All right?

In this part of their discussions, both teachers included fairly literal translations of parts of the guidance. Indeed, Ms. Rawski started translating the guidance to "Have students discuss reasons why authors use graphs" by simply asking "Why do authors use graphs?" After a couple of

students offered seemingly vague responses to this question, Mr. Rawski didn't ask for any other student responses but instead went ahead and tried to make an instructional point that was called for in the lesson plan ("Authors sometimes put [graphs] into texts to help readers understand information") explicit to the class. To make this point, she referred back to one of the graphs the class had analyzed and emphasized that seeing information in a graphical form can be more memorable than simply hearing (or reading) that same information.

Mr. Costa also translated some aspects of this part of the guidance fairly literally. He translated guidance to "Remind [students] that using graphs is one way to summarize and present information" by asking "Why do we use graphs" and then by building on students' responses (which, like the student responses in Ms. Rawski's class, were relatively vague) to explain that graphs "help us get a better understanding and present some sort of information." Mr. Costa then shifted the focus more directly to the question of why authors use graphs. It appears that he did not think that it would be helpful to ask "why do authors use graphs" directly, so after beginning to ask this question, he stopped and reformulated his question to focus on the genres in which authors use graphs. He then referred to the science books in the classroom as an example of texts that include graphs "that help you see and understand something about what the concept is."

In both cases, the teachers appeared to be staying very close to the guidance in the plan pertaining to asking for student contributions and pertaining to particular instructional points they should be making. In order to follow this guidance, however, both teachers had to do work that was not guided in the plan to elicit and respond to students' contributions and to figure out how to build on what students had said in order to move the conversation toward the instructional point. They also had to determine exactly what to say and do to make the instructional points that were included in the lesson plan. In the course of doing so, both teachers

seemed to come up with examples on the spot (i.e., the graph from the handout and the science books) that they could use to help them make the instructional points that the lesson plan had called for them to make.

In Table 4.3, we see that neither Ms. Rawski nor Mr. Costa translated the guidance contained in the next sentence in the lesson step. In Chapter 5, I will return to this example to focus on the question of why this might have been the case, but at this point, I will simply acknowledge that it was common for teachers to filter out parts of the guidance when translating lesson steps into instructional interaction.

Table 4.3
Descriptions and Transcripts of Ms. Rawski's and Mr. Costa's Translations of Civics Session 10 Step 4c

Description/Transcript of Ms. Rawski's translation	*The text of lesson step 4c*	*Description/Transcript of Mr. Costa's translation*
This part of the guidance was not taken up in Ms. Rawski's translation.	Guide students in understanding that all the graphs are about citizens' use of government services (recycling, park usage, and public schools).	*This part of the guidance was not taken up in Mr. Costa's translation.*

In Table 4.4, we see how Ms. Rawski and Mr. Costa concluded their lessons by translating the last part of the lesson step.

Table 4.4
Descriptions and Transcripts of Ms. Rawski's and Mr. Costa's Translations of Civics Session 10 Step 4d

Description/Transcript of Ms. Rawski's translation	*The text of lesson step 4d*	*Description/Transcript of Mr. Costa's translation*
Ms. Rawski: Okay, I'm gonna wait another minute until we stop squirming around. *[Calls a couple of students' names.]* Okay, so. When we get back all our surveys that we're doing, we'll be able to do the same thing with *our* information and make graphs that show how many people know where our parking lot is, and that show how many people have *used* the parking lot, and make graphs that show what ideas people have—like how many people would like to maybe add a *trash can* or maybe add *flowers* or maybe turn it into a *basketball court*— **Student**: Or maybe have a gate around it. **Ms. Rawski**: Or maybe have a gate around it. Exactly. And we'll be able to look at our graphs and see, using the graphs, what ideas people have, and if their ideas matched ours. And that will help us write our proposal. Okay?	Tell students in a couple of days they will be making **graphs** to summarize their survey results for their proposals.	**Mr. Costa:** So we will be making graphs, what do you think *about*? Coming soon, what do you think we're gonna be graphing? Mackenzie? **Mackenzie**: A petition? **Mr. Costa**: You can't *graph* a petition. What do you think we'll graph? I gotta go to Carson. **Carson**: What we're gonna [inaudible]. **Mr. Costa:** Well, no, we're not gonna graph what we're gonna tell them, we're gonna graph the results of our survey, guys. We did this already. We're going to graph the results of our survey. So, we need to have these by Monday. All those people who didn't, I'm gonna send home another copy if it. You just need to get two people, two residents. If you can't ask your neighbors, you can even ask your parents. So that we can get a better sample size to see what other people think about the changes that can be made to the Cora Howe Park.

Ms. Rawski again translated this part of the guidance somewhat literally, by telling students more or less what the lesson plan had asked her to tell them but personalizing this information based on the details of their specific project. Mr. Costa, on the other hand, used an instructional technique that many teachers commonly used when translating guidance to "tell students" something. Instead of simply "telling" them that they would be graphing their survey results in a couple of days, he asked a question to try to get students to contribute this information.

When the first student he called on (Mackenzie) gave an answer he wasn't looking for, he responded in a somewhat exasperated tone: "You can't graph a petition. What do you think we'll graph?" He immediately followed this by saying, "I gotta go to Carson." Carson was a student Mr. Costa called on frequently, and in another Project PLACE lesson that involved sharing

examples of student writing, I had observed Mr. Costa use Carson's work as an example for others to emulate. It seemed, based on what I observed in this lesson and others, as well as on a comment Mr. Costa made in an interview, that Mr. Costa considered Carson to be a "strong" student whom he could rely on to give correct answers when other students couldn't.

When Carson, too, gave an answer that was different from what Mr. Costa was looking for, it seemed that Mr. Costa gave up on trying to elicit the answer from students and decided to simply tell them instead. He closed the lesson with a reminder that was apparently needed in his particular context—a reminder for students to finish getting people to complete the surveys they had created so that they would actually have something to graph when the time came.

Again, Ms. Rawski and Mr. Costa employed different techniques to translate this piece of guidance (i.e., simply stating the content in the plan versus asking questions to prompt students to say it) and also tailored the content to their specific situations. The tone of their interactions with students during this part of the translation was also different. While Mr. Costa appeared to be somewhat disappointed with students' responses during this interaction, Ms. Rawski translated this part of the guidance in a way that seemed to express interest in moving forward with the project and seeing what students would find out from the results of their surveys.

Concluding comments about this example. I have commented on several differences between Ms. Rawski's and Mr. Costa's translations as well as on some notable similarities. Although there were differences between these two translations, it is important to acknowledge that both teachers appeared to be attempting to stay very close to the guidance as they translated it. Indeed, both teachers had the lesson plan with them as they taught this portion of the lesson, and Mr. Costa even made a comment about his intent to follow the plan as he finished going over students' responses on their handout, saying, "All right, before we go on, let me make sure I'm

using my conclusion right." Even so, because the work of translating guidance from a lesson plan involves quite a bit of improvisation, the two teachers' translations ultimately played out in different ways.

It is also notable that a lot of the improvisational work involved in translating this lesson step was related to eliciting and responding to contributions from students. Indeed, the lesson step only explicitly called for student contributions in two places: "Ask them what they learned from their graphs" and "Have students discuss reasons why authors use graphs" (Duke et al., 2015a, p. 35). However, when Ms. Rawski and Mr. Costa taught this segment of the lesson, they each formulated approximately 20 specific questions (as well as other kinds of prompts) to elicit and follow up on contributions from students. The nature of the specific questions that they asked (e.g., open-ended questions versus questions that were seemingly intended to elicit one particular answer)—as well as their responses to how students answered these questions—played an important role in determining the character of each of their translations.

We do not know how the differences in Ms. Rawski's or Mr. Costa's translations of this particular part of the plan ultimately influenced what their students took away from this segment of the lesson, but when looking at the differences between their two translations—even in this case in which they were both staying close to the plan—it is possible to imagine how different ways of translating lesson guidance might yield different kinds of opportunities for student learning.

In the next two sections, I present the concept I developed—*filling in the guidance*—to describe the work involved in translation when teachers are "staying close to the plan," which was largely what the teachers in each of these examples were doing. I then describe different kinds of activities that are sometimes entailed in this work and use examples from the data to

illustrate them. Before turning my focus to the concept of *filling in*, though, I first focus on the concept of *literal translation* and use the data to illustrate why I found that this concept to be insufficient for characterizing the work teachers do when they are translating guidance from the lesson plan in ways that stay close to what the plan has specified.

The Role of Literal Translation in Teaching Project PLACE Lessons

In the examples of Ms. Rawski's and Mr. Costa's translations I described in the previous section, I sometimes used the word "literal" (or "relatively literal") to characterize parts of their translations. I used this word to refer to situations in which teachers seemed to do exactly what a piece of the guidance specified, without omitting anything, changing anything, or adding anything that was not explicitly called for.

It may seem that, in situations in which teachers are attempting to implement a curriculum with fidelity, as the teachers I observed had agreed to do, a teacher's default approach to translating guidance from the lesson plans might be to translate it as literally as possible. Indeed, literal translation may seem like the easiest and most straightforward way to convert guidance from a lesson plan into instructional interaction. However, my analysis of teachers' translations of Project PLACE lesson plans not only revealed that completely "literal" translation of the guidance was relatively uncommon (and nonexistent when considering an entire lesson translation), but it also revealed that, in many cases, "literal translation" didn't even seem to make sense as a way of describing what teachers were (or could have been) doing. The following paragraphs explain why I found this to be the case.

Cases of Literal Translation of Specific Details in the Guidance

In every lesson, I observed instances in which teachers literally translated certain details from the guidance—such as instructions to write or display something on the board, distribute a

handout, group students in a particular way for an activity, and so forth. There were also times when teachers literally translated parts of the guidance for what teachers should say by using some of the exact wording from the lesson plan.[22] Although it was common for teachers to translate certain details in the lesson plan literally, however, I rarely found an instance in which an entire "chunk" of guidance (i.e., an entire step in the lesson plan) was translated literally. Cases that did fall into this category seemed to involve lesson steps that were specific but narrow in scope (e.g., history session 10, step 4, which says: "Allow students to select one form of transportation from handout 9-A to write about for their postcard" [Duke et al., 2015b, p. 57]) or lesson steps that were stated broadly enough that they required teachers to exercise substantial discretion in determining how to translate them in a particular situation (e.g., geography session 8, step 5, which says: "Give students time to work on their planning sheet independently. Circulate among students to provide support as needed." [Duke et al., 2014b, p. 38]).

Cases of Literal Translation of Generally Worded Guidance

In cases where the guidance was more general, different teachers' translations could look quite different—even if both teachers could be said to be following the lesson step in a literal fashion. Literal translations of guidance to "circulate among students to provide support as needed," for example, could encompass a lot of variation in terms of the primary focus of teachers' support, the instructional techniques teachers used to support students, their apparent judgments about which characteristics of students' work or behavior signaled the need for support, and so forth.

[22] This happened even though the Project PLACE lesson plans rarely included scripts for teachers to use verbatim. When teachers used language from the lesson plan, however, they generally incorporated phrases from the lesson plan within a larger, improvised interaction with their students.

We can see this in translations of this lesson step in session 8 of the geography unit. Both Ms. Foster and Ms. Rawski translated the lesson step to "circulate among students and provide support as needed" literally. (Ms. Parrish did not because she interspersed the independent work time with segments of whole group instruction that were not specified in the plan.) As they circulated, Ms. Rawski and Ms. Foster both supported their students by helping them brainstorm ideas for their planning sheets when they seemed to be stuck. However, as Ms. Foster supported her students, she emphasized that they should only write one fact per box on their planning sheet, and that they should not include a lot of details because they would be adding those in later, when they were actually drafting their writing. Ms. Rawski, on the other hand, seemed to do almost the opposite. Her support was focused on helping students expand on their initial ideas (i.e., by adding additional detail) and then record these ideas on their planning sheets in complete sentences. Because of the differences in what teachers seemed to see as "quality work" on the planning sheets, the translations of this lesson step looked different in these two classrooms even as teachers both translated the guidance in a literal fashion.

Cases in Which It Was Unclear What Would Count as a "Literal" Translation

Although I occasionally observed translations of lesson steps that I would characterize as "literal" translations, the vast majority of the lesson step translations I observed did not fall into this category. One reason for this is that teachers often departed from some of the details of the guidance when translating lesson steps, but a more fundamental reason is that, for much of the guidance provided, it was not clear what would or would not constitute a literal translation in the first place. For instance, one of the early steps in civics session 5 called teachers to do the following: "Review the chart from session 4 briefly to highlight differences in our civic responsibilities and government responsibilities" (Duke et al., 2015a, p. 30). The first part of this

lesson step: “Review the chart from session 4” was stated in a way that made it possible to determine whether or not teachers translated it literally. However, it was much more difficult to determine whether teachers literally translated the guidance to use the review “to highlight differences in our civic responsibilities and government responsibilities.”

When Mr. Kopp translated this lesson step, he revisited each section of the chart—reminding students of the meaning of the word “responsibilities” (which was the title of the chart) and then briefly reviewing examples of each type of responsibility that was listed—personal, civic, and government. As he walked through examples from each column of the chart, he included some description of each of the categories (e.g., “civic is like when you go outside your home and you’re in the community”; “the government’s the people who are in charge of making sure—that we can enforce those laws, and they keep us safe”).

Was Mr. Kopp’s review a literal translation of the guidance to review the chart “to highlight differences in our civic responsibilities and government responsibilities”? Possibly, but a case could also be made that his review was not solely focused on that purpose, or that it did not highlight the differences clearly enough to count as a literal translation. Because this lesson step specified a purpose for the review (i.e., “to highlight differences in our civic responsibilities and government responsibilities”) but did not specify *how* to do the review in a way that would accomplish this purpose, it was not clear what would and would not count as a literal translation—a translation that did not add to or subtract from what was specified—of this piece of guidance.

The Work Involved in Following the Guidance

In each of these kinds of cases—cases in which the guidance was general enough to encompass a wide range of teacher activity as well as cases in which it was unclear what it would

mean to translate the guidance literally—it was striking to observe how much the teacher had to do *without* guidance in order to take up the guidance that *was* provided. Indeed, in order to explain or highlight a piece of content, support students during their independent work, or have students work on an activity in small groups (all of which were kinds of guidance that were commonly included in the lesson plans), the teacher had to determine *how* to accomplish this in her particular situation. Determining how to do what the lesson plan called for involved employing specific teaching techniques as well as making judgments about what students needed and what to expect of them (both individually and as a group) about the relative importance of aspects of the content, and so forth. In determining how to do what the lesson plan called for, teachers likely made conscious decisions as well as simply (and likely unconsciously) drawing on their habits, routines, and ways of being to bring the lesson to life in their classroom. These parts of the teacher's work were not (and could not have fully been) guided by the lesson plan.

As I mentioned earlier, I came to see this kind of work—the work teachers did without guidance from the lesson plan in order to do what was specified—as the fundamental process involved in translating guidance from the lesson plan into instructional interactions. I call the process of doing the work needed to take up the guidance a process of *filling in the guidance* provided in the plan. In the next section, I define *filling in* and describe different types of activity that may be involved in this process.

Filling In the Guidance

I define *filling in the guidance* to be the work of doing what is called for in the guidance, which inherently involves determining[23] *how* to do what is called for in particular moments with

[23] As I alluded to in the previous section, I use the term "determining" to encompass more than conscious decision-making. Much of what teachers do to determine *how* to do what is called for involves action that may or may not be the result of a conscious decision.

particular students within a particular instructional environment. Determining *how* to do what is called for might sometimes involve literal translation of parts of the guidance, but it might also involve a less literal interpretation, as I will illustrate in this section. Regardless, I use the term *filling in* to highlight the reality that—even when teachers are translating guidance literally (e.g. instructions to "circulate and support students as necessary" or "review the chart from session 4")—the instructional work they are doing cannot be fully guided but instead requires them to determine what it looks like to do what is specified in a particular situation. Characterizing teachers' translation of guidance as "filling in" (rather than "following" or "taking up" the guidance) also allows for the idea that, when teachers are determining how to do what the plan calls for in a particular instructional situation, this often involves something other than the most literal translation of the guidance. Indeed, teachers' goal is not to follow the lesson plan literally but rather it is to teach their students. So, in many cases, it makes sense (based on the nature of the guidance as well as the nature of the situation) to fill in the guidance in ways that are not as literal as they possibly could be.

We see an example of this in Ms. Parrish's translation of a lesson in the civics unit that called for students to partner read a text to learn about the responsibilities of the local government. To prepare students for this activity, the lesson plan asked teachers to "Tell students that they should read to find out what the local government's responsibilities are, as well as why the local government is important" (Duke et al., 2015a, p. 31). Ms. Parrish filled in this guidance by translating it into the following form:

> Ms. Parrish: Okay, so we're going to read this book in partners, *How Local Government Helps Citizens. [Holds up a copy of the book.]* But while you're reading, I want you to think about some things. Yes, we already

said, Daniel, that you're going to learn facts and information, but I want you to find out: What are the local government's responsibilities? Are they in charge of making your school lunches? What do you think? Do you think that's going to be in here? *[pointing to the book]*

Students: No!

Ms. Parrish: Okay, do you think they're in charge of buying you summer clothes, so you have shorts that fit you?

Students: No!

Ms. Parrish: Evan, do you think that's one of the jobs that's going to be in here?

Student: No.

Ms. Parrish: Okay, so we want to hear about what kind of responsibilities they have, and then I also want you to think about and talk about with your friend why the local government is important. Why is it important that we have firefighters, mayors, trash removal, park cleaners?

Ms. Parrish did what the lesson plan said to do—even using some of the wording provided (e.g., "the local government's responsibilities"; "why the local government is important"). Even so, she did not translate the guidance literally. Instead of simply telling her second graders the two things they should read to find out (which would perhaps have been the most literal way of translating the guidance), she improvised an interaction with them, asking rhetorical questions about things that were clearly *not* part of the local government's responsibilities in order to prime them to read to find out what the local government's responsibilities *were.* The approach Ms. Parrish used to "tell students [what] they should read to find out" is one of many possible ways—beyond simply stating what was in the lesson plan—of filling in this piece of guidance.

Determining *how* to do what was called for, including whether or not to translate pieces of guidance literally, was part of the work inherent in filling in guidance from a lesson plan in instruction.[24]

Four Activities Often Involved in Filling In

When teachers did not use the most literal translation of the guidance as the filled it in, their translations included small departures from the guidance and/or elements that were not explicitly called for in the lesson plan. The process of filling in often involved one or more of the following activities:

- Elaborating on the guidance;
- Filtering out detail from the guidance;
- Changing the sequence; and
- Using modified or additional student materials.

We can see examples of each of these activities in different teachers' translations of the lesson on local government.

Elaborating on the guidance. Because instructional talk cannot be scripted (and indeed, Project PLACE lesson plans did not attempt to script instructional talk but rather provided concise descriptions of the content teachers and students should talk about), teachers' translations were often more complex than the most literal translation would be. When Ms.

[24] It is important to note here that I am not trying to imply that "literal translation" is inherently better or worse than less literal forms of filling in—even from the perspective of the curriculum developer. In this vignette, for example, the lesson plan gave guidance for what teacher should tell students but did not provide a script for the exact language teachers should use. In this case, the curriculum developers likely expected and wanted teachers to translate the guidance in a way that involved more complexity than what was written in the lesson plan (i.e., something more than using a single sentence to give directions for the activity). For other parts of the lesson plan, however, the curriculum developers may have seen a more literal translation as the "best" way of translating the guidance. Even then, there are likely to be certain circumstances in which the curriculum developers would acknowledge that a literal translation might not be feasible or "best." Regardless of the wishes of the curriculum developers, though, teachers are the ones who have the responsibility to decide when a literal translation of guidance is useful and when a less literal translation (or a departure from the guidance altogether) is more appropriate.

Parrish filled in the guidance for telling her students what to "read to find out," for example, she elaborated on the guidance by translating it into an interaction that included a series of questions not called for in the plan. Elaborations of this type were common: teachers translated guidance such as "tell," "explain," "remind," or "demonstrate" into more complex interactions in which students were invited to contribute.

Not only did teachers elaborate on the guidance by using more complex interactions than were explicitly called for, but they also elaborated on the lesson's content when filling in the guidance—incorporating detail into their translation that was not included in the lesson plan. We see an example of this in Ms. Parrish's introduction of the term *local government* in the civics lesson. In this lesson, the plan called for the teacher to introduce the term *local government* by naming the three branches (the mayor, the city council, and the judges) and by briefly describing what each branch was responsible for. It also asked teachers to outline some of the services provided by the local government.

When Ms. Parrish translated this guidance into instructional interaction, she elaborated on several of the details contained in it. First, she began her explanation by introducing and providing examples to illustrate the meaning of the word "local," even though this was not called for in the plan. She also elaborated on the part of the plan that asked teachers to explain that the city council members "are elected by the people of the city" by asking students to make predictions about how the city council members were chosen and then leading them to say that the people of the community vote to select them. We can see these elaborations in a transcript of her translation, included in Table 4.5 below.

Table 4.5
Examples of Elaborations in Ms. Parrish's Translation of the Guidance for How to Introduce "Local Government"

Ms. Parrish's translation (all text is Ms. Parrish's talk unless otherwise specified)	*Text of the lesson step*	*Examples of elaborations*
So first let's talk about what local government is. *[Pauses to answer a student's question that is unrelated to the lesson.]* The word *local* means near you. If I go to a local restaurant, I'm not going to a restaurant in California, I'm going to one near me. Okay? So the word *local* means "near you" and local *government* are people in our community, like our city, our city of Oakdale, not people in Texas or Florida *[Briefly addresses student behavior,]*	Explain that the **local government** refers to a group of people in a local community, such as a city,	Ms. Parrish defined the word "local" and illustrated what it meant.
and they're the people who make and enforce laws around us. So, police officers in Oakdale, not police officers in Colorado, the mayor of Oakdale, not the mayor of New York City. *Local* is the people near us, okay? And local *government* are the people near us who are in the government. *[Briefly addresses student behavior.]*	that make, enforce, and explains laws to help make the community safe and to ensure fairness. Help students understand that the local government is comprised of people:	Ms. Parrish gave examples of members of the local government.
Okay, so the local government usually has the mayor, the city council—the city council is usually some people that sit with the mayor and talk with the mayor and help him make decisions or talk to people and see what kinds of things they want to happen in their city. They even have meetings where people can come up and talk. So if I didn't like that all the parks were closed in Oakdale, I could go up and talk to them about it. Or if I didn't like that one of the parks didn't have swings, I could write a letter that they could read at their meeting. Any of you think you could do that? That's kind of what we're starting to talk about, isn't it? How do you think they get their jobs? Do you think the mayor says, "Hey! You're my friend, you're my buddy, I like you, you got pretty hair, you're pretty cool. Why don't you guys come be on the city council?" Do you think that's how they get picked? *Students say "no" and then Ms. Parrish asks how the city council members get chosen and then supports students in explaining that they are chosen, saying,* "Think about how we pick people in our country? How do you think they get chosen? What were the people doing here on Tuesday, in our gym?...." *to support students in providing this explanation.*	the mayor, who is the leader of the city; city council, which is a group of usually 6-12 people (more for very big cities) who are elected by the people of the city to make decisions for the city,	Ms. Parrish provided some information about the city council (e.g., they talk to people, they have meetings, etc.) Ms. Parrish made a connection to the students' project by explaining that people could write letters to the city council about issues in their community (e.g., issues with a park). Ms. Parrish asks students how they thought city council members got their jobs.
There's also judges who help explain laws and take care of people who break laws. *[Pauses to address a student behavior.]*	and judges who help explain laws and determine whether people have broken laws.	

We talked about some of the services that people have—um, they might have wants and needs, and some of the services take care of those.	Ask students whether they know of any services that the local government provides. Tell students that services are the work or acts that people do to satisfy the wants or needs of consumers.	
There's also librarians—remember the one that came to our class?—police officers, fire fighters, people who take care of trash and snow in our city, and even people who take care of the parks, which we've been talking about for our project. Those are all people who are part of our local government. Do you think those people take care of the parks in Europe, like we were talking about this morning? No, they take care of the parks only in Oakdale, 'cause only *local* government. *[Explains that other neighboring communities have their own local government service providers.]*	Explain that the local government provides schools, libraries, police officers, fire fighters, trash removal, snow plowing, and park maintenance, so these are all part of the local government, too.	Ms. Parrish reiterates the meaning of the word "local" by emphasizing that the Oakdale government only provides these services for Oakdale, and other communities have their own service providers.

Elaborations like these were common as teachers communicated the content from the lesson plan in their instruction.

Filtering out detail from the guidance. When teachers filled in guidance from the lesson plans, some of the details were often "lost in translation"—either filtered out due to deliberate decisions by the teacher about what was appropriate for her particular situation or simply as a matter of course when translating detailed guidance into instruction in real time. Indeed, when translating guidance in the moment, teachers might miss or forget certain details. Also, teachers' interpretations of the meaning of the guidance might influence what is included and what is filtered out as they translate the words on a page into improvised instructional interactions.

In Ms. Parrish's translation of the guidance for introducing local government, we also see examples of details that were filtered out (see Table 4.6). For example, she did not explicitly state that the purpose of the local government is to "help make the community safe and to ensure fairness" or explain that the city council "is a group of usually 6-12 people"; nor did she define

"services" as "works or acts that people do to satisfy the wants or needs of consumers" (a reference to a definition that students had previously encountered in the economics unit). These bits of content, although they were included in the Project PLACE's guidance for how to introduce the larger concept of *local government*, were omitted in Ms. Parrish's translation of this lesson.

Table 4.6
Examples of Filtering Out Details in Ms. Parrish's Translation of the Guidance for How to Introduce "Local Government"

Ms. Parrish's translation (all text is Ms. Parrish's talk unless otherwise specified)	*Text of the lesson plan*	*Examples of details that were filtered out*
So first let's talk about what local government is. *[Pauses to answer a student's question that is unrelated to the lesson.]* The word *local* means near you. If I go to a local restaurant, I'm not going to a restaurant in California, I'm going to one near me. Okay? So the word *local* means near you and local government are people in our community, like our city, our city of Oakdale, not people in Texas or Florida *[Briefly addresses student behavior,]*	Explain that the **local government** refers to a group of people in a local community, such as a city,	
and they're the people who make and enforce laws around us. So, police officers in Oakdale, not police officers in Colorado, the mayor of Oakdale, not the mayor of New York City. *Local* is the people near us, okay? And local *government* are the people near us who are in the government. *[Briefly addresses student behavior.]*	that make, enforce, and explains laws to help make the community safe and to ensure fairness. Help students understand that the local government is comprised of people:	Ms. Parrish did not say that the local government "explains laws" or mention that the purpose of the local government is "to help make the community safe and ensure fairness." She also might have done more to explicitly make the point that "the local government is comprised of people."
Okay, so the local government usually has the mayor, the city council—the city council is usually some people that sit with the mayor and talk with the mayor and help him make decisions or talk to people and see what kinds of things they want to happen in their city. They even have meetings where people can come up and talk. So if I didn't like that all the parks were closed in Oakdale, I could go up and talk to them about it. Or if I didn't like that one of the parks didn't have swings, I could write a letter that they could read at their meeting. Any of you think you could do that? That's kind of what we're starting to talk about, isn't it? How do you think they get their jobs? Do you think the mayor says, "Hey! You're my friend, you're my buddy,	the mayor, who is the leader of the city; city council, which is a group of usually 6-12 people (more for very big cities) who are elected by the people of the city to make decisions for the city,	Ms. Parrish did not mention that the mayor is "the leader of the city" or that the city council "is a group of usually 6-12 people (more for very big cities)."

