THE CYCLICAL NATURE OF CURRICULUM: REFINING A CURRICULUM BY EXAMINING TEACHERS' ROLES IN ITS DEVELOPMENT

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Christine M. Carr, B.S., J.D., M.A.T.

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Curriculum, Instruction, and Special Education
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University of Virginia
Charlottesville, Virginia

APPROVAL OF THE CAPSTONE PROJECT

This capstone project, *The Cyclical Nature of Curriculum: Refining a Curriculum by Examining Teachers' Roles in its Development*, has been approved by the Graduate Faculty of the Curry School of Education in partial fulfillment of the requirements for the degree of Doctor of Education.

_____
Catherine Brighton, Ph.D., Chair

_____
Susan Mintz, Ph.D., Committee Member

_____
Jennifer Pease, Ph.D., Committee Member

_____ Date

Abstract

Project Kaleidoscope is a research project funded by the United States Department of Education. Project Kaleidoscope's researchers are interested in the extent to which the provision of professional development to teachers, engagement of parents (and guardians and families) in informational sessions, and participation of identified students in summer intersessions can lead to the increased referral of historically underrepresented students to gifted education programs. For my capstone project, I examined a narrow aspect of this research project: the summer intersession curriculum and teachers' enactment of it. My goal was to better understand both the extent to which the curriculum provided guidance to the teachers and the ways in which the teachers enacted the curriculum. In this capstone project report, I share the patterns of both guidance and enactment that I discovered. I conclude by making recommendations to the Project Kaleidoscope team regarding refinement of the curriculum based on those patterns, as well as discussing the implications of my study for curriculum and curriculum designers at large.

Keywords: curriculum, curriculum enactment, curriculum use, curriculum development, underrepresentation in gifted education

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DEDICATION

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CHAPTER 1: INTRODUCTION

Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will spend its whole life thinking that it is stupid.

–Albert Einstein

For this capstone project, I conducted a descriptive case study of two teachers' collective enactment of a summer intersession curriculum for children with gifted potential and the curricular guidance these teachers were provided to support their enactment of that curriculum. I analyzed both archival and newly-collected data including observation field notes, interview transcripts, documents, photographs, and other artifacts. My analysis resulted in my discovery of patterns with respect to both the curricular guidance and the teachers' enactment of the curriculum. Ultimately, I offer recommendations regarding the refinement of the curriculum.

Background of the Problem

In the United States, gifted education is often deemed to be an offshoot of special education; however, unlike special education services, no federal mandate exists for the provision of gifted education services (Ford, 2010; National Association for Gifted Children (NAGC), 2013). According to the NAGC (2013), the lack of federal mandate has resulted in "wide variability on policies regarding student identification, provision of gifted program services, teacher training, and other areas crucial to ensuring high quality gifted education" (para. 4). This variability and consequential lack of accountability (Ford, 2010) has led to the underrepresentation of certain populations of

students in gifted education programs despite the widely-held belief that the make-up of gifted education programs should reflect the ever-changing U.S. demographic (NAGC, 2011).

More specifically, racially, culturally, linguistically, and socio-economically diverse students are underrepresented in gifted education programs (Burney & Beilke, 2008; Ford, 2010; Ford & Grantham, 2003; Ford, Harris, Tyson, & Trotman, 2002). For ease of reference, I will collectively refer to these students as *minority students*, fully recognizing that, in some schools, these students may numerically represent the majority of students. Regardless, because these students are not equitably represented in gifted education programs, they nonetheless represent a minority in that regard.

The aforementioned categories of diversity often do not discretely characterize students: Many students' identities intersect two or more such categories (Hankivsky, 2014). For example, while not causally connected, a frequent association between race and socio-economic status (SES) exists in the United States (Burney & Beilke, 2008; Olszewski-Kubilius & Clarenbach, 2012). And, incidentally, students who are racial, ethnic, or cultural minorities coupled with low-SES statuses are particularly at risk for not being identified for gifted education services (Tomlinson & Jarvis, 2014).

The reasons minority students are not identified for (and are, therefore, underrepresented in) gifted education programs are many and multifaceted (Grantham, 2002). One such reason is that a mismatch often exists between the dominant culture being promulgated in schools and the cultures of minority students (Tomlinson & Jarvis, 2014). Also described as a product of White privilege, wherein the language, customs, and traditions of "White Americans is valued and held as normal, normative, or the

standard" (Ford, 2010, p. 33), this mismatch serves to disadvantage many minority students. Imagine, for example, a scenario in which a minority student's home language is one other than English. Further imagine that this student arrives to kindergarten with limited English vocabulary, despite being incredibly expressive in his home language. If this student's teacher employs "deficit thinking," whereby she views minority students as "deprived or deficient" relative to their White peers (Ford & Grantham, 2003; Ford et al., 2002, p. 52), she may not offer curriculum and instruction that is responsive to this student's culture. Moreover, she may assume that he has academic weaknesses and will, almost certainly, fail to recognize his gifted potential.

This scenario illustrates how students from non-dominant cultures may be overlooked for gifted services. A different—or, as previously discussed, *complicating*—reason that some students are overlooked is a consequence of their low-SES statuses. Burney and Bielke (2008) explained,

> It has been shown that children of parents with higher educational levels have been read to more frequently, have more books in the home, have already learned how to use computers, and have had differing patterns of interactive reading and conversation than those children from families with less education and fewer resources….The skills gained from early exposure and continued enrichment are transferable to a readiness for academic instruction and provide modeling for achievement orientation. (pp. 180-181)

While, as Burney and Bielke (2008) explained, exposure and enrichment may lead to readiness, a lack of exposure and enrichment—the product, perhaps, of a low-SES status—serves as a disadvantage. Relative to their advantaged peers, then, low-SES students are ostensibly less ready for school, which may serve to mask their potential gifts, particularly to and among teachers employing deficit thinking toward them.

A Response to the Problem: Project Kaleidoscope

On-going research efforts seek to understand and, ideally, ameliorate these identification issues. For example, the United States Department of Education (USDOE) has established the Jacob K. Javits Gifted and Talented Students Education Program (Javits Program). The purpose of the Javits Program "is to carry out a coordinated program of evidence-based research, demonstration projects, innovative strategies, and similar activities designed to build and enhance the ability of elementary schools and secondary schools nationwide to identify gifted and talented students and meet their special educational needs" (USDOE, Javits Program, n.d., para. 1). This program emphasizes identification of and service to "students traditionally underrepresented in gifted and talented programs, particularly economically disadvantaged, limited English proficient (LEP), and disabled students" (USDOE, Javits Program, n.d., para. 1) and, therefore, prioritizes funding for research efforts that are supportive of this objective.

In response to this call, a team of researchers from the University of Virginia sought and received funding from the Javits Program. Via their research project, which they named *Project Kaleidoscope*, these researchers are presently seeking to determine the extent to which an intervention can lead to increased referrals of historically underrepresented students to gifted education programs. The funding awarded by the Javits Program allowed the Project Kaleidoscope (PK) team to implement and investigate the results of its intervention over the course five years: one year for development (the 2015-2016 academic year) and four years for continued development plus implementation, investigation, and analysis (the 2016-2017, 2017-2018, 2018-2019, and 2019-2020 academic years). During the 2015-2016 academic year, the PK team recruited

and selected a site for its research and began development of the intervention, and during the 2016-2017 academic year, it began its implementation of the intervention, as well as its initial investigation and analysis. Now, in the third year of the grant, Project Kaleidoscope is continuing its implementation, investigation, and analysis. Following is a brief overview of both the site and the intervention.

Site

Project Kaleidoscope is conducting its research in Fairland County Schools (FCS)[1]. FCS is located in Fairland County[2], a mostly rural county located in the mid-Atlantic region of the United States. Albeit rural, Fairland County also serves as a bedroom community to a significant metropolitan area, which is located just 40 miles away.

FCS has over 11,000 students, each of whom attend one of its eleven elementary schools, five middle schools, three high schools, or one alternative school. Due the specific nature of Project Kaleidoscope's intervention, which is targeted at pre-K through second graders, the PK team worked with FCS administration to select five of FCS's elementary schools to serve as research sites (Participating Sites). The remaining six elementary schools are serving as controls, i.e., "business as usual" sites.

Intervention

As discussed, Project Kaleidoscope's goal is to determine the extent to which a multi-pronged intervention (Intervention) will result in increased referrals of historically underrepresented students to gifted education programs. In its position statement entitled, "Identifying and Serving Culturally and Linguistically Diverse Gifted Students,"

[1] Pseudonym
[2] Pseudonym

the NAGC (2011) offered several recommendations on this matter, including among them the need for professional development supportive of these students' success in such programs, the development of reciprocal relationships with families, and students' access to high-end curriculum. Consistent with the NAGC's recommendations, Project Kaleidoscope's Intervention includes the following components: professional development for faculty and administration; informational sessions for parents, guardians, and families; and summer intersessions for identified students.

Over the course of the 2015-2016 academic year, the PK team began development of its Intervention. The focus of the Intervention was and continues to be supporting children's gifted potential through language and literacy development. First, the PK team designed a series of virtual, i.e., online, professional development modules that focused on language and literacy development (e.g., writing development, print knowledge, phonological awareness). The PK team disseminated those modules during the 2016-2017 academic year to the following individuals at the Participating Sites: pre-school, kindergarten, first grade, and second grade teachers; gifted resource teachers; EL teachers (i.e., teachers of English learners); and administrators. The PK team continues to develop content for current and future modules, including modules on student choice in reading and profiles of gifted students. These modules are being (and will continue to be) disseminated in the present academic year and the remaining years of the Intervention.

Second, beginning in the 2016-2017 academic year, the PK team endeavored to engage parents, guardians, and families by facilitating bi-annual "parent" (broadly defined) informational sessions. As with the professional development modules, the content of these sessions focused on language and literacy, but—instead—with parent-

friendly topics such as asking open-ended questions to facilitate conversation and using synonyms to build vocabulary. The respective sessions were conducted during the Fall and Spring semesters at each of the Participating Sites, and Project Kaleidoscope will continue to offer bi-annual parent sessions for the duration of the project.

Finally, and also over the course of the 2016-2017 academic year, the PK team planned for a two-week (four days per week) summer intersession (SI) for identified students. The SI commenced on July 17, 2017 and was led by select FCS teachers and other faculty hailing from the five Participating Sites. Project Kaleidoscope will continue to offer annual SIs for the duration of the project (i.e., two more SIs). Due to potential repeat students, the 2018 SI curriculum will be different from the 2017 SI curriculum; however, because 2019 SI cohort will be comprised of entirely different students from the 2017 SI cohort, the 2017 SI curriculum will be used again in 2019.

Situating the Proposed Capstone Project

In the following paragraphs, I contextualize and describe this capstone project, which I designed in service of the greater Project Kaleidoscope. First, I discuss my role as a graduate research assistant (GRA) on the PK team and the opportunities I have been afforded in that role. Then I discuss the aspect of those opportunities that I examined for my capstone project.

My Role on Project Kaleidoscope

I was among the first group of GRAs to become a member of the PK team, having joined the team at the beginning of the 2015-2016 academic year. I have worked and continue to work twenty hours per week during the academic year. My time during the

summers has been flexible, but I worked a fairly consistent twenty-hours-per-week during the summers of both 2016 and 2017.

As a GRA on the PK team, I have had the opportunity to work with the lead PK investigators and other GRAs in various capacities, including some level of participation in all components of the Intervention. For example, I created content for the professional development modules; I created content for and facilitated parent sessions; and I designed curriculum and facilitated teacher training for the SI. Due to my especially active role with respect to the SI, I proposed to address a related problem of practice for my capstone project. Therefore, in the next section, I describe the SI in more detail.

The Project Kaleidoscope Summer Intersession

Over the course of the 2016-2017 academic year, the PK team planned for a two-week (four days per week) summer intersession for identified students, which commenced in July 2017. The design and execution of the SI was multifarious: In the months leading up to the SI, the PK team had to identify and invite students, design a curriculum, recruit pairs of teachers or other faculty at each of the five Participating Sites to serve as SI teachers, train the SI teachers, and deliver the curriculum materials and other resources to the SI teachers. Once the SI teachers were trained and the materials and resources were delivered, the PK team members' roles shifted from actors to observers: For each site, a PK team member took field notes and photographs in an effort to holistically capture the SI.

For the SI, which was aptly named *Camp Kaleidoscope*, the PK team designed a curriculum around the theme of a kaleidoscope. This theme was selected after two members of the PK team pitched several ideas to the entire team. The theme was not

selected simply because of its novelty; rather, it lent itself to the possibility of providing children with rich science-based experiences that could nonetheless be anchored in language in literacy. Moreover, one member of the team was particularly interested in the use of science-based texts during read-alouds, and this theme allowed her the opportunity to fulfill this research agenda.

Upon deciding on a theme, the PK team assigned each day of the SI a kaleidoscope-related topic, i.e., *Daily Topic*: *Pattern*, *Color*, *Balance*, *Light & Dark*, *Shadow*, *Reflection & Mirrors*, *Illusion & Vision*, and—for the last day—*Kaleidoscope* (tying all previous Daily Topics together). Once the Daily Topics were selected, the PK team arranged them from (what appeared to be) simplest to most complex. The foregoing list of Daily Topics is presented in that order.

As noted, although the PK team designed the SI curriculum around a science-based theme, the overarching objective remained consistent with Project Kaleidoscope's focus: supporting children's gifted potential through language and literacy development. Therefore, each day included opportunities for reading, writing, and vocabulary development, and these opportunities were described in eight corresponding daily lesson plans. Each such lesson plan contained similar segments: morning and afternoon meetings (*Meetings of the Minds*), a read aloud (*Books & Bookworms*), a whole-group activity (*Activity Central*), small-group centers (*Exploration Stations*), and a designated snack time (*Munchies & More*). In addition, each lesson plan included background information, a daily schedule, and other detailed information (including directions, scripting, supplies, and photographs) regarding the each of the segments. I provide the daily lesson plan template, which illustrates the segments described above, in Appendix

A. The PK team sought feedback from four external reviewers who had a range of experience, (e.g., a curriculum consultant, an administrator, a teacher). Once the PK team considered and incorporated the feedback, the daily lesson plans were merged into a single document (of over 150 pages), which the PK team had printed and bound as a lesson plan book for each of the SI teachers.

The Vocabulary Component of the Summer Intersession Curriculum

Given the emphasis on language and literacy, children's vocabulary development was chief among the emphases in the PK team's design of the SI curriculum and is the narrower focus of this capstone project. Following, I describe some of the features of the SI curriculum's vocabulary development component (Vocabulary Component).

Daily lesson plans highlighted planned vocabulary words, i.e., *Daily Terms*, that teachers were to actively integrate during their enactment of the lessons. The Daily Terms were defined or otherwise described or contextualized for the teachers in the lesson plans. The PK team envisioned the teachers developing their own understanding of the Daily Terms and then conveying that understanding to the children. Moreover, through questioning and conversation (suggestions for which were scripted into the lesson plans), teachers were encouraged to build upon children's prior and new understanding of the Daily Terms. Perhaps most importantly, whenever possible, teachers were encouraged to engage all children in the use and extension of the Daily Terms.

In addition to these discussion-based elements of the SI curriculum, the Vocabulary Component also provided tangible resources that the teachers were encouraged to use to support children's vocabulary development, one such resource being

the *Classroom Word Web*. To explain this particular resource, each of the Daily Terms was printed on cardstock strips with magnets attached to the back of them, i.e., *Word Cards*. When teachers introduced a Daily Term during a lesson, they were to post the relevant Word Card to their white board (or other vertical surface). Then, to demonstrate for children how that Daily Term was connected to the other words that were already posted, teachers were to draw a line connecting it to any other related words already posted on the board. The PK team also provided teachers with blank Word Cards so that if unplanned but relevant words spontaneously arose during questioning, conversations, or writing, those words could likewise be added to the board. The PK team envisioned that, at the end of the SI, the wall would capture the "web" of related vocabulary to which the children had been introduced over the course of the SI. The PK team based the Classroom Word Web on the idea of mental word webs, to which SI teachers had been introduced via one of the online professional development modules the team offered during the prior school year. I discuss that module in more detail in my findings (Chapter 4).

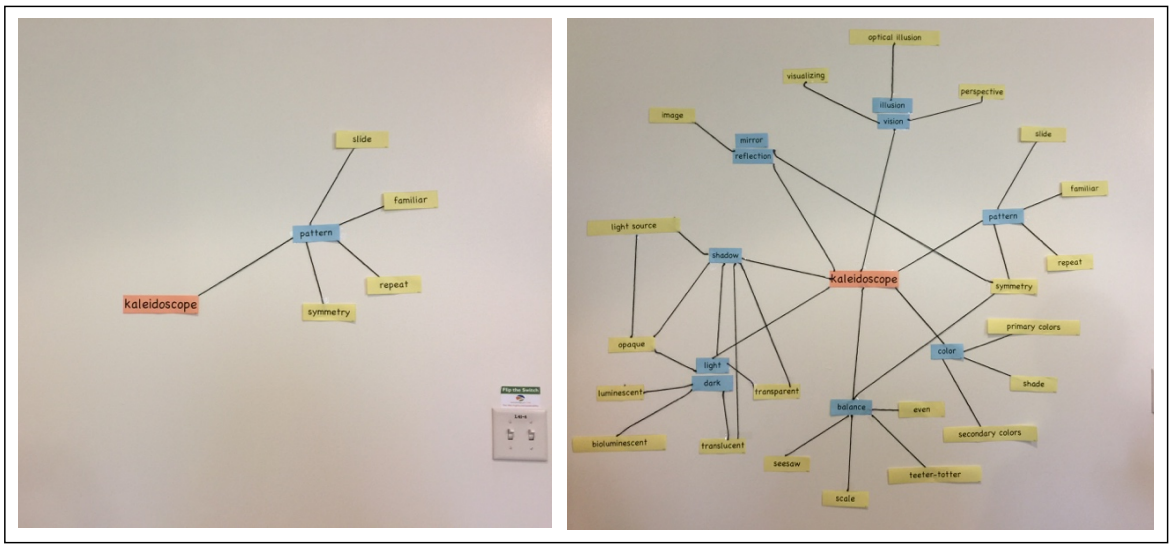


Figure 1.1. Sample Classroom Word Web at various stages of construction. These pictures were among those used during the SI training to share Project Kaleidoscope's vision of the enactment of the Classroom Word Web aspect of the SI curriculum; the first picture shows what a Classroom Word Web might look like on Day 1 (*Pattern*); the second shows what Classroom Word Web might look like at the conclusion of the SI.

In addition to being able to watch the Classroom Word Web growing on the board, children received pre-printed personal Word Webs (i.e., *Personal Word Webs*), which populated the first few pages of their *lab notebooks*, i.e., composition books children were to use for writing and other activities throughout the SI. Each morning, the SI teachers were to begin the day with a Meeting of the Minds in which they would introduce the topic for that day (e.g., *Pattern*, *Color*, *Balance*). Children were to turn to their Personal Word Webs in their lab notebooks and write or draw any connections they already had with respect to the Daily Topic. At the end of the day, the children were to reconvene for a second Meeting of the Minds, in which they would have the opportunity to revisit their Personal Word Webs and make additions based on the day's experiences.

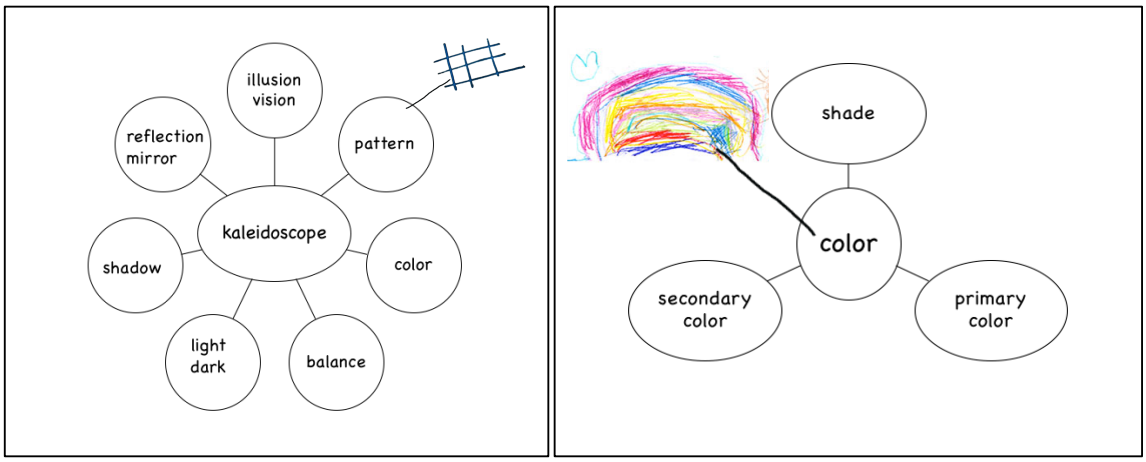


Figure 1.2. Sample Personal Word Webs. These pictures were among those used during the SI teacher training to share Project Kaleidoscope's vision of children's use of the Personal Word Webs contained in their lab notebooks.

Grant-Specific Problem of Practice and Research Questions

Notably, the various aspects of SI curriculum were designed by several members of the PK team. For example, the daily lesson plans were authored by different members of the PK team and, therefore, may have varied in terms of the guidance they provided to the teachers. Given that this curriculum will be repeated for the 2019 SI, it is critical for Project Kaleidoscope to have more insight into the nature of and the extent to which the curriculum provided guidance to the SI teachers. With this insight, the PK team can refine the SI curriculum, potentially making it more supportive of teachers and—consequently—more powerful for the participating children. Therefore, for my capstone project, I was interested in studying the guidance provided by the SI curriculum; however, I also wanted to study teachers' enactment of the curriculum because I believed (and continue to believe) that teachers play an important role in curriculum development.

I specifically chose to study the Vocabulary Component of the SI curriculum for two reasons. First, and at the most basic level, the Vocabulary Component carried

through all segments of the daily lessons. In other words, it was a ubiquitous component of the curriculum and, therefore, one particularly worthy of examination.

Second, children's vocabulary development was (and remains) especially critical to Project Kaleidoscope's objectives, particularly given the demographic of students it is targeting with its research. As already noted, children from low-SES backgrounds are historically underrepresented in gifted education and, as it turns out, children's SES statuses have been connected to their vocabulary development (Marulis & Neuman, 2010). For example, Fernald, Marchman, and Weisleder (2013) reported a six-month "vocabulary and language processing" gap between children from high and low SES groups at just 24 months old (p. 234). Unfortunately, such disparities negatively impact children's academic trajectories: Children identified as low SES build their vocabularies at slower rates (Hoff, 2003), which may have a cumulative effect (Marulis & Neuman, 2010). And because "the size of children's vocabulary knowledge is strongly related to how well they will come to read" (Marulis & Neuman, 2010, p. 300), it has implications for their ability to access *all* academic content (Hindman, Wasik, & Snell, 2016).

Research has also shown a relationship between vocabulary knowledge and success on intelligence and achievement tests (Anderson & Freebody, 1979). Perhaps not surprisingly, then, achievement tests with predictive validity tend to disadvantage minority students (Borland & Wright, 1994). Nonetheless, such tests are emphasized as a means of identifying students for gifted education programs (Borland & Wright, 1994). Of course, one avenue of redress may be the use of "multiple…criteria and sources" (Ford, 1998) to identify children for gifted programs; however, because this avenue

requires systemic change that may not be immediately possible, other efforts are also required to support children within the system that currently exists.

Therefore, when I embarked on this capstone project, I hoped that by coupling an examination of the SI curriculum's guidance with an examination of teachers' enactment of the SI curriculum, I would be able to identify patterns regarding both and, significantly, offer a series of recommendations for the PK team regarding how it can refine the Vocabulary Component of the SI curriculum—it being so essential to Project Kaleidoscope's mission, generally, and its vision of the curriculum. Given the foregoing, I posed the following research questions:

To what extent did the summer intersession curriculum provide guidance to teachers in supporting children's vocabulary development?

In what ways did teachers enact the summer intersession curriculum in support of children's vocabulary development?

A Broader Problem of Practice

Although my capstone project was quite similar to dissertation research, which "offer[s] special insight into the importance of attention to the audience" (Patton, 2002, p. 11), the problem of practice aspect of my project also caused it to share some elements with *program evaluation*, i.e., research in which "intended users actually use the findings for decision making and program improvement" (Patton, 2002, p. 10). Therefore, I began consideration of my capstone project—in particular, the problem of practice—by mapping it out in the form of a logic model, which is a tool frequently used in program evaluations (W.K. Kellogg Foundation, 2004). I designed the logic model to capture what I believed was Project Kaleidoscope's vision for the Vocabulary Component of the

SI curriculum, which—in effect—was the "program" to be evaluated (Figure 3, below). The boxed portions of the logic model represent the output and outcome that served as the focus of my capstone project.

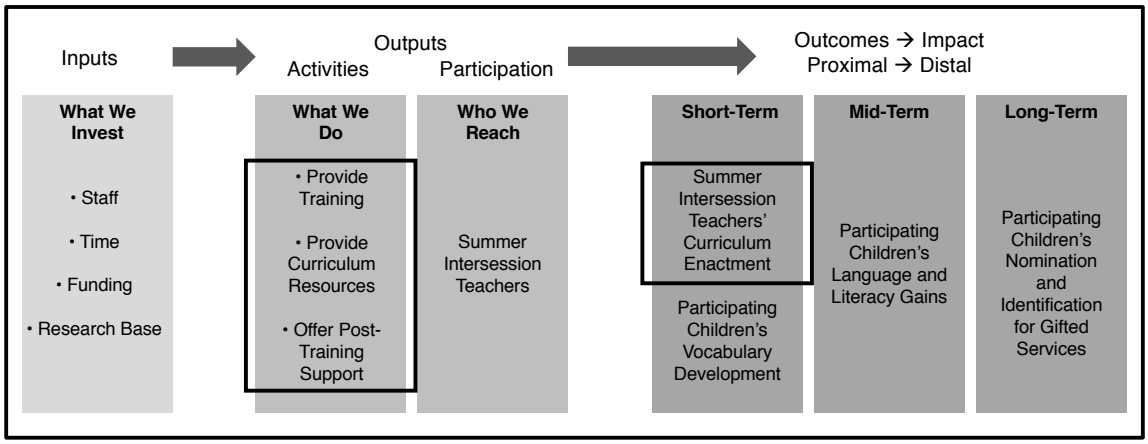


Figure 1.3. Logic model for the Vocabulary Component of the SI curriculum.

Implicit in both my research questions and in the logic model was that a tension existed between the "designed and delivered" curriculum and teachers' enactment of it (correspondingly, the *Outputs* and the relevant aspect of the *Outcomes* in the logic model). After all, an assumption foregrounding my research questions was that some difference *must* exist between the SI curriculum and the teachers' ultimate enactment of it; otherwise, the second research question would not be necessary. This assumption was based on existing educational research in this area: For years, educational researchers have explored teachers' curriculum use, finding both similarities and differences between curricula and teachers' enactments of them.

The research regarding teachers' use of curriculum is complicated. After all, finding similarities between a given curriculum and a teacher's enactment of it is not intrinsically good, and finding differences between a given curriculum and teacher's enactment of it is not intrinsically bad: A teacher may carry out a curriculum as offered (i.e., with fidelity), but not reach the intended student outcomes; conversely, a teacher

may deviate from a curriculum, but incidentally (or even purposefully) reach the intended student outcomes (Brown, 2009). The question, then, becomes whether to consider teachers' integrity with respect to the curriculum as written or, alternatively, with respect to the spirit or vision of the curriculum. In addition, curriculum designers are placed in a position of "how much is too much?" in terms of the guidance they provide teachers: Do they attempt to develop "teacher-proof" curricula intended for teachers to follow with fidelity, or do they anticipate teacher variation, viewing such adaptations as inevitable and even valuable? To get closer to answering this question, researchers (and, by extension, curriculum designers) must better understand the "teacher-curriculum relationship" (Remillard, 2005, p. 235), i.e., the ways in which teachers are influenced by curricula, and the ways curricula influences teachers.

The foregoing issues and questions underpinned my capstone project and riddled me as I conducted my study and wrote my findings and recommendations. Therefore, although the purpose of my capstone project was to address the grant-specific problem of practice described above, the issues presented by my project were likewise couched in a broader problem of practice: first, that of the tension that existing between curriculum and teacher and, second, the consonant fidelity-variation (Brown, 2003) tension with which curriculum designers must grapple.

Relevant to the teacher-curriculum relationship, Brown (2003) stated that "[f]ew studies…have focused on ways that features and design strategies in curriculum materials influence instructional practice" (Brown, 2003, p. 1). Given this gap (or, at least, deficit) in the research, studies like this one are needed. Therefore, this capstone project gave me the opportunity to both address a problem of practice specific to Project Kaleidoscope, as

well as contribute to the body of research on the teacher-curriculum relationship. Because the lens through which I conducted my study was grounded in studies of curriculum rather than those of gifted education and vocabulary development, the conceptual framework guiding this study draws upon the research related to curriculum use. And, in the end, making curriculum-based recommendations is not only responsive to the broader, curriculum-related problem of practice, but also to the grant-specific problem of practice: By making recommendations for refining the curriculum, I am contributing toward Project Kaleidsocope's goal of supporting children's language and literacy development, a significant aspect its intervention.

Conceptual Framework

Curriculum is not so easily defined (Gehrke, Knapp, & Sirotnik, 1992). In fact, in their review of the literature, Gehrke, Knapp, and Sirotnik (1992) opined that curriculum is a "domain that resists definition" (p. 51). Often, curriculum is defined as the content—the "what"—that is to be taught (Gehrke et al., 1992, p. 52). In this rather narrow conception, curriculum is parsed from instruction, as though the two were separate entities. While parsing the two may be practical in certain narrower arenas, such a curriculum inquiry or instructional design (Gehrke et al., 1992, p. 52), in broader contexts, doing so suggests that instruction does not influence the content with which teachers and students engage. As Gehrke et al. noted, to truly understand a curriculum, one needs to appraise "such features as intended goals and objectives; breadth, depth, and organization of content and subject matter; instructional strategies; learning activities; use of human and material resources; use of time and space; grouping patterns; and assessment of learning" (p. 53).

Given the nature of this capstone project (it being a study of the curriculum *and* its enactment), a more inclusive definition of curriculum is necessary. Therefore, I define curriculum as a "plan for the experiences that learners will encounter, as well as the actual experiences they do encounter, that are designed to help them reach specified…objectives" (Remillard & Heck, 2014, p. 707). *Instruction*, which embodies instructional practices and strategies and the learning activities that support the delivery of and engagement in the curriculum, then, is an essential component of any given curriculum.

Curriculum often initially manifests in the form of *curriculum materials*, which are the "published resources designed for use by teachers and students during instruction" (Remillard, 2005, p. 212). Curriculum materials broadly include classroom texts and their supplementary materials, commercially-developed kits, workbooks, and state- and district-disseminated curriculum maps and pacing guides (Ball & Cohen, 1996; Bauml, 2013; Grossman & Thompson, 2008; Kauffman, Johnson, Kardos, Liu, & Peske, 2002). Curriculum materials are generally selected or designed at the state or local level (Stein, Carnine, & Long, 2001), reflect "historical, social, and cultural values" (Beyer & Davis, 2012, p. 388), and may form the basis for what ought to be taught in schools (Gehrke et al., 1992, p. 54). Curriculum materials, as well as other attendant resources in support of the "what ought to be taught" curriculum, are often referred to as the *formal curriculum* (Gehrke et al., 1992; Remillard, 2005); however, for this project, I refer to it as the *external curriculum*. In the case of the summer intersession, the external curriculum included both tangible curriculum materials and other intangible resources: Tangible curriculum materials included lesson plan books, Classroom Word Web supplies, pre-

printed Personal Word Webs (populating children's lab notebooks), handouts, and books. Intangible resources included the online professional development modules and the SI-focused training provided to the SI teachers.

Note, however, that I defined *curriculum* not just as the "what," but also what is ultimately *experienced*, thereby moving my definition of curriculum beyond that of the external curriculum. I made this choice because once the external curriculum is figuratively (or even literally) placed in the hands of teachers, those teachers become arbiters of the curriculum by interpreting and enacting it. In a process that I refer to as *curriculum development* (Ben-Peretz, 1990), teachers receive an external curriculum and determine their own intended objectives, instruction, and assessments for their students—which serves as their *planned curricula* (Remillard, 2005). Next, teachers execute the planned curricula in their classrooms, usually offloading, adapting, or improvising (Brown, 2003, 2009)—the resulting classroom curricula being the *enacted curricula* (Ball & Cohen, 1996; Borko & Livingston, 1989; Remillard, 2005). Therefore, teachers' enacted curricula serve as one aspect of a curriculum's overall development, i.e., a curriculum continues to take shape as it moves from external to planned to enacted curricula.

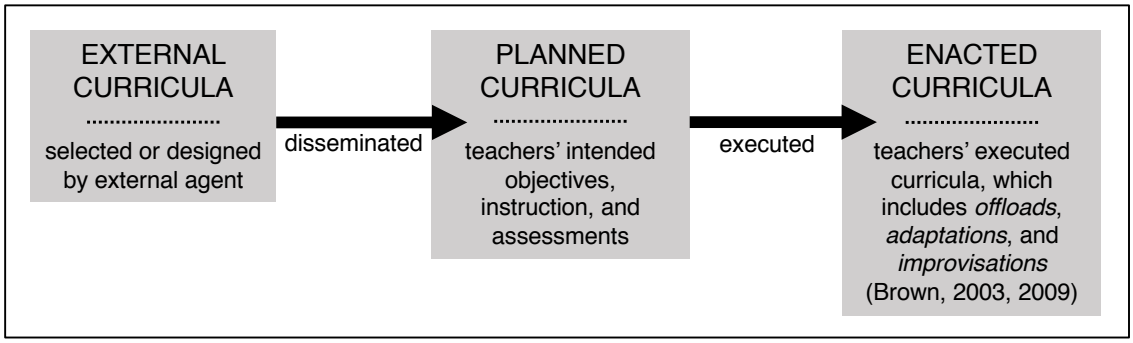


Figure 1.4. Stages of curriculum development.

Because external curricula have been viewed as influential "instruments for conveying educational policies" (Brown, 2003), as well as vehicles of educational reform (Drake & Sherin, 2006; Brown, 2009), many researchers have studied teachers' *curriculum use*, i.e., how "teachers interact with, draw on, refer to, and are influenced by [external curricula]" (Remillard, 2005, p. 212). Some such researchers are interested in the extent to which teachers' enactment of the curriculum is faithful to the external curriculum (Remillard, 2005); others do not believe that such fidelity is even possible and instead consider, for example, the ways in which teachers interpret curriculum materials or the interactions between curricula and teachers (e.g., Ben-Peretz, 1990; Ben-Peretz, 2009; Remillard, 2005).

Remillard (2005), who subscribes to the latter camp (i.e., that fidelity is not possible), offers a framework to guide researchers' examination of teachers' curriculum use. "The four principal constructs of [her] framework are (a) the teacher, (b) the curriculum, (c) the participatory relationship between them, and (d) the resulting planned and enacted curricula" (Remillard, 2005, p. 236). Remillard's framework is premised on the assumption that "teachers and curriculum materials are engaged in a dynamic interrelationship that involves participation of both the teacher and the text" (p. 221). Remillard's framework draws upon cognitive theories, such as Vygotsky's Activity Theory. *Activity Theory* is a framework for capturing "co-evolutionary process individuals encounter in their environment while learning to engage in shared activities" (Yamagata-Lynch, 2010, p. 15). This co-evolutionary process is mediated by the use of tools (relevant to Remillard's framework, curricula) that "both shape and are shaped by human interaction" (Remillard, 2005, p. 221). In other words, teachers engage in a

participatory and dynamic relationship with curricula wherein they *shape* curricula and are *shaped by* curricula. Remillard's framework is captured in Figure 1.5, below.

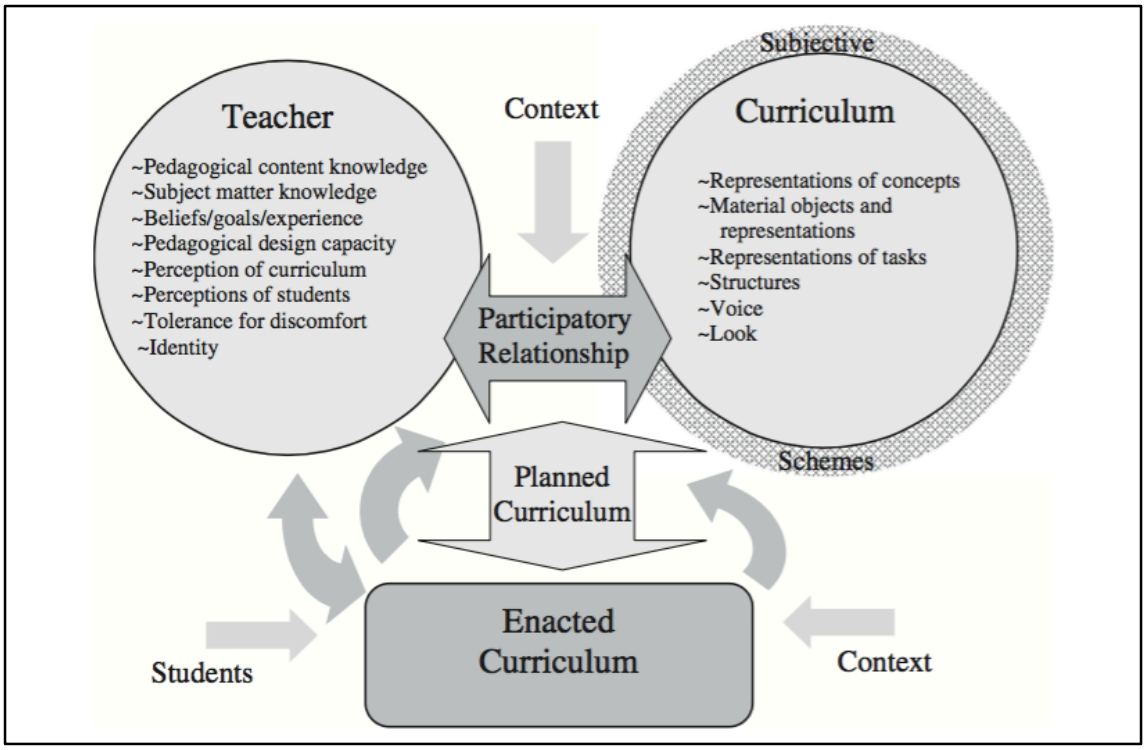


Figure 1.5. Framework of key concepts in the teacher-curriculum relationship. From "Examining Key Concepts in Research on Teachers' Use of Mathematics Curricula," by J. T. Remillard, 2005, *Review of Educational Research, 75,* p. 235.

For my capstone project, I drew heavily on Remillard's (2005) framework in developing my conceptual framework, which is depicted in Figure 1.6 (below). To better understand the SI teachers' enactment of the SI external curriculum (which, for ease of reference, I will refer to as the *SI curriculum*) and their role in its development, I examined teachers' participatory relationship with the SI curriculum, i.e., their activity in using the SI curriculum. My conceptual framework suggests the cyclical nature of curriculum development: A teacher, who is defined by and influenced by many personal characteristics, has a participatory relationship with the external curriculum, which is likewise defined by many characteristics. In this participatory relationship, the teacher

influences the external curriculum, and the external curriculum influences the teacher. What initially results from the participatory relationship is a planned curriculum—the one that the teacher intends to execute in his or her classroom. During his or her execution of the planned curriculum, the teacher engages with students and the classroom context and adapts the planned curriculum accordingly, resulting in the enacted curriculum. For example, while a teacher may attempt to prospectively determine the needs of students, he or she may also develop the curriculum during student learning, e.g., when "students raise questions during instruction" or even after a learning experience has occurred, e.g., upon reflecting on students' needs (Sherin & Drake, 2004, p. 4). In that way, the enacted curriculum then influences what a teacher might have planned for future lessons and may even change the teacher, him or herself. Constantly operating in the background of these activities is the context: the set of circumstances or conditions in which all decisions and events occur. Context serves to influence the actions taken by those who design, select, enact, and otherwise experience curricula; therefore, it foregrounds my entire framework.

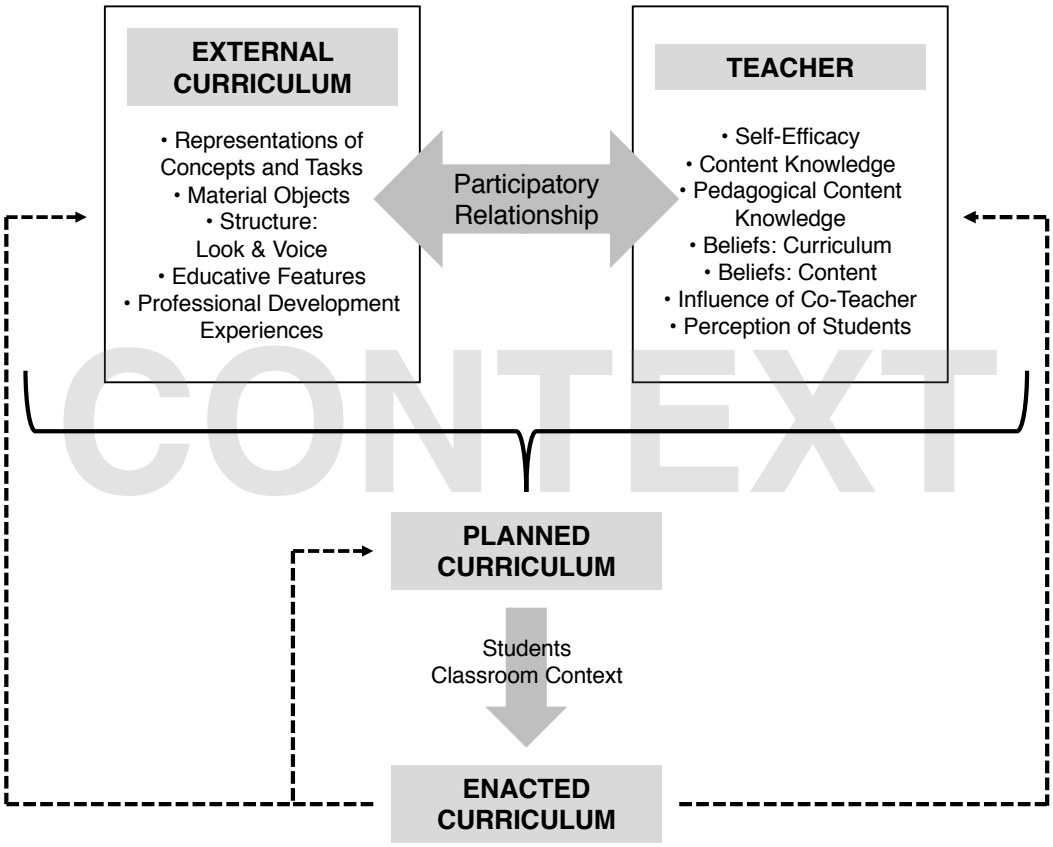


Figure 1.6. Framework for the examination of curriculum development. This framework served as the conceptual framework for my capstone project. Adapted from the framework presented in "Examining Key Concepts in Research on Teachers' Use of Mathematics Curricula," by J. T. Remillard, 2005, *Review of Educational Research, 75,* p. 235.

In this capstone project, my key data sources were the daily lesson plans and the observation field notes from the summer intersession, which allowed me to examine many characteristics of the tool (the SI curriculum) and the teacher, as well as the relationship between the two. Other components of my conceptual framework informed my data collection and analysis. For example, through the follow-up interview with the teachers, I sought to learn more about their perceptions of their relationship with the curriculum, as well as of the characteristics of the curriculum and their own characteristics that they perceived as influential in terms of their curriculum use.

As already noted, and as reflected in Figures 1.5 and 1.6, my framework was similar to Remillard's (2005) framework; however, I made certain changes to Remillard's framework based on my review of the literature and the unique aspects of the SI curriculum. I briefly highlight the notable distinctions of my conceptual framework here; however, I provide more detail regarding the research undergirding all of its components in my review of the literature (Chapter 2).

With respect to the curriculum component of the framework, for example, I added the sub-component of *educative features*. Educative features are elements embedded in curriculum materials that are designed to promote teacher learning (Schneider & Krajcik, 2002). Examples of educative features may include "'callout' boxes with teacher tips, graphics illustrating conceptual relationships among the ideas in a unit, guides to the use of readings, or suggestions for providing students feedback on their writing" (Davis, Palinscar, Smith, Arias, & Kademian, 2017, p. 294). I included educative features in my framework because the PK team embedded several such features in the SI curriculum, and research indicates that these features may influence teachers' enactment of curriculum (e.g., Grossman & Thompson (2008)).

I also added *professional development experiences* (PDEs) to the curriculum component because Project Kaleidoscope offered PDEs to the SI teachers in the form of online professional development modules and a two-day, in-person SI-focused training, i.e., the *SI training*. Because PDEs are a means of communicating a curriculum's vision and values, I included them in my definition of curriculum; however, research also indicates that PDEs influence teachers' enactment of curriculum (Garet, Porter, Desimone, Birman, & Yoon, 2001; Kennedy, 2016; Spillane & Thompson, 1997).

Furthermore, given the nature of my capstone project, in which I sought to make recommendations for refinement of the curriculum, including future PDEs (in particular, the SI training), it was important that I examined the PDEs, themselves, as well as teachers' perceptions (and the potential influence) of those PDEs.

With respect to the teacher component of my conceptual framework, the sub-components I included were largely consistent with those offered in Remillard's (2005) framework; however, I renamed and/or re-categorized them in a fashion consistent with the literature I reviewed. I did make one notable addition, however: *influence of co-teacher*. Because the SI teachers planned and enacted the SI curriculum in pairs (and the unit of analysis for this case study was a pair of SI teachers), and the influence of co-teachers has been documented in the research (Roth McDuffie & Mather, 1998; Smagorinsky, Lakly, & Johnson, 2002), I felt that *influence of co-teacher* was essential to conceptual framework.

Using this conceptual framework to guide both my data collection and analysis was consistent with Project Kaleidoscope's efforts and objectives in that it allowed me to examine the teachers' roles in the SI curriculum's development. While the PK team expected some level of fidelity with respect to the enactment of the SI curriculum, the expectation of fidelity was to the spirit of the curriculum as opposed to its each and every element. Moreover, during the training, the PK team encouraged the SI teachers to use their professional judgment as they enacted the curriculum. Accordingly, an expectation of true fidelity of implementation would have been contrary to the Project Kaleidoscope's vision for the enactment of the SI curriculum. In sum, this conceptual framework

provided me with the flexibility to consider a variety of factors and influences as I studied the teacher-curriculum relationship.