I like you, you got pretty hair, you're pretty cool. Why don't you guys come be on the city council?" Do you think that's how they get picked? *Students say "no" and then Ms. Parrish asks how the city council members get chosen and then supports students in explaining that they are elected, saying,* "Think about how we pick people in our country? How do you think they get chosen? What were the people doing here on Tuesday, in our gym?...." *to support students in saying that people vote on them.*		
There's also judges who help explain laws and take care of people who break laws. *[Pauses to address a student behavior.]*	and judges who help explain laws and determine whether people have broken laws.	Ms. Parrish does not say that judges "determine whether people have broken laws" but instead says that judges *take care* of people who break laws. (This is an idea she emphasizes later in the lesson as well, while downplaying attention to the idea that judges interpret laws.)
We talked about some of the services that people have—um, they might have wants and needs, and some of the services take care of those.	Ask students whether they know of any services that the local government provides. Tell students that services are the work or acts that people do to satisfy the wants or needs of consumers.	Ms. Parrish does not ask students whether they know of services that the local government provides. She also does not define the term "services" explicitly. (The definition in the plan refers back to a definition of "services" that students learned about in the economics unit.)
There's also librarians—remember the one that came to our class?—police officers, fire fighters, people who take care of trash and snow in our city, and even people who take care of the parks, which we've been talking about for our project. Those are all people who are part of our local government. Do you think those people take care of the parks in Europe, like we were talking about this morning? No, those people take care of the parks only in Oakdale, cause only *local* government. *[Explains that other neighboring communities have their own local government service providers.]*	Explain that the local government provides schools, libraries, police officers, fire fighters, trash removal, snow plowing, and park maintenance, so these are all part of the local government, too.	Ms. Parrish doesn't mention "schools" when listing these services.

Filtering out guidance in instruction not only involved omitting details altogether, as we see in the example above, but also substituting other ways of doing what the lesson plan calls for.

For example, later in the civics session 5 plan, the guidance called for students to read a text in pairs. Rather than doing this, Ms. Parrish had students read in groups of three instead. In the post-lesson interview, Ms. Parrish indicated that she made this change deliberately—explaining that she found partner work to be most productive when she allowed students to choose one partner and then she added another student to the group who she thought would be a good complement.

Regardless of whether it was deliberate or not, filtering out detail from the lesson plan—either by omitting some of the detail or by using alternative approaches to accomplish what the lesson plan said to do—was common as teachers filled in the guidance.

Changing the sequence. Another way in which teachers departed from details of the lesson plan was by making small changes to the lesson sequence. We can see this in Ms. Brevard's translation of the lesson on local government. The first step in this lesson plan asks teachers to review the roles of government and have students discuss what life would be like without government—topics that had already been explored to some extent in previous lessons. After this discussion, teachers are asked to introduce the concept of *local* government, which was the focus of the rest of that day's lesson. When Ms. Brevard translated this lesson into instruction, her lesson unfolded somewhat differently from the sequence outlined in the plan. Rather than discussing government more generally and then zooming in to focus on local government, she orchestrated the introductory discussion toward imagining what life would be like without government at the local level. During this discussion, she included some explanation of local government (e.g., the different branches, the services provided, and so forth) as needed. Because she wove this information into the introductory class discussion, she did not provide an explanation of local government later in the lesson, when the plan recommended that this

concept be first introduced. Instead, she gave a brief nod to the meaning of the word "local" and differentiated local government from other levels of government (i.e., contrasting the offices of governor and president with the office of mayor). In her translation, she included much of the content that was in the lesson plan, but she rearranged the content so that the beginning of the lesson had a different logical progression than the one outlined in the lesson plan.

Departing from guidance contained in or pertaining to student materials. Another way of departing from aspects of the guidance when filling in was by departing from the guidance contained in (or pertaining to) student materials that were provided to accompany the lesson plans. Although the student materials did not guide teachers in as explicit a way as the prescriptions that were included in the lesson plans, they did offer a form of guidance for how the lessons were to unfold. For instance, handouts provided in the curriculum materials contained guidance for how to structure students' work during the lesson, and student texts and visual aids contained guidance for how to represent content. Some student materials—such as planning sheets, written examples of writing, or posters with guidelines for assignments—also contained some guidance for the nature of support that should be given to students for their work on lesson activities. When teachers modified student materials or included additional student materials, they departed from the guidance in a sense, even if they did not depart from the steps in the lesson plan. When teachers did not use materials that the lesson plan guided them to use, they departed not only from the guidance from the lesson plan that specified the use of the materials but also from the form of guidance that was contained in the materials themselves.

In the lesson plan on local government, teachers were guided to use two student materials: the text *How Local Government Helps Its Citizens* (Duke, 2014), which was provided in the curriculum, and the chart of personal, civic, and government responsibilities that the class

was to have constructed in the previous lesson. All three teachers I observed used the student text in their lesson translations and did not modify it in any way. However, Ms. Parrish did not use the chart from the previous lesson in her instruction—when the lesson plan called for a review of the chart from the previous session, she instead reviewed the concepts that were represented on the chart (personal, civic, and government responsibilities) without actually referring to the chart itself. Although she filtered out the guidance for using the chart—and departed from the guidance pertaining to this student material—she appeared to be filling in the lesson step because she was doing what the guidance was calling for in a more general sense: briefly reviewing of the concepts from the previous lesson.

Mr. Kopp also made a small change related to student materials by incorporating a student material in his translation that was not called for in the lesson plan. When Mr. Kopp introduced the student activity for the lesson—reading the text with a partner—he created a chart that listed the two topics students were instructed to "read to find out" about. Although the lesson plan had specified these topics, it did not call for the teacher to create and display a written resource that students could use during their partner reading time. (In other lessons, the lesson plans *did* specify that teachers should create this kind of resource.) Therefore, Mr. Kopp's creation of this chart was a way in which he went beyond the most literal translation of the lesson plan when he was filling in guidance for setting up and supporting students during their work in the lesson.

When Ms. Parrish and Mr. Kopp changed the guidance pertaining to student materials in their translation of steps in the civics lesson—Ms. Parrish by omitting use of a chart and Mr. Kopp by creating a chart that was not called for—their departures from the lesson plan were small enough that their translations of these lesson steps could still count as "filling in." Many of

teachers' modifications to the guidance pertaining to or contained in student materials seemed to fit in this category.

Filling In What Is Not Specified in the Lesson Plan

Regardless of whether teachers filled in pieces of guidance as literally as possible or whether they made small departures from the guidance in the course of their filling in, the process of filling in the guidance in instruction always involved doing the parts of instruction that were not—and could not—be specified. For example, when teachers filled in the guidance to "Review the chart from session 4 briefly to highlight differences in our civic responsibilities and government responsibilities" (an example mentioned at the beginning of this chapter from civics session 5 [Duke et al., 2015a, p. 30]) they had to figure out the following—none of which were fully specified in the plan (or in any of the other kinds of guidance provided by Project PLACE):

- What specific explanations and examples to include in the review—including what foundational information would need to be reviewed in order to support students' understanding of the "differences between our civic and government responsibilities"
- How to make use of the chart (and the previous class conversation) in the review—determining what to reference as well as what not to reference
- What ideas within the review to emphasize more and less (and how to do so, using body language, tone of voice, time, and so forth)
- Whether, when, and how to include student contributions in the review, and how to respond to the contributions that were made
- How the teacher, the students, and the chart should be positioned in the room
- How much class time to spend on the review and on each component of the review

The work of filling in these details involved attending to the particulars of the instructional situation—including the teacher's impression of how the previous session had gone and what kinds of review the students would benefit from, the teacher's responsiveness to students during the review, the teacher's knowledge of the space and time constraints in this particular classroom on this particular day, and so forth. Attending to these particulars when filling in the guidance might have led the teacher to depart from details of the guidance (by focusing on some foundational concepts in addition to focusing on the differences between civic and government responsibilities, for example) or it might not. Either way, however, filling in this piece of guidance would require the teacher to make use of professional skill and judgment that could not be supplied in the lesson plan.

Departing From the Guidance in Significant Ways

Although much of what I saw in lesson translations could be characterized as filling in the guidance, sometimes there were parts of lesson translations that looked so different from what was called for in the lesson plan that they could not be characterized in this way. Indeed, teachers often made significant departures from the lesson plan in the course of translating it into instruction—departures that were similar in *nature* to what they did when filling in but different in significance or magnitude. When translating an entire lesson, teachers often

- elaborated on what was called for to such a degree that they added an entire segment to the lesson as represented in the plan,
- omitted entire segments of the lesson as represented in the plan,
- restructured the sequence of instruction that was represented in the plan, and/or

- used different student materials than those called for (either by making significant modifications to the materials provided or by adding or omitting materials that changed the lesson in substantial ways).

Because the types of significant departures teachers made from the lesson plan were similar in nature to the types of activities involved in filling in, the boundary between what could be considered *filling in* and what would count as a *significant departure* was unclear. Indeed, when analyzing the data, I came to see the work of translation as falling along a continuum—with filling in the guidance on one end and significantly departing from the guidance on the other (See Figure 4.1). In the next section, I describe and provide examples of departures that fell on the right-hand side of this continuum, as well as examples that fell somewhere in the middle.

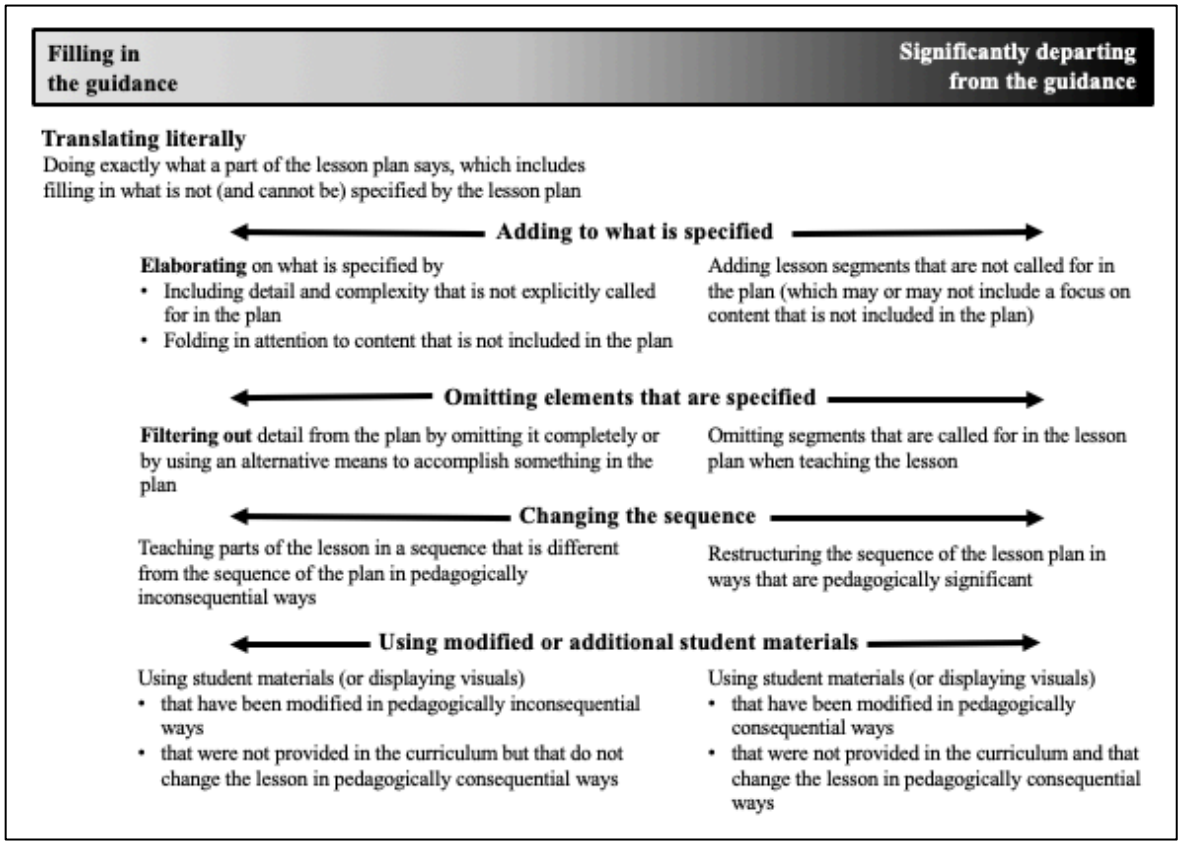

Figure 4.1 Continuum of lesson translation, from filling in to significantly departing from the guidance

Adding Lesson Segments

A clear-cut case of a significant addition. As I explained earlier, elaborating on the guidance contained in the lesson plan was often a fundamental part of filling in the guidance in instruction. At times, however, teachers elaborated to such an extent that they ended up teaching an entire lesson segment[25] that was not included in the lesson plan. We see an example of this in Ms. Brevard's translation of the lesson on local government. At the end of the lesson, Ms. Brevard included a segment in which the class spent several minutes answering the questions listed in the back of the text they had read by doing an Internet search on the Smartboard (e.g., "Who is your mayor?" "Who are the judges in your local government?"). This activity was not prescribed in the lesson plan—thus, it was not a way of filling in the guidance in the lesson plan, even though it was an elaboration on the lesson content and was drawn from the questions in the student text.

An example of an addition that fell in the middle of the continuum. Some segments of teachers' instruction, like Ms. Brevard's addition of the Smartboard research activity, were clearly not based on guidance contained in one of the lesson steps. In other cases, however, it was less clear cut whether teachers were *adding* a segment of instruction or simply filling in a piece of the guidance in a way that involved quite a bit of elaboration on the lesson plan. For example, in the geography session 8 lesson plan, teachers were guided to do the following:

> Explain that today students will begin to brainstorm about their second chosen human characteristic and why people would want to visit it. Walk students through [a planning sheet students had already used once in a previous lesson] as a reminder of what this brainstorming session entails. (Duke et al., 2014b, p. 39).

[25] As I explain in the previous chapter, I considered something to be an additional segment if teachers spent at least two minutes doing something that was not called for in the lesson plan.

When Ms. Parrish translated this lesson step, she explained that, in three of the boxes on the planning sheet, students should write things that were going to "persuade—*convince*—people that this is a great place to go." This part of her translation seemed to clearly be a way of filling in the guidance to "walk students through" the different parts of the planning sheet to remind them about what was entailed in filling out their planning sheets. However, after giving this brief explanation of what students should write in the three boxes, she went on to say, "Let's have a couple of people practice with us." She then had a couple of students share the topics they had chosen for their writing, and she had the entire class help them brainstorm ideas that they might include in the three boxes on their planning sheets. As students proposed different ideas, Ms. Parrish often rephrased them to add more detail, and she also suggested some other ideas that students had not offered but that would also be appropriate for the boxes. In providing this opportunity for the class to orally brainstorm together, she made it possible for students to hear many models of the types of ideas that would be appropriate to write on their planning sheets.

This segment of instruction lasted several minutes and included an activity (whole-group oral brainstorming) that had not been specified in the lesson plan. Therefore, in my analysis, I considered it to be a significant addition to the lesson plan. However, because the wording of the guidance for this lesson step (i.e., "walk students through [the planning sheet]") was stated so broadly, an argument could also be made that Ms. Parrish was simply using activity of whole-group oral brainstorming as an instructional technique for filling in the guidance to "walk students through [the planning sheet] as a reminder of what this brainstorming session entails." Indeed, because there could be a variety of interpretations of the guidance—ranging from more to less literal—there was not a clear boundary between filling in the guidance and making a significant addition.

Omitting Segments From the Lesson

A clear-cut case of a significant omission. Just as teachers sometimes included activities in their translations that were not included in the lesson plan, they also sometimes omitted an entire lesson segment[26] that was included in the lesson plan. These types of omissions went beyond simply filtering out detail from the lesson plan in the course of filling it in. For example, when Ms. Brevard added the lesson activity in which the class looked up their local government leaders' names on the Smartboard, she did this in place of an activity that was listed as the final step of the lesson plan:

> …if time permits you can ask specific questions, such as
>
> - What do mayors do? Can you give an example from the book?
> - What do judges do? Can you give an example from the book?
> - What does the city council do? Can you give an example from the book?
> - What would happen if we didn't have the local government? (Duke et al., 2015a, p. 32)

When Ms. Brevard replaced this activity with the Smartboard activity, she wasn't simply filtering out some of the detail from this step in the lesson plan as she filled it in; instead, she was omitting this step altogether and adding her own lesson step in its place.

An example of an omission that fell in the middle of the continuum. Although some lesson translations clearly omitted significant "chunks" of the lesson plan, there were also types of omissions that seemed to fall in the middle of the continuum between filtering out detail and more significant omissions from the plan. For example, in civics session 5, the first lesson step in the review and reflection portion of the lesson called for teachers to do the following:

[26] In my analysis, I considered each numbered lesson step to be a distinct "lesson activity."

> Bring students back as a whole class and review key points from the text. Ask them to identify the main purpose of the text (to teach or explain about services provided by the local government), as well as what they learned about the local government. Ask them the reasons the author gives for why we need a local government. As they answer this question, have students point out where in the text they found their information. (Duke et al., 2015a, p. 33)

The guidance in this lesson step reflected the interdisciplinary nature of Project PLACE by calling for students to work on literacy skills (e.g., identifying the main purpose of the text, identifying specific evidence from the text that supports the claims the author is making) in a way that simultaneously involved working on social studies content (e.g., identifying services the local government provides, explaining the purpose of local government).

During the whole group review and reflection portion of Ms. Brevard's lesson translation, Ms. Brevard had the class walk through the book page by page as she asked students comprehension questions about the book. In her post-lesson interview, she explained that she did this because she did not think many students had comprehended the book when they had read it in pairs earlier in the lesson. As the class walked through the book together, many of Ms. Brevard's questions pertained to the different kinds of services that the local government provides.

The way in which Ms. Brevard orchestrated the review and reflection portion of the lesson in her lesson translation could be seen as a way of filling in the guidance to "review key points from the text," but it also seemed to filter out most of the other guidance that was included in this step, including the activity of identifying the main purpose of the text as well as the activity that involved using evidence from the text to explain the points the author was making.

Therefore, even though Ms. Brevard's translation didn't seem to omit the entire lesson step, the details she filtered out seemed much more similar to a significant departure (which I define as omitting a lesson segment) than other kinds of details that teachers sometimes filtered out in their translations.

Restructuring the Sequence of the Lesson

A clear-cut case of significantly restructuring the sequence of the lesson. Another way of departing from the plan when translating the lesson involved making significant changes to the lesson sequence. As discussed above, teachers often made minor changes to the sequence of the lesson plan as they filled in the guidance—changes that did not seem to alter the overall structure of the lesson as represented in the lesson plan. However, sometimes, teachers' translations did alter the structure. Virtually all of Project PLACE lessons used a common structure:

(1) whole group introduction and discussion,

(2) guided small group or individual instruction, and

(3) whole group review and reflection.

In several lessons I observed—especially those that involved activities in which students were to plan or write a paragraph with an introduction, body, and conclusion—teachers restructured the lesson by interspersing the whole group instruction with smaller segments of student independent work. By doing so, teachers "chunked" students' independent work into smaller pieces so that they could use the whole-group interactions to provide more substantial and immediate support for students' independent work than what was called for in this lesson plan. For example, Ms. Parrish's translation of the geography session 8 lesson plan (which I referred to earlier in this chapter), not only included some significant additions to the guidance, but it also involved

restructuring the guidance. As I mentioned earlier, this plan guided teachers to "Walk students through [a planning sheet students had already used once in a previous lesson] as a reminder of what this brainstorming session entails" (Duke et al., 2014b, p. 39). After this, teachers were supposed to give students time to work independently on the planning sheet.

Instead, of structuring her lesson in this way, Ms. Parrish restructured the lesson to intersperse the guidance to "walk through" the planning sheet with the guidance to support students' independent work. First, she gathered students on the carpet and reminded them about what should go in the oval in the center of their planning sheet. She then sent them to their desks to fill in that part of their own planning sheets. She then called them back to the carpet to "walk through" what would go in the three boxes that surrounded the oval. During this time, as I mentioned earlier, she gave students an opportunity to orally brainstorm the kinds of ideas that would be appropriate for these boxes. Then, she sent them back to their seats to record their ideas. Finally, she brought them back together to "walk through" what would go in the final rectangle on the planning sheet. After providing an opportunity for students to orally brainstorm what they might write in this section of their planning sheets, she sent them back to their seats again to finish their work. By restructuring the lesson in this way, Ms. Parrish incorporated more opportunities for whole-group support of students' work than were available in the sequence that was outlined in the lesson plan.

Resequencing that fell in the middle of the continuum. For the purposes of analysis, I only labeled a translation as involving a "significant" restructuring of the lesson if it involved a significant change to the three-part structure of the Project PLACE lesson plans. However, some examples of resequencing that I did not count as "significant departures" from the guidance seemed more pedagogically significant than others. For example, some of the guidance for the

whole group instruction and discussion portions of the lesson seemed to be in a sequence that was more or less interchangeable—so if teachers re-sequenced these parts of the guidance, the departure they made seemed to be inconsequential. However, the guidance in the whole group instruction and discussion parts of the lesson plans—especially those that involved introducing a new concept or set of concepts—also seemed to reflect a certain type of logic. If the teacher rearranged these parts of the guidance, they would then be required to determine a different type of logic by which to organize their introduction/explanation of the content. Although I did not classify these types of changes in sequence as "significant departures" from the guidance, they did appear to be more pedagogically significant than other types of resequencing that happened as teachers translated the lesson plans.

Making Major Modifications to Student Materials

A clear-cut case of making major modifications to student materials. Another way teachers added additional support for students without necessarily adding to or omitting segments of the lesson plan was by making major modifications to the student materials that were called for in the curriculum (and often provided by the curriculum). For example, in session 12 of the civics unit, students were to complete a planning sheet that they would then use in session 13 to help them write a proposal to their local government requesting an improvement to a local park. The planning sheet provided by the curriculum included four spaces where students could write: (1) a problem they saw with the park (which they had previously decided on as a class), (2) their proposed solution (which they had also previously decided upon), (3) reasons to support their opinion, and (4) a conclusion. When Mr. Kopp taught this unit, he accidentally misinterpreted the guidance in session 12 that specified how teachers should support students in completing the planning sheet. Rather than having students do the planning sheet independently,

they completed it together as a class. In the next lesson, when students were supposed to use their planning sheets to design their proposal, Mr. Kopp devised a way to address his error and provide students with an opportunity to use their own ideas rather than simply copying what the class had done together. Since time constraints were an issue, however, and since he thought that students would need support to complete the planning sheet using their own ideas, he did not have students redo the entire planning sheets on their own. Instead, he completed some of the boxes on the planning sheet himself (drawing on ideas that the class had brainstormed together in a previous lesson) and included sentence stems in other boxes (See Figure 4.2).

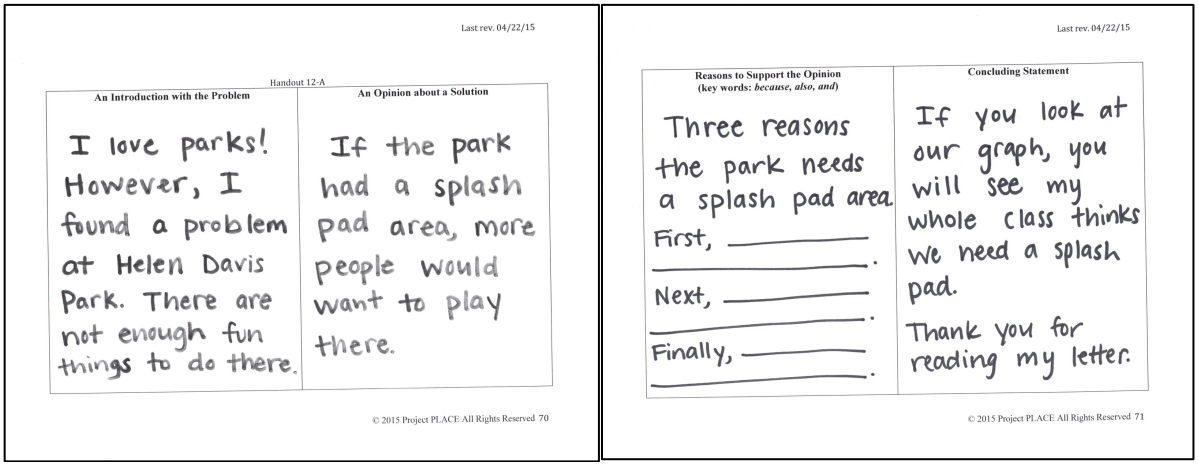

Figure 4.2 A reproduction of Mr. Kopp's modified version of Project PLACE civics unit handout 12-A (Duke et al., 2015a, pp. 70-71).
Note: The modifications Mr. Kopp made to the handout are handwritten.

By doing this, he hoped to help focus students on what he considered to be the most important part of the activity for them to complete independently: generating their own reasons to support the proposal that the class had developed.

By modifying the student materials in this way, Mr. Kopp was able to teach the lesson in a way that he felt would best support his students without making major additions to or omissions from the lesson plan that was focused on drafting the proposals. Even though his

translation didn't include major departures from the lesson plan, however, his modification to the handout did seem to constitute a major departure from the guidance that had been given for the student activity.

Modifications to student materials that fell in the middle of the continuum. As with all other categories of departures from the lesson plan, some modifications to student materials (like Mr. Kopp's modification to this handout), clearly changed the nature of the work students were responsible for doing in the lesson. However, the pedagogical significance of other kinds of modifications were less clear. For instance, when Ms. Parrish made a handout with circles and arrows to help structure her students' work on making flow diagrams in economics session 8 (as opposed to giving them blank paper as the lesson plan had guided), was this a modification that significantly changed the nature of the work students would do in the lesson? This modification was designed to provide additional support for students' work, but it didn't seem to be quite as clear cut of a case of a "significant modification" to the student materials as the example from Mr. Kopp's lesson above. In another lesson, Mr. Kopp had students measure distances on their maps with rulers rather than paper clips. While he had a practical reason for this decision (he did not have inch-long paperclips, which was what the lesson plan called for), and while the plan was not primarily focused on developing students' skills with measurement, the switch from a non-standard measuring tool a ruler could be seen as a "significant" change in the work that students had to do in the lesson.

Indeed, modifications to student materials, like all other departures from the lesson plan, seemed to fall on a continuum ranging from relatively insignificant (most often practical) departures that were made within the course of filling in the guidance to departures that were much more significant in terms of the pedagogy that the lesson plan was recommending.

Lesson Translations as Composites of Filling In and Departing

In the previous sections of this chapter, I described what is involved in filling in guidance from a lesson plan when translating it into instruction, and I also identified four ways in which teachers might depart from the guidance—to various degrees—when translating:

- By elaborating on what is specified,
- By omitting elements that are specified,
- By changing the specified sequence, and
- By using student materials that are somehow different from what was specified or provided.

As teachers translated lesson plans into instructional interactions, they moved along a continuum—filling in the guidance with minimal or no departures at times, and at other times, significantly departing in one or more of the four ways listed above.

These categories were useful for labeling small segments of teachers' translations—segments that correspond to part or all of one of the numbered steps in the lesson plan or similar kinds of "chunks" that teachers added to the lesson when translating it. When looking at lessons as a whole, however, teachers' translations were best characterized as composites of these different types of translation activities. Indeed, when comparing a lesson translation to the lesson plan, it was common to see small pieces of guidance that were translated relatively literally intermingled with pieces that were translated in less literal ways, and these pieces were sometimes intermingled with more substantial departures from the lesson plan. In some situations, segments of a lesson translation seemed to include both "filling in" and "departing" simultaneously, when the teacher filled in the lesson steps without major additions or omissions but changed the sequence or used student materials that had been modified in significant ways.

Patterns in Translations of Project PLACE Lesson Plans

Because the work of translating guidance from Project PLACE lesson plans seemed to typically involve filling in the guidance as well as departing from it at times in different ways, I was interested in understanding whether there were patterns in what these entire lesson translations looked like—especially in terms of the ways in which teachers significantly departed from the guidance.

In the 31 lesson translations I analyzed, only three lessons were translated entirely by filling in (including small departures like filtering out and elaborating), with no major departures from the guidance. The remaining 28 lesson translations included segments of filling in as well as major departures from the guidance in the lesson plans. In 17 (54%) of the lessons I observed, at least one step from the lesson plan was omitted, and segments of at least two minutes in length that were not based on guidance from the lesson steps were added to 22 (71%) of the lessons. In fourteen (45%) of the lessons, teachers made changes to the student materials that I judged to be pedagogically significant, and in nine lessons (29%), teachers restructured the lesson steps in a way that I judged to be pedagogically significant. All six of the teachers I observed made significant departures of every type (i.e., adding, omitting, changing sequence, changing student materials) with two exceptions: except for one optional step, Mr. Kopp never omitted a lesson step in the four lessons of his that I observed, and Ms. Rawski never changed the sequence of the lesson in the five lessons of hers that I observed.

Different lesson translations included different amounts and types of departures. In some lesson translations, individual departures seemed relatively isolated—not having much of an effect on the way the rest of the lesson was translated. In these cases, the lesson translation as a whole appeared to reflect the guidance in the lesson plan very clearly, even though the

translation included one or two departures from the guidance. In other cases, it seemed that one departure led to—or happened in conjunction with—others, which sometimes made the lesson as a whole look quite different from the representation of the lesson contained in the lesson plan.

Patterns Related to Teachers and Instructional Situations

One logical proposition to make about patterns in translation would be that different teachers would have distinctive patterns of translation (see Sherin & Drake, 2009, for an example of a study that supports this idea). Although I only analyzed a handful of lesson translations per teacher (4-8 lessons per teacher), it did appear that different teachers had different tendencies regarding when and how they departed from the guidance in the lesson plan. For instance, Ms. Rawski and Mr. Kopp generally seemed to translate lessons with fewer significant departures than the other teachers—these were the only two teachers I observed who taught lessons (Ms. Rawski one and Mr. Kopp two) solely by filling in the guidance. To be sure, Ms. Rawski and Mr. Kopp tailored the guidance to their students just as other teachers did—and they did make significant departures in some lessons—but they seemed to aim to tailor lesson plans to their students in the course of filling in the guidance provided rather than by significantly departing from it.

The other four teachers I observed tended to depart from the guidance in the lesson plans more frequently than Ms. Rawski and Mr. Kopp, and they appeared to have particular tendencies in terms of the nature of departures they made. Ms. Parrish, for example, usually translated the lesson plans without omitting lesson steps, but she often added segments to the lesson and added student materials that would provide additional representations of content for her students. In multiple lessons, Ms. Parrish also used the technique of restructuring a lesson by "chunking" independent work into smaller parts in multiple lessons as a way of supporting her students in

being successful with the activities prescribed in the lesson plans. Ms. Foster also often added segments to the lesson; in fact, she added segments to each of the six lessons of hers that I observed. She often added extensive reviews of content to the beginning of a lesson as well as segments of instruction that she thought were needed to help her students be successful with the lesson activities. However, both because she added segments and because she filled in lesson steps in ways that took a lot of time, Ms. Foster often had difficulty completing several of the lessons I observed and therefore often omitted lesson steps as well.

Characteristics of teachers did seem to play a role in the ways in which they tended to translate lesson plans. For example, Ms. Rawski tended to fill in the guidance in very concise ways and therefore rarely had difficulty with time constraints. Some of the other teachers, on the other hand, tended to elaborate much more in whole group interactions and/or orchestrate students' independent work time in ways that took a lot of time, and these teachers sometimes faced time constraints that necessitated significant departures from the guidance.

Even though some patterns in translation seem to be related to characteristics of teachers themselves, other patterns seemed to be related to characteristics of the particular instructional situation. For example, there was a notable difference between Ms. Rawski's translations of the writing lessons in the geography unit (sessions 8 and 9) and the translations of the other two teachers I observed (Ms. Parrish and Ms. Foster). Ms. Parrish and Ms. Foster both felt that they needed to restructure the writing lessons (by "chunking" the independent work into smaller parts and adding additional segments of whole-group instruction) in order to support students in being successful with the activity. Ms. Rawski, on the other hand, did not restructure the lesson. In her post-lesson interview, she explained that the reason she was able to use the structure from the plan was that it was exactly the same as the structure that she used with her students every day

for Writing Workshop—writing instruction that happened outside of the Project PLACE curriculum. Because her students had so much experience with this routine and with similar kinds of writing assignments, Ms. Rawski felt that the structure of the Project PLACE lessons would work well for her students without modification. Because Ms. Parrish and Ms. Foster did not have a similar routine in place (and had not worked as much on writing with their students outside of the Project PLACE curriculum), they felt that their students needed additional support to successfully complete the Project PLACE writing assignments. This was the reason that they gave for breaking students' independent work time into smaller parts. This difference across teachers did not seem to be related primarily to the characteristics of the teachers themselves but rather to the experiences that different classes had had outside of the Project PLACE curriculum that had prepared them to different extents for doing the work involved in Project PLACE projects.

Patterns Across Lesson Plans

Just as there appeared to be patterns in translation related to teachers and instructional situations, there also appeared to be patterns in the data based on features of the lesson plans themselves. Indeed, the design of the lesson plan, and the guidance it contained, often seemed to matter in terms of whether teachers felt able (or *were* able) to translate it without making major departures.

For some lesson plans, none of the teachers I observed appeared to make many departures from the guidance. In civics session 10, for example, each of the teachers I observed added one isolated segment but made no other major departures to the lesson—even Ms. Foster, whose translations typically included multiple departures. Perhaps the reason for this is that civics session 10 was a relatively simple lesson—it included only four steps and had a very

structured student activity that was relatively independent from the previous lessons (as opposed to something that built on previous lessons) and that all teachers I observed seemed to think that their students would be successful with.

Other lessons, on the other hand, seemed to be more difficult to translate without making departures. For instance, in economics session 8, all four teachers I observed both omitted and added segments—and two of the four teachers made other kinds of departures as well—as they translated the guidance related to the student activity in the lesson. In post-lesson interviews, all teachers I observed explained that they departed from the lesson plan in order to provide additional support for students to enable them to be successful with the activity. Each teacher did something different to provide additional support (e.g., Ms. Brevard modeled the activity, Mr. Costa changed the nature of the activity itself with the intention of making it more accessible to students, Mr. Costa and Ms. Parrish created materials for students that were not called for in the lesson plan, and all three teachers did certain parts of the activity as a whole class rather than having students do it totally independently), but none seemed to think that the lesson plan would work well if they did not depart at all from the guidance contained in it.

Although different teachers often made different kinds of departures from the lesson plans, it was also interesting to note times when all three (or four) of the teachers I observed made the exact same type of departure in a lesson plan. For example, in economics session 1, the first lesson in the curriculum—all teachers "chunked" students' independent work into smaller pieces—seemingly as a way of providing more support for students' independent work than was called for in the lesson plan. It was notable that all teachers seemed to depart from the guidance in order to provide more support for students' work during the lesson, but not surprising given that this was the first lesson in the curriculum and that students might need more support from

the teacher than they would need later in the year. In economics session 8, all teachers omitted a step that specifically pertained to connecting the day's activity to the larger project. The reason for this is unclear, but based on the interview data, it seemed as if teachers themselves had a less clear understanding of how the activity in the lesson connected to the larger project than they typically did when teaching Project PLACE lessons, which may have caused them to overlook or forget about this particular piece of guidance when teaching the lesson. These kinds of patterns suggest that there were features of the lesson plans, and the guidance contained in them, that influenced the ways in which teachers would translate them.

Conclusion

In this chapter, I have focused on characterizing what teachers did with the guidance provided in the step-by-step lesson plans as they translated them into instruction. By examining teachers' translations in detail, I illustrate the complex work involved in taking up guidance contained in lesson plans and converting it into instructional interactions—including the complexities involved in taking up lesson recommendations that are seemingly simple and straightforward. In this analysis, I found that teachers translated lesson plans primarily by *filling in* the guidance contained in them—doing what was called for, which involved determining *how* to do what was called for in a particular situation. I use the term *filling in* to describe this work in order to acknowledge that it always involves elements (e.g., selecting and employing specific instructional techniques; improvising language; using time, space, vocal inflection, and body language in particular ways; inviting and responding to student contributions; and so forth) that cannot be fully guided by the plan. Filling in guidance from a lesson plan inherently involved further specification of the guidance contained in the plan, but I found that it also often involved elaborating on what was explicitly called for and/or filtering out some of the detail contained in

the guidance. As teachers filled in the guidance in the lesson plan, they also sometimes made small modifications to the specified sequence of the lesson or to the student materials that Project PLACE provided or directed teachers to use.

Filling in the guidance often involved making at least one of these four types of departures from the guidance (elaborating, filtering out, changing elements of the sequence, and modifying or adding student materials), but sometimes, the magnitude of these types of departures in teachers' translations was so great that these parts of their translations could not be characterized as ways of filling in the guidance contained in the plan. I classified these parts of teachers' lesson translations as *significant departures* from the step-by-step guidance. Although I used these two terms—*filling in* the guidance and *significantly departing* from the guidance—to characterize different activities involved in the work of lesson translation, I found that these two categories were not distinct but were rather two ends of a continuum on which different parts of teachers' translation work could fall.

In developing the continuum of lesson translation that I presented in this chapter, my goal was to describe the nature of the conversion from the step-by-step guidance (and the guidance embedded in the student materials provided by the curriculum) into the complex instructional interaction that played out in classrooms. Therefore, the concepts included in this continuum (i.e., *filling in* and *significantly departing* from the guidance in various ways) were not defined or determined by criteria outside of the lesson steps and student materials that were provided in the lesson plans, such as developers' intentions, my perceptions of the purposes of particular lesson recommendations, or even other forms of guidance contained in the curriculum that might have shed light on these purposes. The reason that I did not take the potential purposes of the guidance contained in the lesson steps into account when characterizing teachers' translation activity was

because I wanted to focus on simply describing what was involved in translating a lesson step (or an entire lesson plan) into instructional interaction.

In this chapter, I did not attempt to judge whether or how teachers' ways of translating the details of the lesson plans mattered in terms of bigger picture goals or purposes. In the next chapter, however, I begin to explore this question. Specifically, I look at how teachers' translations of the step-by-step guidance related to what the Project PLACE curriculum had identified as the overarching goals of the curriculum. Indeed, Project PLACE designed the detailed lesson plans as a tool for helping teachers accomplish particular "big picture" goals—including goals related to what to teach, how to teach it, and what time frame to work within—and they communicated these goals to teachers, presumably to influence how teachers translated the detailed guidance they provided. In the next chapter, I look at whether and how teachers' translations of the step-by-step guidance in the Project PLACE lesson plans reflected these forms of higher-level guidance.

Chapter 5

The Relationship Between Lesson Translation and High-Level Guidance

Introduction

The concept of *translating* guidance from curriculum materials, which I developed in the previous chapter, refers specifically to the work teachers do to convert the step-by-step guidance in a lesson plan (and the guidance embedded in student materials associated with the lesson plan) into instructional interaction. However, this step-by-step guidance is typically not the only form of guidance that curriculum materials contain. Indeed, curriculum materials also contain many other elements—such as statements of learning goals, information about the pedagogical approach of the curriculum, and so forth—that are meant to influence the ways in which teachers translate the step-by-step instructions in the lesson plans.

In the case of Project PLACE, curriculum developers explained to teachers in the introductory professional development session that the detailed lesson plans were designed to help support teachers in accomplishing three overarching goals:

- teaching a particular set of academic standards,
- using a project-based approach,
- within a time frame that should be feasible in their teaching context (i.e., 80 lessons across the school year).

By stating these goals to teachers, and by stating that the purpose of the detailed lesson plans was to support teachers in accomplishing these goals, the Project PLACE team was communicating

that each of these goals was an important form of guidance that should influence teachers' day-to-day instruction.

Because it would be difficult to determine definitively *how* these high-level goals influenced teachers' translations (particularly in a way that was distinct from a variety of other influences including the guidance contained in the plan), I did not attempt to answer this question in this study. However, I did think it would be worthwhile to investigate how teachers' translations of the step-by-step guidance in the lesson plans—including their significant departures from the lesson plans as well as their ways of filling in the guidance contained in the lesson plans—*related* to these forms of high-level guidance. Examining how teachers' lesson translations did or did not reflect the higher-level goals that the curriculum was designed to support could provide insights into another aspect of the work of translation—the work of using multiple forms of guidance (including high-level guidance of various kinds) as a resource for determining how to translate detailed guidance into instructional interaction.

Descriptions of the High-Level Guidance Offered by Project PLACE

Project PLACE provided three main forms of what I am calling "high-level guidance."

The learning goals of the curriculum. One type of high-level guidance offered to teachers was the set of learning goals that the curriculum was designed to address. These goals were articulated in the form of academic standards, which were listed at the beginning of the unit plan as well as at the beginning of each lesson plan. The written guidance did not elaborate on these goals (except in the guidance contained in the lesson steps as well as the child-friendly definitions that were included for key concepts), but in the introductory professional development session and the webinars that introduced each unit, the curriculum developers elaborated on some of these goals, interpreting the meaning of certain academic standards and

explaining how the activities in the curriculum provided opportunities to work on these standards. In the final two units, there were also occasionally boxes in the lesson plans that pointed out how particular activities in the lesson served as opportunities to work on particular academic standards.

Even though some of the academic standards were focused on very specific pieces of content, I considered them to be "high-level" guidance for two reasons. One was that, unlike the lesson steps, they were not written in the form of prescriptions for teachers—they did not specifically tell teachers what to do. Another reason is that, while specific standards were associated with specific lesson plans (and were included at the beginning of the plans), the curriculum was not generally designed such that students should "master" any of the standards in a single lesson alone. In other words, while individual lesson plans provided opportunities to work on particular standards, work on the standards was designed to be broader than the work prescribed in a single lesson plan. Indeed, several lesson plans attended to only *part* of a standard, rather than providing opportunities to work on the standard in its entirety. In this way, the standards, as learning goals, were broader than the learning goals of any single lesson.

The instructional approach underlying the curriculum. The purpose of the Project PLACE curriculum was to support teachers in using a project-based approach to teach grade-level social studies and content-literacy standards. To introduce and define this approach to teachers in the introductory professional development session, they outlined five principles of project-based instruction around which the curriculum was designed (which I listed in Chapter 3):

1. students would work on a project over an extend period of time (i.e., the project would *be* the curriculum rather than a supplement to the curriculum);

2. students would work on the project for a "real-world" purpose rather than a "school" purpose (i.e., to meet a need in the community—not to earn a good grade);
3. students would create products for an authentic audience (i.e., audience outside of teacher or school, e.g., community members);
4. students would work on multiple content areas at the same time;
5. students would get some level of choice, autonomy, and responsibility in terms of how to go about the project.

When introducing these principles, the Project PLACE team provided examples of what each principle might look like in practice, and they also provided non-examples—aspects of conventional elementary teaching that were not consistent with a project-based approach. In webinars, the curriculum developers reiterated these principles as they introduced each project and gave an overview of how the project reflected these principles. In the history and civics units, the additional support boxes that were added to the lesson plans sometimes highlighted how particular parts of the lesson plans reflected these principles.

The time frame in which the curriculum should be taught. The high-level guidance pertaining to the time frame in which the curriculum should be taught was different from the other forms of high-level guidance. The specific time frame recommended in the curriculum was not a goal of the curriculum in and of itself but rather was a way of supporting the other high-level goals of the curriculum in being accomplished. Indeed, while it did not matter whether teachers translated the guidance in lesson plans exactly according to the suggested guidelines for time, it *did* matter if the timing/pacing became such an issue that teachers were unable to finish teaching the curriculum before the school year ended. If this happened, issues with timing/pacing would end up undermining the curriculum's guidance for teaching the academic goals that came

at the end of the curriculum (because these goals would need to be taught less comprehensively or not at all in order to stay within time constraints). Issues with timing/pacing could also undermine aspects of the project-based approach if the projects that came at the end of the curriculum had to be drastically modified in order to deal with time constraints.

In the introductory professional development session, the curriculum developers talked about the time frame for the curriculum that they had designed and the reasons they had designed it in this way. They acknowledged that social studies and content-literacy was often neglected in the early grades in U. S. schools—particularly in high-poverty school districts.[27] To address this issue, they explained that they had created the Project PLACE curriculum so that it could be taught in 80 lessons (four 20-lesson units) that were roughly 45-minutes each. They acknowledged that—even though this might be more time than teachers usually spent on social studies and content-literacy instruction—it should be feasible for the teachers to accomplish in the course of their 188-day school year, especially if they were creative about finding ways to fit the lessons into their day (e.g., teaching most of the lessons during their scheduled social studies time but teaching some of the more writing-focused lessons during their scheduled time for writing instruction if needed).

As it turned out, the teachers I observed did have issues with timing and pacing. Every teacher except Ms. Rawski ended up having to teach a 12-session version of the history unit rather than the 20-session version, and all six teachers taught an abbreviated version of the civics unit as well. Four of the six taught an 11-session version, and Ms. Foster and Mr. Kopp taught a 6-session version. There were multiple reasons for the issues teachers had with pacing. For instance, there were many snow days during the year, and teachers had to start the curriculum

[27] See Duke et al., 2018 for references to several studies that found this to be the case.

somewhat late in the fall because they had to wait until student pre-tests had been administered for the purposes of the experimental study they were participating in. However, in some cases, teachers' issues with pacing were further intensified because they spent multiple days on lessons that the curriculum developers had designed to be approximately 45 minutes in length. Because issues with timing and pacing appeared to be common and because sometimes the ways teachers translated the lesson plans took much longer than recommended, I chose to consider guidance for the overall time frame of the curriculum as a form of high-level guidance and include it as a focus of this analysis.

Overview of the Chapter

In this chapter, I start by focusing on how teachers' translations of step-by-step guidance in the lesson plans related to first two forms of high-level guidance: the academic standards and the five principles of project-based instruction. I found that aspects of teachers' translations of lesson-level guidance—including both filling in and departing from the guidance—could relate to the academic standards and/or principles of project-based instruction in one of three ways:

1. they could reflect the higher-level guidance;
2. they could not reflect the higher-level guidance—either by omitting opportunities to reflect it that were included in the lesson plans or by translating the lesson steps in ways that was inconsistent with the higher-level guidance; or
3. their significance relative to the higher-level guidance could be unclear, if the higher-level guidance did not speak to the determinations[28] teachers were making when translating.

[28] As I mentioned in the previous chapter, I use "determinations" rather than "decisions" to indicate that some aspects of teachers' translations, while "determined" by the teachers, were not made as a result of conscious decisions by the teachers.

In this chapter, I describe each of these categories and use examples from the data to illustrate them. I then turn my focus toward lesson translations that took substantially more time than what was called for in the lesson plans, and that therefore may have contributed to issues that prevented teachers from teaching the curriculum in the recommended time frame. I explore features of these lesson translations that may have influenced the amount of time that it took to translate the lesson.

Cases of Translation That Reflected the High-Level Guidance

Reflecting High-Level Guidance by Filling In the Details

The step-by-step guidance of Project PLACE lesson plans was designed to show teachers a way of doing what the high-level guidance called for (i.e., using a project-based approach to teach a particular set of standards within a specific time frame), so it was no surprise to find examples of translations in which teachers filled in guidance from the lesson plan in ways that reflected the high-level guidance provided by Project PLACE. Indeed, in the lessons I observed, there were numerous instances in which teachers filled in details from the lesson plans in ways that brought the overarching goals of the curriculum to life in their moment-by-moment interactions.

For instance, the first session of the economics unit called for teachers to present some ideas for local causes and to propose the idea that their class could sell something in their school to raise money for one of the causes—a project around which the entire economics unit was designed (see Table 5.1). This piece of guidance was clearly intended to reflect the high-level guidance that students' projects should have an authentic purpose. Teachers often filled in lesson steps like these in ways that were completely consistent with the higher-level guidance that the lesson steps were designed to reflect.

Table 5.1
Ms. Parrish's Translation of Economics Session 1 Lesson Step 2

Description/Transcript of Ms. Parrish's lesson	*Text of the lesson plan*
Ms. Parrish: *[After introducing two local non-profit organizations and explaining the services they provide]* Okay, so I was thinking maybe we could help one of these causes—We're only going to pick one, so we can focus on just one, and we're going to raise some money to help them. *[With enthusiasm]* Because even though we're in second grade, I bet we can make a difference, don't you think? **Students:** Yes! **Ms. Parrish:** Even though you're small, think you can still do something to help other people? **Students:** Yes! **Ms. Parrish:** Okay, so that's going to be our big project. *Ms. Parrish then had students go to their desks and put their heads down so they could vote on which one of the non-profit organizations they wanted to raise money for.*	Discuss why these causes (or this cause) might be worthy of community members' attention and that they (or it) will likely cost money. Then, say, "I wonder whether we might be able to take up one of these causes (or this cause) and help our local community. Even though we're only in second grade, I bet we can make a big difference if we raise money to help with one of these causes (or this cause)." As needed, have students vote on which cause they would like the class to support. In any case, encourage students to take on the project goal as their own.

Filling in the guidance in more or less literal ways to reflect high-level guidance. In Ms. Parrish's translation of this lesson step (in Table 5.1 above), she stayed very close to the guidance in the lesson plan—translating some of it almost verbatim (e.g., "even though we're in second grade, I bet we can make a difference . . . "). Ms. Foster, on the other hand, filled in this guidance less literally in order to tailor the guidance to her specific instructional situation. When Ms. Foster started teaching Project PLACE curriculum, her class was already involved with an ongoing service-learning project at a local homeless shelter and had already been collecting donations for the organization. Therefore, when filling in the guidance for this part of the lesson, Ms. Foster did not introduce a new cause but rather reminded students that they were already raising money for the homeless shelter; then she got them excited about the idea of raising even *more* money by making and selling something to other students in their school. By translating the lesson step in this way, Ms. Foster reflected the higher-level goal of the lesson

step by filtering out details that did not make sense in her particular context as she filled in the guidance in this lesson step.

Elaborating on the guidance to reflect high-level guidance. Teachers also reflected high-level guidance as they filled in the lesson steps by folding in references to the project or to pieces of content even in moments where the plan did not call for them to do so. For instance, when Ms. Parrish filled in the guidance in civics session 5 for introducing local government (an example I described in detail in the previous chapter), she used this introduction as an opportunity to make a reference to the project students would be working on in the unit, even though this connection was not called for in the lesson step. When explaining that the city council was a group of people "who make decisions for the city" (Duke et al., 2015a, p. 31), Ms. Parrish said:

> The city council is usually some people that sit with the mayor and talk with the mayor and help him make decisions or talk to people and see what kinds of things they want to happen in their city. They even have meetings where people can come up and talk. So, if I didn't like that all the parks were closed in Oakdale, I could go up and talk to them about it. Or if I didn't like that one of the parks didn't have swings, I could write a letter that they could read at their meeting. Any of *you* think you could do that? That's kind of what we're starting to talk about, isn't it?

By asking students whether they thought they could write a letter to a city council to propose a change to a local park, Ms. Parrish was—without prompting from the lesson plan—making a clear connection between the project and the social studies content they were learning at that specific moment. Examples like these illustrate ways in which the high-level guidance could

have an influence on the improvisational work teachers did as they filled in the guidance from the lesson plan.

Reflecting High-Level Guidance by Significantly Departing From the Lesson Steps

Although filling in details from the lesson plan was clearly a way that teachers could reflect the high-level guidance in their instruction, this did not mean that departing from the details in the lesson plan, even in significant ways, necessarily involved departing from the higher-level guidance. In many cases, teachers' departures from the lesson plans seemed to support the goals that the lesson plans were designed to help teachers accomplish. These departures often involved adding segments or instructional materials to the lesson in order to provide background information or to add to the content as it was represented in the lesson plan. At the beginning of a lesson in the geography unit that involved drafting writing for students' brochures, for example, Ms. Foster added a segment to the lesson in which the class reviewed some of the geography concepts they had been learning about earlier in the unit. In the lesson on local government that involved learning about the city council, Ms. Parrish added a segment to the lesson where showed a video of a city council meeting (which was not called for in the lesson plan) and took a few minutes to discuss what was happening in the video. These kinds of additions to the lesson, although they were departures from the lesson plan, seemed to fit seamlessly into teachers' translations of the plan and to support the goals that the lesson or unit plans were intended to accomplish.