Definition of Terms

In this report on my capstone project, I have used and will continue to use the following terms, which bear defining:

General Terms (Alphabetically Presented)

Curriculum: a "plan for the experiences that learners will encounter, as well as the actual experiences they do encounter, that are designed to help them reach specified…objectives" (Remillard & Heck, 2014, p. 707)

Curriculum Development: a process in which the external curriculum becomes the enacted curriculum: teachers receive the external curriculum and then engage with it and enact it, which ultimately informs the curriculum as a whole

Curriculum Materials: "published resources designed for use by teachers and students during instruction" (Remillard, 2005, p. 212); for the Project Kaleidoscope summer intersession, curriculum materials included lesson plan books, Classroom Word Web supplies, pre-printed Personal Word Webs (populating children's lab notebooks), handouts, and books

Curriculum Use: broadly describes teachers' acts as they "interact with, draw on, refer to, and are influenced by the [curriculum materials] designed to guide instruction" (Remillard, 2005, p. 212)

Educative Features: elements embedded in curriculum materials that designed to promote teacher learning (Schneider & Krajcik, 2002); may include "'callout' boxes with teacher tips, graphics illustrating conceptual relationships among the ideas in a unit,

guides to the use of readings, or suggestions for providing students feedback on their writing" (Davis et al., 2017, p. 294)

External Curriculum: the predetermined curriculum, i.e., that which has been selected or designed by an external entity and represents the core vision for what learners should experience; relevant to this capstone project, the *summer intersession curriculum* (defined below) was the external curriculum

Professional Development Experiences: workshops, professional learning communities, study groups, and/or other activities (whether face-to-face, virtually, or combined) wherein teachers have the opportunity to learn about, experiment with, and/or reflect upon teaching; for the summer intersession teachers, professional development experiences included the online professional development modules that were disseminated to the faculty and administration at the Project Kaleidoscope study's participating sites, as well as the two-day, in-person training they attended that focused on the summer intersession

Summer Intersession-Specific Terms (Logically Presented)

Summer Intersession Curriculum: Project Kaleidoscope's external curriculum and, largely, the plan for the experiences the children would encounter in the during the summer intersession; however, this term refers not only to the tangible resources, i.e., curriculum materials (e.g., lesson plan books, Classroom Word Web supplies, pre-printed Personal Word Webs in children's lab notebooks, handouts, and books) that directly impacted those experiences, but also the intangible resources (e.g., professional development modules and the SI Training) that further supported Project Kaleidoscope's vision and served to influence teacher decision-making

Summer Intersession Training: a two-day, in-person training attended by summer intersession teachers that focused on the enactment of the summer intersession curriculum

Central Theme: the overarching subject anchoring the summer intersession, which was *Kaleidoscope*

Daily Topics: sub-themes of the Central Theme assigned to each day of the summer intersession; the Daily Topics were *Pattern* (Day 1); *Color* (Day 2); *Balance* (Day 3); *Light/Dark* (Day 4); *Shadow* (Day 5); *Reflection/Mirrors* (Day 6); *Illusion/Vision* (Day 7); and, culminated with the Central Theme, *Kaleidoscope* (Day 8)

Daily Terms: the planned vocabulary terms to be used during the summer intersession; Daily Terms were pre-printed on Word Cards (defined below) for use in constructing the Classroom Word Web (defined below)

Spontaneous Terms: unplanned but relevant vocabulary terms that may (and did) arise during the enactment of the summer intersession curriculum; could be (and were) teacher- or student- initiated

Word Web: the mental connections people develop between related words, helping them contextualize and learn new words to which they are introduced; for the summer intersession curriculum, teachers and children created physical versions of Word Webs in the form of a Classroom Word Web and Personal Word Webs (defined below)

Classroom Word Web: a physical Word Web to be constructed on a vertical surface using Word Cards (defined below)

Word Cards: either (1) pre-printed cardstock strips, each of which contained a single Daily Term, or (2) blank cardstock strips designed to capture Spontaneous Terms

Personal Word Webs: printed daily Word Webs that pre-populated children's individual lab notebooks

Chapter Summary

In this chapter, I discussed the underrepresentation of minority students in gifted education programs in the United States and how the Project Kaleidoscope team seeks to contribute to the research base related to (and, ideally, the amelioration of) this issue. Further, I situated my capstone project within the greater Project Kaleidoscope and discussed the project-specific problem of practice I sought to address, as well as the broader, curriculum-related problem of practice within which my project resides. Next, I shared the conceptual framework I used to guide my data collection and analysis. Finally, I provided the definitions of the paramount terms that have been and will be used in this report. In Chapter 2, I review the literature relevant to, and that provided the basis for, this capstone project.

CHAPTER 2: LITERATURE REVIEW

Some teachers taught the curriculum today. Other teachers taught the students today. And there's a big difference.

–Unknown

In Chapter 1, I situated my capstone project within the larger Project Kaleidoscope. Briefly, I completed this project in order to better understand the extent to which Project Kaleidoscope's summer intersession (SI) curriculum provided guidance to the SI teachers and the ways in which the SI teachers enacted that curriculum. Based on my findings, I wanted to make recommendations to the Project Kaleidoscope team regarding the design of the SI curriculum, and I share those recommendations in Chapter 5. In this chapter, though, I provide the research-based context for my capstone project by describing and evaluating the relevant research that came before it. More specifically, I first discuss the stances curriculum designers have taken toward curriculum development and the ways in which teachers have responded through their use of curriculum. Next, I discuss the approaches prior researchers have taken to their studies of teachers' curriculum use. Finally, I discuss the characteristics of both curricula and of teachers that may influence teachers' curriculum use.

Curriculum Materials and How Teachers Use Them

As discussed in Chapter 1, *curriculum* is a "domain that resists definition" (Gehrke, Knapp, & Sirotnik, 1992, p. 51). Curriculum is often defined as the content—the "what"—that is to be taught (Gehrke, Knapp, & Sirotnik, 1992, p. 52). In this

respect, an individual or group of individuals, guided by their context and values, determines what content is worthy of being taught and learned—and what content is not. For example, the content presented on the pages of a textbook is laden with values—determining "the view of the world presented" (Delpit, 1993, p. 293). This *hidden curriculum* (also sometimes called an *implicit curriculum*), at its most benign, may represent "unplanned learning" (Shawer, 2010, p. 17), and at its most egregious, may "foster conformity to national ideals and social conventions while maintaining socio-economic and cultural inequalities" (Cornbleth, 1984, p. 30). Closely related to the idea of a hidden curriculum (and, perhaps, equally problematic) is the *null curriculum*: the content that is *not* taught in schools (Britzman, 1989; Sadker & Zittleman, 2009), e.g., when certain "groups or events" are omitted from the curriculum (Sadker & Zittleman, 2009, p. 144).

Interestingly, then, teachers have a valuable role with respect to curriculum: They serve as arbiters of the content, making decisions about what content will or will not be taught and how it will be taught. Therefore, I suggest that curriculum is more than just content, itself. Instead, I define curriculum as the "plan for the experiences that learners will encounter, as well as the actual experiences they do encounter, that are designed to help them reach specified…objectives" (Remillard & Heck, 2014, p. 707). By so defining, I acknowledge the role that teachers play in the development of curricula.

Curriculum often initially manifests in the form of *curriculum materials*, which are the "published resources designed for use by teachers and students during instruction" (Remillard, 2005, p. 212). Curriculum materials broadly include classroom texts and their supplementary materials, commercially-developed kits, workbooks, and state- and

district-disseminated curriculum maps and pacing guides (Ball & Cohen, 1996; Bauml, 2013; Grossman & Thompson, 2008; Kauffman et al., 2002). Curriculum materials are generally selected or designed at the state or local level (Stein, Carnine, & Long, 2001), reflect "historical, social, and cultural values" (Beyer & Davis, 2012, p. 388), and may form the basis for what is taught in schools (Gehrke et al., 1992, p. 54).

Curriculum materials have been deemed "instruments for conveying educational policies" (Brown, 2003) and "lever[s]" for classroom change (Davis et al., 2017, p. 293). Moreover, they have been said to "exert…the most direct influence on the tasks that teachers actually do with their students" (Brown, 2002, p. 1) and to have the power to shape teachers' practices (Grossman & Thompson, 2008). Despite the influence and power curriculum materials hold, no consensus exists regarding the design of curriculum materials. Some designers take a fidelity stance, believing that curriculum materials should, essentially, serve as a script for teachers to follow (Brown, 2003). Designers who take this "technocratic" (Cornbleth, 1988, pp. 85-86) stance relegate the role of teacher to a transmitter of static information (Shawer, 2010), thereby limiting or discouraging teacher discretion (Brown, 2003). Moreover, the resulting means-end curriculum materials are decontextualized, generally designed with the goal of efficiency (Cornbleth, 1988). This top-down stance toward curriculum design was particularly prevalent during the late 1950s and early 1960s (Remillard, 2005) when national centers were producing curriculum to be used in schools across the country (Cornbleth, 1988).

Other curriculum designers recognize that teachers have "localized knowledge" regarding their particular students and contexts (Davis, Beyer, Forbes, & Stevens, 2011, p. 798). By honoring and capitalizing on this knowledge, these designers take a

"variation" (Brown, 2003, p. 2) stance, resulting in a process of *mutual adaptation* (Brown, 2003; Shawer, 2010). In this process, curriculum designers still define the content to be taught; however, teachers' roles "become active through adjusting curriculum to match [their] classroom context[s]" (Shawer, 2010, p. 174). Of course, such flexible curriculum materials can result in unintended consequences, too: Regarding bottom-up curricula, Cornbleth (1988) warned, "Although local actors might be expected to be more sensitive and responsive to immediate structural conditions and socio-cultural influences, their sensitivity and responsiveness are likely to remain limited, tacit, and unexamined" (pp. 88-89).

Arguably, regardless of the stance taken, all curriculum designers' fundamental goal is the same: to achieve outcomes consistent with their "core vision" (Brown, 2003, p. 2). However, because curriculum materials can only convey designers' visions "through succinct shorthand that relies heavily on teachers' interpretation[s]" (Brown, 2009, p. 21), designers can never fully articulate their visions through curriculum materials. Brown (2009) provided the following demonstrative analogy:

> To understand the complex relationship between curriculum materials and the practices they facilitate, consider an example from jazz. The song *Take the A Train*, written by Billy Strayhorn, was the signature tune of the Duke Ellington Orchestra, and was performed by countless others. If we compare Duke's rendition to one by Ella Fitzgerald, we have little difficulty identifying each rendition as being the same song. Yet, despite their essential similarities, the songs sound distinctly different. (The same can often be said for two renditions by the same artist.) We can examine some of the sources of this variation – ranging from obvious differences such as instruments used to less obvious ones such as cultural influences, contextual factors, and stylistic preferences. But it is also the case that, although performers use pre-rendered scores as foundations to support their practice, a great deal of the creative work takes place during the performance. (p. 17)

Making the analogy to curriculum materials more explicit, Brown (2009) further explained,

> This relationship is similar with curriculum materials and teacher practices. In both cases, practitioners bring to life the composer's initial concept through a process of interpretation and adaptation, with results that may vary significantly while bearing certain core similarities. Just as modern music has come to rely on sheet music as a representational medium for conveying musical concepts, forms, and practices, classroom instruction has come to rely on curriculum materials as tools to convey and reproduce curricular concepts, forms, and practices. Musicians interpret musical notations in order to bring the intended song to life; similarly, teachers interpret the various words and representations in curriculum materials to enact curriculum. In both cases, no two renditions of practice are exactly alike. (p. 17)

While Brown's (2009) analogy certainly suggests that no two teachers will interpret and enact curriculum in the same way, it does not go as far as suggesting that teachers are never faithful to curricula. Indeed, research has shown that teachers are faithful to curricula under certain circumstances and exercise discretion under others. Illustratively, in his study of three middle school teachers' use of a science curriculum, Brown (2003) investigated how they "appropriate[d] and mobilize[d]" the curriculum (p. 1). Brown discovered that these teachers took one of the three following actions depending on the circumstances: *offloading*, *adapting*, or *improvising*. Brown defined *offloads* as "instances where teachers rely significantly on the curriculum materials to support instruction" (p. 6). For example, Brown noticed that one teacher relied "verbatim" on the "instructions and sample work" provided in the curriculum materials (p. 3). Brown defined *adaptations* as "[deliberate or unintentional] instances where teachers adopt certain elements of the curriculum design, but also contribute their own design elements to the implementation" (p. 5). For example, Brown noticed that although the curriculum materials provided detailed steps for assembling lab models, one teacher

encouraged students to design their own versions of the models (p. 3). Finally, Brown defined *improvisations* as "instances where teachers pursue instructional paths of their own design" (p. 6). For example, Brown observed one teacher who capitalized on a spontaneous student debate regarding interpretation of a model, turning the debate into a multi-day lesson that was not set forth in the curriculum materials (p. 6).

Significantly, the foregoing examples of teachers' exercise of fidelity or discretion (or somewhere in between) do not necessarily reflect these teachers' strengths or deficiencies and do not singularly reflect their expertise or lack thereof. Likewise, they are not indicative of the quality of the curriculum materials. As Brown (2009) noted, for example, "offloading means using the materials in a literal fashion, but this may not result in outcomes intended by the designers" (p. 25). Stated differently, a teacher's verbatim compliance with the curriculum may be inappropriate given the students or the context and, ultimately, contra to the hoped-for outcomes. Moreover, to take Brown's jazz metaphor a step further, a composer may *want* performers to take some creative license, as long as the essence of the score remains intact. Stated differently, other versions of the same song do not necessarily upset the integrity of the score. Correspondingly, teachers may take a variety of approaches in their enactment of a curriculum—and, arguably, a designer who takes a variation stance would embrace these approaches as long as the curriculum's integrity remained intact, i.e., the designer's vision for the curriculum is carried out. In other words, teachers' adaptions do not, per se, undermine a designer's intent.

Accordingly, understanding the process by which teachers use curriculum materials holds exceptional promise for curriculum design: By studying how teachers

"transform the core ideas of the curriculum materials into practice" (Brown, 2009, p. 17), researchers "can help curriculum and professional development designers create materials that are useful to teachers and professional learning experiences that support them in using these materials to meet their goals" (Brown, 2009, p. 26). Therefore, for this capstone project, I followed in the footsteps of educational researchers before me and examined teachers' use of Project Kaleidoscope's summer intersession curriculum so that I could make recommendations for refining it to better support teachers' future use of it. Before conducting my study, however, I considered the approaches taken by prior researchers as they carried out their own studies. This process allowed me to determine which approach best aligned with my paradigm and the research questions I sought to answer.

Approaches to the Study of Curriculum Use

Just as the stances designers take to curriculum fall into fidelity and variation camps, so do the approaches researchers take to the study of teachers' curriculum use. In her review of the research on mathematics curricula, Remillard (2005) sought to illuminate the key concepts in the research on teachers' curriculum use. Remillard defined *curriculum use* as how "teachers interact with, draw on, refer to, and are influenced by the [curriculum materials] designed to guide instruction" (p. 212). She found that some researchers were interested in the extent to which teachers follow curricula, while other researchers felt that variation was inevitable and approached their research accordingly.

More specifically, Remillard (2005) determined that previous researchers had framed their studies of teachers' curriculum use employing one of four approaches: (1)

the extent to which teachers follow or subvert the text, (2) how teachers draw on the text, (3) how teachers interpret the text, and (4) how teachers participate in the text (pp. 216-222). By *text*, Remillard was referring to written curriculum materials. In the following sub-sections, I describe each of these approaches in more detail.

Fidelity: Following or Subverting the Text (Fidelity Approach)

Researchers who take the Fidelity Approach to their studies of teachers' curriculum use seek to determine the extent to which teachers' enacted curricula are faithful to the corresponding external curricula (Remillard, 2005). Remillard (2005) explained that researchers who take this largely positivist approach tend to believe that fidelity to an external curriculum is possible. Ultimately, these researchers seek to establish how "curriculum writers and others might achieve greater clarity and closer guidance for…teachers" (Remillard, 2005, p. 216).

Remillard (2005) cited several studies in which researchers took the Fidelity Approach (e.g., Freeman & Porter, 1989; Komoski, 1977; Stephens, 1983); however, O'Donnell's (2008) more recent review of the literature is particularly informative. O'Donnell reviewed "studies that…used quantitative research methods to determine the relationship between fidelity of implementation…and outcomes" (p. 35). Defining *fidelity of implementation* as "adherence or integrity" (p. 39), O'Donnell justified the importance of the topic of her review in light of the increased attention measurement of fidelity had been receiving in the subject "era of accountability" (p. 35). While O'Donnell admitted that a universal tool for measuring fidelity may not be possible, she concluded that rigorous studies of fidelity are needed to determine if an "intervention is sufficiently implemented" and to "explain the degree of variation in treatment

implementation and how it might affect or moderate outcomes" (p. 54). Given the continued accountability-driven climate in education, the Fidelity Approach to studies of curriculum use remains relevant in educational research.

A Fidelity-Variation Hybrid: Drawing on the Text (Drawing Approach)

Some researchers study the extent to which teachers draw upon curriculum materials to inform their instruction. Researchers who take the Drawing Approach "place emphasis on the agency of the teacher and view texts as one of the many resources that teachers use in constructing the enacted curriculum" (Remillard, 2005, pp. 217-218). For example, Smith (2000) "examined a dilemma a…teacher [faced] during the first year of her involvement in a mathematics education reform project" (p. 351). In Smith's study, an experienced teacher was forced to reconcile her established practices with the new ideas to which she was being introduced. The study centered on the sources of the teacher's new ideas and the influences that served to resolve the conflict between her established practices and those new ideas. Smith was not necessarily interested in the degree to which the teacher was faithful to the curriculum (although some researchers who take the Drawing Approach may be); rather, she reported ways in which the teacher drew upon it in her enactment. For example, when the curriculum was first introduced, students' prior experiences had not prepared them for the curriculum. Concerned about students feeling like failures, the teacher adapted the curriculum such as adding steps to problems or removing problems she felt were too difficult. Based on her findings, Smith concluded that teachers need to be supported as they navigate such curricular reforms. Although this conclusion may seem obvious, Smith's study is nonetheless representative

of one in which the researcher investigated teachers' curriculum use based upon the extent to which a teacher draws upon external curriculum materials.

Variation: Interpreting the Text (Interpreting Approach)

Researchers taking the Interpreting Approach view teachers as "interpreter[s] of the written curriculum" (Remillard, 2005, p. 219). Akin to reader-response literary theory, or an "aesthetic" stance (Lewis, 2000, p. 234), wherein the reader's reactions to the text are viewed as vital its meaning (Rosenblatt, 1938, 1994), researchers who employ the Interpreting Approach view the teachers as active meaning makers rather than passive consumers of curricula (Remillard, 2005). Ben-Peretz (2009), who has long studied teachers and curricula, believes that, as interpreters, teachers have the power to unlock a curriculum materials' "potential":

> I contend that [curriculum materials] are more complex and richer in potential that can be expressed in any list of preconceived goals and objectives. Teachers might use the curriculum potential embedded in the materials in ways which go beyond the explicit intentions of the developers, for different goals, adapting them to their own educational context, using the curriculum potential embedded in the materials. (p. 17)

Illustratively, in her case study of two elementary school teachers, Collopy (2003) investigated these teachers' interpretations of a mathematics curriculum. Collopy discovered that, despite receiving the same external curriculum, these teachers' curriculum use was strikingly different: One teacher demonstrated a change in her practices based on the curriculum, while the other did not. Collopy did not view the external curriculum as an objective resource with just one interpretation; rather, she attributed the teachers' divide in their curriculum use to differences in their own beliefs as they interpreted and enacted the curriculum. As Remillard (2005) indicates, "Research from this point of view investigates the nature of teachers' interpretations, the factors that

influence them, and the resulting classroom practices" (p. 220), which—quite clearly—was how Collopy approached her study.

Variation: Participating in the Text (Participatory Approach)

Drawing on activity and sociocultural theory, researchers who take the Participatory Approach to their research of teachers' curriculum use view curriculum materials as mediating tools (Remillard, 2005). In other words, these researchers focus "on the activity of using or participating with the curriculum…and on the dynamic relationship between the teacher and curriculum" (Remillard, 2005, p. 221). The tools, i.e., curriculum materials, not only *shape* the teachers' actions, but are likewise *shaped by* teachers' actions (Remillard, 2005).

In their study of English teachers' use of external curriculum materials, Grossman and Thompson (2008) took the Participatory Approach: "We believe that the curriculum materials that teachers encounter represent important tools for learning to teach" (p. 2016). Similar to researchers who take the Interpreting Approach, Grossman and Thompson approached their study with the assumption that "[t]eachers' use of these tools will vary, depending upon their own beliefs and values, their knowledge of the subject, and the contexts in which they teach…" (p. 2016). The Participatory Approach differs from the Interpreting Approach, however, in terms of the focus of the analysis: With the Interpreting Approach, researchers analyze the nature of the interpretations; with the Participatory Approach, researchers analyze the nature of the of the activity itself (Remillard, 2005).

Relevant to the Participatory Approach, Brown (2009) offered three points necessary to fully understanding the teacher-tool relationship: that "(a) curriculum

materials play an important role in [both] affording and constraining teachers' actions; (b) teachers notice and use [curriculum materials] differently given their experience, intentions, and abilities; and (c) [teachers' roles in curriculum development] is not so much a conscious choice as an inevitable reality" (p. 19).

Given this inevitable reality, taking an approach that measures compliance, i.e., fidelity, not only felt like a mismatch for my capstone project (after all, summer intersession teachers were encouraged to make adaptations that were in the spirit of the curriculum), but also did not align with my paradigm as a researcher (see Chapter 3). Therefore, I did not take the Fidelity Approach to this project. The remaining approaches all had promise for my project; however, because my research questions targeted examination of both the curriculum, itself, and teachers' enactment of it, the Participatory Approach seemed most fitting. By taking this approach, I was able "to study both the artifact under design [the curriculum] and the implementation process" (Remillard, 2005, p. 224).

Taking my research questions and this approach into account, the critical matters to be considered were the characteristics of the curriculum and of the teachers, themselves, that influenced the subject teachers' curriculum use—essentially, the tool and the teachers. As Remillard (2005) explained, "[o]ne way to characterize…a curriculum is by what it offers its users" (p. 232). But, as Brown (2009) noted, we must also consider the teachers: "Despite the many ways that curriculum artifacts can influence teacher practice, they represent only half of the story. Understanding how teachers' skills, knowledge, and beliefs influence their interpretation and use of curriculum materials critical to understanding the teacher-tool relationship" (p. 22). Therefore, in the last

section of this literature review, I discuss those characteristics of curricula and teachers that previous researchers have shown to influence teachers' curriculum use. I conclude with a brief discussion of the overarching aspect of context, which infiltrates—in a word—*everything*.

A Closer Look: Characteristics of Curricula and Teachers

Teachers' perceptions of both the curriculum and of themselves influence their curriculum use. In the sub-sections that follow, I discuss literature relevant to this point: First, I discuss three characteristics of curricula (structure, educative features, and professional development experiences). Second, I discuss seven characteristics of teachers (self-efficacy, content knowledge, pedagogical content knowledge, beliefs about the curriculum, beliefs about the content, teaching community, and perceptions of students). I should note that neither my coverage of the listed characteristics is exhaustive nor is the list of characteristics, itself: In terms of coverage, each of the listed characteristics could warrant its own literature review; in terms of the list of factors, it would be impossible to capture every factor that influences curriculum use—and, candidly, well beyond the scope of this literature review. What I offer here, though, is an overview of those factors I deemed salient and that directly informed my conceptual framework (and, consequently, my data collection and analysis).

Curriculum Characteristics

In this section of the literature review, I discuss characteristics of external curricula that may be especially influential on teachers' use of them. I should note that characteristics of curriculum have bearing on some of the teacher characteristics I discuss in the next sub-section. For example, a curriculum's characteristics could have

implications for teacher characteristics including their content knowledge, pedagogical content knowledge, and beliefs about the curriculum and its content.

Structure. Citing Love and Pimm (1996), Remillard (2005) discussed how the presence of external curriculum materials serves as a source of authority and, therefore, an influence on curriculum use. This presence is brought to life by curriculum materials' structures—characterized by their look and voice—that manifests on their printed pages (Remillard, 2005).