Cases of Translation That Did Not Reflect High-Level Guidance

Just as it was possible to identify examples of translation of lesson-level guidance that clearly reflected high-level guidance, it was also possible to identify examples of translation of lesson-level guidance that did not reflect the higher-level guidance. Even though teachers I

observed had agreed to teach the curriculum with fidelity and maintained that they were more or less doing so throughout the school year, I did observe times when their departures from the guidance, both big and small, resulted in translations that did not reflect the high-level guidance in the ways that the lesson plans called for. In a few cases, teachers filled in lesson-level guidance in ways that seemed to be inconsistent with the high-level guidance that had been provided. In many cases, though, the reason that translations did not reflect particular parts of the high-level guidance was simply because teachers filtered out (or omitted entire segments of the lesson plan that contained) specific opportunities to do so. Indeed, Project PLACE lesson plans were dense with detailed instructions for how to introduce and help students work on content, how to make connections to content that had previously been taught, and how to make connections to the project in which the instruction was situated, and teachers' translations of the lesson plans often did not take advantage of every opportunity that was prescribed in the lesson steps.

Filtering Out or Omitting Opportunities to Reflect High-Level Guidance: An Example From Civics Session 10

The lesson step in the review and reflection portion of civics session 10 offers an example of the density of opportunities to reflect various pieces of high-level guidance that could be contained in a single lesson step, as we can see in Table 5.2 below.

Table 5.2
Opportunities to Reflect High-Level Guidance Contained in Civics Session 10 Step 4

Text of the lesson step (quoted from (Duke et al., 2015a, p. 35, boldface text in the original)	*Corresponding piece of high-level guidance*
Gather the students back together.	Not applicable
Ask them what they learned from their **graphs**.	GLCE 2 – P3.1.2: Use graphic data and other sources to analyze information about a public issue in the local community [and evaluate alternative resolutions.] *Note: This content standard was listed at the beginning of the civics session 10 plan.*
Have students discuss **reasons** why **authors** use **graphs**. Remind them that using graphs is one way to summarize and present information.	CCSS RI.2.7 Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text. *Note: This content standard was listed at the beginning of the civics session 10 plan.* *Note: By providing an opportunity to work on a literacy standard within the context of work on social studies standards, this lesson step was providing an opportunity reflect the principle that project-based instruction should provide opportunities to work on multiple content areas at the same time.*
Guide students in understanding that all the graphs are about citizens' use of government services (recycling, park usage, and public schools).	GLCE 2 – C3.0.3 Identify services commonly provided by local governments (e.g., police, fire departments, schools, libraries, parks). *Note: This GLCE was not listed in the civics 10 session plan but was listed in the unit plan and in earlier sessions in the unit.*
Tell students in a couple of days they will be making **graphs** to summarize their survey results for their proposals.	One of the five principles of project-based instruction was that the curriculum should be designed around the project, and students' work and learning throughout the unit should be connected to the larger project in some way.

Interestingly, all three teachers' translations of this lesson step that I observed (two of which I described in detail in the previous chapter) filtered out the part of the step that said, "Guide students in understanding that all the graphs are about citizens' use of government services (recycling, park usage, and public schools)" (Duke et al, 2015a, p. 35). Thus, all three teachers omitted an opportunity to work on the social studies standard pertaining to "Identify[ing] services commonly provided by local governments" (Michigan Department of Education [MDE], 2007, GLCE 2 – C3.0.3).

Situations in Which Teachers Filtered Out or Omitted Opportunities to Reflect High-Level Guidance

Translations in which teachers missed or forgot opportunities to reflect the guidance. I do not know why all three of the teachers I observed filtered out the piece of guidance in the lesson step pertaining to "Identify[ing] services commonly provided by local governments" (MDE, 2007, GLCE 2 – C3.0.3), but I can imagine that it might have been difficult, when teaching in real time, to remember to include details like these, which might not have naturally followed from the conversation about reasons authors used graphs. Indeed, I did learn in the post-lesson interview that Ms. Rawski forgot to include this part of the lesson step in her translation. As we were walking through the lesson plan together, she said, "And then—oh, I forgot to say this, that all the graphs were about government services."

This happened multiple times in post-lesson interviews—teachers noticed details they had intended to include but had forgotten about in the moment. Most of the time, teachers did not seem to be too concerned about what they had missed, but occasionally, they commented that they had missed something they believed to be important. In the post-lesson interview after teaching civics session 5, for example, Mr. Kopp said:

> See, I skipped over this . . . It says the last part I wanted to ask them: "What was the main purpose of the text?" I don't think I did that, did I? . . . *[Reading from his notes in the margin of the lesson plan that paraphrased the lesson step.]* "What did you learn? What reason?" Yeah, I skipped over this . . . that's one of the major parts.

Translations that unfolded in ways that made it more difficult to reflect certain aspects of high-level guidance. Teachers may have also (either intentionally or unintentionally)

omitted opportunities to reflect high-level guidance that were included in the plan if their lesson translations unfolded in ways that made it more difficult to reflect certain aspects of the high-level guidance. Indeed, good opportunities to reflect high-level guidance as designed in the lesson plan did not always end up being good opportunities to reflect high-level guidance in practice.

In session 9 of the history unit, we see an example of a situation in which guidance for reflecting particular academic standards was built into the lesson plan, but the ways in which the lesson unfolded made it much more difficult than planned to incorporate the guidance. One of the social studies standards this session was designed to address is: "Construct a historical narrative about the history of the local community from a variety of sources (e.g., data gathered from local residents, artifacts, photographs)" (MDE, 2007, GLCE 2 – H2.0.6). The lesson was designed to support students in learning to do this by having students "be historians" and draw on multiple sources to write captions for a set of historical postcards.[29] During the unit, students were to collect interview data from family members or older community members that they could use as one of the main sources of information for their writing. They were to use the interview, along with a book and a handout designed to make accessible to second graders information distilled from a website, to gather information for their postcards.

Unfortunately, although all of the teachers I observed had their students conduct the interviews, the information students learned from the interviews did not turn out to be very relevant or useful for the topics they were writing about for their postcards. Also, in one case, the

[29] It is important to note that the Project PLACE curriculum developers made the decision *not* to have students work on the part of this standard that says, "construct a historical narrative." Instead, they planned for students to use multiple sources to write an expository text. In the webinar that introduced the unit, they described their reasoning for this decision. I note this to acknowledge that curriculum developers, like teachers, make reasoned decisions at times to not reflect high-level standards as clearly as they could.

teacher didn't realize that she would need to save students' interview data for this lesson and had already sent it home with the students. Thus, all teachers omitted the interview data as a source for students' writing. Omitting this source made it more difficult for teachers to focus on helping students learn to draw from multiple sources in historical writing, and when I observed a lesson that was designed to include this focus, two of the three teachers I observed filtered out any guidance that referenced "multiple sources" altogether (other than directing students to use both the book and the handout when doing their writing). While it was possible—as the third teacher demonstrated—to include a focus on using multiple sources in a lesson even without interview data that was relevant to the topic, it was more difficult to teach this content with only two relevant sources rather than three.

Teachers also sometimes omitted opportunities to reflect high-level guidance that came at the end of the lesson plan if they felt that their students had not successfully accomplished the work that they did independently or in small groups. In these cases, teachers sometimes spent the end of the lesson going back over what students had been working on earlier in the lesson rather than doing what was specified in the lesson plan. Making the decision to use the whole-group time to respond to student difficulties often involved instructional interactions that reflected aspects of the high-level guidance that teachers improvised in the moment, but it also involved missing some of the opportunities that had been specified in the lesson plans.

Translations in which time constraints were an issue. Teachers also omitted opportunities to reflect high-level guidance in situations where they did not have enough time to teach the entire lesson as planned. One of the central components of each lesson plan was the review and reflection time that happened after students' independent work. During this part of the lesson, teachers were often directed to use examples of student work as models of the skills

they were working on in the lesson or as representations of the concepts that were the focus of the lesson. The review and reflection times also often called for teachers to help students make a connection between their work in the lesson and the larger project. In the introductory professional development session, Project PLACE developers emphasized the importance of these review and reflection times as opportunities for supporting students' learning and for using the project to help motivate their work. As might be expected, however, lessons sometimes ran long, and teachers sometimes ended up omitting these review and reflection times altogether.

Teachers also sometimes deliberately omitted lesson steps (and thus opportunities to work on higher-level guidance) because they anticipated that they would not be able to finish the lesson within the available time if they taught it as written. For example, in a lesson that was focused on drafting and revising pieces of persuasive writing, Ms. Rawski decided to omit a segment from the beginning of the lesson that called for her to share examples of student work and highlight effective features of their work. Even though she believed that highlighting effective features of student work was a good way to support students in improving as writers (and this was a practice she commonly used in her writing instruction), she was concerned about the time it would take for students to complete the work the lesson plan was calling them to do, and so she budgeted her time accordingly. By making this decision, Ms. Rawski was, in effect, choosing to forgo one opportunity to help her students make progress towards the learning goals they were working on in the lesson (the academic standard related to persuasive writing) in order to stay on track with the time during the lesson.

Translating in Ways That Appeared to Be Inconsistent With Higher-Level Guidance

When translations did not reflect particular pieces of higher-level guidance, this was often due to the fact that opportunities to reflect these pieces of guidance had simply been

omitted or filtered out. However, occasionally, I also observed instances in which teachers translated lesson steps in ways that seemed to be inconsistent with the higher-level guidance.

An example of translations that were inconsistent with principles of project-based instruction. For example, in the geography unit, Project PLACE guidance specified that students should create their brochures for a specific audience: visitors or people looking to move to the area. In the final session of the unit, teachers were asked to invite a real estate agent or a member of the local visitors bureau to accept the brochures and to let the students know that they would distribute them. This guidance was designed to ensure that the geography unit would reflect two of the principles of project-based instruction: having an authentic purpose for the projects and including an audience outside of the school. In the introductory professional development session, the curriculum developers stressed that these principles were important because research had shown that students work harder and produce better writing when writing for authentic audiences and purposes.

Even though the guidance to invite a visitor to come accept the brochures was clearly connected to the central features of project-based instruction, several of the teachers I observed told me in their post-unit interviews that they had decided not to do this. One had tried to recruit a visitor to come to the class but wasn't able to work it out; others said that they didn't ask students to give their brochures away because they thought students would want to keep them themselves; and some teachers also expressed that they didn't think that the brochures, which were handwritten and much larger than typical brochures, were professional enough to actually be given to visitors or people moving to the area. Whatever the reason, many of the teachers I observed substituted other activities for the one prescribed in the lesson plan, such as having

students share their brochures with students from another class. This was a major departure from both the lesson plan itself and the higher-level guidance it was designed to reflect.

The decision not to have an out-of-school audience for students' brochures had implications for the ways in which teachers filled in other guidance in the geography unit. Throughout the unit, lesson plans included references to the real estate agent or visitors bureau representative who was supposed to receive students' brochures. The teachers who knew that they were not going to invite a real estate agent or visitors bureau representative to their class tended replace these references with references to a more general or hypothetical audience. For example, at the end of the session 9 lesson plan, teachers were instructed to: "Remark on how pleased the local real estate agent or visitors bureau representative will be when he or she sees the great brochures students are making" (Duke et al., 2014b, p. 42). When Ms. Rawski filled in this lesson step, she filtered out the reference to the specific audience listed in the plan, saying:

> And people are going to be so excited, when your brochures are done, to see what you've done to advertise for Cottage Grove. They're going to be really nice brochures, and you guys are doing a great job on them, so keep up the good work.

By making the subtle change from "real estate agent or visitors bureau representative" to "people," Ms. Rawski was able to fill in the step from the lesson plan relatively literally while simultaneously staying consistent with her plans to have students share their brochures with others in their school rather than actually giving them to someone who could distribute them to a more authentic, out-of-school audience.

Similar to other examples I have described, this example did involve filtering out a detail that was contained in the lesson plan when filling in the guidance. However, it was not simply a case of filtering out an opportunity to work on higher-level goals; instead, it was a case in which

teachers replaced the guidance they had filtered out with instructional interactions that were inconsistent with the higher-level guidance provided by Project PLACE.

An example of a translation that was inconsistent with an academic standard. Just as it was possible for teachers' translations of lesson steps to be inconsistent with higher-level guidance pertaining to principles of project-based instruction, it was also possible for teachers' translations of lesson steps to be inconsistent with higher-level guidance pertaining to learning goals. For example, one of the social studies standards that was addressed in the civics unit specified that students should be able to: "Give examples of how local governments make, enforce, and interpret laws (ordinances) in the local community" (MDE, 2007, 2 – C3.0.1). In the webinar that introduced the civics unit, the curriculum developers discussed this standard and explained that, since they thought that the word "interpret" might be difficult for second graders to understand, they didn't use this word in the curriculum but instead said that judges "explain" laws or help people understand laws.

In civics session 5, students read a text that included this content. Specifically, one page in the text *How Local Government Helps Citizens* said: "Judges help people understand the law. They decide whether someone broke a law. Or they have a jury decide" (Duke, 2014, p. 17). After students in Ms. Brevard's class read the book, she filled in the guidance to have them "review key points from the text" (Duke et al., 2015a, p. 28) by walking back through the book with them and asking questions about what they learned about what the local government does. At one point in this conversation, Ms. Brevard had the following interaction with a student:

Ms. Brevard: What's another [example of what the local government does], Jonah?

Jonah: Judges.

Ms. Brevard: That was another one. We don't have that one up here [on the chart that listed responsibilities of the local government]. Let's add that one to our list. What do judges do, Jonah?

Jonah: They make you understand the law.

Ms. Brevard: Not really make you *understand* the law, but what happens if—

Jonah: Oh, if you, if you break the law.

Ms. Brevard: Yeah, if you break the law. That's part of what they do, yes. If you break a law and you have to go before a judge, a judge kind of gets to decide what's going to happen to you, okay? He gives you your—kind of like your punishment or your sentence for what you did wrong, what law you broke. Okay, so judges. That was one we didn't have up there. Good one.

In this interaction, it appeared that Ms. Brevard had missed the detail in the student text that said "judges help people understand the law," and it appeared that she had also missed (or at least was not thinking about) the high-level guidance that the curriculum had provided pertaining to teaching about the role of the local government in "interpreting" or "explaining" laws. Instead, as she responded to this student contribution, she was relying on her own understanding of the role of local judges to guide the interaction. In doing so, she inadvertently translated the lesson step to "review key points from the text" in a way that was actually inconsistent with the high-level guidance that had been provided (as well as the guidance that was embedded in the student text).

Translations With Unclear Significance With Regard to the High-Level Guidance

In the previous sections, I have described examples of lesson translation that seemed to relate to the high-level guidance in relatively clear-cut ways: either by reflecting it or not. However, there were many examples of translation that I was unable to categorize in one of these

ways. One reason for this is that the high-level guidance was sometimes stated at such a high-level that it did not offer guidelines by which to judge the specifics of teachers' translations. Another reason that translations had unclear significance with regard to the high-level guidance was that there were many parts of the work of teaching for which high-level guidance was not provided at all. [30] For example, there was no high-level guidance provided in the curriculum (other than the academic standards themselves) pertaining to what constituted quality in students' work, at what point students should have "mastered" or become independent with the academic standards they were working on, or how to support students in accomplishing the goals the curriculum set forth if they appeared to be having difficulty.[31] The lesson plans provided guidance about how to set up and orchestrate students' work, but when teachers' translations departed from the lesson-level guidance (to do things like provide more support for students than what was called for in the lesson plan, for instance), there was no way to judge the significance of these aspects of their translations based on other sources of guidance provided by Project PLACE.

High-Level Guidance That Was "Too High" to Guide Teachers' Translations

The case of introducing the concept of *opportunity cost*. We see an example of guidance that was stated at "too high" a level to speak to the significance of teachers' translation decisions in the first lesson in the economics unit, which was designed to help students learn to

[30] Note: I am not trying to imply that the curriculum should have provided high-level guidance for every part of the teacher's work or should have extensively elaborated on every part of the high-level guidance that was provided in order to spell out its meaning. Indeed, I argue that this would be impossible. Rather, I am simply acknowledging that, for many of the details of the lesson plans, there were no other forms of guidance available to guide teachers' translations of these details.

[31] In the final two units, there were a few places where the support boxes that were added to the lesson plans gave suggestions about how to support students who were having difficulty with the lesson activities.

"Identify the opportunity cost in a consumer decision" (MDE, 2007, GLCE 2 – E1.0.1). In this lesson, teachers were to introduce the following definition of *opportunity cost*:

> The good or service that someone doesn't choose to buy when he or she wants to buy two goods or services but doesn't have enough money for both (e.g., when someone wants a new game and an action figure, but only has enough money to buy one; what he or she decides *not to buy* is the opportunity cost). (Duke et al., 2014a, p. 18)

The plan included several opportunities—both during the whole-group instruction at the beginning of the lesson, the student independent work time, and in the whole-group reflection time, for students to interact with the concept of opportunity cost. When teachers filled in the guidance, however, all three teachers I observed made changes that subtly but meaningfully (in my estimation) altered the way the concept of opportunity cost was represented.

When Ms. Foster introduced the definition for opportunity cost, for example, she addressed all the ideas that were included in the definition but primarily emphasized the first part of the definition—that the opportunity cost was "the good or service that someone doesn't choose." When recording the definition of the term on an anchor chart, this first part of the definition was the only part she included. Throughout the lesson—both in the initial introduction and when students shared their work at the end of the lesson, she emphasized repeatedly that the opportunity cost was "the thing you *didn't* choose" without giving attention to the idea that, to be an example of an opportunity cost, the decision needed to involve making a tradeoff. Thus, while Ms. Foster filled in every step of the lesson plan, the way that she filtered out parts of the provided definition when she recorded it on the anchor chart, and the ways that she used the

truncated definition when filling in other parts of the plan, may have obscured the concept that the lesson plan was designed to teach.

We see a similar situation play out in Ms. Parrish's room, even though she did not filter out any part of the definition. In Ms. Parrish's lesson translation, she introduced the entire definition of opportunity cost, using the exact wording from the plan. However, when filling in other parts of the lesson, she did so in ways that did not always keep the idea of making a tradeoff at the forefront. For example, as part of the introduction to this concept, the lesson plan called for the teacher to ask students

> whether they or their families have to make any decisions about the goods or services they want to buy—in other words, on their shopping trips, were they able to buy everything they wanted, or did they have to pick one good or service over another? (Duke et al., 2014a, pp. 18-19)

Ms. Parrish translated this piece of guidance by asking:

> What's something that you had at the store, and someone said, "No! Too much money! We've gotta pick just to get the milk or the bread, or we've got to choose just the oranges and the strawberries?" Tyrese, what is something that you were told, "no, too much money!"?

Students answered with examples like "a game", "ice cream", and "a dog"—all of which might have been examples of opportunity costs or might have simply been examples of things their parents wouldn't let them buy for a variety of other reasons. When Ms. Parrish responded to students' contributions, though, she didn't ask for clarification or direct them back to the idea that an opportunity cost involves giving up the opportunity to have something for the sake of getting to have something else. Instead, she simply affirmed their responses and moved on to the

next part of the lesson. It is important to note that the lesson plan did not explicitly provide guidance for how teachers should respond to students' answers to the question that was posed (other than the definition of opportunity cost that was included in the plan)—this was a part of the instruction that teachers needed to fill in without specific guidance from the plan. Ms. Parrish's way of filling it in, though—even though she was not technically departing from the steps of the lesson plan in any way at this point in the lesson—may have obscured the meaning of the concept.

It is important to note that, to make the judgment that teachers' translations obscured the meaning of "opportunity cost," I am relying on my own understanding of this concept (and my own interpretation of the Project PLACE definition, which is grounded in my understanding of the concept). Indeed, the high-level guidance for this lesson plan—the academic standard that states that students should be able to "Identify the opportunity cost in a consumer decision" (MDE, 2007, GLCE 2 – E1.0.1)—does not define the term and therefore does not provide any kind of guidance to help teachers make decisions about how to teach this concept. All of the guidance for how to teach this concept, then, was contained in the details in the lesson plan.[32] When teachers departed from these details in seemingly subtle ways, or when they filled in parts of the lesson plan for which details weren't provided (e.g., how to respond to students' examples), there was no higher-level guidance available by which they could determine the significance of these aspects of their translations.[33]

---

[32] The Project PLACE professional development session/webinars did elaborate on many of the academic standards being taught in the units. However, the professional development session that prepared teachers to teach the economics unit did not go into detail about the concept of "opportunity cost." The facilitator briefly mentioned the term and paraphrased the definition listed in the lesson plan but did not elaborate beyond that. For other academic standards, the Project PLACE team provided more explicit information about their interpretation of the standard.

[33] Again, I am not saying this as a critique of the design of the curriculum or of the wording of the standards. Indeed, the standards are designed to be stated in a concise form, and it would be impossible for the curriculum materials to extensively elaborate on the meaning of every term included in every academic standard. Instead, I say this to point

The case of working on "authentic" brochures. Just as the high-level guidance pertaining to the academic goals was—by nature—stated at so high a level that it left teachers to figure out many things on their own, the guidance pertaining to the principles of project-based learning also left quite a few things for teachers to figure out on their own. For example, two of the key principles of project-based instruction are that projects should have an authentic purpose and an audience outside of the classroom. However, the design of the projects—as specified in the lesson plans—often included some less authentic aspects along with more authentic ones. For example, in the geography brochure project, it was teachers rather than real estate agents who commissioned the making of the brochures, and students' brochures were handwritten on folded pieces of poster board rather than professionally published.

The curriculum often included guidance for which aspects of the project should be more or less authentic, but teachers also had to make decisions without guidance from the curriculum about whether a particular kind or degree of "inauthenticity" was or was not acceptable. For example, in the geography brochure project, students were to write about places in their local community that would attract visitors or potential residents. When selecting places to write about, students in multiple classrooms wanted to write about places like Walmart or Pizza Hut. Some teachers allowed their students to select these kinds of topics (thus supporting the project-based principle to provide students with choice), even though they knew that these places probably wouldn't be highlighted in "real" brochures. Other teachers discouraged students from writing about these places and instead encouraged students to write about places that they didn't necessarily have much personal experience with but that teachers considered to be more appropriate for this type of brochure. The principle of "authenticity" provided some amount of

---

out that even when teachers stay close to the plan and to what is explicitly stated in the high-level guidance, these forms of guidance still cannot fully guide the moment-by-moment instructional work they must do.

guidance for teachers as they orchestrated students' work on the brochures, but it was not specific enough to provide clear-cut guidance for every decision they had to make.

Aspects of Teachers' Translations for Which There Was No High-Level Guidance

The high-level guidance, by nature, was stated at such a high-level that it could not speak to many of the specific details of teachers' translations. For other parts of teachers' translation work, there was no high-level guidance at all. In the case of Project PLACE, this was most evident with regard to the work teachers did to support their students in doing the activities that the curriculum called for them to do—including when and how to help students work independently (versus providing substantial amounts of scaffolding for the work), how to ensure that their work was helping them advance towards the goals of the activity, as well as what level of quality to expect from students' work. Teachers often did these parts of their translation work in notably different ways, but there was no higher-level guidance that spoke to the significance of their decisions.

The case of economics session 8: "Using Flow Diagrams." We can see an example of this in the economics unit. In this unit, students were to take a field trip (or "virtual" field trip) to a local business to see how it produced the goods that it sold. Later in the unit, students would make informational fliers about the local business for the business to give to their customers. Their first step in this work, which happened in the lesson directly following the field trip, involved collaborating with a small group to make a flow diagram that represented the process that the business used to produce the good. The lesson that included this activity, entitled "Using Flow Diagrams," was designed to address the following standards in some way:

- Use graphic data and other sources to analyze information about a public issue in the local community and evaluate alternative resolutions. (MDE, 2007, GLCE 2 – P3.1.2)

- Construct explanations using correct sequence and relevant information. (National Council for the Social Studies [NCSS], 2013, D4.2.K-2)
- Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text (National Governors Association for Best Practices [NGA] & Council of Chief State School Officers [CCSSO], 2010, RI.2.7)
- By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2-3 text complexity band proficiently, with scaffolding as needed at the high end of the range. (NGA & CCSSO, 2010, RI.2.10)
- Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (NGA & CCSSO, 2010, RI 2.7)
- Recall information from experiences or gather information from provided sources to answer a question. (NGA & CCSSO, 2010, WRT.2.8)

The lesson plan also included the following two lesson objectives, the first of which was related to the student activity itself and the second of which was addressed in the whole-group instruction before and after the activity:

- Create flow diagrams of the process at a local business, and
- Discuss how flow diagrams provide important information in some texts about the order in which things occur. (Duke et al., 2014a, p. 54)

The lesson plan also offered specific guidance for how to prepare students to work on the flow diagram activity and how to support their work. At the beginning of the lesson, teachers were to (1) review a flow diagram that students had seen in a book they had read earlier in the unit, and

(2) outline four features of a flow diagram, which they were to record on the board for students to use as a resource during the activity. Then, the lesson plan provided the following guidance:

- [Step 4] Tell students you are going to put them in groups to create a flow diagram of the process at the business they visited. Explain that each student should make his/her own diagram; however, children can talk amongst their group members about which step comes first, next, and so on. Remind students to look at the poster/chart paper that you just created to help them remember the elements of a good flow diagram.
- [Step 5] Have students work in groups as they individually make their flow diagrams. Circulate, reinforcing the characteristics noted above. (Duke et al., 2014a, p. 54).

As teachers orchestrated students' work on this activity, then, they had access to both detailed instructions and higher-level level learning goals to guide them. However, this guidance did not speak directly to what constituted "quality" for this assignment nor did it provide specific ideas for how to scaffold students' work so that this activity would be a productive learning experience for them.

Teachers' translations of the "Using Flow Diagrams" lesson plan. I observed this lesson in four different classrooms, and the translations among the four classrooms varied in dramatic ways. In fact, the translations of this particular lesson plan were more different from one another than translations of almost any of the other lessons I observed. One reason for this is that all of the teachers I observed believed that their students would have difficulty working productively on the flow diagram activity unless they had more support than what the lesson plan specified, but each teacher made a different decision about what type of additional support to provide.

Ms. Brevard decided to model for her students how to make a flow diagram (an activity that ended up taking over 20 minutes of instructional time) and to list the steps of the process on the board as a reference for students to use when making their own flow diagrams. By providing the steps of the process, she felt that students could concentrate on making the flow diagram itself—learning how to create the boxes, arrows, pictures, and labels—rather than trying to remember the steps of the process. Ms. Brevard also determined that students would be able to work more productively in small groups if each group made only one flow diagram, so she did not ask every student to create his or her own, as was specified in the lesson plan.

Mr. Costa provided a different kind of support to students. Because he was concerned with making sure that students' flow diagrams would accurately represent the business's process, he provided a handout with the steps in the process listed in a jumbled order. Students' task was to work with partners to make flow diagrams by cutting out and reading these steps, pasting them in the correct order, and drawing arrows in between each step. This proved to be challenging for several students, as the wording of some of the steps was difficult for them to read and comprehend. However, at the end of the lesson, Mr. Costa led the class in checking their work together to ensure that all students' diagrams ultimately had the correct sequence of steps.