Look. The *look* of a curriculum materials refers to their "visual dimensions" (Remillard, 2005, p. 233). Where commercially-developed materials tend to have glossy, colorful pages replete with photographs, non-commercially-developed materials tend to be printed in black and white and contain fewer photographs (Remillard, 2005). Brown (2009), who considers external curriculum materials to be among the tools teachers and students mediate during instruction, noted that the design of materials can result in both "affordances and constraints"—stated differently, "possibilities and limitations" (p. 20). For example, he described how, on one hand, a simple diagram could provide elaborations about certain student errors and, in that way, signal possibilities for the ways materials could be used; on the other hand, a diagram might set certain parameters with respect to how an activity should be prepared (consider, for example, the arrangement of desks), thereby creating a potential limitation (Brown, 2009). In these ways, the look of curriculum materials can send both subtle and direct cues to teachers and students that serve to offer affordances and constraints.

Voice. *Voice* is the metaphorical relationship between authors and readers (Herbel-Eisenmann, 2007). Herbel-Eisenmann (2007) studied teachers' use of an

external mathematics curriculum designed to promote classroom discourse. Like many researchers before her, Herbel-Eisenmann was interested in the impact curriculum materials had on teachers and students; however, Herbel-Eisenmann was especially interested in the *voice* of the materials, which she explained had the power to "mediate" teachers' curriculum use (p. 349). Having focused on linguistic forms (i.e., use of imperatives, pronouns, and modalities) that could dictate the interpersonal function of the text, Herbel-Eisenmann determined that the voice of the subject curriculum materials was authoritative. She further found that the authoritative voice taken in the materials served to undermine the authors' intentions and, correspondingly, the teachers' curriculum use. In her discussion, the researcher made an especially fascinating observation about the mediation of voice, highlighting the difference in two hypothetical enactments of the same curriculum: one teacher who does a verbatim reading of the materials and another who exercises her own authority over the materials by changing the wording. Herbel-Eisenmann explained,

> This latter use of a textbook more prominently highlights the authority of the teacher to change the classroom practices. In some cases, these explicit changes highlight teachers' recognition of their students' needs, positioning the teacher as part of the classroom community. In other cases, these explicit changes may diminish the authority of the textbook. (p. 364)

Indeed, the tension Herbel-Eisenmann regarding the voice of curriculum materials is consistent with that which plagues curriculum materials, generally: what Brown (2003) refers to as the "fidelity-variation" tension.

Educative features. As will be discussed in the section on teachers' characteristics, teachers' content knowledge and pedagogical content knowledge (or lack thereof) influence their curriculum use. Consequently, Ball and Cohen (1996) asserted

that curriculum materials should be designed in a manner that makes them educational for teachers. Ball and Cohen indicated that, traditionally, curriculum designers privileged student learning when creating curriculum materials. However, more recently, there has been a move toward also considering teachers' needs when designing such materials (Davis & Krajcik, 2005). Davis and Krajcik (2005), who refer to these more teacher-centered resources as *educative curriculum materials*, believe that they have the advantage of supporting both teacher and student learning. For materials to be educative, they must include *educative features*, i.e., those characteristics embedded in curriculum resources that are designed to promote teacher learning (Schneider & Krajcik, 2002). Examples of educative features include "'callout' boxes with teacher tips, graphics illustrating conceptual relationships among the ideas in a unit, guides to the use of readings, or suggestions for providing students feedback on their writing" (Davis et al., 2017, p. 294). In their discussion of the design of educative features, Schneider and Krajcik (2002) suggested the following guidelines:

> (a) addressing each area of knowledge necessary for exemplary practices — content knowledge, pedagogical knowledge, and pedagogical content knowledge [defined in the section regarding teacher characteristics, below], (b) situating teacher learning by meshing the content of the support to lessons for students, (c) linking different knowledge areas within lessons, (d) making knowledge accessible to teachers by included short scenarios in the language of teachers or students involved in the lesson to illustrate or model the intended practice when possible, and (e) addressing immediate needs for understanding as teachers plan lessons that will be enacted within a short time. (p. 224)

With the potential educative value of curriculum materials in mind, Grossman and Thompson (2008) explored how three novice secondary English teachers used and learned from curriculum materials. They found that the materials helped these new teachers better understand the content and/or concepts they were teaching, though the

extent to which the teachers learned from the materials was dependent upon the nature and content of them (Grossman & Thompson, 2008). Regardless, these findings underscore the potential value—and certainly the influence—that educative features may have on teachers' curriculum use.

Professional development experiences. As previously discussed, embedding educative features in curriculum materials provides an avenue for teachers to develop their content knowledge, pedagogical knowledge, and pedagogical content knowledge (Schneider & Krajcik, 2002). Another way to foster this development is to provide teachers with *professional development experiences* (PDEs) (Remillard, 1991), which are defined as workshops, professional learning communities, study groups, and/or other activities (whether face-to-face, virtually, or combined) wherein teachers have the opportunity to learn about, experiment with, and/or reflect upon teaching (Desimone, 2009; Garet et al., 2001; Learning Forward, 2015; Penuel, Fishman, Yamaguchi, & Gallagher, 2007; Remillard, 1991).

Research has established that PDEs may influence teacher knowledge and practice (Garet et al., 2001; Kennedy, 2016). Incidentally, it is also believed that PDEs support implementation (Spillane & Thompson, 1997)—and, therefore, relevant to this literature review, teachers' implementation of curriculum, i.e., curriculum use.

The degree to which PDEs are effective (and, consequently, influence teachers' curriculum use) depends on the characteristics of those PDEs (Desimone, 2009). Recent research has explored the link between such characteristics and teachers' practices (Penuel et al., 2007). Here, I briefly discuss those traits that have been associated with effective PDEs.

On-going. A common criticism of PDEs is that they are isolated and provide few opportunities for follow-up (Penuel et al., 2007). Research, though, indicates that PDEs should be on-going and endure over time (Calvert, 2016; Desimone, 2009; Garet et al., 2001; Learning Forward, 2015) rather than "[e]pisodic, periodic, or occasional" (Learning Forward, 2015). While there is no precise "tipping point" in terms of duration, PDEs should span both "the time over which the activity is spread…and the number of hours spent in the activity" (Desimone, 2009, p. 184).

Embedded. PDEs that are "embedded into educators' workdays increase the opportunity for all educators to receive individual, team, or school-based support within the work setting to promote continuous improvement" (Learning Forward, 2015). Embedded PDEs also increase peer collaboration and promotes transfer of learning (Learning Forward, 2015).

Aligned. PDEs should be aligned to state, district, and school goals, reforms, and policies (Desimone, 2009; Garet et al., 2001; Learning Forward, 2015)—and, relevant here, to the project's objectives. Such coherence "can facilitate teachers' efforts to improve teaching practice, [and a lack of coherence] may create tensions that impede teacher efforts to develop their teaching in a consistent direction" (Garet et al., 2001, p. 927).

Collaborative. Collaborative PDEs foster a "culture of continuous improvement" (Learning Forward, 2015) and support change in teaching practice (Desimone, 2009). Collaborative PDEs are those in which teachers work together. Collaboration supports implementation because "reforms have more authority when they are embraced by peers"

(Penuel et al., 2007, p. 929). Furthermore, when teachers work together, they can support one another, share ideas, and build a community of trust (Penuel et al., 2007).

Applied and feedback-oriented. PDEs should not only offer opportunities for teachers to apply what they are learning, but should also provide opportunities for teachers to receive constructive feedback on those applications (Learning Forward, 2015). By so providing, such a PDEs move teachers "beyond comprehension of surface features…to developing a more complete understanding" (Learning Forward, 2015). Furthermore, provision and use of feedback in PDEs increases the likelihood that learning will become "fully integrated into routine behaviors" (Learning Forward, 2015).

To conclude this this discussion of PDEs, Kennedy (2016) astutely noted that the adoption of a new ideas by teachers also often requires them to abandon old ones. Therefore, and to foreshadow to my discussion of teacher characteristics that influence their curriculum use, teachers' willingness to abandon previous ideas heavily depends on their self-efficacy, content knowledge, pedagogical content knowledge, beliefs about the curriculum and the content, and their perceptions of their students.

Teacher Characteristics

It is widely acknowledged that each student who enters a classroom is unique and complex (Beyer & Davis, 2012; Sherin & Drake, 2004). Teachers are no different, each one bringing his or her own beliefs, background, and experiences to the profession (Beyer & Davis, 2012; Brown, 2008; Remillard, 2005; Remillard, 1999). Here, I discuss the characteristics of teachers that may influence their curriculum use. Rather than providing an exhaustive survey of the research for each characteristic, I instead highlight one or two studies illustrating how each characteristic may be influential. I should

further note that these characteristics are not necessarily discrete; they may overlap with and/or influence one another, as well.

Self-efficacy. *Self-efficacy* has been defined as a person's perception of whether he or she has the capacity for achievement of some goal or end (Bandura, 1997). Further, self-efficacy is "a future-oriented belief about the level of competence a person expects he or she will display in a given situation" (Tschannen-Moran & McMaster, 2009, p. 229). According to Tschannen-Moran and McMaster (2009), "[w]ithout self-efficacy, people do not expend effort in endeavors because they perceive their efforts will be futile" (p. 228). Research has shown that teachers' senses of self-efficacy influence their interactions with new curricula (Shawer, 2017). These findings are not surprising given that teachers' senses of self-efficacy impact their "self-management, strategy use, activity selection, effort, achievement standards, and perseverance" (Shawer, 2017, p. 300).

Guskey (1988) conducted a study of 120 elementary and secondary school teachers to explore their perceptions of and attitudes toward the "implementation of new instructional practices" (p. 3). Among the instruments used was a questionnaire, which included questions regarding teachers' senses of self-efficacy (Guskey, 1988). The results of the study indicated that teachers with high self-efficacy not only were effective in their classrooms, but were also "the most receptive to the implementation of new instructional practices" (Guskey, 1988, pp. 10-11). New instructional practices are not unlike new curricula (and may be one and the same)—both representing an educational innovation to be implemented. Therefore, Guskey's research supports the notion that teachers' self-efficacy may influence their curriculum use.

Content knowledge. Content knowledge is defined as "knowledge of the facts and concepts in the domain" (Brown, 2009, p. 27). Teachers' content knowledge may influence their curriculum use. Teachers with strong content knowledge may be apt to participate in the process of curriculum development (Shawer, 2017)—and, for teachers who lack content knowledge, the converse may be true. For example, Ball and Feiman-Nemser (1988) found that, despite their initial reluctance to use text books and teachers' guides (i.e., the external curriculum), student teachers nonetheless succumbed to doing so. The researchers attributed these soon-to-be teachers' decisions to their lack of knowledge to develop their own curriculum (Ball & Feiman-Nemser, 1988). Although that study is somewhat dated, more recently, Grossman and Thompson (2008) discovered a similar pattern: In their study of beginning English teachers, some of whom were initially reluctant to use the external curriculum resources, these researchers found that the novice teachers in their study ultimately did rely on the resources, due in part to their lack of content knowledge. Ball and Feiman-Nemser's and Grossman and Thompson's research, then, points to how teachers' content knowledge (or lack thereof) may influence their curriculum use.

Pedagogical content knowledge. To be effective, teachers cannot merely have content knowledge; they must know how to convey that content knowledge to unfamiliar audiences, i.e., their students. The intersection of content knowledge and pedagogy is what Shulman (1996) coined *pedagogical content knowledge* (PCK). PCK "includes the aims and purposes of teaching the subject matter, knowledge of how learners relate to the subject matter, knowledge of available resources and representations for teaching the subject matter, and knowledge of the instructional strategies and methods for teaching the

particular subject matter" (Brown, 2009, p. 27). As this quote reveals, teachers' PCK embodies (and, therefore, may influence) their use of curriculum resources. In the same way that the extent of teachers' of content knowledge may influence their curriculum use (see previous section), so can their PCK.

Grossman and Thompson (2008) found that, for new teachers especially, "curriculum materials might play a pivotal role in helping them develop their practice" (p. 2014). Consistent with this finding, in their study of 50 first- and second-year teachers, Kauffman, Johnson, Kardos, Liu, and Peske (2002) found that these novice teachers "appreciated what curricular guidance they had or wished they had more" (p. 285). These two studies highlight how novice teachers, who are developing their PCK, depend on (and, therefore, are influenced by) curriculum materials. Consequently, these studies likewise demonstrate the influence teachers' PCK has on curriculum use.

Beliefs about the curriculum. Teachers' beliefs about the external curriculum is another factor that may influence curriculum use (Remillard, 2005, p. 228). If, for example, teachers believe that a external curriculum is authoritative (Remillard, 1991) or restrictive (Smagorinsky et al., 2002), those beliefs will almost certainly color their curriculum use.

Illustratively, Smagorinsky, Lakly, and Johnson (2002) found that an English teacher grappled with reconciling the differences among her personal English and language arts education experiences, her teacher education experiences, and the scripted curriculum she was provided when she started teaching. Despite feeling "handcuffed" by the external curriculum, she initially attempted to implement it (Smagorinsky et al., 2002, p. 196). Ultimately, however, she moved from acquiescence to resistance when she

realized that many of her colleagues were "giving lip service" to the curriculum and going about their "business as usual" behind closed doors (Smagorinsky, et al., 2002, pp. 196, 207). While this teacher initially—and almost instinctively—believed that the external curriculum was restrictive, she only felt empowered to act upon her beliefs when she learned that other teachers felt the same way that she did. These findings illustrate how both independent and collective beliefs about the external curriculum may influence teachers' use of it.

Beliefs about the content. Teachers' beliefs about the content, itself, also may influence their curriculum use (Remillard, 2005). Citing Ball's (1988) unpublished doctoral dissertation, Remillard (1991) stated that "[w]hat teachers…believe about the content they are teaching and how it is taught and learned are powerful determinants in what is taught of and about the content" (p. 1). Remillard (1991) described the multiple ways teachers' beliefs about a content area can be shaped: as learners, themselves, of the subject; by "popular conceptions" of the subject; and by reforms and "outside pressures" (pp. 1-3). With this background foregrounding her research, Remillard (1991) studied the relationship between one teacher and an alternative mathematics curriculum. Through observations and pre- and post-observation interviews, Remillard (1991) found that this teacher's "deeply rooted" beliefs about the content, indeed, influenced her curriculum use (p. 26), confirming the findings of the research that came before her own.

Teaching community. Teachers' curriculum use may also be influenced by "the social and collaborative context[s]" within which they engage with those materials (Lloyd, 2008, p. 10). Though somewhat metaphorical, in her case study "Collective Sensemaking about Reading: How Teachers Mediate Reading Policy in Their

Professional Communities," Coburn (2001) examined how teachers at one California middle school negotiated a reading reform. Coburn discovered that they collectively made sense of the reform; in other words, their professional communities were highly influential on their implementation of the reform. Similarly, and directly related to external curriculum materials, in their study (earlier discussed), Smagorinsky et al. (2002) described how an English teacher decided to resist the external curriculum (arguably, a type of reform) upon learning that other teachers were doing the same.

At a more micro level, Roth McDuffie and Mather (2008) followed two teachers as they engaged in a professional development team (PDT) to make sense of their curriculum. The researchers' findings revealed that the teachers were able to refine their "curricular visions" by sharing ideas and experiences as a PDT (p. 317). Taken together, Coburn's (2001), Smagorinsky et al.'s (2002), and Roth McDuffie and Mather's research suggest that teachers' decisions (relevant, here, to their use of curriculum use) may be influenced by those with whom they surround themselves (or are surrounded).

Perception of students. Research indicates that teachers' perceptions of their students may influence their curriculum use (Brown, 2009; Remillard, 2005; Sherin & Drake, 2004). Spillane (1999) posited that students may serve as "powerful incentives" for teachers to maintain the status quo or participate in instructional change (p. 144). For example, it is well-accepted that "[s]tudents have a unique set of ideas, experiences, and resources" (Beyer & Davis, 2012, p. 388). Therefore, teachers may develop curriculum to "meet learner differences" (Shawer, 2017, p. 301). In addition to prospectively considering the needs of students, teachers may also develop curriculum during student learning, e.g., when "students raise questions during instruction," or even after a learning

experience has occurred, e.g., upon reflecting on students' needs (Sherin & Drake, 2004, p. 4).

In their study of ten elementary school teachers' curriculum strategies, Sherin and Drake (2004) sought to identify patterns of the teachers' curriculum use. The researchers found that nearly every teacher in their study evaluated and adapted the curriculum at some point in (e.g., before, during, or after) the instructional process. Interestingly, eight of those ten teachers made changes to the external curriculum based on their students. For example, during her planning, one teacher was most concerned with what she was supposed to teach; however, during the enactment of her lesson, she made changes to insure her students' understanding. Another took a different approach: During her planning, she evaluated the curriculum based on anticipated student needs, and then—during instruction—her focus shifted to her ability to explain the material to her students. Still another teacher evaluated the curriculum on the basis of her students' needs, but she did so after instruction. Regardless of when these teachers evaluated the external curriculum, they all did so based on their perceptions of their students—exemplifying that such perceptions may influence teachers' curriculum use.

Context

Artist Kenneth Noland said, "For me context is key—from that comes the understanding of everything." Context is the collective set of circumstances or conditions in which things occur and has implications for each of the afore-described characteristics. For example, a curriculum designer creating materials to be used nationally will make choices that different from those made by a curriculum designer creating a worksheet for her fourth-grade class. Likewise, a teacher in a large, top-down

school district may respond differently to a suggestion offered by a faceless (and even nameless) individual at her central office from a teacher at in a small school district who receives a suggestion from the coordinator of curriculum and instruction with whom she is on a first-name basis. As shown, context serves to influence the actions taken by those who design, select, enact, and otherwise experience curricula. Therefore, each of the afore-described characteristics, whether they are characteristics of curricula or characteristics of teachers, cannot be examined as though they exist in a vacuum; rather they are influenced by the context in which they are borne, realized, or occur.

Chapter Summary

In the preceding literature review, I described the stances taken toward the design of curriculum, the ways in which teachers enact curriculum, the approaches researchers have taken to their studies of teachers' curriculum use, and the characteristics of curricula and teachers that may influence teachers' curriculum use. Via this review of the literature, I justified the Participatory Approach that I took to my study: By taking this approach, I was able to examine both the summer intersession curriculum, itself, and the ways in which teachers enacted that curriculum. Therefore, the literature I presented underpinned the proposed capstone project, particularly the conceptual framework (see Chapter 1) that guided by data collection and analysis. In the next chapter, I describe the methods I used to conduct this study.

CHAPTER 3: METHODS

If we knew what we were doing, it would not be called research, would it?

–Albert Einstein

As more thoroughly discussed in Chapter 1, for my capstone project I was interested in examining the guidance provided by a summer intersession curriculum and teachers' enactment of that curriculum. By so examining, I sought to answer the following research questions:

To what extent did the summer intersession curriculum provide guidance to teachers in supporting children's vocabulary development?

In what ways did teachers enact the curriculum in support of children's vocabulary development?

In Chapter 1, I provided the background of, the problem of practice regarding, and the conceptual framework guiding my capstone project. In Chapter 2, I provided a review of the literature undergirding the project. In this chapter, I discuss the research design I employed, including the corresponding setting and participants, data sources, and data analysis.

Research Design

My conceptual framework (see Chapter 1), through which I opine that teachers' fidelity to an external curriculum is not possible, is indicative of my paradigm as a researcher: Because I believe "that human agency is crucial for shaping everyday lives and larger social patterns" (Rossman & Rallis, 2012, p. 39), I hold an interpretivist

paradigm both generally and as I approached my capstone project. I concurrently hold a constructivist worldview, in which I privilege the subjective experience, supporting the notion that "meanings are varied and multiple…and negotiated socially and historically" (Creswell, 2014, p. 8). Therefore, and consistent with my conceptual framework, my role as a researcher in this capstone project was to interpret the participants' meaning of the world (Creswell, 2014; Rossman & Rallis, 2012).

For my capstone project, I examined a process (that of curriculum design and enactment), ultimately identifying patterns related to that process. Therefore, I chose to conduct a qualitative descriptive case study. The unit of analysis for my case study was one pair of teachers at one of the five elementary schools that is part of the greater Project Kaleidoscope's research site; however, I also heavily employed document analysis. I describe the setting, participants, data sources, and my data analysis in the remainder of this chapter.

Setting and Participants

As indicated in Chapter 1, Project Kaleidoscope has been conducting its research in Fairland County Schools (FCS)[3]. FCS is located in Fairland County[4], a mostly rural county located in the mid-Atlantic region of the United States. Fairland County is approximately 650 square miles with 100.1 persons per square mile. Although Fairland County is rural, it is located about 40 miles from a large metropolitan area. The median income in Fairland County is approximately $88,000 with 5.6% of the population of the population living below the poverty line.

[3] Pseudonym
[4] Pseudonym

FCS has just over 11,000 students, each of whom attend one of its eleven elementary schools, five middle schools, three high schools, or one alternative school. In terms of demographics, 0.24% of students identify as American Indian/Alaska Native, 1.8% Asian, 9.6% Black/African American, 14.3% identify as Hispanic (of any race), 0.17% Native Hawaiian/Pacific Islander, 75.7% identify as White, and 4.6% multi-racial. Over 900 students (8.1%) are English learners, and over 2,600 students (23.6%) are economically disadvantaged.

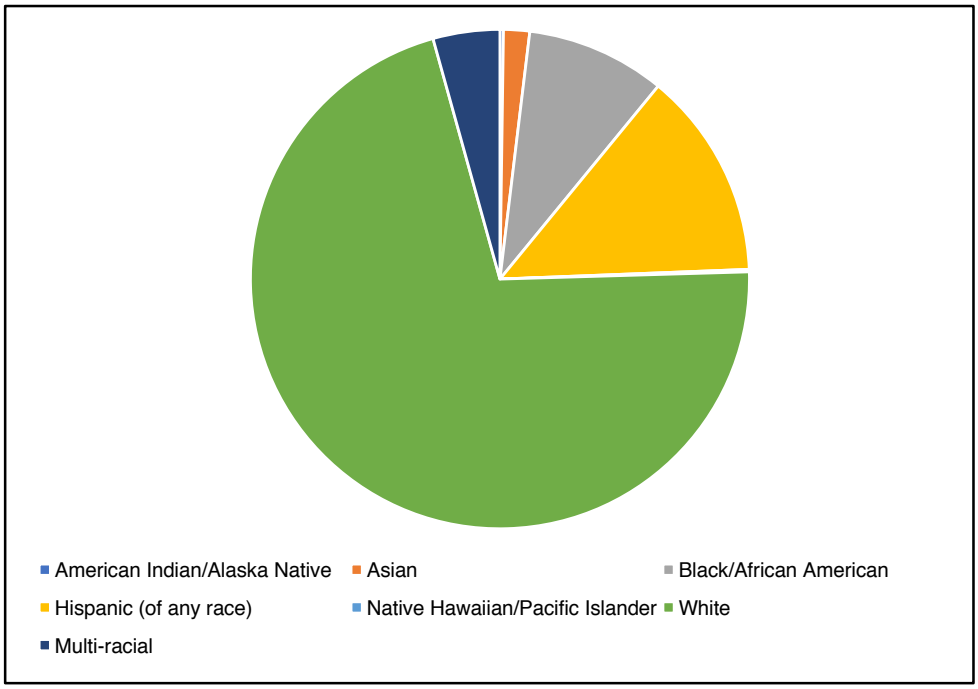


Figure 3.1. Division-wide demographic data: ethnicity.

Because the Project Kaleidoscope researchers' interests lie in investigating the outcomes of an early-childhood intervention, their research is being conducted at five of FCS's elementary schools, i.e., the Participating Sites (with the remaining six elementary schools serving as controls). The demographic make-up of the Participating Sites, in terms of ethnicity, is slightly more diverse than the county as a whole: At the Participating Sites, collectively, 0.23% of students identify as American Indian/Alaska

Native, 1.2% Asian, 9.6% Black/African American, 18.5% identify as Hispanic (of any race), 0.10% Native Hawaiian/Pacific Islander, 64.4% identify as White, and 6.2% multi-racial.

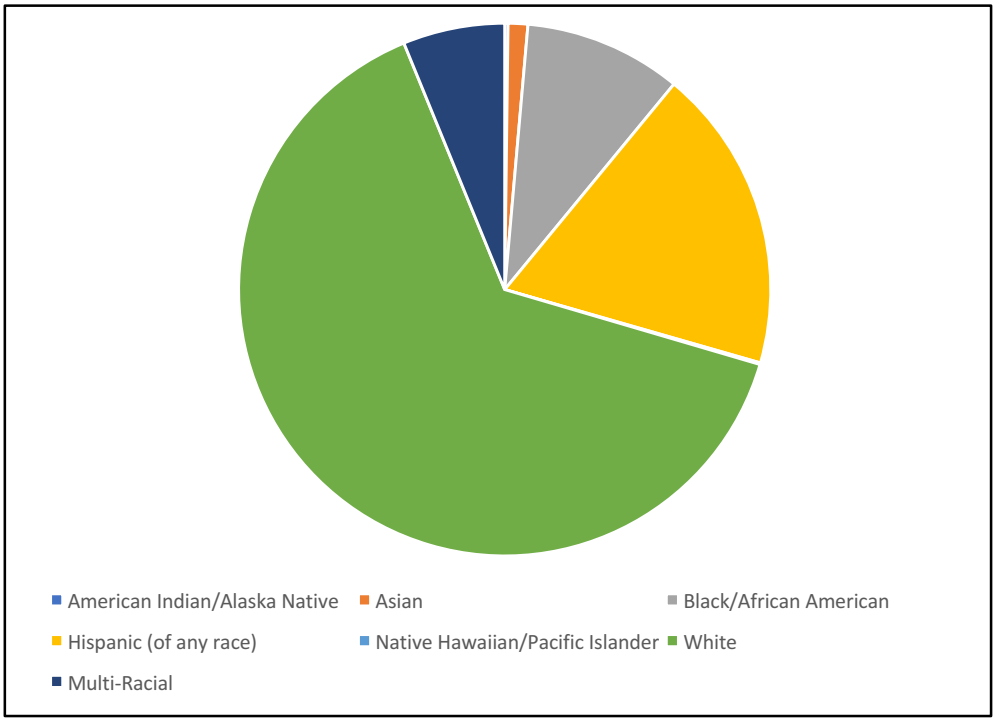


Figure 3.2. Participating sites' collective demographic data: ethnicity.

The two-week summer intersession (SI), more thoroughly described in Chapter 1, was held at each of the five Participating Sites in July 2017. The Project Kaleidoscope (PK) team recruited two teachers or other faculty members from each of the Participating Sites to team-teach the SI curriculum. My capstone project focused on one pair of those SI teachers: Stephanie "Steph" Keegan and Allison "Ally" Lindsey[5], both of whom were faculty at one of the Participating Sites, Williamson Elementary School (WES)[6]. Steph Keegan had been a classroom teacher for 17 years, having taught first, second, third, and fourth grades. She had also previously served as a reading and math specialist for one

[5] Pseudonyms
[6] Pseudonym

year. Presently, Ms. Keegan serves as WES's instructional technology resource teacher (ITRT). As the ITRT, a position she had held for three years, Ms. Keegan develops lessons for and coaches teachers. Prior to the SI, Ally Lindsey had eleven years of teaching experience, most of which had been in third grade; however, she is presently a second-grade teacher at WES.

I chose these teachers (and—to some extent—this site) for several reasons. First, because I knew I would be relying on archival data (hereinafter described), I wanted to have some familiarity with the data that had already been collected. Having reviewed the observation field notes taken at the WES SI prior to proposing my capstone project (and for purposes outside of the proposal), I found them to be both easy-to-read and exceptionally thorough. These notes descriptively captured the environment, activities, interactions (Rossman & Rallis, 2012), which allowed me to detect patterns of teachers' curriculum enactment. In addition, the "material culture" (Rossman & Rallis, 2012, p. 196) at WES was well-documented by the PK team members: For example, they took many photographs of the Classroom Word Web, children's Personal Word Webs, and children's other writing, projects, and creations.

Second, as Patton (2002) notes, when sampling, researchers should consider "what cases they could learn the most from" (p. 233). Sampling an "illuminative" case can be particularly beneficial in program evaluation because doing so allows the researcher to intensely study a case and identify the outcomes relevant to improving the program (Patton, 2002, p. 232). Having reviewed the WES SI observation field notes, I had developed a preliminary sense of these teachers' roles in the curriculum development. Significantly, these teachers *did* take steps to enact the of the SI

curriculum, in particular the vocabulary development component (Vocabulary Component), which was of particular interest to me. Therefore, I knew I would have instances of enactment to examine, and my preference was to examine the existence of (rather than the absence of) such enactment. In a sense, I aimed to study a case (the two WES teachers, collectively) that was "successful…and therefore a good source of lessons learned" (Patton, 2002, p. 7). Also, the WES teachers could be considered a *critical case*, i.e., one that "makes the point quite dramatically" (Patton, 2002, p. 236). Again, because Ms. Keegan and Ms. Lindsey did enact the Vocabulary Component of the curriculum, I knew that by using them as a case, I would be able to address both the grant-specific problem of practice and even contribute to the research of the broader, curriculum-related problem of practice.

Last, but certainly not least, in my interactions with both Ms. Keegan and Ms. Lindsey, they had proven to be willing, and even eager, to participate in all aspects of Project Kaleidoscope. In that way, I admittedly selected them due to convenience: I anticipated that they would continue to be willing participants. That said, my selection of the WES teachers was neither fast nor cost-based, so I would not consider them to be a true convenience sample. Therefore, my sampling strategy did not serve as a limitation to my project, at least not on this basis.

Data Sources

For my capstone project, I relied upon several sources of data, both archival and newly-collected. These sources included lesson plans, observation field notes, photographs, interview transcripts, and artifacts from the professional development experiences. I describe these sources in the paragraphs that follow.

Lesson Plans (Archival)

The lesson plans designed by the PK team served as a rich source of data for the proposed study. More specifically, a detailed lesson plan was created for each day of the SI. Each lesson plan contained similar segments: morning and afternoon meetings (*Meetings of the Mi*nds), a read aloud (*Books & Bookworms*), a whole-group activity (*Activity Central*), small-group centers (*Exploration Stations*), and a designated snack time (*Munchies & More*). Moreover, each lesson plan included background information, a daily schedule, and other detailed information (e.g., directions, scripting, supplies, and photographs) regarding each of the segments. The daily lesson plans were merged into a single document (of over 150 pages) and printed and bound for each of the SI teachers. As a member of the PK team, I had access to the digital lesson plans, which were archived in UVA Box, a cloud-based storage system to which only invited users have access. These lesson plans served as the primary source of data for my findings in response to my first research question. I provide the daily lesson plan template, which illustrates the segments described above, in Appendix A.

Observation Field Notes (Archival)

A researcher from the PK team was present to observe and take field notes at each site and on each day of the SI. Therefore, at least one researcher was present for all eight days of the SI, each of which lasted a minimum of three hours, for a total of over twenty-four hours. At WES, two different PK team members served as field researchers on alternate (but not alternating) days over the course of the two weeks. While the researchers generally assumed the role of onlooker/spectator observers (Patton, 2002, p. 277), they occasionally participated in the enactment of the curriculum. During their

observations, the researchers took detailed field notes attempting to capture a "holistic view" (Patton, 2002, p. 277) of the SI, e.g., teachers' and children's verbal and nonverbal actions, as well as notes about the environment and curriculum materials and resources present and being used. The researchers' observation field notes were archived in a dedicated and protected file in UVA Box to which I had access. The observation field notes served as the primary source of data for my findings in response to my second research question. Notably, the researchers were guided by an observation protocol, which I provide in Appendix B.

Photographs (Archival)

As already indicated, a researcher from the PK team was present to observe at WES on each day of the SI. While conducting observations at WES, each researcher took photographs of the daily phases of construction of the Classroom Word Web, each child's lab notebook (including their Personal Word Webs), and children's various work samples. Because I was particularly interested in teachers' enactment relevant to the construction of the Classroom Word Web, I reviewed all related photographs during my data analysis; however, I also reviewed other photographs when points of interest relevant to my project were raised for me during my analysis of other data sources. I discuss my strategy for reviewing the photographs in more detail in the *Data Analysis* section, below. Like the observation field notes, all photographs were archived in a dedicated and protected file in UVA Box to which I had access. My analysis of photographs significantly contributed to my findings regarding teachers' curriculum enactment, especially with respect to the construction of the Classroom Word Web.

Initial Interview Transcript (Archival)

Upon conclusion of the SI, a member of the PK team conducted a face-to-face interview of both WES teachers (jointly, rather than separately) for approximately one hour. The interview was recorded and professionally transcribed. Upon receipt of the transcript, the researcher-interviewer reviewed it for accuracy. Like the observation field notes and photographs, the transcribed interview was archived in a dedicated and protected file in UVA Box to which I had access. I analyzed the entire interview transcript; however, because I was especially interested in teachers' perceptions of the SI curriculum, as well as their enactment of it, I closely examined the questions and answers that yielded related data. Notably, the interviewer was guided by an interview protocol, which I provide in Appendix C.

Artifacts from Professional Development Experiences (Archival)

On June 7 and 8, 2017, the PK team provided a professional development experience (PDE) to the SI teachers. More specifically, the PK team provided an SI curriculum-focused, in-person training, i.e., *SI training*. Because a major component of the SI was the daily read-aloud segment, i.e., *Books & Bookworms*, the PK team dedicated a significant portion of the SI training to strategies for conducting read-alouds. Nonetheless, given the ubiquity of the curriculum vocabulary, these strategies had implications for the Vocabulary Component. Moreover, during the portion of the SI training in which the PK team introduced the teachers to the various curriculum materials and resources, teachers were also introduced to the Classroom and Personal Word Webs. I was responsible for this aspect of the SI training, so I had my own experience from which to draw, as well as the PowerPoint and the corresponding notes and script I

prepared for facilitating this portion of the SI Training. In addition, other facilitators also created detailed presentation notes and PowerPoint slides. The PowerPoint presentations and notes were archived in a dedicated and protected file in UVA Box to which I had access.

In my analysis, I also drew upon artifacts from the other PDE that had been offered to faculty and administration at the Participating Sites (including the SI teachers): the online professional development modules. As discussed in Chapter 1, the PK team developed and disseminated six professional development modules over the course of the school year (2016-2017) prior to the SI. The focus of these modules was children's language and literacy development and, relevant to this capstone project, one of the six modules focused heavily on vocabulary development. Artifacts from both the SI training and the professional development modules provided context and additional data in terms of my analysis of teachers' enactment of the SI curriculum, as will be shown in my findings (Chapter 4). These modules are housed on an invitation-only platform called *Articulate Storyline*, to which I have been invited.

Follow-Up Interview Transcript

Based on my review of literature and my conceptual framework, as well as my initial analysis of the foregoing data, I conducted a follow-up, semi-structured joint interview of the WES teachers on January 30, 2018. The purpose of this follow-up interview was to inquire about the teachers' perceptions of their own characteristics and the SI curriculum's characteristics that may have influenced their curriculum enactment, as well as to further explore the patterns that had emerged based on my initial analysis of the archival data sources. Prior to the interview, I developed an interview protocol. After

I wrote the first draft of the protocol, I sought feedback from another graduate research assistant on the PK team. After making changes based on that feedback, I sought additional guidance from a Project Kaleidoscope principal investigator. I provide my interview protocol in Appendix D.

I chose to interview Ms. Keegan and Ms. Lindsey as a pair because that was how they were initially interviewed, and I did not want to raise any unnecessary concern or questions on their parts. During the interview, I attempted to ask open-ended questions, designed to "yield in-depth responses" (Patton, 2002, p. 4), ultimately allowing me to "understand and capture [Ms. Keegan and Ms. Lindsey's] point[s] of view" (Patton, 2002, p. 21). The interview last approximately 53 minutes and was audio-recorded with participant permission using two audio-recording devices (to reduce the likelihood of a recording malfunction). I had the audio-recording professionally transcribed, and upon receipt of the transcript, I checked it for accuracy.

Summary of Data Sources

As shown, I drew upon multiple data sources: lesson plans, observation field notes, photographs, the transcript from the initial interview, artifacts from the professional development experiences, and the transcript from the follow-up interview. Table 3.1 (below) demonstrates the data sources I used to answer the respective research questions. As shown, each question had at least four associated data sources.

Table 3.1.
Data Sources Used to Address Research Questions

Research Question	Lesson Plans	Observation Field Notes	Photographs	Initial Interview	PDE Artifacts	Follow-Up Interview
To what extent did the summer intersession curriculum resources provide guidance to teachers in supporting children's vocabulary development?	X		X	X	X	X
In what ways did teachers enact the curriculum in support of students' vocabulary development?		X	X	X		X

Note. I provide a larger, vertically-oriented version of this table in Appendix E.

Data Analysis

To make sense of the afore-described data sources, I employed *content analysis*, a "qualitative data reduction and sense-making effort that takes a volume of qualitative material and attempts to identify core consistencies and meanings" (Patton, 2002, p. 453). Initially, I anticipated my data analysis occurring in two dynamic phases and occurring quite linearly, which is shown in Figure 3.3 (below).

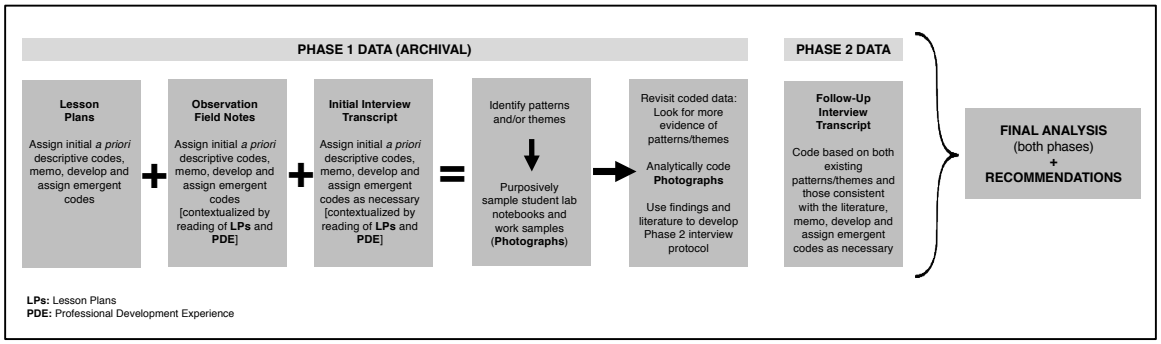


Figure 3.3. Original data analysis plan. I provide a larger, vertically-formatted version of this figure in Appendix F.

Consistent with the foregoing plan, my analysis *did* occur in two dynamic phases; however, I recognized early on that I did not want to analyze all lesson plans and then all observation field notes. If I did that, I felt that my analysis of the enactment might be too far removed from my analysis of the lesson plans. Therefore, it made more sense to me to analyze a single daily lesson plan and then analyze the field notes for the

corresponding enactment. Figure 3.4 (below) reflects my modified plan, which I describe more thoroughly in the sections that follow.

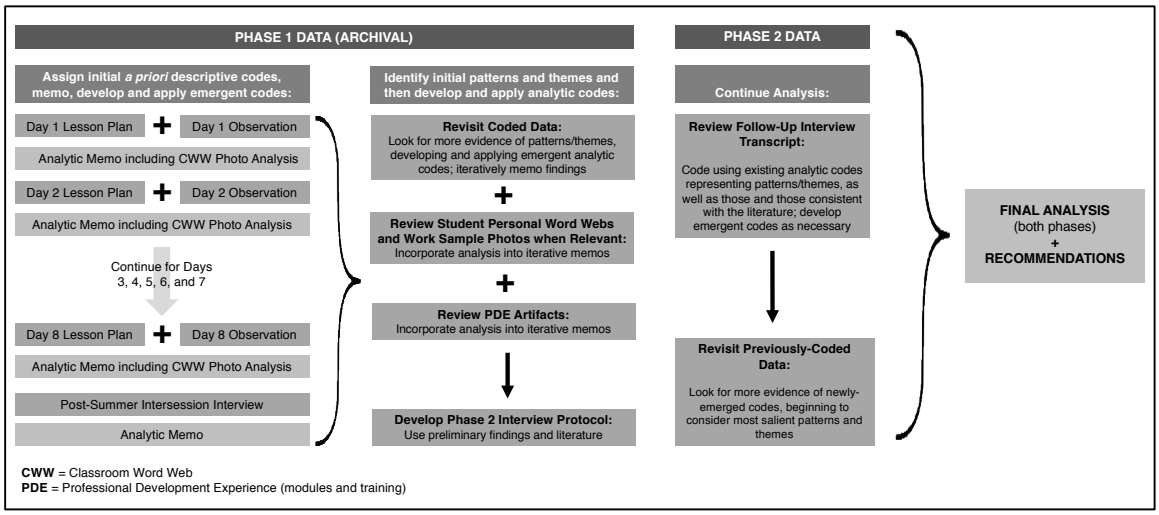


Figure 3.4. Final data analysis plan. I provide a larger, vertically-formatted version of this figure in Appendix G.

My analysis was both inductive and deductive, depending on the step of analysis. In the next few sections, I describe each of those steps. Ultimately, I articulated the consistencies and meanings I identified as *patterns*, i.e., descriptive findings (Patton, 2002, p. 453), but I did not use any *themes* as originally anticipated.

Step 1: Initial Coding and Intermittent Analytic Memo-Writing

My first step involved deductive analysis of the daily lesson plans and the corresponding daily observation field notes. According to Patton (2002), "[d]eveloping some manageable classification or coding scheme is the first step of analysis" (p. 463). Similarly, Bazeley (2013) indicates that this initial coding scheme involves "identification and labelling…using *a priori* or emergent codes" (p. 126). Therefore, based on a cursory review of the lesson plans and artifacts from the SI training, consideration of my research questions (and corresponding problem of practice), and my conceptual framework and literature review, I developed a *codebook*, i.e., a digest

(Bazeley, 2013, p. 240), of descriptive (non-analytic) codes used to label relevant passages of text. Once I developed a draft of my codebook, which contained 20 *a priori* codes, I shared it with two PK team members, seeking their feedback. Upon receipt of their feedback, I made changes and additions or, if I did not, I explained my choices to my reviewers. Once my initial codebook was finalized, which contained 23 codes, I applied the codes to the daily lesson plans, observation field notes, and initial interview transcript. As anticipated, the development of my codes was emergent: As I coded, I revised existing codes and added new ones, returning to previously-coded data and re-coding it as necessary. My final codebook contained 33 codes. In the interest of transparency, I provide initial codebook in Appendix H and my "emerged," i.e., final, codebook in Appendix I.

I should also note that, for research separate and apart from mine, the PK team had already applied its own initial descriptive codes to the observation field notes and initial interview transcript prior to me conducting this study. Because I used several of the Project Kaleidoscope codes in my own coding, I began my coding from the previously-coded data (as opposed to entirely "uncoded" data). Significantly, I was the member of the PK team assigned to code WES's data, so I did not rely on another team member's coding for the present project. I provide Project Kaleidoscope's codebook in Appendix J.

As reflected in Figure 3.4 (above), after I coded a daily lesson plan and the observation field notes regarding that day's enactment, I would write a corresponding analytic memorandum. These memoranda allowed me to capture my thoughts regarding possible patterns and themes, emergent codes, and potential recommendations on a day-

by-day basis. Significantly, these memoranda also provided me with an opportunity to analyze the photographs of the Classroom Word Web contextualized by my other thoughts. At the conclusion of my first step of data analysis, I not only had applied 1500 codes to the data, I also had written nine analytic memoranda (one for each of the eight days of the SI plus the initial interview transcript) from which I could draw as I moved into the second step of my analysis.

Step 2: Identifying Initial Patterns

The second step of my data analysis involved inductive analysis: refining the data to identify initial patterns and themes—what Bazeley (2013) suggests is the development of "analytical categories or clusters" (p. 126). I first attempted to distill patterns or themes relating to my first research question. To do so, I started by reading my analytic memoranda, and then wrote "second-level" analytic memoranda on those topics that I felt had the potential to become patterns or themes. As I wrote the second-level memoranda, I continually revisited my first-level memoranda and the data itself (including artifacts related to the PDEs), seeking more data relevant to the topics and eventually leading to some cursory patterns. I next took my second-level memoranda and began writing my findings, which encouraged me to iteratively and recursively develop my tentative patterns until they began to solidify themselves.

I took a very similar approach to my second research question; however, instead of working from several detailed second-level memoranda, I instead wrote a single, more pared-down second-level memorandum, having found that—for me—the process of writing tentative findings was far more productive in terms of solidifying patterns Really, the process was not all that different from the way I approached my first question;

however, I simply found that the process of writing findings felt more formal and authentic than did writing detailed second-level memoranda that required much re-writing to fit the tone of this report. Therefore, I captured my initial ideas in the more pared-down memorandum and the used it as a basis for my tentative findings in response to the second research question.

As I wrote my second-level analytic memoranda and my tentative findings, I created many tables characterizing various instances and types of both guidance and enactment. Creating these tables contributed to my identification of several patterns. In fact, I include many of them among my findings (Chapter 4) because they provide succinct and straightforward representations of the data.

Step 3: Follow-Up Interview with Coding and Analysis

I conducted a joint follow-up interview of Ms. Keegan and Ms. Lindsey on February 1, 2018. The purpose of my follow-up interview was to inquire about the teachers' perceptions of their personal characteristics and the curriculum's characteristics that may have influenced their enactment, as well as to further explore the patterns emerged from my Phase 1 (Steps 1 and 2) analysis of the archival data sources. After conducting the interview, I re-read my tentative findings and recommendations and created a set of corresponding analytic codes. I provide my analytic codebook in Appendix K. While I waited for the transcript of the interview, I listened to the recorded interview and began making notes of possible segments and/or of the interview, which I captured in a table that I made as part of analytic codebook (see Appendix K). I began rewriting my findings and recommendations and, once I received the transcript, I applied to analytic codes to it. This process served as a final check with respect to what I had

already captured in my table and my writing: After I coded the data, I pulled the data that was coded for each respective pattern and recommendation, making revisions and additions as necessary.

Step 4: Final Analysis

Upon conclusion of my Phase 2 data analysis (Step 3), I revisited the patterns that emerged—reading and rereading them (and the corresponding data) to make final decisions. Initially, I thought I would eliminate, merge, or collapse patterns, but I felt that all the patterns that had emerged were both significant enough to be included and distinct enough that they could not be merged or collapsed. Ultimately, I wrote a case study replete with description and quotes exemplifying the identified patterns, which I share in Chapter 4, as well as recommendations to Project Kaleidoscope, which I share in Chapter 5.

Use of Software

To aid in my data analysis, I used MAXQDA. I was given a subscription to this software to conduct work for Project Kaleidoscope, but I was also given permission to use this software for my capstone project. MAXQDA is software designed to facilitate support research projects. MAXQDA allowed me to electronically "import, organize, analyze, visualize and publish" that data the PK team collected (MAXQDA, para. 1). For example, in my early analysis, I imported the daily lesson plans and observer field notes, as well as my initial codebook, in to MAXQDA and used the software to assign my initial *a priori* descriptive codes to passages of data. Doing so allowed me to then pull sections of text based on certain codes, or by pulling sections of text based on more than one code, I could see where overlaps existed. At times, I even did word searches within

MAXQDA. These processes aided me in discovering patterns in my data and allowed me to easily search the data when I wanted to seek confirming and disconfirming evidence related to the patterns that emerged. I was also able to add "memos" to sections of text (e.g., reflections, questions, emergent codes, potential patterns or themes) as I coded, which often served to as starting points for the content of my first-level analytic memoranda.