The nature of the support Ms. Parrish gave her class was still different. Rather than providing students with all of the steps in the process, as Mr. Costa and Ms. Brevard had done, she provided a handout with blank boxes and arrows.[34] Her class re-watched the video of the process that they had watched on their virtual field trip, and together they agreed on the first and

[34] Ms. Parrish checked with her instructional coach in advance of the lesson to make sure that it was okay to provide students with this handout. In doing so, she accessed a form of guidance outside what was provided in the written materials alone. To my knowledge, none of the other teachers consulted with their coaches about possible modifications to this lesson. However, Mr. Costa did report that he consulted with one of his colleagues (who was not teaching the Project PLACE curriculum) about whether or not it seemed necessary to modify the lesson to add additional support for students. She encouraged him to do so and may have provided some input about how to do so.

last steps in the process. Ms. Parrish then encouraged her students to work with their groups to remember and include as many of the other steps in the process as they could (in addition to the steps they had discussed as a class) in the boxes on the handout. She did not seem as concerned as Mr. Costa and Ms. Brevard with ensuring that students' flow diagrams were comprehensive (or completely accurate) in reflecting the process; she focused more on whether students seemed to be working productively in their teams.

Of the four teachers, Ms. Foster stayed closest to the lesson plan when setting up this activity. Unlike the others, she did not model how to create a flow diagram or provide students with a handout to structure or scaffold their work. However, she did add a segment to the beginning of the lesson (before giving instructions for the activity) where she orally reviewed the steps of the process with students, and she also wrote key words on the board so that students could use them as a reference for spelling. As students were working on their flow diagrams, Ms. Foster spent the majority of her time working with a small group of students that she believed would need extra support; she did not circulate to other groups until the independent work time was almost over.

Differences across teachers' translations. The differences in how teachers translated this lesson plan resulted in very different experiences for students—including differences in the nature of the work they ended up doing during the lesson. For example, the primary responsibility of students in Ms. Parrish's class was to work with a group to remember and record the steps in the process, while the primary responsibility of students in Mr. Costa's class was to sequence the steps and to arrange them in the format of a flow diagram. In Ms. Brevard's class, students were primarily responsible for working with a group to illustrate the steps in the process, label them, and draw arrows between them, and they were to produce one group product

rather their own individual product. In Ms. Foster's class, students were responsible for remembering the steps (and their sequence) and creating a flow diagram that represented them.

In Ms. Foster's class, many students had difficulty with the activity and didn't make very much progress on the day that I observed. At the end of the lesson, Ms. Foster reiterated the instructions for the activity, showed her own example, and explained that students would work on it again another day. In Ms. Brevard's class, students seemed to be making progress on the activity but were not able to finish in the time available, so Ms. Brevard also explained that the class would finish on another day. Mr. Costa, who more tightly controlled his students' work, helped his class finish the activity by going over the order of the steps together at the end of class. Ms. Parrish, who didn't seem to have a specific standard of quality for her students' work as long as they had been working well with their teams, was able to finish the lesson by having some of her students share their work with the class (which was what the plan recommended).

Analyzing these translations based on the high-level guidance. Comparing these teachers' translations to one another and analyzing them in relation to the high-level guidance prompts many questions. All of the teachers departed from the guidance contained in the lesson steps (and student materials) in pedagogically significant—but quite different—ways. But how did these departures relate to the higher-level guidance—specifically the guidance for the academic goals of the lesson?

Some translation decisions could be seen as ways of reflecting specific parts of some of the standards that were listed at the top of the lesson plan. For instance, Mr. Costa's decision to have students focus on determining the correct sequence for the steps in the process could be seen as a way to work on the C3 standard to "Construct explanations using correct sequence and relevant information" (NCSS, 2013, D4.2.K-2), whereas Ms. Parrish's focus on having students

work with their groups to brainstorm as many steps as they could remember could have been seen as a way of working on the ELA standards to "Recall information from experiences… to answer a question" (NGA & CCSSO, 2010, WRT 2.8) and to "Participate in shared research and writing projects" (NGA & CCSSO, 2010, RI.2.7).

But in general, it is difficult to judge the decisions teachers made—and the resulting differences in translations across classrooms—in terms of the higher-level guidance. For instance, did it matter whether students brainstormed the steps in the process as a small group (as they did in Ms. Parrish's classroom) or as a whole class, with the teacher's guidance (as they did in Ms. Brevard's classroom)? If the teacher provided the steps, as Mr. Costa did, did this detract from students' opportunities to work on "Recall[ing] information from experiences" (NGA & CCSSO, 2010, WRT 2.8)? Did it matter that Ms. Brevard primarily focused on supporting students in drawing pictures, boxes, and arrows while Ms. Parrish did more or less the opposite by providing the boxes and arrows for students and having them fill in the content? Did it matter that Mr. Costa and Ms. Brevard were very concerned with whether their students' flow diagrams were accurate and complete while Ms. Parrish did not seem as concerned about this? The high-level guidance for this activity—and even the more specific lesson objectives that were also listed at the top of the lesson plan—do not answer these questions. Thus, as teachers determined how to make the activities in the curriculum doable for their students and useful for their learning, they were left to answer these kinds of questions on their own, without guidance from the curriculum materials.

Cases of Translation That Took More Time Than Recommended

In the previous sections, I have examined the significance of aspects of teachers' lesson translations in relation to the principles of project-based instruction and the academic standards

that those specific lesson plans were designed to address. However, another way in which teachers' translations can have significance with regard to the higher-level guidance pertains to the ways in which they relate to guidance for how much time the lessons should take. Time is somewhat flexible—if a teacher can make extra time in her schedule, it may not matter if a particular lesson lasts longer than planned. But time can matter. If lesson translations often take much more time than suggested, this can result in changes to the overall curriculum map (Remillard, 1999), which can mean that certain opportunities to work on high-level goals can be lost.

In this section, I explore cases of translation that took substantially more time than recommended—specifically, cases where teachers did not finish translating the lesson on the day that I observed and reported spending more time on the lesson on another day (or multiple other days).[35] When examining features of these cases of lesson translation, I am not attempting to claim that they definitively played a role in preventing teachers from being able to teach the entire curriculum within the time available—indeed, it is certainly possible to make up for lost time elsewhere. I am also not claiming that these lesson translations were the only—or even the most important—factor in issues with curriculum pacing that the teachers experienced. Indeed, other factors, like snow days and challenges with finding instructional time to teach Project PLACE lessons altogether, certainly played a role in teachers' difficulties with finishing the curriculum before the end of the school year. Even so, I find it useful to identify features that may have contributed to lessons' taking more time than specified because—if these features

[35] For six of the 31 lessons I observed, teachers reported revisiting the lesson on another day so that students could finish or redo the activity. Some teachers also mentioned other lessons that took multiple days to finish in their post-unit interviews.

routinely characterized teachers' translations—they would, over time, make it more difficult for teachers to finish teaching the curriculum within the time available.

Cases in Which Additions to the Lesson Plan Seemed to Matter

One type of situation in which teachers' translations ended up taking more time than recommended was when teachers added time-consuming elements to the lessons without compensating for that time in other parts of the lesson. For instance, in the flow diagram lesson that I described above, Ms. Brevard decided to provide additional support for students during the setup of the activity my modeling how to do it. Because her modeling ended up taking over 20 minutes (of a lesson that was designed to be approximately 45 minutes), it is no surprise that her students were not able to complete their assignment within the recommended lesson time. In another unit, Ms. Brevard decided to have students peer edit one another's project writing rather than editing it herself outside of class time, as the plan had recommended. She felt that the exercise of peer editing would be a productive learning experience for students. However, she ultimately regretted this decision—finding that the peer-editing process took "days and days" and was much more laborious than she anticipated. She acknowledged that, while she had thought it would be a good idea to have students peer edit each other's writing as part of their project, in hindsight she believed it would have been better for her to edit the students' writing herself (as the lesson plan had recommended) in order to save time.

Cases in Which Teachers' Ways of Filling In the Guidance Seemed to Matter

It is not surprising that lesson translations would take longer than recommended when teachers added segments to the lesson without compensating elsewhere. However, in most of the lesson translations I observed that took longer than expected, it was teachers' ways of filling in the guidance, and perhaps even their decisions *not* to depart from the guidance at times, that

seemed to make a difference in the amount of time it took for the lesson translation to play out. In the majority of cases where lessons ran long, the reason that they ran long was that students seemed to be having difficulty with the activity and therefore were having difficulty completing the activity in the time allotted. Because Project PLACE lessons were designed around long-term projects, many of the activities that students were to complete were components of the products they would create for their projects—they built on work students had done in earlier lessons and provided the foundation for work students would do in future lessons. Whether or not students completed their assignments often had repercussions beyond the specific lesson, and for this reason, when students did not successfully complete an assignment during the available lesson time, teachers had no other choice but to find more time for students to continue their work.

When the majority of a class had difficulty with an activity during the lesson time, this suggested that there was something about the lesson translation—either something about the setup of the activity, something about teachers' orchestration of students' independent work, or both—that did not adequately support the students in being able to work productively. We see an example with this in Ms. Foster's translation of the "Flow Diagram" lesson that was discussed earlier in the chapter. In this translation, the majority of the class seemed unable to work productively on the activity, and the lesson ended with Ms. Foster restating the expectations for the activity and telling students that they would work on it again another day. The interesting thing about this translation was, among all the teachers I observed, Ms. Foster was the teacher who set up the activity in a way that involved the least amount of departure from the lesson plan. Indeed, although she departed from the guidance by discussing the steps of the process for making cupcakes that her class had observed on their virtual field trip, she did not, like Ms. Brevard, add to the lesson by modeling how to create a flow diagram or by recording the steps of

the process on the board. She also didn't create additional student materials—like the handouts Ms. Parrish or Mr. Costa provided—to scaffold students' work.

By filling in the guidance for setting up this particular lesson rather than departing from some aspect of it, Ms. Foster may not have provided the kind of support her students needed to work productively on the assignment. Furthermore, because Ms. Foster chose to work with a single group of students for much of the small group work time rather than circulating around the class as students were getting started on the assignment, she did not realize that the majority of her class was having difficulty working productively. It was likely these factors in Ms. Foster's lesson translation—rather than her addition of the review at the beginning of the lesson—that resulted in a situation which students were not able to complete the assignment within the time frame specified by the curriculum.

Conclusion

The Project PLACE curriculum provided high-level guidance (in the form of academic standards, principles of project-based instruction, and guidelines for the number and length of lessons) along with the detailed lesson plans; these forms of high-level guidance were designed to influence teachers' translations of the lesson plans. As we see in this chapter, however, it is often not straightforward to determine how the high-level guidance should inform the work of translating the details of the lesson plans, and there are many parts of teachers' translation work that the high-level guidance does not speak to.

The examples at the beginning of the chapter illustrate the reality that, just as it was possible for teachers to depart from (as well as fill in) the lesson steps in ways that reflected the high-level guidance, it was also possible to fill in (as well as significantly depart from) the lesson steps in ways that did not reflect the high-level guidance. Filling in the guidance in ways that did

not reflect the high-level guidance often happened because teachers filtered out opportunities for this that were contained within a larger lesson step, but there were also cases in which teachers filled in the guidance—staying close to the details in the plan—in ways that were inconsistent with what was specified in the high-level guidance. Furthermore, for many of the specific aspects of the translation that teachers had to determine—such as how to tailor the guidance for setting up and orchestrating students' independent work to ensure that it would be a productive learning opportunity, or how to elaborate on lesson-level guidance for explaining a concept—the high-level goals and principles didn't offer much (if any) guidance.

Another factor that complicated teachers' work of translating lesson steps was the reality that they were not only working toward the goals of teaching particular academic standards through a project-based approach, but they were also working to do all of this within specific time constraints, in order to ensure that they would have time to teach the entire curriculum. As we can see from the example where Ms. Foster's lesson took longer than intended, staying close to the guidance in the lesson plan did not ensure that teachers could stay close to guidance for the time frame in which the lesson should be taught. Indeed, sometimes it seemed that departures from the guidance were necessary in order to translate the lesson more or less within the time frame specified. Thus, teachers had to determine what to do—either when filling in or by departing from the lesson steps—in order to make the lessons "work" in terms of all three forms of the higher-level guidance.

Chapter 6

Discussion of Findings

This dissertation focused on two questions: how teachers translated the guidance from Project PLACE lesson plans into instructional interactions and how teachers' translations of the lesson-level guidance related to the high-level guidance provided by Project PLACE. In this chapter, I discuss key findings and describe how they relate to and extend the findings of existing literature on curriculum use.

When Does the Process of Translation Occur?

Before summarizing and discussing my findings related to *what* is involved in the process of translation, I first want to address the question of *when* the work of translating lesson guidance occurs. Researchers who have developed theories about curriculum use have distinguished between the planned curriculum and the enacted curriculum (Remillard, 2005; Stein, Remillard, & Smith, 2007). As I described in Chapter 2, Remillard's (2005) framework defines the planned curriculum to be the instructional plans teachers produce as they work with the guidance contained in curriculum materials. The planned curriculum influences (and is influenced by) the enacted curriculum, which Remillard describes as the "plans as they unfold in a particular context with particular students," which necessarily take into account the "context-specific demands as they emerge" (p. 238). The enacted curriculum, which is co-constructed with students, involves not only use of the planned curriculum but also "in-the-moment design decisions" that are responsive to how the lesson is unfolding (Remillard, 2018). Existing research on curriculum use has explored how teachers interact with curriculum materials both as

they create the planned curriculum and as they are actually enacting the curriculum with students (Forbes & Davis, 2010; Remillard, 1999; Remillard, 2018; Sherin & Drake, 2009).

In this dissertation, I define lesson translation as the process of converting written guidance into instructional interactions with students. Therefore, I view it most fundamentally as a process that happens during the interactive work of teaching (or, the "enacted curriculum," according to Remillard's [2005] framework). While lesson translation does involve making conscious decisions about what to do with the guidance (some of which can be made prior to teaching the lesson and others of which must be made in the moment), translating guidance involves more than conscious decision-making. It also depends on teachers' routine and habitual ways of interacting with students and their general ways of being.

For instance, when comparing Ms. Rawski's and Ms. Parrish's translations of the first step of a geography lesson (which I describe at the beginning of Chapter 4), Ms. Rawski's translation was much more concise than Ms. Parrish's (13 seconds versus 2.5 minutes). This difference may have been due to in part to conscious decisions each teacher made either before or during instruction (e.g., a decision to budget time at this point in the lesson versus a decision to spend time unpacking certain concepts at this point in the lesson), but it was also likely due, in part, to differences in the two teachers' ways of communicating (i.e., Ms. Rawski generally communicated in more concise ways than Ms. Parrish—both during instruction and during post-lesson interviews) and their habitual ways of interacting with their students. For instance, when teachers needed to convey information to students, Ms. Rawski sometimes did this by simply telling her students the information, whereas Ms. Parrish routinely used techniques to involve students in stating parts of whatever piece of information needed to be conveyed. The concept of translation is intended to incorporate these aspects of teachers' interactive instructional work.

Even though the concept of lesson translation refers primarily to the work teachers do to convert guidance from curriculum materials into moment-by-moment interactions with students, there are certainly aspects of translation work that teachers can prepare for or determine outside of the lesson time. For instance, if a lesson plan calls for partner work, teachers might plan in advance how students will be paired, thus determining how they will translate a piece of general guidance in their own particular situation. Similarly, teachers might plan ways of departing from the guidance—by creating a handout that they think will support their students' work or by deciding in advance that it might be helpful to restructure the lesson. In other words, although the concept of translation is primarily concerned with the work teachers do *in interaction* with students, this work is inherently influenced by what teachers do as they plan and prepare for instruction.

Furthermore, while I conceive of *translation* in terms of what we can actually see playing out in the classroom, I also acknowledge that teachers' ways of translating are absolutely influenced by the cognitive work they do both before and during the lesson. Many have focused on how teachers read, perceive, interpret, and evaluate curriculum guidance (Beyer & Davis, 2012a; Brown, 2009; Davis, 2006; Remillard, 2000; Remillard & Bryans, 2004; Sherin & Drake, 2009), which certainly influence the ways in which they translate the guidance into instructional interaction. These parts of teachers' work are not the primary focus of my study. Instead, my study is designed to complement this literature by providing a description of processes that are involved in converting this guidance (as well as the modifications teachers have chosen to make to it during their planning) into a different form—the form of instructional interaction.

Filling In the Guidance as the Fundamental Process of Translation

In seeking to characterize the work involved in lesson translation, I was not surprised to find that this work involved making significant departures from the plan at times—even though teachers had agreed to follow the plans for the purpose of the experimental study. Indeed, it has been well established in the literature that adaptations to the plans are inevitable (Lloyd, Remillard, & Herbal-Eisenmann, 2009; Remillard, 2005; Sherin & Drake, 2009; Snyder, Bolin, & Zumwalt, 1990; Stein, Remillard, & Smith, 2007). Even so, much of the time, teachers appeared to be following the guidance in the lesson plans relatively closely. A major goal of this study, then, was to unpack the translation work that was involved in situations where teachers *were* more or less doing what was called for in the guidance. Based on a fine-grained analysis of these instances (which I presented in Chapter 4), I characterized the translation work teachers did to follow particular parts of guidance as the work of *filling in* the guidance.

What Does Filling In the Guidance Involve?

I used the term *filling in* to highlight the idea that, even when teachers are staying close to the guidance in the lesson plan, important aspects of their instructional work are not and cannot be fully guided. Filling in the guidance not only involves figuring out how to apply general guidance to the specifics of a classroom situation, but it also involves determining which instructional techniques to employ to accomplish what the guidance calls for (e.g., which techniques to use in order to "explain" something the curriculum has called the teacher to explain), as well as improvising the exact language used during the interaction (including, but not limited to, responses to what students say and do).

In my analysis, I illustrated the work of *filling in* primarily by comparing transcripts of teacher and student interactions with the guidance in the lesson plans, but it is important to note

that this work also includes elements that are not typically represented in a transcript. For instance, part of the work of filling in the guidance involves using space and time in the classroom in specific ways, and it also involves "persona work" (Curren-Preis, 2018), including use of vocal inflection, eye contact, body language, and other tools teachers use to connect with their students. These elements of instructional work, which are often taken for granted, can matter in terms of how particular pieces of guidance actually play out in practice and thus how they shape students' experiences.

We can see an example of this in the portion of Mr. Costa's civics lesson that I described at the beginning of Chapter 4. In this segment of instruction, Mr. Costa filled in the guidance to "tell students" a piece of information by asking a question that was intended to support the students in being the ones to state the information. When the first student he called on, Mackenzie, didn't give the answer he was looking for, he responded with a somewhat exasperated tone. Then, he indicated that he needed to call on Carson—a student who he often seemed to rely on to provide correct answers when other students couldn't. This way of filling in the guidance—including the specific words Mr. Costa said as well as his tone of voice and body language—seemed significant. Even though this instance of translation lasted only a few moments and was one very small part of all of the work Mr. Costa did to bring this lesson plan to life in instruction, this interaction likely communicated something to the students (including Carson, Mackenzie, and those who were observing this interaction) about how he viewed them as learners and as members of the class.

By contrast, when Ms. Rawski translated a piece of guidance that came earlier in this lesson step, "Ask [students] what they learned from their graphs" (Duke et al., 2015a, p. 35), she used this as an opportunity to highlight ideas of students who didn't often participate in the

whole-class discussion. When she called on these students, she used both her language and her tone of voice to emphasize that the things they had noticed were interesting and worth noting. These aspects of Ms. Rawski's translation of the guidance also likely communicated something to those students (and the others) about how she viewed them as learners and members of the class.

I mention these examples to make the point that, even when teachers are staying very close to the plan, there is always translation work that the plan cannot guide, including "persona work" such as tone of voice and body language (Curren-Preis, 2018), and it matters how teachers do these parts of the work as they fill in guidance from the lesson plans.[36]

Why Does Filling In the Guidance Often Involve Small Departures From the Guidance?

In Chapter 4, I defined *filling in* as doing the parts of the instructional work that are not and cannot be fully guided when teachers are following the guidance that is provided, but in my analysis of Project PLACE lesson translations, I found that the work of filling in also often involved departing from some of the details of the guidance. Teachers departed from the guidance in the course of filling it in by elaborating on what was explicitly called for, filtering out some of the detail, making small changes to the sequence, and by making small modifications to student materials or including student materials/displays (e.g., writing on the board) that were not explicitly called for.

One reason these small departures seemed to be so common in the work of filling in was that teachers were intentionally tailoring the guidance to their own situations, but another important reason is that the form of the written guidance is fundamentally different from the

[36] This point is related to the point Ball (2018) makes when she discusses the ubiquity of discretionary spaces in teaching.

form of instructional interaction. Thus, the process of converting between these forms involves some amount of transformation—even when teachers are doing what is called for.

We can see an example of this by considering the kind of guidance for instructional explanations that can be provided in lesson plans and comparing this "form" to the form of actual instructional explanations that play out in classrooms (see Leinhardt, 1990, for a description of the qualities that characterize *instructional* explanations and distinguish them from other kinds of explanations). In the Project PLACE lesson plans, the guidance for introducing and explaining new concepts was often quite detailed. It was common for a lesson plan to contain a paragraph of instructions for how to introduce a concept, including examples that could be used and sometimes specific questions that could be asked to involve students in the explanation. However, although the guidance in lesson plans included a lot of detail, it was written in the form of a relatively concise summary of the content that teachers were to talk about with their students. Indeed, it often included phrases like "help students understand [a particular idea]," which suggested that the instructional work involved in giving the that part of the explanation would require more than simply reading the exact words or stating the ideas from the lesson plan.

When teachers used this guidance in interaction with students, then, it was not surprising that they elaborated on what was in the plan, taking the ideas from the plan and using them as the basis for an improvised explanation that involved more complexity and detail than what would be possible to represent through guidance in the lesson plan. In improvising an explanation, it also was not surprising that teachers often filtered out some of the detail included in the plan, or that they sometimes used a slightly different sequence from what was written. It is easy to imagine why these kinds of small departures—some of which were intentional and some of

which were not—would happen in the course of translating written guidance for an explanation into an actual interaction with children that played out in real time in the classroom.

The Role of Departing From the Plan in Lesson Translation

Even though filling in the guidance was the primary process involved in lesson translation, more significant departures from the plan were also typically involved. In the conception of translation work that I developed, I identified four types of significant departures teachers could make from the guidance contained in the lesson steps and student materials:

- adding segments of instruction that were not specified in the lesson steps,
- omitting segments of instruction that were specified,
- changing the sequence of the lesson in ways that affected its overall structure, and
- modifying or adding to student materials in ways that changed the nature of the work students would do during the lesson.

These types of departures were similar in many ways to the three ways of adapting the curriculum that Sherin and Drake (2009) outline:

- *creating* new components to include in the lesson,
- *replacing* components in the lesson (i.e., substituting one of the lesson components with something else), and
- *omitting* components of the lesson altogether.

However, there are also differences between these two sets of categories and how they are defined. In Table 6.2 below, I map between the two sets of categories and comment on how they might be similar and different.

Table 6.1
Comparison Between Sherin and Drake's Types of Significant Adaptations and the Types of Significant Departures in Lesson Translation

Sherin and Drake's categories	The categories used in this study	Comments
Creating new components	Significant additions to the lesson (i.e., segments of instruction that were at least 2 minutes long)	The category of *significant additions* I used in this dissertation may be broader than Sherin and Drake's. Sherin and Drake describe *creating new components* as developing new *activities* which are added to the lesson. It is unclear whether Sherin and Drake would count some of the segments that I counted as *significant additions* as additional activities, since they were sometimes simply extensive elaborations on activities that were already in the curriculum (e.g., taking a couple of minutes to have a conversation about a meaning of a term that was being used in the lesson.)
Replacing components	None (see comments)	I did not have a comparable category for what Sherin and Drake would call *replacing*. Rather, when teachers did an activity that was different from what the plan recommended, I considered this to be a combination of an *omission* and an *addition.* (However, I rarely saw examples of instances where teachers clearly seemed to omit something and add something in its place). My category of *using modified or additional student materials* may also overlap with Sherin and Drake's category of *replacing components.*
Omitting components	Significant omissions (i.e., omissions of entire lesson steps)	Because some lesson steps in the Project PLACE curriculum were much narrower than others, there may have been some instances that I identified as *significant omission*s that Sherin and Drake would not have counted as *omitting components*. However, because some lesson steps in the Project PLACE curriculum included multiple parts, Sherin and Drake may have classified some instances as *omitting components* that I classified as *filtering out details* rather than as a significant omission.
None	Restructuring the lesson	Restructuring the lesson did not appear to be addressed in Sherin and Drake's categories of adaptations. They only mentioned lesson sequence when describing what teachers attended to as they read the guidance.

None (see comments)	Modifying or adding to student materials	This category was likely encompassed in Sherin and Drake's categories of *replacing* or *creating* components. One of their examples of *replacing* components was a situation in which a teacher used a different math manipulative than was specified in the lesson plan. Although they didn't go into detail, I assume they thought that there was pedagogical significance in using one versus the other.

I expect that one reason that the types of adaptations Sherin and Drake outline differ from the significant departures I outline is that the curriculum programs we analyzed were likely quite different. Because the Project PLACE curriculum was designed to teach social studies and content-literacy standards using a project-based approach, the structure of the lessons and the nature of the activities contained in them were likely different from the lessons in the reform-based mathematics curriculum that was the focus of Sherin and Drake's study. Specific criteria for defining what counts as an "activity" or "component" of the lesson might be difficult to apply consistently across the two curriculum programs—which means that it would also be more difficult to consistently define what would count as a significant departure or adaptation from the recommended components.

Perhaps because of differences in our criteria for determining what would count as a significant omission or addition/creation (as well as differences between the two curriculum programs), Sherin and Drake (2009) and I also found different results in our attempts to analyze patterns across teachers. Sherin and Drake (2009) found that different teachers had different general approaches to adapting—some teachers generally adapted by *creating* new components and added them to the lesson, others generally adapted by *replacing* components that were in the lesson with something different, and others generally adapted by *omitting* components of the lesson. Notably, in their analysis of 10 teachers' instruction, they found that "no teacher was

found to 'create' in one time period, and then 'omit' during another time period" (p. 487). They present their three types of adaptations as three somewhat distinct approaches that were used by different teachers.