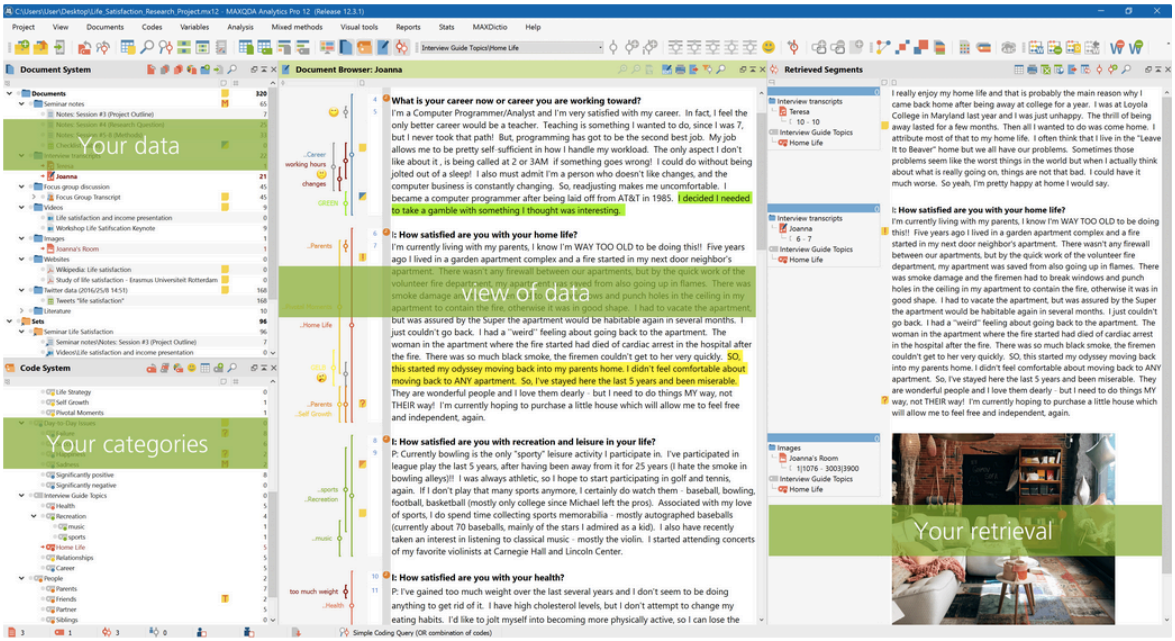


Figure 3.5. Using MAXQDA for qualitative data analysis. This image, taken from the MAXQDA website, depicts the program's capabilities for coding and analysis.

Trustworthiness

Because my capstone project falls in the realm of qualitative research, the researcher *is* the instrument (Patton, 2002). Where reliability and validity may serve as criteria for quality in quantitative research, trustworthiness serves as the criterion for quality in a qualitative research (Golafshani, 2003). Trustworthiness insures that the means and process by which data is collected and analyzed, as well as the findings resulting from data analysis, are sound (Golafshani, 2003). I attempted to establish

trustworthiness in this study in the following ways: First, I relied on detailed observation field notes that were taken during each day of the SI and then quickly converted from their raw form into finished and complete field notes, including detailed observer reflections. Moreover, both interviews were audio-recorded and professionally transcribed, and the transcripts were checked for accuracy.

The Project Kaleidoscope codebook was jointly created by several Project Kaleidoscope graduate research assistants and then reviewed by project investigators. Once coding commenced, on-going discussions among coders occurred regarding the codes selected and the definitions assigned to those codes. When warranted, changes were made to that codebook. For the codebook I created, I sought feedback from two members of the Project Kaleidoscope team and remained open to its evolution based on what emerged as I coded the data.

In addition to the foregoing, which describes trustworthiness related to the means and process of data collection, I also took steps to insure the trustworthiness of my findings. By using multiple data sources, I was able to employ *triangulation*, a process that allowed me to converge these sources to "build a coherent justification for the [patterns and] themes" (Creswell, 2013, p. 201) that I discover. At the same time, I candidly presented "negative or discrepant information" (Creswell, 2013, p. 202). For example, I did not hesitate to report inconsistences in the lesson plans that I authored or the shortcomings of the portion of the SI training that I planned and facilitated. In addition, the follow-up interview I conducted provided me with the opportunity to member-check (Creswell, 2013).

Rodgers and Cowles (1993) state that

> [t]here is widespread agreement among qualitative researchers regarding the importance of maintaining accurate and comprehensive notes related to the contextual background of data, the impetus and rationale for all methodological decisions, the evolution of the findings, and the researcher's particular orientation to the data. (p. 219)

Accordingly, throughout my study I kept a methodological log, wherein I captured my process of data collection and analysis. This log also served as a reflexive journal, wherein I not only described issues I was having regarding said collection and analysis, but candidly shared my own feelings, biases, and concerns. In this way, this log complemented my analytic memoranda by serving as methodological, (additional) analytic, and personal response documentation (Rodgers & Cowles, 1993, pp. 221-223). Following are three excerpts from this approximately 10,000-word document. These specific excerpts reflect the struggle I had as I wrote my follow-up interview protocol:

> Today I completed a draft of Chapter 4 (Findings), which I sent to [two committee members] for feedback. I now need to start reworking my introduction and literature review (I asked both of them for some guidance in this regard, i.e., whether it was appropriate to start doing so). I also need to start thinking about my follow-up interview protocol; I alluded to my concerns about it to [committee chair] in my email to her. I just don't know how I craft open-ended questions (or non-leading questions) about such a specific aspect of the curriculum—and in light of the fact that so much time has passed. I wonder, too, if it would be appropriate to send some of the questions to the teachers in advance. I know there is some risk in doing that, but I also think it would give them some time to think back and reflect. I guess it depends on the nature of the questions, which I have yet to write. I wonder, too, if once I rework my literature review to better coincide with my findings if some of the questions I should ask will become more evident to me. It just feels like things aren't terribly aligned right now. (Methodological Log, December 22, 2017)

In the following excerpt, I share a bit of a breakthrough I had regarding the protocol:

> I have been very busy reworking my introduction and literature review….[T]hings are starting to come together. Most significantly, I had felt a

> bit "hamstrung" in terms of my follow-up interview; however, after reworking my literature review (and rereading the literature I had previously cited), I gained some clarity on the types of things I need to ask. My conceptual framework, and the literature related to it, was particularly informative. I wrote a draft interview protocol, and I sent it to two members of the PK team for feedback. I asked that they return the feedback in the next 7-10 days if possible. If all goes well, I will be able to conduct the follow-up interview by the end of January. (Methodological Log, December 30, 2017)

And, finally, in this final excerpt (which I wrote after a meeting with my committee chair), I describe my resolution of this issue:

> [My committee chair] gave me her blessing to move forward with my follow-up interview…She said that after she read my Chapter 4 findings, she wasn't sure how I would approach my follow-up interview, but she thought that my approach to the protocol was good. It was so reassuring that she, too, had some initial dissonance about the follow-up interview—the protocol had been a real struggle for me. I reached out to the teachers, and we were able to pick a date that did not conflict with an already-scheduled grant meeting. (Methodological Log, January 11, 2018)

I also kept a "Running To Do List" in tandem with my methodological log and the writing of this paper. I would open this list every time I wrote so that when any "needling" matter crossed my mind that I could not immediately address, I would have a place to log it so that I could later go back and make the necessary fixes or additions. In the end, this list contained more than 50 tasks, all of which I completed prior to submitting my final paper to my committee. As a sample, I provide the first page of this list (as of January 13, 2018) in Appendix L.

Finally, and perhaps most importantly given the qualitative nature of this study, I attempted to use "rich, thick description to convey [my] findings" (Creswell, 2013, p. 202). In so doing, I believe that I provided my audience with detailed accounts, thereby underscoring the trustworthiness of my study.

Ethical Considerations

Because my capstone project was part of the greater Project Kaleidoscope, which had already received approval from the University of Virginia's Internal Review Board, I did not need to seek approval separate and apart from that which had already been received.

The Project Kaleidoscope team had built a relationship of trust with my project's participants, which I continued by working within the negotiated and agreed upon terms of my presence at the site and honoring my participants' decisions regarding their participation in my project. Furthermore, when I both scheduled and conducted my follow-up interview with Ms. Keegan and Ms. Lacey, I reminded them that their participation was entirely voluntary.

I also remained mindful of privacy and confidentiality. I protected all participants' identities by not only anonymizing them, but also anonymizing the research site and its location, as well as the names of the Participating Sites, i.e., the participating elementary schools. In addition, I stored all data collected and analyzed in a secure file on UVA Box or on a password-protected computer.

Researcher's Role and Reflexivity

As a former teacher, I have opinions about the roles of teachers with respect to external curricula. Having made decisions that I felt were in the best interest of the students in my classroom, but not necessarily faithful (in its most explicit sense) to the curriculum, I have come to privilege teachers' decision-making with respect to curriculum enactment. This belief is evidenced by my conceptual framework and colored my analysis of both the SI curriculum and the SI teachers' enactment of it.

My involvement in Project Kaleidoscope also impacted the lens through which I approached this study. Having a had a role in the design of both the SI curriculum and the SI training, for example, I had considerable background knowledge about them, e.g., regarding Project Kaleidoscope's motivations, rationales, and choices. This knowledge was valuable, but may have also created in me expectations of the SI curriculum that may or may not have been realized in its enactment. These expectations may have impacted my data collection and/or analysis. I also had certain notions about what I thought may be "tricky" in terms of the enactment of the curriculum, and these notions may have served as biases as I analyzed the data.

Finally, having had several interactions with Ms. Keegan and Ms. Lindsey, I had formed positive opinions of them. My interactions, then, may have contributed to certain biases as I collected and analyzed data. That said, my interactions also served as opportunities to develop rapport, which is equally critical in qualitative studies—and proved helpful for this project (Marshall & Rossman, 2011).

For the foregoing reasons, I constantly reflected upon and acknowledged my background, as well the inevitable influence I had over the research processes—not only as I conducted the study, but as I analyzed and reported my findings. As earlier indicated, I kept a methodological log throughout this study, wherein I also captured these types of reflections.

Chapter Summary

In the foregoing chapter, I described my research design, including the setting and participants, data sources, and data analysis. The setting of the greater project was Fairland County Schools, and the particular site of my project was Williamson

Elementary School (WES). My case was that of two WES teachers—those who taught the summer intersession and whose curriculum enactment I was interested in studying. The data sources for my study were observation field notes, interview transcripts, photographs from the summer intersession, the lesson plan book, and the artifacts from the professional development experiences offered to the teachers. My analysis took place in two phases and involved emergent coding leading to patterns, which I share as findings (Chapter 4) coupled with recommendations for the Project Kaleidoscope team (Chapter 5). Table 3.1 (below) reflects both my anticipated and completed timeline for this capstone project.

Table 3.1.
Capstone Project Timeline

Task	Anticipated Completion	Actual Completion
Review lessons plans, PDE, conceptual framework and literature and develop initial codebook	October 23, 2017	October 22, 2017
Have initial codebook reviewed by a member of the PK team	October 30, 2017	Received all feedback: October 27, 2017 Incorporated feedback:
Submit IRB protocol modification	November 13, 2017	N/A [conversation with principal investigator on October 23, 2017]
Apply initial codes to observation field notes, interview transcript, and lesson plans	November 27, 2017	November 24, 2017
Identify initial patterns/themes (analytic codes)	December 11, 2017	Data analysis plan modified; analysis was on-going and iterative with patterns continually being refined
Purposively-sample photographs	December 11, 2017	
Apply analytic codes to observation field notes, interview transcript, lesson plans, and photographs	December 25, 2017	
Develop follow-up interview protocol	January 1, 2018	December 30, 2017
Have follow-up interview protocol reviewed by a PK team member	January 8, 2018	Received feedback: January 5, 2018 Incorporated feedback: January 6, 2018
Conduct follow-up interview	February 12, 2018	February 1, 2018
Final analysis and write-up	March 12, 2018	February 14, 2018

CHAPTER 4: FINDINGS

I thought I was going nowhere. Now I can see there was a pattern.

–Kate DiCamillo

As discussed in Chapter 1, the Project Kaleidoscope (PK) team designed an eight-day summer intersession (SI) curriculum with an emphasis on language and literacy. The vocabulary component (Vocabulary Component) of the curriculum consisted of a variety of opportunities for teachers to support children's vocabulary development. This capstone project allowed me to examine both the guidance provided by the summer intersession (SI) curriculum and the SI teachers' enactment of that curriculum as I responded to following research questions:

To what extent did the summer intersession curriculum provide guidance to teachers in supporting children's vocabulary development?

In what ways did teachers enact the curriculum in support of children's vocabulary development?

In this chapter, I present the findings relevant to the stated research questions. To answer the first research question, I present the patterns that emerged as a result of my analysis of the SI curriculum—especially, the lesson plans, but also the curriculum's attendant resources and the professional development experiences that were provided to the SI teachers. This section of my findings is entitled *Curricular Guidance*.

Next, to answer the second research question, I present the patterns that emerged as a result of my analysis of the teachers' enactment of the SI curriculum—in particular,

the observation field notes, but also interview transcripts and notes, as well as the photographs taken during the SI. This section of my findings is entitled *Curriculum Enactment.*

I present all findings descriptively, interspersing relevant excerpts from the lesson plans, professional development artifacts, observation field notes, and interview transcripts. Before presenting my findings, however, it is worthwhile to revisit some of the terms I defined in Chapter 1. An understanding of my use of these especial terms will simplify the reading of, as well as contextualize, the findings I present.

Central Theme: the overarching subject anchoring the summer intersession, which was *Kaleidoscope*

Daily Topics: the sub-themes of the Central Theme, which represented the day-to-day themes of the summer intersession; the Daily Topics were *Pattern* (Day 1); *Color* (Day 2); *Balance* (Day 3); *Light/Dark* (Day 4); *Shadow* (Day 5); *Reflection/Mirrors* (Day 6); *Illusion/Vision* (Day 7); and, culminated with the Central Theme, *Kaleidoscope* (Day 8)

Daily Terms: the planned vocabulary terms to be used during the summer intersession; Daily Terms were pre-printed on Word Cards (defined below) for use in constructing the Classroom Word Web (defined below)

Spontaneous Terms: unplanned but relevant vocabulary terms that may (and did) arise during the enactment of the curriculum; could be (and were) teacher- or student-initiated

Word Cards: either (1) pre-printed cardstock strips, each of which contained a single Daily Term, or (2) blank cardstock strips designed to capture Spontaneous Terms

Classroom Word Web: the web of vocabulary to be constructed on a vertical surface using Word Cards

Personal Word Webs: pre-printed daily Word Webs that pre-populated children's individual lab notebooks

Curricular Guidance

As discussed in Chapter 1, the summer intersession (SI) curriculum contained eight lesson plans: one for each of the eight days of the SI. Each daily lesson plan contained similar segments: beginning- and end-of-the-day meetings (*Meetings of the Minds*), a read aloud (*Books & Bookworms*), a whole-group activity (*Activity Central*), small-group centers (*Exploration Stations*), and a designated snack time (*Munchies & More*). In addition, each lesson plan included background information and definitions, a daily schedule, and other detailed information (including directions, scripting, supplies, and photographs) regarding each of the aforementioned segments. I provide the daily lesson plan template in Appendix A.

As discussed, children's vocabulary development was chief among the emphases in Project Kaleidoscope's design of the SI curriculum. Following, I revisit some of the features of the SI curriculum's vocabulary development component (Vocabulary Component).

Daily lesson plans highlighted vocabulary words that SI teachers were encouraged to actively integrate into their lessons. The PK team envisioned that the teachers would develop their own knowledge of the vocabulary words and then share that knowledge with the children. Moreover, through questioning and conversation (suggestions for which were scripted into the lesson plans), teachers were encouraged to build upon

children's prior knowledge and new understanding of the vocabulary words. Perhaps most importantly, whenever possible, teachers were encouraged to engage children in the use and extension of these new vocabulary words.

The eight lesson plans were not authored by a single individual or a team of individuals working in concert. Instead, each lesson plan was authored by one individual or a pair of individuals. A total of four authors designed the eight lesson plans. Table 4.1 (below) indicates which of the four authors wrote which lesson plans.

Table 4.1.
Lesson Plan Authorship

Day 1 Balance	**Day 2** Color	**Day 3** Balance	**Day 4** Light Dark	**Day 5** Shadow	**Day 6** Reflection Mirrors	**Day 7** Illusion Vision	**Day 8** Kaleido-scope
A	B	B	B	C D	A	D C	A

Note. The four authors of the lesson plans are denoted by letters: A, B, C, and D. Days 5 and 7 were co-authored; on Day 5, author C took the lead authorship role, and on Day 7, author D took the lead authorship role.

An assumption foregrounding this capstone project was that because the SI curriculum (including the lesson plans) was not designed by any one individual, the guidance provided to the SI teachers regarding the Vocabulary Component would vary—if not by extent, at least by type. My analysis of the SI curriculum yielded three significant patterns with respect to the guidance the PK team offered regarding enactment of the Vocabulary Component:

1. The lesson plans provided a thorough but sometimes inconsistent presentation of the curriculum vocabulary;
2. The Word Webs (in particular, the Classroom Word Web) aspect of the curriculum lacked a cohesive vision; and

3. The curriculum's characteristics provided guidance but, at times, relayed mixed messages.

I discuss these patterns in greater detail in the next three sub-sections of this paper.

Pattern 1: Lesson Plans Provided a Thorough but Sometimes Inconsistent Presentation of Vocabulary

As discussed, the PK team considered the Vocabulary Component to be an essential element of the SI curriculum. Not surprisingly, then, the authors of the lesson plans provided exhaustive guidance to teachers regarding curriculum vocabulary; however, the manner in which they provided this guidance, at times, varied within and among the lesson plans. In the next few paragraphs, I describe the ways in which the authors presented the curriculum vocabulary.

Background information. In writing their lesson plans, the authors each used the same template (see Appendix A); therefore, the lesson plans each had a similar look. In addition to the afore-described consistent segments (e.g., Meetings of the Minds, Books & Bookworms), each lesson plan's first section was the *Background* section, i.e., the section in which the author(s) contextualized that day's lesson by providing SI teachers with information foregrounding the lesson. The Background section might (1) include tips for the teachers, for example,

> Today's read-aloud book is *Glow: Animals with Their Own Nightlights*. Because there are some unusual words in this book, you may want to read through it one time beforehand [Day 4 (*Light & Dark*)];

(2) offer outside resources, for example,

> A great video to help teachers and children understand observation and how to make a scientific drawing is "Austin's Butterfly." Since this day is packed with

> activities, it is not included in the lesson, but you might want to watch this prior to this lesson to help understand strategies that work to help children observe and record [Day 1 (*Pattern*)];

or even (3) provide some historical information, for example,

> Scottish scientist David Brewster invented the kaleidoscope in 1817. Kaleidoscopes sold by the thousands in the first few years, unfortunately, Brewster saw little of the money from these sales. He applied for a patent, but there was some type of fault with the patent and kaleidoscopes were manufactured and sold with others reaping the financial benefits. The word kaleidoscope comes from the Greek "kalos" which means beautiful; and "eidos" which means shape or form. The ending "scope" is English/Greek and was modeled after the word telescope [Day 8 (*Kaleidoscope*)].

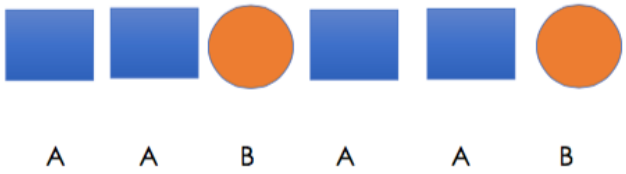
Some—but not all—lesson plans' Background sections provided a list of the *Daily Terms*, i.e., those planned vocabulary words that were to be added to the Classroom Word Web, along with those Daily Terms' definitions. For example, the lesson plan for Day 4 (*Light & Dark*) listed and defined all such Daily Terms:

> Key Terms and Definitions:
> **Light:** a form of energy that stimulates sight and makes things visible
> **Dark:** little or no light
> **Luminescent:** emission of light from a non-heated substance
> **Bioluminescent:** production or emission of light from a living organism
> **Transparent:** Light passes through; see through; clear
> **Translucent:** Some light passes through
> **Opaque:** No light passes through
> **Nocturnal:** done, occurring, or active at night (here, we are referring to animals that are active at night)
> **Diurnal:** done, occurring, or active in the day (here, we are referring to animals that are active during the day)

Other lesson plans (Days 2, 3, and 7), however, listed and defined only some of the Daily Terms. In those instances, a potential explanation exists: Due to issues of timing, the authors had to send their lesson plans to be printed prior to the teacher training. That send-off date was approximately two months prior to the summer intersession, and the authors continued to make minor changes to the SI curriculum

during those two months. Therefore, it is possible that the authors added some Daily Terms after the lesson plans had already been printed.

Some lessons plans did not list or define any of the Daily Terms. Nonetheless, those lesson plans' Background sections included other relevant information and may have even referenced Daily Terms and/or alluded to their definitions. For example, the lesson plan for Day 1 (*Pattern*) provided this extensive background information:

> Patterns are prevalent in all aspects of our lives. Patterns can be found in clothes, people, wall and floor tiles, windows and walls, in art, in books, words, and in nature.
>
> Patterns are easy to copy or imitate. Our goal for children is to help them *transfer* this knowledge of patterns rather than just imitate a pattern. Some of the activities for today are *pattern recognition tasks,* some are *pattern imitation tasks,* and some are *pattern transfer tasks.*
>
> Pattern transfer tasks require analogical reasoning, which taps more brainpower than just copying a pattern. Transfer tasks require the child to manipulate the information about the pattern within their brain instead of just memorizing it and recreating it. Pattern transfer tasks are more of a challenge for children, and we want to challenge them. An example of a pattern transfer task may be something like this:
>
> Example pattern given to child:
>
> 
>
>
> Child's pattern transfer:
>
> 
>
> This example shows that the child has to take the first pattern and recognize that the pattern is an AAB pattern, then transfer this knowledge to new objects to recreate. The objects are not the same colors or shapes, so the child has to think

how the shape pattern can relate to an object pattern.

Creating the second after looking at the first pattern requires more of the child's thinking and encourages more learning than just simply saying the next shape in the first pattern would be a blue rectangle.

As illustrated by the foregoing lesson plan excerpt, although not listed and defined, the information provided in this Background sections alludes to the definition of *pattern* by way of examples.

Table 4.2 (below) provides each lesson plan's Daily Terms, identifying those Daily Terms that were both listed and defined in the respective lesson plan's Background section. This table reflects the differences between the lesson plans. Moreover, when revisiting Table 1, which identifies the authorship of the lesson plans, one can further see that single authors were inconsistent in their presentation of the Daily Terms among the lesson plans they wrote. For example, the lesson plans for Days 2, 3, and 4 were authored by the same individual, and this author only listed and defined some of the Daily Terms in the lesson plans for Days 2 and 3, but listed and defined all Daily Terms in the lesson plan for Day 4.

Table 4.2.
Daily Terms for 2017 Summer Intersession

Day 1	Day 2	Day 3	Day 4
Pattern	**Color**	**Balance**	**Light**
Repeat	Primary Colors	Scale	**Dark**
Familiar	Secondary Colors	Even	Luminescent
Slide	Shade	Seesaw	Bioluminescent
Symmetry	Swatch	Teeter-Totter	Opaque
Scientist	Palette	Symmetry	Transparent
Laboratory			Translucent
Observe			Diurnal
			Nocturnal

Day 5	Day 6	Day 7	Day 8
Shadow	**Reflection**	**Illusion**	**Kaleidoscope**
Light Source	**Mirrors**	**Vision**	
Brainstorm	Symmetry	Perspective	
Plot	Image	Visualize	
Character		Optical Illusion	
Conflict		Thaumatrope	
Setting		Graph	
Hypothesis		Analysis	

Note. Bold-face type identifies those Daily Terms that are also Daily Topics, e.g., *Pattern* and *Color*. Yellow highlighting indicates those Daily Terms that were both listed and defined in the Background section of the respective lesson plan, e.g., *Primary Colors* and *Secondary Colors*.

Regardless of whether the Daily Terms were listed and/or defined in the Background section of a given lesson plan, the Daily Terms were—in most cases—defined for teachers *somewhere* in the lesson plan. Sometimes the Daily Terms were both listed and defined in another section: For example, on Day 1 (*Pattern*), the Daily Terms *pattern*, *repeat*, *familiar*, and *slide* were listed and defined in the Books & Bookworms segment of the lesson plan. In other lesson plans, the words were defined via the suggested scripting. For example, on Day 6 (*Reflection & Mirrors*), the Daily Terms *reflection* and *mirror* were defined during the beginning-of-the-day Meeting of the Minds segment in the following way:

> *We have a couple of new words to talk about today. We are going to work on our word web. Let's look at our first word (reflection). What letter does this word begin with? Yes, R! Our big word for today is reflection. Reflection [is] what occurs when a light ray hits an object and bounces off. I'm going to add it to our class word web here. Then I can connect it to the word kaleidoscope with a line since reflection connects to kaleidoscope since reflections are used in kaleidoscopes. Our next word begins with which letter? Yes,* M! *Our second big word is mirror. A mirror is a polished surface that forms an image by reflection. Our third word is* symmetry. *Who remembers this one from our pattern day? We'll use mirrors to show symmetry today.*

Building upon the information provided in Table 4.2, Table 4.3 (below) indicates whether (and, if so, in which part of the respective lesson plans) Daily Terms were ultimately defined. The data provided in Table 4.3, coupled with the foregoing findings, suggests that the authors assigned value to defining Daily Terms within the lesson plans: After all, the authors collectively defined approximately 84% of the Daily Terms at some point in the lesson plans. This finding also suggests that the PK team's desire to communicate this information to the SI teachers and to emphasize vocabulary development in the curriculum was evident to the authors of the lesson plans. Nonetheless, there were some Daily Terms that the authors did not explicitly define. This evidence suggests that the PK team did not have a precise plan for how to communicate this information (in particular, the definitions of Daily Terms) to SI teachers, resulting in inconsistencies of presentation within and among the lesson plans.

Table 4.3.
Defined Daily Terms for 2017 Summer Intersession

Day 1	Day 2	Day 3	Day 4
Pattern Repeat Familiar Slide Symmetry Scientist Laboratory Observe	**Color** Primary Colors Secondary Colors Shade Swatch Palette	**Balance** Scale Even Seesaw Teeter-Totter Symmetry	**Light** **Dark** Luminescent Bioluminescent Opaque Transparent Translucent Diurnal Nocturnal

Day 5	Day 6	Day 7	Day 8
Shadow Light Source Brainstorm Plot Character Conflict Setting Hypothesis	**Reflection** **Mirrors** Symmetry Image	**Illusion** **Vision** Perspective Visualize Optical illusion Thaumatrope Graph Analysis	**Kaleidoscope**

Note. Like Table 4.2, Table 4.3 provides each lesson's Daily Terms. Bold-face type identifies those Daily Terms that are also Daily Topics, e.g., *Pattern* and *Color*. Yellow highlighting indicates those Daily Terms that were both listed and defined in the Background section of the respective lesson plan, e.g., *Primary Colors* and *Secondary Colors*. Blue highlighting indicates those Daily Terms that were defined in sections other than the Background section of the respective lesson plan, e.g., *Pattern* and *Repeat*.

Content-related and non-content-related vocabulary. Closer examination of the Daily Terms reveals that some Daily Terms were directly related to the Central Theme and/or Daily Topic, and others were not. For example (referring to Day 1), the Daily Term *repeat* was closely associated with the Daily Topic *Pattern*. Meanwhile, other Daily Terms, while relevant to the lesson, were not related to the Central Theme and/or Daily Topic. For example (referring to Day 5), the Daily Term *brainstorm* was neither related to the Daily Topic *Shadow* nor the Central Theme *Kaleidoscope*. I refer to those Daily Terms that were related to the Central Theme and/or Daily Topic as *Content-*

Related Terms (CRTs) and those Daily Terms that were not related to the Central Theme and/or Daily Topic as *Non-Content-Related Terms* (Non-CRTs). Table 4.4 (below) distinguishes CRTs from Non-CRTs.

Table 4.4.
Content- and Non-Content- Related Daily Terms

Day 1	Day 2	Day 3	Day 4
Pattern	**Color**	**Balance**	**Light**
Repeat	Primary Colors	Scale	**Dark**
Familiar	Secondary Colors	Even	Luminescent
Slide	Shade	Seesaw	Bioluminescent
Symmetry	Swatch	Teeter-Totter	Opaque
Scientist	Palette	Symmetry	Transparent
Laboratory			Translucent
Observe			Diurnal
			Nocturnal

Day 5	Day 6	Day 7	Day 8
Shadow	**Reflection**	**Illusion**	**Kaleidoscope**
Light Source	**Mirrors**	**Vision**	
Brainstorm	Symmetry	Perspective	
Plot	Image	Visualize	
Character		Optical illusion	
Conflict		Thaumatrope	
Setting		*Graph*	
Hypothesis		*Analysis*	

Note. The use of italics distinguishes Non-Content-Related Daily Terms from Content-Related Daily Terms.

As reflected in Table 4.4, the lesson plans for Days 1, 5, and 7 included Daily Terms that were non-CRTs. Significantly, these terms were neither listed nor defined in the Background section of the lesson plans for Days 1 and 5. On Day 7, only *graph* was listed and defined in the Background section; however, the lesson plan contained a parenthetical caveat, referring to the term as "expert" vocabulary. *Analysis* was neither listed nor defined in the Background section. One can infer that, by not including these terms in the Background sections of the respective lesson plans (or, in the case of *graph*,

including it with the parenthetical "expert" caveat), the authors of these lesson plans determined that while the non-CRTs were essential to the lesson (and worthy of being designated as Daily Terms), these terms were not essential to the content. In other words, by including non-CRTs like *brainstorm* and *plot* as Daily Terms (on Word Cards, for example), but not defining them in the Background section, it appears these authors reserved the Background section for information essential to the content. Moreover, these findings suggest that all authors likely would have agreed which Daily Terms would constitute CRTs as opposed to a non-CRTs. Still, these findings suggest that the authors had a different vision for what should be considered a Daily Term, i.e., some authors designating non-CRTs as Daily Terms and others only designating CRTs as Daily Terms.

Daily Terms versus Key Vocabulary. The lesson plans were long and detailed, ranging in length from 14 to 23 pages with the average lesson plan being 18.75 pages. Therefore, the PK team decided that preparing "one-pagers" to summarize the essential aspects of each lesson plan would, perhaps, offer additional assistance to the SI teachers. Each one-pager was created using the same template. Figure 4.1 (below) provides an example: the one-pager for Day 1 (*Pattern*).

Camp Kaleidoscope **Day 1: Pattern**		
Background:	Patterns are easy to copy or imitate. Our goal for children is to help them *transfer* this knowledge of patterns rather than just imitate a pattern. Some of the activities for today are *pattern recognition tasks,* some are *pattern imitation tasks,* and some are *pattern transfer tasks.*	
Understandings:	• Patterns can be viewed, replicated, and created. • Patterns incorporate elements such as slide or translation, turn or rotation, flip or reflection, symmetry, scaling, and tessellation.	
Essential Questions:	• How do we see patterns in our lives? • What are the elements and categories of pattern? (design, repetition, flip, rotation, etc.).	
Key Vocabulary:	•Kaleidoscope •Pattern •Repeat •Familiar •Slide	
Major Supplies:	• Chart paper or board • Markers • Kaleidoscope • Piece of string or yarn • Document camera • Projector • "Guess my Rule" objects • Paper—various colors/textures • Pencils / Colored Pencils • Scissors • Stamps/stamp pad	
Read Alouds	*Pattern Bugs* *I See a Pattern Here*	
Schedule:	Meeting of the Minds	9:00 – 9:20 (20 minutes)
	Books & Bookworms: *I See a Pattern Here*	9:20 – 9:50 (30 minutes)
	Activity Central: Nature Walk	9:50 - 10:35 (45 minutes)
	Munchies & More: *Pattern Bugs*	10:35 – 10:50 (15 minutes)
	Exploration Stations: • Movement Patterns • Guess My Rule • Pattern Art	10:50 – 11:50 (60 minutes)
	Meeting of the Minds	11:50-12:00 (10 minutes)
	Closure	12:00 – 12:10 (10 minutes)

Figure 4.1. One-pager for Day 1 (*Pattern*). Key vocabulary (*kaleidoscope*, *pattern*, *repeat*, *familiar*, *slide*) was among the aspects highlighted in this condensed version of the daily lesson plan.

Relevant to these findings, one section of the one-pager template was *Key Vocabulary*, again reflecting Project Kaleidoscope's emphasis on vocabulary development and the critical role of vocabulary to the SI curriculum. One member of the PK team had the responsibility of preparing the one-pagers, and Table 4.5 (below) lists those terms he included as key vocabulary for the purpose of the one-pagers. As indicated in the caption of Table 4.5, the author of the one-pagers identified certain terms (those that are italicized) as "expert" terms, suggesting that he distinguished those terms from the other terms. These expert terms were all non-CRTs, again suggesting that the PK team members would not disagree on the distinction between the CRTs and non-CRTs.

Table 4.5.
Terms Identified as Key Vocabulary in the One-Pagers

Day 1	Day 2	Day 3	Day 4
Kaleidoscope Pattern Repeat Familiar Slide	Color Primary Colors Secondary Colors Shade	Balance Even Scale Symmetry Seesaw Teeter-totter	Light Dark Luminescent Bioluminescent Opaque Transparent Translucent

Day 5	Day 6	Day 7	Day 8
Shadow Light Source Opaque Transparent Translucent *Hypothesis* *Brainstorm* *Storyboard* *Character* *Setting* *Plot* *Conflict*	Reflection Mirror Symmetry Image	[Optical] Illusion Vision Visualizing Perspective *Analysis* *Graph*	[Review all words from prior lessons]

Note. The use of italics distinguishes those Key Vocabulary Terms considered by the author of the one-pagers to be "expert" vocabulary.

Ultimately, if one compares the Daily Terms for each lesson with the Key Vocabulary from the one-pagers, the terms identified (and, therefore, being brought to the SI teachers' attention) were largely consistent; however, there were some inconsistencies. Table 4.6 (below) provides each lesson plan's Daily Terms alongside each one-pager's Key Vocabulary for the sake of comparison.

Table 4.6.
Lesson Plan Daily Terms Alongside One-Pager Key Vocabulary

Day 1	
Lesson Plan	**One-Pager**
Pattern	Kaleidoscope
Repeat	Pattern
Familiar	Repeat
Slide	Familiar
Symmetry	Slide
Scientist	
Laboratory	
Observe	

Day 2	
Lesson Plan	**One-Pager**
Color	Color
Primary Colors	Primary Colors
Secondary Colors	Secondary Colors
Shade	Shade
Swatch	
Palette	

Day 3	
Lesson Plan	**One-Pager**
Balance	Balance
Scale	Even
Even	Scale
Seesaw	Symmetry
Teeter-Totter	Seesaw
Symmetry	Teeter-totter

Day 4	
Lesson Plan	**One-Pager**
Light	Light
Dark	Dark
Luminescent	Luminescent
Bioluminescent	Bioluminescent
Opaque	Opaque
Transparent	Transparent
Translucent	Translucent
Diurnal	
Nocturnal	

Day 5	
Lesson Plan	**One-Pager**
Shadow	Shadow
Light Source	Light Source
Brainstorm	Opaque
Plot	Transparent
Character	Translucent
Conflict	Hypothesis
Setting	Brainstorm
Hypothesis	Storyboard
	Character
	Setting
	Plot
	Conflict

Day 6	
Lesson Plan	**One-Pager**
Reflection	Reflection
Mirrors	Mirror
Symmetry	Symmetry
Image	Image

Day 7	
Lesson Plan	**One-Pager**
Illusion	[Optical] Illusion
Vision	Vision
Perspective	Visualizing
Visualize	Perspective
Optical illusion	Analysis
Thaumatrope	Graph
Graph (expert)	
Analysis	

Day 8	
Lesson Plan	**One-Pager**
Kaleidoscope	[Review all words from prior lessons]

Note. The use of italics indicates those Daily Terms that were both listed and defined in the respective lesson plan's Background section.

Because the one-pagers were created by one member of the team (rather than the authors of the respective lessons), it is not surprising that some of the one-pagers contained more or fewer terms than those identified as Daily Terms. One can infer that as the author of the one-pagers sifted through the lesson plans or other materials (e.g., the Word Cards), he used his discretion to determine which words were key (yielding, perhaps, more words) or could have overlooked certain terms (yielding, perhaps, fewer words). Notably, nearly all Daily Terms that were listed and defined in the Background sections (see italicized words in Table 4.6, above) were also listed as Key Vocabulary, suggesting that when the lesson plan authors placed these words in the respective Background sections, they caught one-pager author's attention.

Scripting: Vocabulary in use. As earlier mentioned, the lesson plans contained suggested scripting for SI teachers to use in their enactment of the curriculum. The scripting ranged from the quotidian (e.g., "Good morning! Welcome back to Camp Kaleidoscope! We are so glad you are here with us today!") to the content-specific:

> *Did you know that there are animals that are luminescent too? In other words, they give off light in the dark, too! We are now going to read a book about luminescent animals. When animals and other living things are luminescent, they are called bioluminescent. As we already know, luminescent means that something gives off light, and bio means life. So when we put bio and luminescent together we get bioluminescent—something living that gives off light!*

The foregoing excerpt is one in which Daily Terms were both defined and contextualized within the scripting offered. Significantly, all lesson plans (and nearly every segment within each lesson plan) offered scripting that defined Daily Terms and/or otherwise used Daily Terms in context, suggesting that the authors were aware of and

carrying out Project Kaleidoscope's vision of emphasizing vocabulary in the SI curriculum.

Notably, it appeared that the SI teachers found the scripting that incorporated the Daily Terms to be easy-to-follow. In response to my question about which features of the curriculum stood out, Ms. Keegan replied,

> Well, just the fact that…me coming from a visual perspective…visually, it was easy-to-follow. Because you know, you've got words in bold, and you've got the script in italics…some of it was italicized, what you're going to say. From that perspective, it was easy. (Follow-Up Interview, February 1, 2018)

The "words in bold" to which Ms. Keegan was referring were the Daily Terms, which the authors put in bold-face type in order to emphasize them (a consistency across the lesson plans). Parenthetically, to give this capstone project report a "cleaner" look, I opted to remove the bold-face type from the lesson plans excerpts provided herein. This decision was also prompted by the fact that I had instances in which I wanted to emphasize certain words using bold-faced type, and I did not want those words I had placed in bold-face type to be confused with those that the authors had placed in bold-face type.

Vocabulary connections. The SI curriculum was designed in such a way that Daily Topics built upon each other, increasing in complexity. The PK team envisioned that children would gain exposure to the Daily Terms associated with the Daily Topics, as well as come to understand how the Daily Terms (and, if applicable, *Spontaneous Terms*, i.e., unplanned but relevant terms) were connected to one another. As such, the PK team further envisioned that, as the days of the SI went on, the teachers would facilitate children's vocabulary connections by referencing previous days' Daily Terms, i.e., *Past Daily Terms*, when such opportunities presented themselves. Recognizing that there were some natural (and even predictable) opportunities for these connections to be

facilitated, the authors built them into the lesson plans—and primarily did so through the use of scripting. Here is an example from the Day 4 (*Light & Dark*) lesson plan in which the author incorporated deliberate references to Past Daily Terms into the scripting (the Past Daily Terms are emphasized using bold-face type):

> *First, we are going to work on our Word Web. Our big words for today are light and dark. I'm going to add them to our class Word Web here. Then I can connect them to the word kaleidoscope with a line because light and dark connects to kaleidoscope because when we look through a kaleidoscope we need light to see the **patterns** and the **color**; if it is dark, we cannot see the **patterns** and **color**.*

A review of the lesson plans reflects that the authors typically scripted these built-in opportunities into the Meetings of the Minds, which were the segments in which teachers were encouraged to spend time visiting (and, at the end of the day, revisiting) the Classroom Word Web and the children's Personal Word Webs. The authors' use of scripting to facilitate connections, then, is not surprising given that the Classroom Word Web and Personal Word Webs were designed to support children in making connections between and among Daily Terms and Spontaneous Terms. That said, the authors did not script such opportunities into the Meeting of the Minds segments, exclusively. The following example was one of the built-in opportunities presented in the Exploration Stations segment of the Day 6 (*Reflection & Mirrors*):

> *This word becomes **symmetrical**, and the image is an image of **symmetry**. Where have you heard that word before? There are many more words that might show **symmetry**, let's try a couple and see if they do! Try writing "mom", can anyone help spell mom? Good! Now let's write that in our Lab Notebook and see what it looks like in the mirror.* (**emphasis added**)

Overall, the lesson plan for Day 8, which focused on the Central Theme, *Kaleidoscope*, contained the most built-in opportunities for facilitating connections between and among Daily Terms. This finding is consistent with the purpose of Day 8,

which was to tie all previous days' content together. Perhaps bolstering this finding, I coded for references to Past Daily Terms contained in the lesson plans, and I found that the lesson plan for Day 8 contained more references to Past Daily Terms than any other lesson plan. Day 1 (*Pattern*) contained no references to Past Daily Terms, which is to be expected, there being no past days and corresponding Daily Terms to which the author could have referred.

I also coded for those occasions in which authors referenced a Daily Term associated with a future Daily Topic. I call these references to Daily Terms *Future Daily Terms*. Given that Future Daily Terms are, in effect, the inverse of Past Daily Terms, Day 8 (*Kaleidoscope*) contained no references to Future Daily Terms, there being no future days and corresponding Daily Terms to which the author could have referred. Applying the same logic, Day 1 (*Pattern*), seemingly, would contain the most references to Future Daily Terms—and, indeed, it did. Few other days, however, contained references to Future Daily Terms, unless they were days that happened to share Daily Terms. For example, Days 1, 3, and 6 all shared the Daily Term *symmetry*; therefore, on Days 1 and 3, *symmetry* was, in effect, a Future Daily Term whenever it was referenced during those days' lesson plans. Incidentally, I did not code for the Future Daily Term *kaleidoscope* because this term also served as the Central Theme of the curriculum and, therefore, was present in every lesson plan (and, sometimes, frequently). In sum, that most days' lesson plans contained rare references to Future Daily Terms suggests that the Daily Topics, generally speaking, increased in complexity, i.e., the lesson plans not requiring references to vocabulary associated with Daily Topics not yet covered.

Summary of pattern 1: Lesson plans provided a thorough but sometimes inconsistent presentation of vocabulary. The foregoing findings suggest that the PK team presented the SI curriculum vocabulary in a thorough (i.e., abundant definitions, background, scripting, built-in opportunities for use) but sometimes inconsistent fashion. This pattern could be attributable to the fact that the curriculum materials and resources (in particular, the lesson plans) were designed by different members of the PK team—and, certainly, that may be a factor. However, the inconsistencies also existed within single lesson plans and among lesson plans written by a single author. Therefore, the authors, themselves, had their own ideas for presenting vocabulary, suggesting that the PK team did not have a definitive plan for the presentation of the vocabulary.

Pattern 2: Word Webs Lacked a Cohesive Vision

A key aspect of the Vocabulary Component of the curriculum was the use of Word Webs (both Classroom and Personal) to support the development of children's vocabulary. During the academic year prior to the SI (i.e., the 2016-2017 school year), the PK team disseminated online professional development modules to certain faculty and administration at the five participating sites, and all of the SI teachers were among those individuals to whom these modules were disseminated. The modules focused on language and literacy, and one module, especially, laid the foundation for the SI teachers' eventual use of Word Webs: This particular module promoted the idea that children develop vocabulary by comparing and categorizing. More specifically, children build mental "webs" of related words. Figure 4.2 (below) is a screenshot taken from the module, at which point a rather sophisticated web of words related to the central word *air* is shown. The idea, essentially, is that individuals with a sophisticated webs of

vocabulary can make inferences about the definitions of related but unknown words based on their knowledge of many other related words.

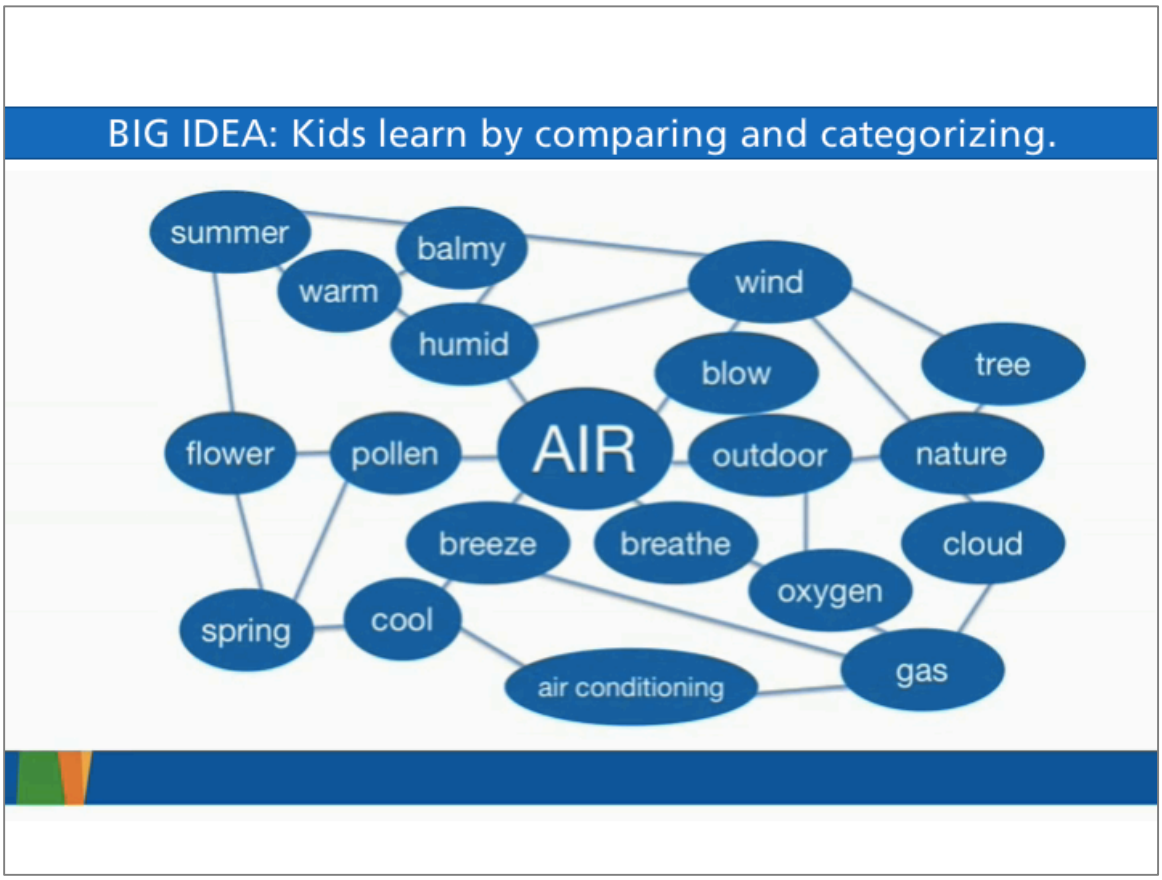


Figure 4.2. Screenshot from the professional development module regarding vocabulary development. Here, faculty and administration at the Participating Sites were introduced to the idea that children develop vocabulary by comparing and categorizing—specifically, that children build mental "webs" of related words.

The narrator of this module goes on to explain how two children with different experiences could have strikingly different webs of vocabulary. Figure 4.3 (below), provides several illustrative screenshots taken from the module, whereby two children's webs for the word *winter* are contrasted. The narrator explains that one child lived in Florida, while the other lived in Indiana and, therefore, had very different experiences with winter. In this instance, the child with more experience with winter (and, therefore,

a more sophisticated web of vocabulary related to the word *winter*) would more ready to infer the definitions of other unknown winter-related words.