These findings were inconsistent with the findings of my study. In my analysis of teachers' translations, I found that all teachers departed from lesson plans by making significant additions *and* omissions at times. The only exception was Mr. Kopp, who did not omit a lesson step (except for one optional step) in any of the four lessons of his that I analyzed. Furthermore, I found that, while some teachers did appear to have general patterns in the types of adaptations they made most frequently (e.g., both Ms. Parrish and Ms. Foster tended to make significant additions quite frequently, while it was more common for Ms. Rawski to omit than to add), teachers' ways of departing from the guidance also seemed to be related to features of the specific lesson plans they were translating as well. For instance, in several of the lesson plans, all of the teachers I observed omitted the same step, which may suggest that there was something about the design of that particular lesson that made it easy, sensible, or even necessary for teachers to omit that step when translating the plan. In other words, I found that even though particular teachers might generally favor or avoid one particular type of departure, all teachers (with only a couple of exceptions) engaged in all types of lesson departures at times.

Another difference between Sherin and Drake's (2009) study pertains to the question of what counts as a "significant" (versus insignificant) adaptation or departure. In their writing, Sherin and Drake (2009) suggest that they see this distinction as being relatively clear-cut. Indeed, when describing what they mean by "adaptation," they say:

> Again, to be clear, no lesson can be implemented exactly as written: changes inevitably occur. Here, however, by adaptation, we refer to *significant* changes

> that teachers make in the intended curriculum, e.g. changes in the structure of a lesson, in the activities that comprise the lesson, or in the purpose of the lesson. (p. 486).

Conversely, I attempted to analyze and characterize all types of departures from the guidance—including those that I judged to be insignificant—in order to better understand the processes involved in lesson translation. The results of this analysis led me to identify four types of departures and to conceptualize each of these as falling along a continuum ranging from less to more significant rather than fitting neatly into the categories of "significant" or "insignificant." Indeed, I found that the "significant" departures teachers make from the guidance are the same types of things they do as they fill in the guidance; they are just different in degree. I consider this to be a key finding of my study.

The fact that teachers' departures from the guidance lie on a continuum may account for why teachers and curriculum developers might sometimes have different ideas about what kinds of instructional interaction would or would not count as a legitimate way of implementing a lesson plan. Indeed, very subtle changes to the plan that teachers make when translating (such as slight changes to the wording of a definition or slight modifications to a student activity) might seem to be inconsequential in a teacher's eyes but quite consequential in the eyes of the curriculum developer. Similarly, a teacher who is attempting to implement a plan with fidelity might feel constrained to stay close to certain details in the plan even when the curriculum developer might have considered alternative ways of translating to be equally legitimate, as long as a particular aim of the plan was accomplished. To make judgments about the quality of teachers' ways of translating (e.g., their ways of filling in, their decisions about when and how to depart from the guidance in the plan, and so forth), criteria outside of the prescribed steps in the

lesson plan must be used. (I will return to this topic later in this chapter, as I discuss key findings from Chapter 5.)

How the Concept of Translation Relates to Brown's Conceptualization of the Teacher-Curriculum Relationship

How Translation Relates to Brown's Types of Curriculum Use

The idea that teachers' translation work—including their departures from the guidance—lie along a continuum is related to Brown's (2009) scale of types of curriculum use. Brown presents this scale in a book chapter where he describes his conception of teaching as a process of design. In this chapter, he explores the ways in which curriculum materials serve as tools that mediate teachers' instructional design work. He argues that there are three ways teachers might use curriculum materials to design instruction:

- by *offloading* "a large degree of agency for guiding instructional activity onto the materials" (p. 24);
- by *adapting* "the curriculum resources in ways that reflected contributions of both the materials and [the teacher's] personal resources" (p. 25); and
- by *improvising with* the materials, or taking on significant agency for the instructional design and relying only minimally on the materials for guidance.

Brown explains that these three categories lie on a scale that represents the different "degrees of artifact appropriation" (p. 24), and he explains that teachers may move along this scale at different times within a lesson (e.g., offloading at some points in the lesson while improvising with the materials at others). He also stresses that this framework is not intended to measure fidelity to the curriculum developers' intent (e.g., offloads as well as improvisations may or may not reflect the goals of the curriculum developers).

The continuum of processes involved in lesson translation that I describe in Chapter 4 is closely related to this scale—indeed, as Figure 6.1 shows, it can be mapped directly onto it. However, the difference is that Brown's scale is focused on the degree to which teachers rely on the guidance from the curriculum materials at particular points in the lesson, whereas the continuum I present is focused on the nature of the instructional work teachers have to do *as* they rely on the guidance to these varying degrees.

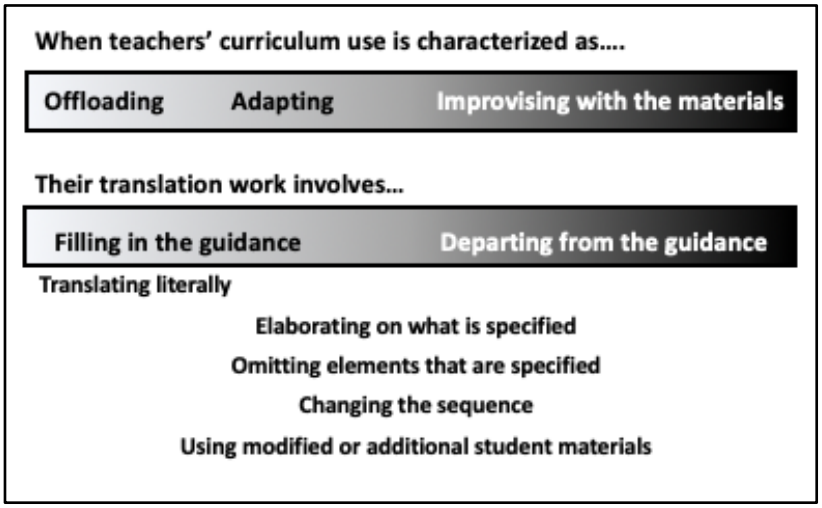

Figure 6.1 The relationship between Brown's scale of curriculum use and the continuum of processes involved in lesson translation

The place where this difference in focus is most notable is at the left-hand side of the continuum. Brown's concept of *offloading* is based on the idea that teachers can allow the materials to take on "a large degree of agency for guiding instructional activity" (p. 24), but the concept of *filling in* that I present in this dissertation is based on the idea that, even when teachers *do* "offload" agency for instructional design onto the materials, they must still do important work that cannot be guided. In other words, while Brown's offload-adapt-improvise scale focuses on the degree to which the teachers decide to use the guidance contained in the materials at any given point in a lesson, the continuum of lesson translation that I present focuses on characterizing the nature of the instructional work teachers must do *as* they offload, adapt, or improvise with the materials.

The Connection Between Pedagogical Design Capacity and Curriculum Translation

In his chapter, Brown (2009) explains that his offload-adapt-improvise scale is a "judgment-neutral" tool for describing how teacher use curriculum materials (p. 31). However, he also presents an additional concept—pedagogical design capacity—that is evaluative. He defines pedagogical design capacity as "a teacher's capacity to perceive and mobilize existing resources in order to craft instructional episodes" (p. 29). He argues that this capacity—along with other teacher resources such as pedagogical content knowledge, subject matter knowledge, goals, and beliefs—affects how the teacher offloads, adapts, and improvises with the curriculum materials to produce instruction (see also Remillard, 2005). He also acknowledges (like Remillard) that the features of the curriculum resources themselves play a role in influencing how teachers use them to craft instruction. These factors, in turn, ultimately affect the quality of the instructional episodes themselves, as well as the outcomes of these episodes for student learning.

The concept of translation that I develop in this dissertation is consistent with these ideas, but rather than putting the focus on the teacher resources or capacities that are essential for this work (or characteristics of curriculum materials), I attempt to characterize the nature of the work itself. In other words, by unpacking the work involved in translation, I intend to help explain *why, when,* and *how* teacher resources and capacities, such as their pedagogical content knowledge or pedagogical design capacity, come into play, even when teachers are generally attempting to stay close to detailed curriculum guidance. In his dissertation, Brown (2002) describes a situation in which a teacher "struggles through an offload in an area where she lacks subject matter expertise" (p. 236); the concept of *filling in* the guidance (which by definition

involves instructional work that cannot be fully guided), accounts for why it is not surprising that a teacher might struggle even when doing exactly what a lesson plan calls for.

One of the examples I present in Chapter 5 provides an illustration of how teacher resources, including their pedagogical design capacity as well as their pedagogical content knowledge and subject matter knowledge, come into play in teachers' translation work. In this example, I show how two teachers may have obscured the meaning of the concept of "opportunity cost" during their instruction even though they were staying quite close to the guidance in the lesson plan (i.e., doing what Brown would call "offloading"). In this lesson plan, the Project PLACE materials provided teachers with a child-friendly definition of the term "opportunity cost" as well as a series of steps for introducing this concept to students. Although the definition expressed the idea that the opportunity cost was the thing that wasn't chosen in situations where was necessary to make a tradeoff, the "tradeoff" idea may have been obscured at certain points in both teachers' translations, which may have led students to simply think of an opportunity cost as something that they didn't or wouldn't choose to buy (for a variety of possible reasons) rather than as something they had to forgo in order to get something else.

Using Brown's concepts to analyze these data may lead to the conclusion that teachers lacked a combination of resources that would have supported them in more clearly introducing the concept of "opportunity cost." Indeed, their lessons and their interviews provide some evidence to suggest that they may have lacked subject matter knowledge and/or pedagogical content knowledge related to this concept. Some might also argue that teachers lacked pedagogical design capacity because they were unable to "perceive" an important idea contained in the definition provided by Project PLACE (i.e., the idea that an opportunity cost is the result

of a tradeoff) and/or to "mobilize" the guidance contained in this definition in productive ways as they interacted with students during the lesson.

Although I would agree with this analysis, it focuses on the teachers' resources and capacities rather than on describing how and when these resources were brought to bear in this situation. The concept of translation (and the analysis I did to develop this concept) attempts to do the latter. By unpacking the work involved in translating the Project PLACE guidance for introducing "opportunity cost," we can see why teachers' pedagogical design capacity and other resources matter. Indeed, the places in which the teachers may have obscured the meaning of the term "opportunity cost" were places in which they had to do quite a bit of improvisation in order to fill in the guidance contained in the plan. The fact that they needed to do so much improvisation in the lesson (even when "offloading" agency for the design to the plan) is at the heart of the concept of translation. In other words, "translation" (and all the different kinds of work it can involve) is meant to describe the work involved in "mobilizing" guidance from curriculum materials in specific instructional interactions, which can then help explain *why* and *when* teachers need the capacity to do this (i.e., pedagogical design capacity) in instruction.

The Importance of Guidance Other Than Procedural Steps

Like Brown's (2009) offload-improvise-adapt scale that I described earlier, the continuum of lesson translation presented in Chapter 4 is descriptive in nature—it does not suggest that one way of translating (e.g., significantly departing) is inherently better than another (e.g., filling in the guidance in a relatively literal way). Indeed, in order to translate guidance from lesson plans in productive ways, teachers will likely need to move back and forth along this continuum. If this is the case, though, teachers then must use something outside of the guidance

in the lesson steps to inform how they translate particular pieces of guidance (including whether or not to depart from aspects of it) ways that will be productive.

As curriculum-use literature suggests, and as I alluded to above, teachers' own personal resources (such as their content knowledge, pedagogical content knowledge, and so on) play an important role in helping them determine *what* about the guidance contained in the lesson steps is significant (Brown, 2009; Remillard, 2005). As teachers interpret and translate the lesson steps, they rely on these personal resources to help them determine, for instance, whether making a slight change to some of the wording from a definition or changing a detail about how to structure students' work on a task does or does not matter and why.

Even though teachers' lesson translations will certainly be influenced by the personal resources they bring to instruction, curriculum materials can also provide other kinds of guidance—in addition to the lesson steps—that can inform teachers' translation work. Based on my findings regarding the nature of the work involved in lesson translation, as well as on the existing theories of teachers' curriculum use, I argue along with many others (Ball & Cohen, 1996; Davis et al., 2017; Davis & Krajcik, 2005; Remillard, 2000) that it is important for curriculum materials to contain other forms of guidance along with prescriptions about what to do in instruction. To put it simply, where the lesson steps offer guidance for the "how" of instruction—or at least some aspects of one possible version of the "how"—other forms of guidance are needed to provide insight into the "why." Knowing the "why" is important given that teaching, by nature, requires adaptive expertise[37] (Hatano & Inagaki, 1986).

[37] As I mentioned in Chapter 1, Hatano and Inagaki (1986) distinguish between adaptive expertise (which involves drawing on knowledge of the "why" to figure out "how" to do something) from routine expertise (which involves being able to efficiently implement one way of doing something without necessarily knowing why that way works), and they argue that adaptive expertise is needed (and can be developed) in situations where there is built in "randomness" or variation in the system in which the person is working. Because teaching (including the work of translating guidance from lesson plans), involves working with particular students in particular situations, this work certainly involves enough randomness/variation that it requires adaptive expertise.

Curriculum-use literature has provided many insights into the kinds of guidance—outside of the lesson steps and student materials—that could be helpful for supporting teachers' translations. Indeed, the various kinds of educative curriculum supports that have been described in the literature—including rationales for lesson activities, vignettes of classroom instruction that include information about teachers' decision-making, and so forth—offer examples of different possibilities (Davis & Krajcik, 2005; Davis et al., 2017). I will discuss these types of supports further when considering the implications of this dissertation for curriculum design. Support can also be provided, as it was in the case of Project PLACE, through professional development experiences rather than in (or in addition to) the written curriculum materials themselves.

Even apart from the forms of guidance that could be classified as "educative supports" for teachers, there are kinds of guidance commonly provided in curriculum materials—in addition to the lesson steps and student materials—that are intended to influence teachers' translations. Perhaps one of the most common types of this guidance is the statement of learning goals and/or objectives often included at the beginning of the lesson. All Project PLACE lesson plans contained this form of guidance. In addition to the learning goals and objectives, Project PLACE also communicated the principles of project-based instruction (through professional development) and provided guidelines for the approximate amount of time each lesson should take and the number of lessons that teachers needed to teach in order to cover the curriculum. Because these kinds of guidance were included in (or alongside) the curriculum for the purpose of influencing teachers' translations of the steps in the lesson plans, I was interested in understanding how teachers' translations seemed to relate to these other forms of guidance.

In my investigation of this question, which was the focus of Chapter 5, I found numerous examples in which teachers' translations of lesson steps—including their ways of filling in the

guidance as well as elaborations on the guidance or more significant departures from the plan—clearly reflected the high-level guidance provided by Project PLACE. These examples suggest that it is possible for the lesson steps, the high-level guidance, and/or teachers' own personal resources to work together, so to speak, to support teachers in translating lesson plans in ways that align with the overarching purposes and goals of the curriculum.[38] However, my analysis revealed that there are also limits to the role that the high-level guidance can play in influencing instruction.

The Inherent Limits of the High-Level Guidance

The findings I present in Chapter 5 demonstrate that the combination of the high-level guidance and the step-by-step guidance—while much more comprehensive than one of these forms of guidance alone would be—still leaves many parts of the translation work to be done without guidance.

In the case of Project PLACE, the limits of the high-level guidance—particularly the guidance pertaining to the learning goals—were often especially clear in situations in which teachers were setting up and orchestrating their students' independent work. In many cases, teachers felt that their students needed more or different support than what was called for in the lesson plans to be able to work on lesson activities productively, but the academic standards listed at the top of each lesson plan could not (and were not designed to) provide insight into how teachers might depart from the lesson steps in ways that would best support their particular students in working towards these goals. The work of steering instruction toward an instructional

[38] In saying this, I do not want to assume that teachers necessarily made use of the high-level guidance. Indeed, teachers may have reflected the high-level guidance at times in which they weren't even attending to it. It is possible for a teacher to rely only on the guidance contained in the lesson steps and on her own personal resources to translate the guidance from the lesson steps. However, the high-level guidance can certainly support the translation of lesson steps (and perhaps influence teachers' personal resources as well) if the teacher takes advantage of it and does the work involved in figuring out how to make use of it in translation.

point (or multiple instructional points) is complex (Sleep, 2012), and when the only forms of guidance offered were the academic standards and the lesson steps themselves, teachers were left with a lot to figure out on their own, without guidance from the curriculum.

Here, it is important to note, once again, that guidance contained in curriculum materials is inherently incomplete, and this type of work may be something that is "best worked out in practice" (Cohen & Ball, 2007, p. 24). In the case of Project PLACE, it seems that the researchers/curriculum developers intended for the instructional coaches whom teachers worked with—rather than the guidance written in the curriculum itself—to serve as the primary resource teachers could use for guidance on matters like these. And indeed, I do have evidence that at least some of the teachers I observed consulted with their coaches from time to time about how to support students' work on certain Project PLACE activities. Even so, it is interesting to consider whether the written curriculum materials could contain additional guidance for these aspects of teachers' work. This is a question I will explore further when discussing implications of this study for curriculum design.

The Need to Prioritize in Lesson Translation

The findings I report in Chapter 5 also suggest another type of "limit" of the high-level guidance—they suggest that the work of lesson translation inherently involves having to prioritize among multiple high-level goals that are sometimes in tension with one another. When curriculum developers design materials, they do quite a bit of prioritizing: for example, by making decisions about what content will get relatively more or less emphasis in the curriculum (Remillard, 1999). In the case of Project PLACE, the developers also had to deal with tensions that sometimes arose between the principles of project-based instruction and the learning goals. For instance, they sometimes decided to design projects to include aspects that may have been

slightly less authentic in order to focus more squarely on teaching specific academic standards. In the economics unit, for example, students were to create "informational flyers" for local businesses so that they would have an opportunity to work on writing informational texts, even though it may have seemed more authentic to create advertisements for the local businesses. Project PLACE developers also deliberately de-emphasized some aspects of certain academic standards at times in order to fit work on those standards in with work on other standards and within the context of a project. For example, one of the history standards called for students to be able to use multiple sources to write historical narratives, but Project PLACE decided to have students use multiple sources to write an expository text instead, so that they could also have an opportunity to work on ELA standards for expository writing within the context of the history project. And of course, the Project PLACE developers also had to make many decisions to figure out how to address their ambitious goals within a number of lessons that teachers could feasibly teach—a task that certainly involved prioritization in terms of how to allocate time toward work on various goals.

Although the Project PLACE developers did quite a bit of work to manage tensions among goals as they designed the curriculum, teachers also had to do similar kinds of work as they translated the curriculum into instruction. As the analysis of teachers' translations related to the guidance for timeframe illustrated, time constraints were certainly an issue that forced teachers to prioritize in one way or another during their translations (a finding that was consistent with the findings discussed in Davis et al., 2017). When teachers ran out of time—either when teaching a lesson or when teaching the curriculum as a whole—they automatically ended up prioritizing the guidance that came earlier in the lesson or curriculum over the guidance that came later. In order to avoid running out of time in translation, teachers sometimes made

changes to the lesson plans that they thought would enable students to successfully accomplish the work in the lessons within the available time, and thus prioritized guidance for timing over the detailed guidance for how to teach the lesson. Sometimes, the decisions teachers made for the sake of timing meant that students did not have the same kinds of opportunities to work on content that the lesson plans had designed (e.g., when teachers had students do an activity as a whole class rather than supporting students in doing it independently), but these tradeoffs were made because, in translating the curriculum, teachers were having to manage multiple goals that were sometimes in tension with one another.

Previous research has provided some insight into teachers' role in the work of curriculum mapping—that is, determining what topics are covered and how much time will be allotted to them (Remillard, 1999; Tarr, Chavez, Reys, & Reys, 2006). The findings in Chapter 5 illustrate what the work of prioritizing looks like within the translation of specific lessons, and how this work may affect the overall curricular map. For instance, the decision to do an activity in whole group rather than have students do it independently in order to stay on track with time may be seen as an instance of prioritizing "breadth" over "depth" (Floden et al., 1981). However, when teachers spent significantly longer on a particular lesson than recommended, they were not necessarily going into more depth than other teachers—instead, they were sometimes simply translating guidance in ways that seemed less efficient or less successful in supporting students' independent work.

Indeed, as we saw in the analysis pertaining to teachers' time use within their translations, the challenges that teachers faced regarding managing multiple high-level goals were sometimes exacerbated by particular characteristics of their translations. When teachers translated guidance for setting up and orchestrating students' work in ways that did not support

students in successfully completing assignments, they then faced particular tensions that other teachers, whose ways of filling in *did* support students in successfully completing the assignments, did not have to deal with. The fact that teachers' ways of translating the guidance play a role in the nature of the tensions that arise as they teach the curriculum provides additional support for the idea that curriculum developers cannot take on all the work of determining how to prioritize among competing goals.

The Importance of Accessible Guidance in Lesson Translation

One point that I have made repeatedly in this dissertation is that the guidance provided in curriculum materials is inherently incomplete. To make this point, I have highlighted situations where the teachers I observed had to figure out how to do particular parts of their instructional work without guidance from the curriculum materials.

When considering these examples, it is possible to imagine additional pieces of guidance that might have been included in order to better support teachers in these aspects of their work. However, as Davis and Krajcik (2005) point out: "there is a substantial practical problem in designing educative curriculum materials: Most teachers do not have time to read extensive curriculum materials—no matter how useful the materials might be" (p. 9). The findings I present in Chapter 5 suggest a related concern: because teaching is interactive and happens in real time, even guidance that teachers *do* read as they are planning for instruction (and do intend to take up) may not end up being accessible to them as they are actually translating it.

In Chapter 5, I found that teachers often missed opportunities to reflect high-level guidance that were contained in the lesson plans. As I described, some of these omissions were intentional, but others were simply due to the fact that the teacher was not able to process a particular piece of guidance in the moment. Indeed, the lesson plans were quite detailed, and

guidance for specific ways to reflect high-level goals was often embedded within lesson steps that contained quite a bit of other information as well. Therefore, in the interactive work of teaching, when teachers did not have time to carefully read the lesson plans, it is possible that this guidance was not accessible in a way that could remind them to take advantage of opportunities that they had planned to take advantage of. To be sure, teachers had ways of making guidance more accessible to themselves. For instance, Mr. Kopp often marked up his lesson plan, writing notes in the margins and underlying certain details. Even when he did this, though, there were times when he forgot to say and do things that he saw as important and had planned to do.

It is also interesting to note, here, that the guidance that was contained in student materials seemed to be accessible during instruction in a way that the guidance contained in lesson plans was not. For example, I carefully analyzed many examples of translation of guidance for instructional explanations, examining the parts of the guidance that teachers filtered out as they converted the guidance on the page into instructional interaction as well as the parts they didn't. It was interesting to compare these cases of translation to cases of the teachers' translations of guidance indicating that they were to read a text aloud to students. Like the guidance for instructional explanations, the read-alouds included in the curriculum also guided teachers in representing content to students. While teachers certainly elaborated on the text as they read it aloud (as they did when filling in guidance for instructional explanations), they never (as far as I know) filtered out any of the content from the read-alouds. Likewise, when guidance was contained on student handouts (such as guidance represented on a planning sheet for the different components that students were to include in a piece of writing), teachers never filtered

out any of these components, although they also sometimes filtered out guidance in the lesson plan pertaining to components that were to be included in students' work.

There may be several explanations for why this was the case, but one possible explanation is that, when interacting with students, it is easier to attend to materials that both the teacher and students can interact with than it is to attend to the materials designed only for teachers' use. Because the teachers I observed naturally wanted to focus on their students rather than their lesson plans during instruction, opportunities to reflect high-level guidance that were contained only in the lesson plans may have been easy to miss or forget in the moment, even when teachers recognized the value of these opportunities.

Another reason that particular pieces of guidance might not have been accessible to teachers during the interactive work of teaching was that when teachers interacted with the guidance in preparation for instruction, they might not have noticed or recognized the significance of particular pieces of guidance. Indeed, the ability to perceive the significance of the guidance contained in curriculum materials is one aspect of Brown's (2009) conception of pedagogical design capacity. When teachers failed to recognize the significance of certain details as they prepared for instruction, it may have been easier for them to forget about them during the interactive work of translation—even if they had not intentionally decided to omit them.

It is not surprising that teachers may have missed the significance of some of the details contained in the Project PLACE lesson plans. As I said before, the lesson plans were packed with guidance, and when I closely analyzed the lesson-level guidance and how it reflected the higher-level guidance for the purposes of research, I often noticed opportunities that I had missed in my own initial reading of the lesson plans. If teachers did not read the lesson plans carefully and

with an eye toward the high-level guidance, it is possible that they missed some of these opportunities as well.

Conclusion

In this dissertation, I focused on a particular case of curriculum use—the case in which teachers are attempting to follow an externally-developed lesson plan. In focusing on this particular case, my goal was to challenge the common assumption that following plans contained in curriculum materials is (or can be) a relatively straightforward process. I did this by unpacking the work involved in translating curriculum guidance into instructional interactions. My findings are consistent with the findings of those who have studied curriculum use more broadly—they suggest that, even in cases where teachers have chosen to follow a plan, the work of translating the guidance from the plan inevitably involves departing from parts of the guidance, requires in-the-moment decision-making, and is shaped by the resources teachers bring to instruction as well as by the characteristics of the curriculum materials.

One way that my findings complement and extend the existing curriculum use literature is by looking closely at the work involved in *filling in* the guidance—that is, the instructional work teachers must do in situations where they have decided to take up a specific piece of guidance in the lesson plan. To characterize this work, I have tried to consider what is involved in "fitting" the written guidance from the curriculum into the work of teaching more broadly. In other words, I have asked—what does it mean to incorporate written guidance into improvised interactions with students that play out in real time? Furthermore, what is involved with following detailed guidance when there are also other, higher-level goals that have also been communicated to guide the work? In this chapter, I have discussed ways that the findings of my

dissertation speak to these kinds of questions. In the next chapter, I turn my focus to the implications of these findings for curriculum design, teacher education, and future research.

Chapter 7

Implications and Directions for Future Research

This dissertation has implications for practice as well as future research. In this chapter, I discuss implications for curriculum development, preservice teacher education, and professional support for practicing teachers. I also propose ways in which future research can build on the contributions of this dissertation.

Implications for Curriculum Development

Investigating and unpacking the work involved in translating guidance from curriculum materials into instructional interaction has several implications for curriculum development. Indeed, although curriculum materials cannot be designed in ways that make the complex work of translating unnecessary, they can certainly be designed in ways that provide more or less support for this work.

Because I did not compare translations of different curriculum programs in this dissertation (e.g., programs that provided different kinds of guidance or included different features), I cannot make empirically-based claims about how specific kinds of features might support teachers' translation work, or which features might support teachers' work better than others.[39] However, by taking a close look at what is involved in the work of translating guidance

[39] I did incorporate additional supports into the lesson plans for the history and civics units, which meant that some of the lessons I analyzed had slightly different design features than others. However, the primary focus of the analysis in this dissertation was not on understanding the effects of these features on teachers' translations. In future work with my larger data set, I could focus more specifically on this particular question.

from curriculum materials, I can suggest some possible implications for curriculum design that build on recommendations that have been proposed and studied by others.

Implications for Design Features

Like Davis et al. (2017), one assumption underlying the design features I propose is that curriculum materials should be designed in ways that "reveal the rationales underlying recommendations" to teachers (p. 294). Rationales for recommendations can help guide the decisions teachers make when translating (e.g., decisions about when and why it might be useful to depart from the guidance and how they can do this in productive ways), and they may also help teachers understand the significance of the recommendations that are provided, which can support teachers as they are filling it in.

In addition to designing materials in ways that help teachers understand the significance of various parts of the design of the plan, curriculum developers should also consider how they can design materials in ways that would make the guidance as accessible to teachers as possible during the interactive work of teaching. One approach might be to consider the lesson plans as primarily a resource for the pre-active work of teaching, which would mean that they could include quite a bit of elaboration on recommendations they provide (e.g., the rationales for the recommendations, possible alternatives, and so forth). The goal of plans designed in this way could be to make recommendations "accessible," so to speak, by helping teachers understand their significance enough to internalize them. If lesson plans are designed in this way, though, curriculum developers might consider how they might also design resources (e.g., guidance embedded in student materials, or checklists containing the key instructional points of the lesson and concise summaries of the lesson activities) that could be used during the interactive work of teaching to help make the guidance accessible to teachers.

Since some teachers use lesson plans during both the pre-active and interactive parts of teaching (Sherin & Drake, 2009), curriculum developers should also consider how to format the plans in ways that take both of these types of use into account. For instance, they could be designed in a two-column format, where one of the columns is intended to support the interactive work (and thus includes very concisely written guidance), while the other includes notes and rationales.[40]

Rationales for lesson steps. Presumably, every detail included in the steps of a lesson plan has some kind of rationale. Some of these rationales might be related to the big-picture goals of the lesson or curriculum, while others may simply be practical in nature. For instance, a lesson step might be designed to recommend a particular way of working on a specific part of an academic standard. A rationale for this piece of guidance could refer to the standard, unpacking it and identifying the subconcept or subskill that the recommendation is designed to help students work on (See Morris, Hiebert, & Spitzer, 2009, for a description of what it looks like to unpack learning goals, and see Drake, Land, & Tyminski, 2014, for an example of how these "unpacked" goals might be incorporated into curriculum materials). By contrast, another detail in a lesson step might reflect a piece of practical knowledge that developers gained through the process of field-testing that they then incorporated into the lesson plan.

Rationales of different types and grain-sizes might be incorporated into the guidance in different ways. For instance, some brief rationales can be incorporated directly into the lesson steps themselves (Remillard & Reinke, 2012) or in very close proximity to them, while lengthier rationales might be better placed in "callout boxes" (Davis et al., 2017, p. 294) within the lesson plan but somewhat separated from the lesson steps.

[40] The lesson plans for the courses I have taught at University of Michigan were designed in this way.

Guidance pertaining to instructional routines. While it can be helpful to communicate rationales for specific pieces of procedural guidance within a lesson plan, it is impossible (as I alluded to in the previous chapter) to include rationales for every single detail of every lesson step. One way to address this issue, while still offering rationales for recommendations, is to build instructional routines into the lesson plans and to communicate the rationales for elements of the instructional routines outside of the specific lesson plans. For instance, the front matter of the curriculum (or other resources, such as videos) could describe the instructional routines that will come up throughout the lessons and explain the rationales for each parts of the routine. Not only would teachers be able to make use of these kinds of rationales across many lessons, but they may also be more likely to recognize the significance of particular lesson recommendations if they understand them as applications of particular instructional routines. Furthermore, ongoing opportunities to use these routines may support teachers in translating these pieces of guidance consistently and in developing skill with these routines over time.[41]

In the Project PLACE lesson plans, there were several types of instructional guidance that seemed to be fairly routine. For example, the first step in many lessons involved making a connection to the larger project for the unit. In the introductory professional development session, the Project PLACE team had communicated the importance of connecting lesson activities to the larger project, and this simple routine offered a clear opportunity to do so. My observations revealed that teachers often started their lessons this way—even in cases where the lesson plan did not actually call for them to do so. While there are many possible explanations

[41] This idea is similar to the idea of "instructional activities" that Lampert and Graziani (2009) describe. It is also inspired by something Ms. Rawski said a post-lesson interview. When I asked her why she seemed to be so intentional about the "reflection and review" parts of the lesson plans that focused on writing activities, she said that she was drawing on one of the routines outlined in a Lucy Calkins curriculum she had worked with in the past. She explained that this curriculum described the different parts of the workshop routine in detail and then made use of these routines throughout the lesson plans. She had internalized parts of this routine so much that she naturally incorporated elements of it into her translations of Project PLACE lesson plans.

for this pattern, the "routine" aspect of this guidance—coupled with a rationale for this routine that had been clearly communicated to teachers—might have played a role.

By contrast, there was another type of guidance that was regularly included in lesson plans that teachers did not take up as consistently. Lesson plans often called for students to share their work at the end of the lessons, and when they shared their work, the lesson plans often specified that teachers should use students' work as a context for making a particular instructional point. In the economics session 8 lesson plan I described in Chapter 5, for example, the final lesson step asked teachers to have students share the flow diagrams they had made to show how a local business produced a good (or provided a service) that it sold. In the next lesson, students would incorporate this flow diagram into a flier that would provide information about the business.

At the end of the lesson where students created the flow diagrams, the lesson plan called for some students to share their work with the class. Then it said: "Discuss how these diagrams would help someone looking at their flier [i.e., the flier they were going to be creating later in the unit] to understand how the good is produced or the service is provided in the business" (Duke et al., 2014a, p. 55).

This particular part of the lesson step seemed to serve two purposes. One was to connect students' learning and work to the larger project and its audience. Another was to reflect a particular ELA standard: "Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text" (NGA & CCSSO, 2010, RI.2.7). This second purpose may not have been immediately evident to teachers—indeed the "instructional point" in this lesson did not appear to be quite as obvious as some of the instructional points included at the end of other lessons. Perhaps unsurprisingly, none of the teachers I observed actually translated

this detail of the guidance. The two teachers who finished the lesson simply ended it by having students share their work without attempting to make any kind of instructional point. If teachers had seen this lesson step as one particular instance of a larger routine— the routine of using student work to make a particular instructional point—I wonder if they would have been more likely to notice the significance of this piece of guidance and to remember to take advantage of this opportunity in their instruction.

Guidance for supporting student work and judging its quality. The findings of my study also suggest that it may be helpful to provide guidance—other than the lesson steps and lesson goals—to help teachers support students' work and judge its quality. As I have discussed, teachers' ways of supporting students in doing the work called for in Project PLACE lessons often varied greatly from teacher to teacher. These variations were not only due to differences in the instructional techniques that different teachers used, but they also seemed to be due to teachers' different conceptions of what constituted quality in students' work. As I have discussed, the lesson steps and instructional goals alone did not provide very much guidance for how teachers should support students' work or judge its quality. Indeed, these forms of guidance do not seem well-suited to this particular purpose.

Arias et al. (2016) describe a particular type of educative support that seems to have potential for providing helpful guidance for these particular aspects of teachers' instructional work: the rubrics and examples feature. They explain that this type of educative feature includes "a rubric for considering student work from a lesson, examples of student work, how a teacher might employ the rubric with the particular student work, and what comments a teacher might provide to the student about the work" (p. 439). In their study of an elementary science curriculum that included this feature, they found that teachers used it regularly to inform their

instruction. Teachers even shared the rubrics with their students as a way of supporting their students' work, even though the rubrics had not been specifically designed for student use. It is likely that the combination of rubrics, examples of student work, and examples of teacher feedback provides a particularly powerful form of guidance for supporting teachers in translating parts of the lesson plans (e.g., parts that call for "circulating and supporting" students' work) that cannot be highly specified.

Guidance for navigating tensions and dilemmas. Another form of guidance that Arias et al. (2016) discuss are narratives that illustrate how a fictional teacher handles challenges that come up when teaching a lesson. This form of support seems particularly well suited to guiding teachers as they navigate the tensions and dilemmas that arise in lesson translation. Arias et al. (2016) found that teachers appreciated these kinds of supports because they helped them envision ways of dealing with these challenges that they might not have thought of on their own. Indeed, in a way, supports of this nature give teachers an opportunity to see at least some aspects of a different teacher's translation of the lesson they will be teaching—including the parts of the translation work that involve prioritizing among multiple goals.

One particular type of challenge that seemed to be salient in my study was the challenge of translating the lesson plan within time constraints. Davis et al. (2017) also identify this as a challenge that often causes teachers to depart from the guidance contained in lesson plans. Indeed, their first principle for the design of educative supports says the following:

> Teachers will adapt curriculum materials. These adaptations are likely to be informed by teachers' concerns about time and student capabilities and experiences. By anticipating these adaptations, educative features can facilitate principled and productive adaptations. Therefore, educative features should provide suggestions for adaptations of lessons that

> would take different amounts of time and meet a range of students' needs while still meeting the intent of the reforms embedded in the curriculum materials. Examples of such educative features could include narratives describing choices that may reduce time needed while maintaining opportunities to learn. (p. 297)

The results of my study certainly seem consistent with this principle, and the narrative supports that Davis et al. (2017) recommend seem as if they might have a unique potential for helping support this challenging aspect of teachers' translation work.

Another possibility for supporting this and other aspects of teachers' translation work would be to include other kinds of representations of teachers' translations in the set of curriculum resources. For instance, the curriculum could include video examples of teachers teaching specific parts of the lessons that may be particularly challenging, and they could also include information about the teachers' reasons for translating something in a particular way. Getting to see a video example of a translation might not only be useful for understanding the decisions teachers made when translating but also be helpful as a representation of the aspects of translation (e.g., persona work, see Curren-Preis, 2018) that may be less related to conscious decision-making.

Implications for the Process of Design

This study also has implications for a process that curriculum developers could use to design and improve curriculum materials. Namely, my study suggests that analysis of multiple teachers' translations can provide insights into specific improvements that could be made to the lesson plans. Indeed, as I noticed when watching multiple translations of the same lesson plan, there were lesson plans that seemed to generally "work" better than others, and it often seemed that very specific details in the lesson plan affected whether or not the lesson plan (or a particular

part of the plan) worked. There were also times when every teacher seemed to interact with the guidance in a similar way (e.g., every teacher filtered out a particular part of the guidance) or seemed to encounter the same challenge. Seeing similarities across different teachers' translations was interesting, and it sometimes seemed to have clear implications for very specific ways that lesson plans might be improved.

An implication of this study, then, that the design (and improvement) of curriculum materials—including decisions about the specific details and features they contain—should be informed by an empirical process that closely examines multiple teachers' translations of the lesson plans. Davis, Palincsar, Arias, Bismack, and Marulis (2014) and Morris (2012) provide examples of what this process might look like. Ideally, the cycle of analyzing lesson translations and revising the guidance could continue indefinitely and could be informed not only by data from the translations themselves but also by data on the outcomes of those lesson translations on student learning (Morris & Hiebert, 2011). However, any revision to the curriculum guidance that is informed by close analysis of multiple teachers' lesson translations (and the student work that resulted from those translations) could likely be helpful.

Implications for Teacher Education

Regardless of how well curriculum materials are designed and how much guidance they provide, the work of translation will always be complex (and, not to mention, will be dependent on whether and how teachers choose to read and use the guidance that is offered). Therefore, this study also has implications for ways in which teacher education—both preservice and in-service—can support teachers in doing the work of translation.

Implications for Preservice Teacher Education

First, in preservice teacher education, attention should certainly be given to helping preservice teachers learn how to critique and adapt the curriculum materials they are using in light of higher-level goals for instruction (Beyer & Davis, 2012), as well as how to learn from the educative supports that curriculum materials may provide (Drake, Land, & Tyminski, 2017). Developing these skills would certainly support a teacher's skill with lesson translation. However, attention should also be given to helping preservice teachers develop skill with filling in guidance that they (or their teacher educators) have determined to be sound.

For instance, preservice teachers could rehearse the seemingly simple work of translating curriculum guidance for an instructional explanation into an actual interaction, either by role playing in a methods course or with children in their field placement (Grossman et al., 2009). When doing this work, they could work on developing techniques, such as asking questions that will productively involve students in the explanation, and they could also simply gain experience with the work of converting written guidance into improvised interactions (including, for instance, practice in recording things on the board as they give a verbal explanation). As they practice this work, they could analyze (and/or receive feedback about) how they elaborated on the written guidance, what they filtered out, how they used time and space, and how they used their teaching persona (Curren-Preis, 2018) to support their explanation. By providing preservice teachers with opportunities to practice filling in the guidance for a seemingly simple part of lesson translation, teacher educators can support them in developing the understanding that, even when they are not making significant adaptations to the guidance, the teaching work they are doing is still complex, and they should not expect their curriculum materials to be able to do this work for them.

Preservice teachers could also gain experience translating pieces of guidance that involve other high-leverage teaching practices, such as leading a whole-class discussion or orchestrating students' work on a task (Ball & Forzani, 2009; Davis & Boerst, 2014). In practice-based teacher education programs, it is likely that instructors are already designing opportunities for preservice teachers to work on particular teaching practices. By providing opportunities to work on these practices within the context of externally-developed lesson plans, preservice teachers can learn how and when they might make use of these practices in the translation of specific lessons. These kinds of opportunities may be especially helpful for preparing preservice teachers to teach in contexts where they might be required or expected to use particular curriculum programs.

Implications for In-service Teacher Education and Professional Support

All teachers—preservice and in-service—could also benefit from opportunities to observe how other teachers translate the same lesson plans that they themselves have taught. By doing so, they might notice and be able to examine their own natural inclinations for translating (e.g., do they naturally fill in instructions to "explain" by simply stating things? Or by asking a bunch of questions to try to get the students to say whatever it is that they're trying to explain? What techniques do they commonly use to support students' independent work—especially when students are seeming to have difficulty?). Comparing their translations with other teachers' translations could help teachers consider the pros and cons of different ways of translating, as well as the situations in which particular ways of translating might be more or less useful. Observing other teachers' translations of lesson plans that teachers have already taught has the potential to provide a unique opportunity for considering and working on their own practice, including opportunities to expand their repertoires for techniques they might use when translating guidance from other lesson plans into instructional interaction.

In addition to observing others' translations as a way to improve their own practice, teachers could also do this as a way to inform revisions to externally-developed lesson plans. When teachers are all committed to using the same curriculum materials as the basis for their instruction, this affords a unique opportunity for doing collective work on teaching (Morris & Hiebert, 2011). Groups of teachers who are teaching the same curriculum could meet together to do a version of the process of curriculum revision that I described earlier in this chapter. For instance, they could identify a small number of lessons that seemed to present certain challenges for them (or that didn't appear to produce the learning outcomes that they had hoped for), and they could compare their ways of translating the lesson and the experiences they had when translating it. This work could be supported by videos of their lessons as well as other artifacts, such as student work.

As teachers analyze their translations together and discuss the nature of the challenges they faced, they could then work together to develop ideas about how to address these challenges, and they could revise and/or annotate the lesson plans accordingly (Morris & Hiebert, 2011). After teaching the revised versions of the plans the following year, they could come back together to discuss further revisions or to repeat the process again with a different set of lessons. Not only would this process likely improve the lesson plans, but it would also likely support the professional learning of the teachers who participated in it.

Conclusions and Directions for Future Research

In this study, I have sought to develop the concept of curriculum translation—a concept that I believe has important implications for curriculum development and teacher education, especially given that elementary school teachers often use (or even are required to use) particular curriculum materials as the bases for their instruction. The goal of this study was to provide

insight into the nature of the work involved in following the guidance in externally-developed lesson plans contained in curriculum materials. I found that this work is not straightforward—converting the written guidance into instructional interactions within a local classroom context rarely involves "literal translation," and even when it does, it still requires teachers to fill in the parts of the work that cannot be specified. Ways of translating lesson-level guidance can certainly be informed by higher-level kinds of guidance, such as statements of learning goals or general instructional principles, but even these do not inform many of the parts of the instructional work teachers must do to bring the lesson plans to life in their classrooms.

Although my study contributes an initial way of describing the work involved in translation (e.g., the work involved in filling in the guidance as well as the nature of various kinds of departures teachers might make in the process of translating a lesson), future research could develop this concept further. Indeed, investigating the work of translation in different kinds of cases, such as where the design of the curriculum materials is different from the Project PLACE design or in the context of different content areas, could help further refine the concept.

Future research could also examine how different design features of curriculum materials, as well as different professional learning experiences (like the ones I have proposed in this chapter), influence teachers' translation work. For instance, longitudinal studies could examine how teachers' translations are influenced over time by their opportunities to collectively work on improving the lesson plans.

Ultimately, the concept of translation and the understanding of all that it involves is only useful to the extent that it can inform ways of supporting teachers in carrying out this work, which in turn, could improve students' experiences in classrooms. Recognizing the complexity

involved in the work of translation, which I have aimed to do in this dissertation, is the first step toward this goal.

APPENDICES

APPENDIX A

Example of a Project PLACE Lesson Plan

Session 5: What Does your Local Government Do For You?

- **Session Objectives:** (1) Identify how the local government meets the needs of its citizens; (2) Explain the services the local government provides; (3) Describe the purposes of government.
- **GLCEs**: 2 – C1.0.1**:** Explain why people form governments; 2 – C3.0.3: Identify services commonly provided by local governments (e.g., police, fire departments, schools, libraries, parks); 2 – C3.0.1: Give examples of how local governments make, enforce, and interpret laws (ordinances) in the local community; 2 – C3.0.2: Use examples to describe how local government affects the lives of its citizens.
- **C3**: D2.Civ.1.K-2 Describe roles and responsibilities of people in authority; D2.Civ.2.K-2 Explain how all people, not just official leaders, play important roles in a community; D2.Civ.5.K-2 Explain what governments are and some of their functions; D2.Civ.6.K-2 Describe how communities work to accomplish common tasks, establish responsibilities, and fulfill roles of authority; D2.Civ.8.K-2 Describe democratic principles such as equality, fairness, and respect for legitimate authority and rules.
- **CCSS:** RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text; RI.2.6 Identify the main purpose of a text, including what the author wants to answer, explain, or describe; RI.2.8 Describe how reasons support specific points the author makes in a text; RI.2.10 By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2–3 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Materials

- *How Local Government Helps its Citizens* by Nell Duke (one copy per student)
- chart comparing civic and government responsibilities (from session 4)

Key Terms

Citizen: a person who has rights provided by the government as well as responsibilities

Government: a group of people that makes, enforces, and explains laws to help keep people safe and to ensure fairness

Informational Text: any kind of text that is meant to give you information or teach you something

Local government: a group of people in a local community, such as a city, that make, enforces, and explains laws to help make the community safe and to ensure fairness

Whole Group Instruction and Discussion

1. **Discuss what life would be like without government; review the roles of the government:** If you assigned students the homework of imagining a world without government, begin by asking them what they learned when they asked family members. If you did not assign this homework, revisit the thought experiment from the end of the previous lesson. In either case, ask students to use descriptive language and examples (e.g., no one could borrow books from the library, fires would not be extinguished, roads would not be maintained). Emphasize the roles of the government while debriefing the examples. Remind students that the government is a group of people a group of people that makes, enforces, and explains laws to help keep people safe and to ensure fairness.

2. **Review the chart of personal, civic, and government responsibilities; introduce the *informational text*:** Review the chart from session 4 briefly to highlight differences in our civic responsibilities and government responsibilities. Then, tell students that today they are going to learn more about the government's responsibilities by reading an **informational text** called *How Local Government Helps its Citizens.*

3. **Introduce *local government:*** Explain that the **local government** refers to a group of people in a local community, such as a city, that make, enforces, and explains laws to help make the community safe and to ensure fairness. Help students understand that the local government is comprised of people: the mayor, who is the leader of the city; city council, which is a group of usually 6-12 people (more for very big cities) who are elected by the people of the city to make decisions for the city, and judges who help explain laws and determine whether people have broken laws. Ask students whether they know of any services that the local government provides. Tell students that services are the work or acts that people do to satisfy the wants or needs of consumers.

Responsibilities: jobs or tasks

Services: work or an act done that people use such as washing cars or driving a taxi

Explain that the local government provides schools, libraries, police officers, fire fighters, trash removal, snow plowing, and park maintenance, so these are all part of the local government, too.

4. **Divide students into partners and provide each pair with a copy of How Local Government Helps its Citizens:** Tell students that they should read to find out what the local government's responsibilities are, as well as why the local government is important. Explain that this will help them work with local government to try to make improvements to the park. Remind students that this is an **informational text**. It provides information on the responsibilities of the local government.

Keep on the Lookout:

If you are concerned that a small group of your students will need reading support with this text, do a guided reading of the text with this group.

Guided Small Group or Individual Instruction

5. **Support students in partner reading:** With a partner, have students read *How Local Government Helps its Citizens*.

Reading and Comprehending Informational Text for a Purpose

Students are more likely to comprehend informational text (RI.2.10) if they are reading it for a purpose they are invested in. By helping students understand how the information in this text will help them with their project, you can help foster their desire (and efforts) to read for comprehension.

Whole Group Review and Reflection

6. **Lead students to identify the main purpose of the text and to share what they learned from it:** Bring students back as a whole class and review key points from the text. Ask them to identify the main purpose of the text (to teach or explain about services provided by the local government), as well as what they learned about the local government. Ask them the reasons the author gives for why we need a local government. As they answer this question, have students point out where in the text they found their information.

Connecting to the Standards

By asking students to provide evidence from the text to support their explanations about why we need a local government, you are providing them with opportunities to work on understanding

- *why people form governments (GLCE C1.0.1)*
- *what services local governments often provide (GLCE C3.0.3)*
- *how to identify key points of an informational text (CCSS RI.2.1; RI.2.8).*

7. **Ask follow-up questions about the local government:** After students have responded to this question, if time permits you can ask specific questions, such as

- What do mayors do? Can you give an example from the book?
- What do judges do? Can you give an example from the book?
- What does the city council do? Can you give an example from the book?
- What would happen if we didn't have the local government?

APPENDIX B

Example of a Post-Lesson Interview Protocol

General Reactions

1. How has the unit been going so far? (or "since the last time I observed")?
2. Now let's talk about today's lesson. Are there any comments you would like to make about it?
3. What were you hoping to accomplish in today's lesson? *(If it seems relevant, may follow up with one or more of the following)*
    a. Did you feel like you were able to accomplish that? Why or why not?
        If necessary, follow up about specific parts within the lesson. (e.g., "What were you hoping students would accomplish when they were working in small groups? Why?")
    b. Did you have goals that were different from the objectives in the lesson plan?
    c. Were there any goals you had for specific students that you didn't have for the rest of the class?
    d. Why do you think they wanted you to _____? Does that seem worthwhile to you? Why or why not?
4. How closely did the lesson match what you were expecting? Were there any surprises?
5. Was there any part during the lesson where you felt pressed for time? Was there any part where you felt like you needed to speed things up? Why?
    - What about the opposite? Was there any part of the lesson where you felt like you needed to slow things down? Why?

Student Responses to the Lesson

6. How do you think students did with the lesson?
    - [Was there anything surprising or unexpected about the way the students did with the lesson?]
    - Were there any things about the lesson that seemed particularly challenging for them? *(Follow up with questions about the content of the lesson if necessary.)*
        i. What about ____ do you think was challenging? Why?
    - What experience with ____ do you think students had coming into the lesson?
    - Was there anything they seemed to do really well with?
7. Did your students seem to be interested in what they were learning and doing during this lesson? Why or why not?
    - What about the lesson made it [interesting/not interesting] to them?
8. What did you think about the work the students produced today? Based on what they did today, what are you planning to work on with them tomorrow?

Experience Using the Lesson Plan to Teach

Now let's talk more about your experience teaching the lesson.

9. How did this lesson compare to how you typically teach ____? [writing & SS]
10. [What did you think of the handout provided for this lesson? Did it seem like a useful resource for students?]
11. Now let's look at the plan:
    - What did you think of the examples the lesson plan included?
    - What did you think of the way the lesson plan asked you to model?
    - What did you think of the way the lesson plan asked you to give instructions for the activity?
    - What did you think of the sequence of the lesson plan?
    - Was there any guidance that was especially helpful? Or that gave you a good idea?
    - Was there anything you would have done differently if not participating in Project PLACE?
    - Was there any guidance that seemed fine when you were planning but didn't seem quite right for some reason as the lesson actually unfolded?
    - Was there any guidance you meant to do but forgot to do when you were teaching the lesson?

Lesson Planning

12. What did you do to plan for today's lesson?
13. Did you talk to anybody about the lesson? *If yes, ask:* Who did you talk to? What did you talk about?
14. What things are you thinking about as you prepare to teach the next lesson? What will you do to prepare for it?

Instructional Decision Making (show clip)

As you know, I'm interested in all of the work you have to do when teaching Project PLACE lessons—including the instructional decisions you have to make. I'm also interested in the extent to which the curriculum materials and PD provide you with helpful resources for this work. I am going to play a clip from your lesson, then ask you to describe what is happening, and ask you some follow up questions.

Interested in:

- what you are thinking about during the clip
    - reasons for decisions made during the lesson (even subconscious decisions)
- what you were thinking about the students' responses

15. I noticed that . . . Why did you choose to . . .?
16. What did you think when [student(s)] said/did . . .]? How did you decide what to do/say next?
17. Is there anything else you'd like to add? Are there other questions I should ask you that would help me understand the lesson?

APPENDIX C

Example of Post-Unit Interview (from the history unit)
30-40 minutes

The purpose of this interview is for me to learn about:

(1) how the end of the unit went
(2) your perspectives on the design of the unit
(3) some questions about the materials

Part 1: Information about the end of the unit

1. How did the rest of the unit go?
2. How did students' postcards turn out?
    - What did you end up doing with the postcards? [*If postcards were not donated to someone in the community, ask **why**?]*
    - Did you end up doing anything in class with the interviews? (I know you mentioned that the kids might share them?) Did anything interesting end up coming from those?

3. Did your kids seem interested in this project? How did it compare to the other units?

4. Did your students ever get tired of doing the project? How did you handle that? What did you do to motivate them?

Part 2: Design of the unit

So now I want to ask a few questions about the design of the unit.

5. So one thing this unit did was use the research and writing activities to help students learn the history standards. Do you think that doing this writing project was a helpful way to work on the history standards? Why?

    - Were there any challenges or disadvantages to working on the history standards by doing this research/writing project?

6. Another thing this unit did was use the history content as a way to work on informative/explanatory writing. Do you think that it was useful for kids to work on informative/explanatory writing by writing about these history topics? Why?
    - Were there any challenges or disadvantages to working on informative writing by writing about these specific topics?

- Were there any particular writing skills that this project provided opportunities to work on?
    - Was there anything you focused on when modeling the writing?
    - Was there anything you focused on when revising kids' writing?
        - (e.g., Mechanics, Past/present tense, Facts/evidence, Structure – intro, conclusion, Voice)
- I didn't get to see the revision process in your room during this unit – can you tell me how that worked?
    - What kinds of things did you find yourself having to revise?
- Have your kids worked on informative/explanatory writing in other ways this year?

7. This unit also used **history topics** as a way to help students work on some of the reading standards. Do you think it was useful for kids to work on those reading standards by reading/researching history topics?
    - Were there any challenges or disadvantages to working on the reading standards this way?
8. Are there any other comments you'd like to make about the design of this unit?
9. One teacher said that these units helped her learn more about how to interpret the standards. Do you think this has been true for you? (Can you think of an example?)
10. One criticism people have of project-based learning is that it does not work well for kids who struggle academically. Did you find this to be true in this unit? **What kinds of work did you have to do to make this work for your students who seemed to struggle?**

Part 3: Materials

Now I'd like to ask a few more questions related to the curriculum materials themselves.

11. Usually when I ask about the lesson plans, I focus on the instructions that the plans give. Today I want to ask questions about the other parts of the plan, and whether or not you find them to be useful when you're planning and teaching the lessons.
    - So at the top of the plans are the **objectives** – do you find those to be useful to you? How so? (or why not?)
    - What about the **standards**? Do you use those when planning/ teaching a lesson?
    - **Vocabulary** (I know we talked about that before)
    - **Side boxes** with ideas for center activities, etc.
    - In this unit, there was also some information added in **gray boxes** – did you find that to be useful?
    - **Gray headings – what were those useful for?**
12. Is there anything else that would be nice to have in the lesson plan?
    - I know last time we talked about having a session-at-a-glance…
13. Are there any comments you'd like to make about the student materials in this unit? Anything that stuck out for some reason?

REFERENCES

Agee, J. (2009). Developing qualitative research questions: a reflective process. *International Journal of Qualitative Studies in Education, 22*(4), 431-447. doi: 10.1080/09518390902736512

Arias, A., Bismack, A., Davis, E. A., & Palincsar, A. S. (2016). Interacting with a suite of educative features: Elementary science teachers' use of educative curriculum materials. *Journal of Research in Science Teaching, 53*(3), 422-449. doi: 10.1002/tea.21250

Ball, D. L. (1990). Reflections and deflections of policy: The case of Carol Turner. *Educational Evaluation and Policy Analysis, 12*(3), 247-259. doi: 10.3102/01623737012003247

Ball, D. L. (2018, April 15). American Educational Research Association 2018 Presidential address: Just dreams and imperatives: The power of teaching in the struggle for public education [Video file]. Retrieved from https://www.youtube.com/watch?v=JGzQ7O_SIYY

Ball, D. L., & Cohen, D. K. (1996). Reform by the book: What is: Or might be: The role of curriculum materials in teacher learning and instructional reform? *Educational Researcher, 25*(9), 6-8, 14.

Ball, D. L., & Cohen, D. K. (1999). Developing practice, developing practitioners: Toward a practice-based theory of professional education. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 3-32). San Francisco, CA: Jossey Bass.

Ball, D. L., & Feiman-Nemser, S. (1988). Using textbooks and teacher's guides: A dilemma for beginning teachers and teacher educators. *Curriculum Inquiry, 18*(4), 401-423.

Ball, D. L., & Forzani, F. M. (2009). The work of teaching and the challenge for teacher education. *Journal of Teacher Education, 60*(5), 497-511. doi: 10.1177/0022487109348479

Ball, D. L., Sleep, L., Boerst, T. A., and Bass, H. (2009). Combining the development of practice and the practice of development in teacher education. *Elementary School Journal, 109*(5), 458-474.

Ben-Peretz, M. (1990). *The teacher-curriculum encounter: Freeing teachers from the tyranny of texts*. Albany, NY: State University of New York Press.

Berk, D., & Hiebert, J. (2009). Improving the mathematics preparation of elementary teachers, one lesson at a time. *Teachers and Teaching: theory and practice, 15*(3), 337-356. doi: 10.1080/13540600903056692

Beyer, C. J., & Davis, E. A. (2009). Using educative curriculum materials to support teachers' curricular planning: A comparison between two different forms of support. *Curriculum Inquiry, 39*(5), 679-703. doi: 10.1111/j.1467-873X.2009.00464.x

Beyer, C. J., & Davis, E. A. (2012a). Developing preservice elementary teachers' pedagogical design capacity for reform-based curriculum design. *Curriculum Inquiry, 42*(3), 386-413. doi: 10.1111/j.1467-873X.2012.00599.x

Beyer, C. J., & Davis, E. A. (2012b). Learning to critique and adapt science curriculum materials: Examining the development of preservice elementary teachers' pedagogical content knowledge. *Science Education, 96*(1), 130-157. doi:10.1002/sce.20466

Bismack, A. S., Arias, A. M., Davis, E. A., & Palincsar, A. M. (2015). Examining student work for evidence of teacher uptake of educative curriculum materials. *Journal of Research in Science Teaching, 52*(6), 816-846. doi: 10.1002/tea.21220

Borko, H., & Livingston, C. (1989). Cognition and improvisation: Differences in mathematics instruction by expert and novice teachers. *American Educational Research Journal, 26*(4), 473-498.

Brown, M. W. (2002). *Teaching by design: Understanding the intersection between teacher practice and the design of curricular innovations* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No: 3071612).

Brown, M. W. (2009). The teacher-tool relationship: Theorizing the design and use of curriculum materials. In J. T. Remillard, B. A. Herbel-Eisenmann, & G. M. Lloyd (Eds.), *Mathematics teachers at work: Connecting curriculum materials and classroom instruction* (pp. 17-36). New York, NY: Routledge.

Brown, S. A., Pitvorec, K., Ditto, C., & Kelso, C. R. (2009). Reconceiving fidelity of implementation: An investigation of elementary whole-number lessons. *Journal for Research in Mathematics Education, 40*(4), 363-395.

Calkins, L. (1994). *The art of teaching writing.* Portsmouth, NH: Heinemann.

Chval, K. B., Chávez, Ó., Reys, B. J., & Tarr, J. (2009). Considerations and limitations related to conceptualizing and measuring textbook integrity. In J. T. Remillard, B. A. Herbel-Eisenmann, & G. M. Lloyd (Eds.), *Mathematics teachers at work: Connecting curriculum materials and classroom instruction* (pp. 70-84). New York, NY: Routledge.

Clark, C. M., & Peterson, P. L. (1986). Teachers' thought processes. In M. C. Wittrock (Ed.), Handbook of research on teaching (3rd ed., pp. 255-296). New York, NY: Macmillan.

Coffey, A. & Atkinson, P. (1996). *Making sense of qualitative data: Complementary research strategies.* Thousand Oaks, CA: Sage.

Cohen, D. K. (1990). A Revolution in one classroom: The case of Mrs. Oublier. *Educational Evaluation and Policy Analysis, 12*(3), 311-329.

Cohen, D. K., & Ball, D. L. (2007). Innovation and the problem of scale. In B. Schneider & S. McDonald (Eds.), *Scale-up in education: Ideas in principle* (Vol. 1, pp. 19-36). Lanham, MD: Rowman & Littlefield.

Cohen, D. K., Raudenbush, S. W., & Ball, D. B. (2003). Resources, instruction, and research. *Educational Evaluation and Policy Analysis, 25*, 119-142. doi: 10.3102/01623737025002119

Collopy, R. (2003). Curriculum materials as a professional development tool: How a mathematics textbook affected two teachers' learning. *Elementary School Journal, 103(*3), 287.

Connelly, F. M. (1972). The functions of curriculum development. *Interchange, 2*(3), 161-177.

Cronbach, L. J. (1955). The text in use. In L. J. Cronbach (Ed.) *Text materials in modern education: A Comprehensive theory and platform for research* (pp. 188-216). Urbana, IL: University of Illinois Press.

Cuban, L. (1993). The lure of curriculum reform and its pitiful history. *The Phi Delta Kappan, 75*(2), 182-185.

Curren-Preis, M. (2018). Creating and using the persona in teaching: Challenges of connection and control. Unpublished doctoral dissertation, University of Michigan, Ann Arbor, MI.

Davis, E. A. (2006). Preservice elementary teachers' critique of instructional materials for science. *Science Education, 90*(2), 348-375. doi: 10.1002/sce.20110

Davis, E. A., & Boerst, T. (2014). Designing elementary teacher education to prepare well-started beginners. *TeachingWorks Working Papers.* TeachingWorks: University of Michigan. Retrieved on April 19, 2019 from http://www.teachingworks.org/research-data/workingpapers.

Davis, E. A., Jannsen, F. J. J. M., & Van Driel, J. H. (2016). Teachers and science curriculum materials: Where we are and where we need to go. *Studies in Science Education, 52*(2), 127-160. doi: 10.1080/03057267.2016.1161701

Davis, E. A., & Krajcik, J. S. (2005). Designing educative curriculum materials to promote teacher learning. *Educational Researcher, 34*(3), 3-14.

Davis, E. A., Palincsar, A. S., Arias, A. M., Bismack, A. S., Marulis, L. M., & Iwashyna, S. K. (2014). Designing educative curriculum materials: A theoretically and empirically driven process. *Harvard Educational Review, 84*(1), 24-136).

Davis, E. A., Palincsar, A. S., Smith, P. S., Arias, A., & Kademian, S. (2017). Educative curriculum materials: Uptake, impact, and implications for research and design. *Educational Researcher, 46*(6), 293-304. doi: 10.3102/0013189X17727502

Drake, C., Land, T. J., & Tyminski, A. M. (2014). Using educative curriculum materials to support the development of prospective teachers' knowledge. *Educational Researcher, 43*(3), 154-162. doi: 10.3102/0013189X14528039

Drake, C., & Sherin, M. G. (2006). Practicing change: Curriculum adaptation and teacher narrative in the context of mathematics education reform. *Curriculum Inquiry, 36*(2), 153-187.

Durkin, D. (1974). Part I: Some questions about questionable instructional materials. *The Reading Teacher, 28*(1), 13-17.

Durkin, D. (1984). Is there a match between what elementary teachers do and what basal reader manuals recommend? *The Reading Teacher, 37*(8), 734-744.

Duke, N. K. (2014). *How local government helps its citizens.* In Duke, N. K., Halvorsen, A., Strachan, S., Farmer, S., Johnson, C., Malloure, J. K., . . . & Toledo, W. (2015a). *Project PLACE (Project-approach to literacy and civic engagement): Second grade civics and government and literacy project.* Ann Arbor, MI: University of Michigan.

Duke, N. K., Halvorsen, A., Strachan, S., Johnson, C., Malloure, J. K., Potter, H., . . . & Reid, D. (2014a). *Project PLACE (Project-approach to literacy and civic engagement): Second grade economics and literacy project.* Ann Arbor, MI: University of Michigan.

Duke, N. K., Halvorsen, A., Strachan, S., Johnson, C., Malloure, J. K., Potter, H., . . . & Reid, D. (2014b). *Project PLACE (Project-approach to literacy and civic engagement): Second grade geography and literacy project.* Ann Arbor, MI: University of Michigan.

Duke, N. K., Halvorsen, A., Strachan, S., Farmer, S., Johnson, C., Malloure, J. K., . . . & Toledo, W. (2015a). *Project PLACE (Project-approach to literacy and civic engagement): Second grade civics and government and literacy project.* Ann Arbor, MI: University of Michigan.

Duke, N. K., Halvorsen, A., Strachan, S., Johnson, C., Malloure, J. K., Potter, H., . . . & Revelle, K. (2015b). *Project PLACE (Project-approach to literacy and civic engagement): Second grade history and literacy project.* Ann Arbor, MI: University of Michigan.

Duke, N. K., Halvorsen, A., Strachan, S., Kim, J., & Konstantopoulos, S. (2018). Putting PBL to the test: The impact of project-based learning on second-graders' social studies and literacy learning and motivation in low-SES school settings. Manuscript submitted for publication.

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal, 50*(1), 25-32.

Eisenmann. T., & Even, R. (2009). Similarities and differences in the types of algebraic activities in two classes taught by the same teacher. In J. T. Remillard, B. A. Herbel-Eisenmann, & G. M. Lloyd (Eds.), *Mathematics teachers at work: Connecting curriculum materials and classroom instruction* (pp. 152-170). New York, NY: Routledge.

Erickson, F. (2006). Definition and analysis of data from videotape: Some research procedures and their rationales. In J. L. Green, G. Camilli, P. B. Elmore, A. Skukauskaité, & E. Grace (Eds.), *Handbook of Complementary Methods in Education Research,* Washington, DC: American Educational Research Association.

Forbes, C. T., & Davis, E. A. (2008). The development of preservice elementary teachers' curricular role identity for science teaching. *Science Education, 92*, 909-940. doi: 10.1002/sce.20265

Forbes, C. T., & Davis, E. A. (2010). Curriculum design for inquiry: Preservice elementary teachers' mobilization and adaptation of science curriculum materials. *Journal of Research in Science Teaching, 47*(7), 820-839. doi: 10.1002/tea.20379

Fullan, M., & Pomfret, A. (1977). Research on curriculum and instruction implementation. *Review of Educational Research, 47*(1), 335-397.

Floden, R. E., Porter, A. C., Schmidt, W. H., Freeman, D. J., & Schwille, J. R. (1981). Responses to curriculum pressures: A policy-capturing study of teacher decisions about content. *Journal of Educational Psychology, 73*(2), 129-141.

Gay, G. (2000). *Culturally responsive teaching: Theory, research, and practice.* New York, NY: Teachers College Press.

Grossman, P., Compton, C., Igra, D., Ronfeldt, M., Shahan, E., & Williamson, P. W. (2009). Teaching practice: A cross-professional perspective. *Teachers College Record, 111*(9), 2055-2100.

Grossman, P. & Thompson, C. (2008). Learning from curriculum materials: Scaffolds for new teachers? *Teaching and Teacher Education, 24,* 2014-2026.

Hatano, G., & Inagaki, K. (1986). Two courses of expertise. In H. W. Stevenson, H. Azuma, & K. Hakuta (Eds.), *Child development and education in Japan* (pp. 262-272). New York: Freeman.

Heaton, R. M. (2000). Teaching mathematics to the new standards: Relearning the dance. New York, NY: Teachers College Press.

Herbel-Eisenmann, B. A. (2007). From intended curriculum to written curriculum. Examining the "voice" of a mathematics textbook. *Journal for Research in Mathematics Education, 38*(4), 344-369.

Hill, H. C., & Charalambous, C. Y. (2012a). Teaching (un)Connected Mathematics: Two teachers' enactment of the pizza problem. *Journal of Curriculum Studies, 44*(4), 467-487. doi: 10.1080/00220272.2012.716972

Hill, H. C., & Charalambous, C. Y. (2012b). Teacher knowledge, curriculum materials, and quality of instruction: Lessons learned and open issues. *Journal of Curriculum Studies, 44*(4), 559-576. doi: 10.1080/00220272.2012.716978

Jackson, P. W. (1990). *Life in classrooms*. New York, NY: Teachers College Press.

Kauffman, D., Johnson, S. M., Kardos, S. M., Liu, E., & Peske, H. G. (2002). 'Lost at sea': New teachers' experiences with curriculum and assessment. *Teachers College Record, 104*(2): 273-300.

Kennedy, M. M. (2010). Attribution error and the quest for teacher quality. *Educational Researcher, 39*(8), 591-598.

Kesidou, S., & Roseman, J. E. (2002). How well do middle school science programs measure up? Findings from Project 2061's curriculum review. *Journal of Research in Science Teaching, 39*(6), 522-549.

Krajcik, J., McNeill, K. L., & Reiser, B. J. (2008). Learning-goals-driven design model: Developing curriculum materials that align with national standards and incorporate project-based pedagogy. *Science Education, 92*(1), 1-32. doi: 10.1002/sce.20240

Ladson-Billings, G. (1994). *The Dreamkeepers. Successful Teachers of African American Children*. San Francisco, CA: Jossey-Bass.

Lampert, M. (1985). How do teachers manage to teach? Perspectives on problems of practice. *Harvard Educational Review*, *55*(2), 178-194.

Lampert, M. (2001). *Teaching problems and the problems of teaching*. New Haven, CT: Yale University Press.

Lampert, M., & Graziani, F. (2009). Instructional activities as a tool for teachers' and teacher educators' learning. *The Elementary School Journal, 109*(5), 491-509.

Leinhardt, G. (1990). Towards understanding instructional explanations. Learning Research and Development Center: Technical Report No. CLIP-90-03. Pittsburgh, University of Pittsburgh.

Lewis, J. M. (2007). Teaching as invisible work. Unpublished doctoral dissertation, University of Michigan, Ann Arbor, MI.

Lewis, J. M., & Blunk, M. L. (2012). Reading between the lines: Teaching linear algebra. *Journal of Curriculum Studies, 44*(4), 515-536. doi: 10.1080/00220272.2012.716975

Lloyd, G. M., Remillard, J. T., & Herbel-Eisenmann, B. A. (2009). Teachers' use of curriculum materials: An emerging field. In J. T. Remillard, B. A. Herbel-Eisenmann, & G. M. Lloyd (Eds.), *Mathematics teachers at work: Connecting curriculum materials and classroom instruction* (pp. 3−14). New York, NY: Routledge.

Manouchehri A., & Goodman T. (1998). Mathematics curriculum reform and teachers: Understanding the connections. *Journal of Educational Research, 92*(1), 27-41.

McClain, K., Zhao, Q., Visnovski, J., & Bowen, E. (2009). Understanding the role of institutional context in the relationship between teachers and text. In J. T. Remillard, B. A. Herbel-Eisenmann, & G. M. Lloyd (Eds.), *Mathematics teachers at work: Connecting curriculum materials and classroom instruction* (pp. 56-69). New York, NY: Routledge.

McLaughlin, M. (1976). Implementation as mutual adaptation: Change in classroom organization. In W. Williams & R. F. Elmore (Eds.) *Qualitative studies in social relations: Social program implementation* (pp. 167-180). New York, NY: Academic Press.

Merriam, S. B. (2009). Qualitative Research A Guide to Design and Implementation. San Francisco, CA: Jossey-Bass.

Michigan Department of Education (2007). *Grades K-8 social studies content expectations.* Lansing, MI: Author.

Minor, C. (2018). *We got this: Equity, access, and the quest to be who our students need us to be.* Portsmouth, NH: Heinemann.

Monte-Sano, C., De La Paz, S., & Felton, M. (2014). Implementing a disciplinary-literacy curriculum for US history: Learning from expert middle school teachers in diverse classrooms. *Journal of Curriculum Studies, 46*(4), 540-575. doi: 10.1080/00220272.2014.904444

Morris, A. K. (2012). Using "lack of fidelity" to improve teaching. *Mathematics Teacher Educator, 1*(1), 71-101.

Morris, A. K., & Hiebert, J. (2011). Creating shared instructional products: An alternative approach to improving teaching. *Educational Researcher*, *40*(1), 5−14. doi: 10.3102/0013189X10393501

National Council for the Social Studies (2013). *The college, career, and civic life (C3) framework for social studies state standards: Guidance for enhancing the rigor of K-12 civics, economics, geography, and history*. Silver Spring, MD: Author.

National Council of Teachers of Mathematics. (2000). *Principles and standards for school mathematics*. Reston, VA: Author.

National Governors Association Center for Best Practices [NGA], & Council of Chief State School Officers [CCSSO]. (2010). *Common core state standards for English language*

arts & literacy in history/social studies, science, and technical subjects. Washington DC: National Governors Association for Best Practices, Council of Chief State School Officers.

O'Donnell, C. L. (2008). Defining, conceptualizing, and measuring fidelity of implementation and its relationships to outcomes in K−12 curriculum intervention research. *Review of Educational Research, 78,* 33−84. doi: 10.3102/0034654307313793

Parrish, S. (2014). *Number talks: Whole number computation, grades K-5.* Sausalito, CA: Math Solutions.

Pea, R. (1993). Practices of distributed intelligence and designs for education. In G. Salomon (Ed.), *Distributed cognition: Psychological and educational considerations*. Cambridge, United Kingdom: Cambridge University Press.

Pentland, B. T., & Feldman, M. S. (2008). Designing routines: On the folly of designing artifacts while hoping for patterns of action. *Information and Organization, 18,* 235-250. doi: 10.1016/j.infoandorg.2008.08.001

Peterson, P. (1990). Doing more in the same amount of time: Cathy Swift. *Educational Evaluation and Policy Analysis, 12*(3), 261-280. doi: 10.3102/01623737012003261

Porter, A. C. (1989). External standards and good teaching: The pros and cons of telling teachers what to do. *Educational Evaluation and Policy Analysis, 11*(4), 343-356. doi: 10.3102/01623737011004343

Remillard, J. T. (1996). *Changing texts, teachers, and teaching: The role of curriculum materials in a mathematics education reform.* Unpublished doctoral dissertation, Michigan State University, East Lansing, MI.

Remillard, J. T. (1999). Curriculum materials in mathematics education reform: A framework for examining teachers' curriculum development. *Curriculum Inquiry, 29*(3), 315-342.

Remillard, J.T. (2000). Can curriculum materials support teachers' learning? *Elementary School Journal, 100*(4), 331-350.

Remillard, J. T. (2005). Examining key concepts in research on teachers' use of mathematics curricula. *Review of Educational Research, 75*(2), 211-246.

Remillard, J. T. (2012). Modes of engagement: Understanding teachers' transactions with mathematics curriculum resources. In G. Gueudet, B. Pepin, & L. Trouche (Eds.), *From text to "lived" resources: Mathematics curriculum materials and teacher development* (pp. 105-122). New York: Springer.

Remillard, J. (2018). Mapping the relationship between written and enacted curriculum: Examining teachers' decision making. In G. Kaiser, H. Forgasz, M. Graven, A. Kuzniak, E. Simmt, & B. Xu (Eds.), *Invited Lectures from the 13th International Congress on*

Mathematical education (pp. 483-500). ICME-13 Monographs. Hamburg, Germany: Springer Open. doi: 10.1007/978-3-319-72170-5_27

Remillard, J. T., & Bryans, M. B. (2004). Teachers' orientations toward mathematics curriculum materials: Implications for teacher learning. *Journal of Research in Mathematics Education, 35*(5), 352-388.

Remillard, J. T., Herbel-Eisenmann, B.A., & Lloyd, G. M. (Eds.) (2009). *Mathematics teachers at work: Connecting curriculum materials and classroom instruction*. New York, NY: Routledge.

Remillard, J., & Reinke, L. (2012). Complicating scripted curriculum: Can scripts be educative for teachers? Paper presented at the American Educational Research Association Annual Conference, San Francisco, CA.

Reys, B. J., & Reys, R. E. (2006). The development and publication of elementary mathematics textbooks: Let the buyer beware! *The Phi Delta Kappan, 87*(5), 377-383.

Schneider, R., & Krajcik, J. (2002). Supporting science teacher learning: The role of educative curriculum materials. *Journal of Science Teacher Education, 13*(3), 221–245.

Schneider, R., Krajcik, J., & Blumenfeld, P. (2005). Enacting reform-based science materials: The range of teacher enactments in reform classrooms. *Journal of Research in Science Teaching, 42*(3), 283-312. doi: 10.1002/tea.20055

Schön, D. (1983). The reflective practitioner: How professionals think in action. New York, NY: Basic Books.

Shannon, P. (1987). Commercial reading materials, a technological ideology, and the deskilling of teachers. *The Elementary School Journal, 87*(3), 307-329.

Sherin, M. G., & Drake, C. (2009). Curriculum strategy framework: Investigating patterns in teachers' use of a reform-based elementary mathematics curriculum. *Journal of Curriculum Studies, 41*(4), 467-500. doi: 10.1080/00220270802696115

Shulman, L. S. (1983). Autonomy and obligation: The remote control of teaching. In L. S. Shulman & G. Sykes (Eds.), *Handbook of teaching and policy* (pp. 484-504). New York, NY: Longman.

Shulman, L. S. (1998). Theory, practice, and the education of professionals. *Elementary School Journal, 98,* 511-526.

Simpson et al. (Ed.). (2009). *Oxford English dictionary* (Online 3rd ed.). London: Oxford University Press.

Sleep, L. (2012). The work of steering instruction toward the mathematical point: A decomposition of teaching practice. *American Educational Research Journal, 49*(5), 935-970. doi: 10.3102/0002831212448095

Sleep, L. & Eskelson, S. L. (2012). MKT and curriculum materials are only part of the story: Insights from a lesson on fractions. *Journal of Curriculum Studies, 44*(4), 537-558. doi: 10.1080/00220272.2012.716977

Sleeter, C. (2017, November). Designing lessons and lesson sequences with a focus on ethnic studies or culturally responsive curriculum. *TeachingWorks Working Papers.* TeachingWorks: University of Michigan. Retrieved on May 14, 2019 from http://www.teachingworks.org/support-resources/keeping-current/working-papers.

Snyder, J., Bolin, F., and Zumwalt, K. 1992. Curriculum implementation. In *Handbook of research on curriculum*, ed. P. W. Jackson, 402–435. New York: Macmillan.

Stein, M. K., Remillard, J., & Smith, M. S. (2007). How curriculum influences student learning. In F. K. Lester (Ed.), *Second handbook of research on mathematics teaching and learning* (pp. 319-369). Charlotte, NC: Information Age Publishing.

Tarr, J. E., Chávez, Ó., Reys, R. E., & Reys, B. J. (2006). From the written to the enacted curricula: The intermediary role of middle school mathematics teachers in shaping students' opportunity to learn. *School Science and Mathematics, 106*(4), 191-201.

Valencia, S. W., Place, N. A., Martin, S. D., & Grossman, P. L. (2006). Curriculum materials for elementary reading: Shackles and scaffolds for four beginning teachers. *The Elementary School Journal, 107*(1), 93-120.

Vygotsky, L. S. (1978). *Mind in society: The development of the higher psychological processes* (A. Kozulin, Trans.). Cambridge, MA: Harvard University Press.

Wertsch, J. V. (1998). *Mind as action.* New York, NY: Oxford University Press.

Wilson, S. M. (1990). A conflict of interests: The case of Mark Black. *Educational Evaluation and Policy Analysis, 12*(3), 293-310.

Woodward, A., & Elliot, D. L. (1990). Textbook use and teacher professionalism. In D. L. Elliot & A. Woodward (Eds.), *Textbooks and schooling in the United States: Eighty-ninth yearbook of the national society for the study of education: Part 1* (pp. 178-193). Chicago, IL: University of Chicago Press.

Zumwalt, K. (1989). Beginning professional teachers: The need for a curricular vision of teaching. In M. C. Reynolds (Ed.) *Knowledge base for the beginning teacher*. (pp. 173-184). Oxford, NY: American Association of Colleges for Teacher Education.