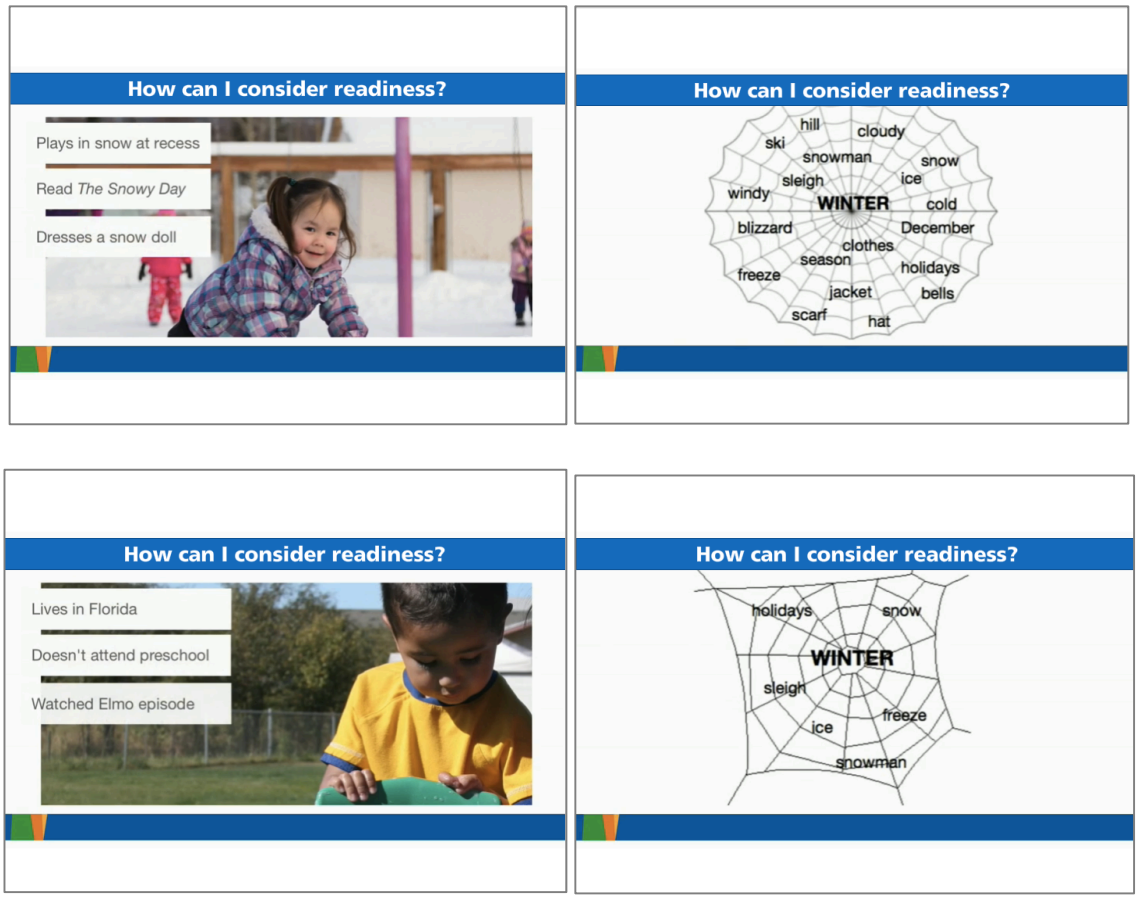


Figure 4.3. Screenshots from the professional development module regarding vocabulary development. Here, faculty and administration at the Participating Sites were introduced to the idea that two children with different experiences could have strikingly different webs of vocabulary.

Building on this idea of mental webs of vocabulary, the designers of the SI curriculum wanted to provide SI teachers with the opportunity to support children's vocabulary development via the use of physical Word Webs: SI teachers and children would construct and engage with a Classroom Word Web. The PK team envisioned the Classroom Word Web as a web of inter-connected Daily Terms (and, if applicable, Spontaneous Terms) that would be constructed on a white board (or other vertical surface). More specifically, each of the SI curriculum's Daily Terms was printed on a

cardstock strip with magnets attached to it. I refer to these cardstock strips as *Word Cards*. Throughout the course of the SI, as Daily Terms were introduced, SI teachers would add the corresponding Word Cards to the classroom's board. Then, to demonstrate to children how the Daily Terms were connected to other already-posted terms, teachers would draw lines connecting the related terms. If unplanned but relevant Spontaneous Terms should arise during the enactment of the lessons, the PK team provided teachers blank Word Cards on which such terms could be written and then added to the Classroom Word Web, as well.

In order to assist teachers in constructing the Classroom Word Web, the PK team color-coded the Word Cards. Specifically, the team printed the Central Theme (which was also a Daily Topic and a Daily Term), *Kaleidoscope*, on orange cardstock. The *Kaleidoscope* Word Card was to serve as the center of the Classroom Word Web. The team printed the Daily Topics (which were also Daily Terms), e.g., *Pattern* and *Color*, on blue cardstock. The PK team printed the remaining Daily Terms, i.e., those that were not also Daily Topics, on yellow cardstock. The PK team provided green cardstock strips for the blank Word Cards to be used for Spontaneous Terms. Table 4.7 (below) lists all of the Daily Terms along with their respective Word Card color-coding.

Table 4.7.
Word Card Color-Coding

DAY 1	DAY 2	DAY 3	DAY 4
Pattern	**Color**	**Balance**	**Light** **Dark**
Repeat Familiar Slide Symmetry Scientist Laboratory Observe	Primary Colors Secondary Colors Shade Swatch Palette	Scale Even Seesaw Teeter-Totter Symmetry	Luminescent Bioluminescent Opaque Transparent Translucent Diurnal Nocturnal
Spontaneous Term(s)	Spontaneous Term(s)	Spontaneous Term(s)	Spontaneous Term(s)

DAY 5	DAY 6	DAY 7	DAY 8
Shadow	**Reflection** **Mirrors**	**Illusion** **Vision**	**Kaleidoscope**
Light Source Brainstorm Plot Character Conflict Setting Hypothesis	Symmetry Image	Perspective Visualize Optical illusion Thaumatrope Graph Analysis	
Spontaneous Term(s)	Spontaneous Term(s)	Spontaneous Term(s)	Spontaneous Term(s)

In addition to being able to watch the Classroom Word Web growing on the board, children received Personal Word Webs, which were printed on paper and pre-populated the first few pages of their *lab notebooks*, i.e., composition books children

were to use for writing and other activities throughout the SI. Each morning, SI teachers were encouraged to begin the day with a meeting (i.e., Meeting of the Minds) in which they would introduce the Daily Topic. During that time, the children would turn to the relevant Personal Word Web in their lab notebooks and write or draw any connections they already had with respect to the Daily Topics. At the end of each day, the children were to reconvene for second Meeting of the Minds, in which they would have the opportunity to revisit their Personal Word Webs and make additions based on the day's experiences.

Training on Word Webs. In addition to the background SI teachers were provided via the professional development modules, they attended a two-day training focusing on the SI curriculum, i.e., *SI training*. The PK team facilitated the SI training. Because the PK team considered read-alouds to be an important vehicle for children's language and literacy development, the team emphasized read-aloud strategies during the SI training. In fact, three of the six informational sessions were exclusively dedicated to such strategies, whereas other topics were covered in just one session (or just a portion of a session). I include the complete SI training agenda in Appendix M.

As already indicated, the Vocabulary Component, too, was an important aspect of the SI curriculum. Unlike the read-alouds, though, the SI training only included a brief discussion of the curriculum's vocabulary in any regard. More specifically, this discussion related to the Classroom Word Web and Personal Word Webs and was but one part of a single 45-minute informational session that was also dedicated to a preview of the SI curriculum materials and resources, as well as an overview on team teaching. Having been the team member tasked with facilitating this session, I recall that the

session was originally dedicated to previewing the materials and resources; however, I was later asked to also incorporate team teaching and Words Webs (both Classroom and Personal) into the session.

The following notes guided my discussion of the Classroom Word Web and Personal Word Webs:

> **Word Web**:
> ***Classroom Web:***
> a. Explain and share pictures of the "mock" web we create in the office
> b. Encourage them to add other words that may come up spontaneously or incidentally
> ***Lab Notebook Web:***
> a. Children should be encouraged to write or draw any connections that they make to the web (opportunities "built in" at the beginning and end of the day—morning and afternoon Meetings of the Mind)
> b. Demonstrate how it will work using PPT slides and physical lab notebook

These notes are brief, as was my discussion of these topics—I would estimate seven minutes. My discussion was accompanied by several PowerPoint slides illustrating how a Classroom Word Web may look at various stages of construction, and I encouraged teachers to add Spontaneous Terms to the Classroom Word Web. I also provided examples of how children might use their Personal Word Webs and encouraged teachers to allow children to use invented spelling and drawings. I include the complete set of the slides relevant to this portion of the training in Appendix N; however, Figures 4.4 and 4.5 (below) provide examples of the images that I presented via the PowerPoint slides. In my discussion of the Word Webs, I did not make any reference back to the professional development module regarding vocabulary development.

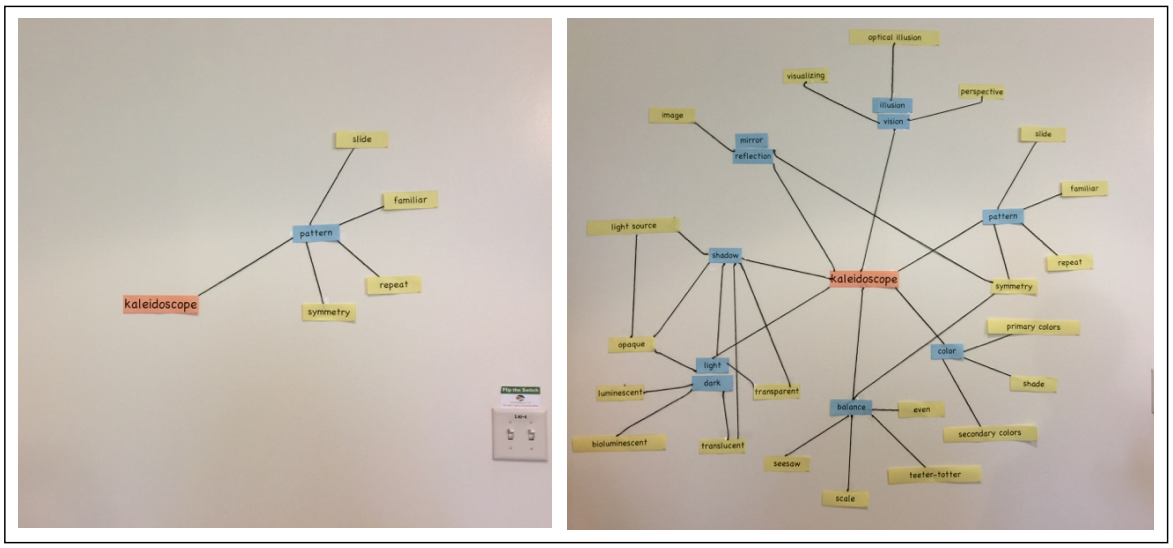


Figure 4.4. Sample Classroom Word Web at various stages of construction. These pictures were among those used during the SI training to share Project Kaleidoscope's vision of the execution of the Classroom Word Web aspect of the SI curriculum; the first picture shows what a Classroom Word Web might look like on Day 1; the second shows a completed Classroom Word Web.

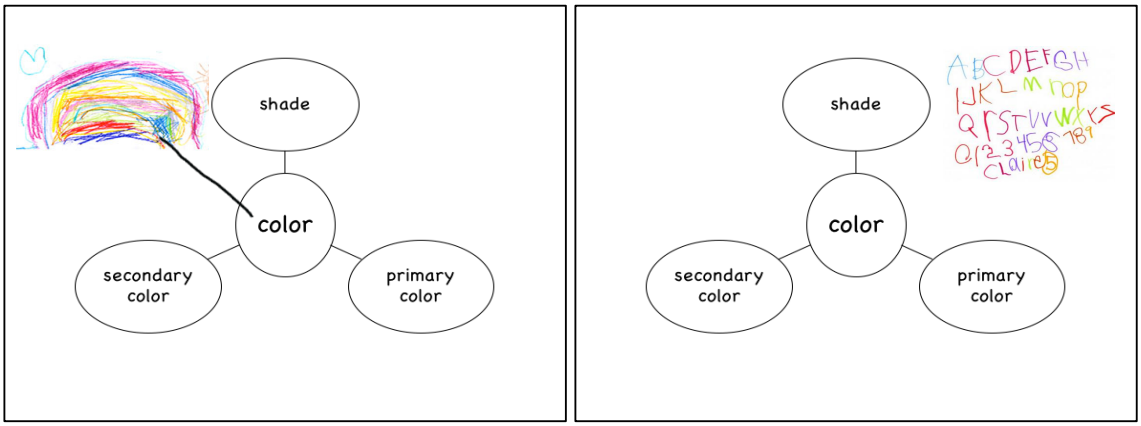


Figure 4.5. Sample Personal Word Webs. These pictures were among those used during the SI teacher training to share Project Kaleidoscope's vision of children's use of the Personal Word Webs contained in their lab notebooks.

Consistent with the foregoing, the SI teachers' perception was that the SI training focused on read-aloud strategies and placed little emphasis on the Vocabulary Component of the curriculum:

> Ms. Keegan: Honestly, the training for me, what I remember most, didn't really, it wasn't a lot with the vocabulary. It was more of the questioning, where we put the sticky notes in the book, and we

really went through that book together, collaboratively as a team. And okay, what question do we want to ask? [Discusses how she appreciated and still uses these strategies.] I don't necessarily know…

Ms. Lindsey: …if we focused on the vocabulary much in the training?

Ms. Keegan: If we did, I don't remember.

Ms. Lindsey: I think we talked, I know, remember briefly talking about the web in the beginning. And I remember thinking, *Okay, wait, how is it gonna look?* But then we didn't really, maybe, actually do it? (Follow-Up Interview, February 1, 2018)

Nonetheless, the SI teachers recognized the centrality of the Vocabulary Component, in particular, the Word Webs:

Ms. Keegan: I think even just a modeling or even having us practice, you know the scripting and the how we're gonna do it [construct the Classroom Word Web] and…

Ms. Lindsey: Yeah, because I [don't] remember that being a big focus during the training? Even though I *knew* it was the big one, but…

Ms. Keegan: Well it was *the*…to me *this* was *the* big idea right here [pointing to a photograph of their Classroom Word Web]. (Follow-Up Interview, February 1, 2018)

In sum, even though the Vocabulary Component of the SI curriculum did not receive much attention during the SI training, teachers still gleaned that it was an important element of the curriculum. Still, they expressed a desire to receive more training on the Word Webs.

Word Webs in the lesson plans. The lesson plans contained built-in opportunities for teachers to use the Word Webs, both Personal and Classroom. Following are sample excerpts of the use of Personal Word Webs from the Day 7 (*Illusion & Vision*) lesson plan. For the beginning-of-the-day Meeting of the Minds, the lesson plan provided the following scripting:

> *Let's open our Lab Notebooks to Word Web # 1 and find the words illusion and vision. I would like you to add any words that you can think of that relate to our new words. If any of your words or drawings are connected to our word of the day on the page, draw a line between them.*

For the end-of-the day Meeting of the Minds, the lesson plan provided as follows:

> *Now we are going to open to our word webs in our Lab Notebooks. Find word web #8, with the words illusion and vision in the center of the web. You are going to have a chance to add any new words that you would like to your word web. Think about all the things we have explored today related to these words. What are words you think of when you hear illusion or vision? Remember, if any of your words or drawings are connected to any of the other words on the page, draw a line between them to show that there is a relationship between them.*

The PK team decided that the Personal Word Webs would be used during the Meetings of the Minds (beginning and ending) and, indeed, every lesson plan contained built-in opportunities to use them during those meetings. This finding suggests that that the team had a unified vision for the use of the Personal Word Webs—at least with respect to the segments in which they would be used.

The lesson plans also contained built-in opportunities for using the Classroom Word Web. Again, here is an excerpt taken from the Day 7 (*Illusion & Vision*) lesson plan, specifically, the beginning-of-the-day Meeting of the Minds segment:

> Draw student attention to the word web and review the two big words for the day: illusion and vision. After reviewing the words, give children time to add words to their word webs.
>
> *Our big words for today are illusion and vision. We already said illusions are things that look or seem different than what they really are. They trick our brains! Notice how on our word web I connected the word illusion to the word kaleidoscope with a line because the way you see an image from a kaleidoscope may be different from the image your friend sees, just like different people may see illusions differently. This shows us there is a connection between this word and kaleidoscope.*

Like the Personal Word Webs, all lesson plans contained references to the Classroom Word Web in both the beginning- and end-of-day Meeting of the Minds segments. However, in addition to the Meeting of the Minds segments, some (but not all) lesson plans contained other built-in opportunities for use of the Classroom Word Web.

For example, following is an excerpt from the Activity Central segment on Day 7 (*Illusion & Vision*):

> Display PPT, Slide 7 and explain to children that they will be looking at different optical illusions. Provide the definition of the term and add it to the word web.
>
> *Now that we have talked about what illusions are, we are going to look at some examples of optical illusions. Now remember, illusions are things that trick our minds into seeing things differently from how they really are. An optical illusion is an illusion that can use color, patterns, and light to create pictures that trick our brains. So, what you see may be different from what your friends see, and that's okay. You should talk to your friends about what they see and see If* (sic.) *you can view the optical illusion the way they do.*

Table 4.8 (below) indicates which segments of each lesson plan contained built-in opportunities for using the Classroom Word Web. The data in this table suggest that, unlike the Personal Word Webs, the PK team did not have an entirely unified vision for the use of the Classroom Word Web—at least with respect to during which segments it would be used.

Table 4.8.
Classroom Word Web References by Lesson Plan Segment

	Meeting of the Minds (beginning)	Books & Book-worms	Activity Central	Explora-tion Stations	Meeting of the Minds (ending)
Day 1: Pattern					
Day 2: Color					
Day 3: Balance					
Day 4: Light & Dark					
Day 5: Shadow					
Day 6: Reflection & Mirrors					
Day 7: Illusion & Vision					
Day 8: Kaleidoscope					

Note. Segments marked as green are those in which the corresponding lesson plan contained built-in opportunities for using the Classroom Word Web. No such opportunities were built into the snack time segment, i.e., Munchies & More, so it is not included in this table.

Moreover, the Classroom Word Web-related directions and scripting offered in the lesson plans also suggests that the PK team members did not have a unified vision for the Classroom Word Web. In the Day 1 (*Pattern*) lesson plan, in which the Classroom Word Web was first introduced, the author referred to "Word Web time" and described the Classroom Word Web as a "quick activity":

Word Web time

While this is meant to be a quick activity, allow the children to help direct the discussion about the words and the word web. In order to connect all the activities to literacy, we will construct a word web that connects words for each day/activity.

We are going to work on our word web.
What is the name of our camp?
What word do you think this is? Let's read this word together.
Today we will begin the word web with this word (kaleidoscope) in the center.
Our big word for today is pattern. Pattern means something that repeats. I'm going to add it to our class word web here. Then I can connect it to the word kaleidoscope with a line since pattern connects to kaleidoscope since kaleidoscope images can look like patterns. You also have this word in your Lab Notebook. Let's open our Lab Notebooks to Word Web #1 and find the word kaleidoscope and pattern. I would like you to add any words that you can think of that relate to our new word. If any of your words or drawings are connected to our word of the day on the page, draw a line between them.

Give children time to add words to their word webs.

This language suggests that use of the Classroom Word Web's would be a discrete activity, rather than posturing the Classroom Word Web as an interactive tool to be used throughout the day. Furthermore, in that lesson plan, the Classroom Word Web was not revisited again until the "Word Web time" at end of the day, at which time the day's remaining Daily Terms were added to the Classroom Word Web at once:

Word Web time

Earlier today we added words to our word web. Let's read these two words.

Point to kaleidoscope and pattern and help children read the words. We have a couple other words to add to the word web also.

Let's think about the book from our Books and Bookworms time. We went over a couple of words at that time. Let's add these to our Word Web.

Add slide, familiar, repeat, and symmetry to the word web.

This suggested practice of adding Word Cards to the Classroom Word Web during specified times, namely the beginning- and ending-of-the-day, again, postured the Classroom Word Web as a discrete activity rather than an interactive tool.

Other lesson plans, however, contained language encouraging SI teachers to add Word Cards to the Classroom Word Web as the Daily Terms were introduced throughout the day. For example, on Day 2 (*Color*), the language of the lesson plan encouraged teachers to add only the Daily Term *color* to the Classroom Word Web during the beginning-of-the-day Meeting of the Minds:

> *First, we are going to work on our Word Web. Our big word for today is color. I'm going to add it to our class Word Web here. Then I can connect it to the word kaleidoscope with a line because color connects to kaleidoscope because when we look through a kaleidoscope you see lots of colors.*

Then, during the later read-aloud segment, i.e., Books & Bookworms, the author of the lesson plan scripted the addition of several Daily Terms to the Classroom Word Web, for example:

> *So what should I do if I want to make a color lighter? And how do I make a color darker? When we add white, we get a lighter **shade**, and when we add black, we get a darker **shade**. Let's go ahead and add the word **shade** to our Word Web.*
>
> Add the word ***shade*** to the Word Web. (**emphasis added**)

While neither conception of the Classroom Word Web (i.e., as a discrete opening- and wrap-up activity or as an interactive tool) was inappropriate, the authors' inconsistent presentation regarding the use of the Classroom Word Web suggests that the PK team did not have a unified vision for the Classroom Word Web.

Another inconsistency relative to the Classroom Word Web was the authors' consideration of the Classroom Word Web and the corresponding Word Cards as materials for the various segments in which the Classroom Word Web was used. The

lesson plan template (provided in Appendix A) included a *Materials* section for each segment of the daily lessons. Figure 4.5 illustrates how a completed Materials section might look.

13. Advance to PPT, Slide 3 to set up next activity.

Books & Bookworms: *Mix It Up*	**Materials**
9:20 – 9:35	Copy of *Mix It Up*
15 minutes	Words for Word Web (primary color, secondary color, shade)

Purpose
In this activity, you will engage children in an interactive read aloud of *Mix It Up!* by Herve Tullet. We encourage you to incorporate questions (especially prediction or those that allow children to speak about their own experiences and/or prior knowledge).

Note: During the read aloud, you may want to have helpers set up paints for the next activity.

1. Show students the cover of the book. Share the title and the author and then point out the primary colors:

*Here are three **colors**: red, yellow, and blue. Does anyone know what these three **colors** are known as? Right, they are **primary colors**, and there are only three of them: red, yellow, and blue. These **colors** combine to make almost all of the other **colors** we experience in the world!*

Project Kaleidoscope
Summer 2017
Day 2: Color

Figure 4.6. Materials section of a lesson plan segment. Here, the Materials section for the Books & Bookworms segment of the Day 2 (*Color*) lesson plan is shown.

Some lesson plans included neither the Classroom Word Web nor the Word Cards in the Materials sections; other lesson plans simply referenced the Classroom Word Web, itself, as a material; and still other lesson plans referenced the specific Word Cards needed for the specific segment (which was the case in the example contained in Figure 4.6). Table 4.9 (below) indicates the extent to which the Classroom Word Web was offered as a material for the segments in which it was used.

Table 4.9.
Classroom Word Web and Word Cards as Segment Materials

	Meeting of the Minds (beginning)	Books & Book-worms	Activity Central	Explora-tion Stations	Meeting of the Minds (ending)
Day 1: Pattern	**Not Mentioned/ Listed**				Word Web Cards Day 1
Day 2: Color	**Not Mentioned/ Listed**	Words for Word Web (primary color, secondary color, shade)	Word for Word Web (palette)		**Not Mentioned/ Listed**
Day 3: Balance	Word Web Vocabulary Cards (balance, even, scale)	Word Web Vocabulary Cards (seesaw, teeter-totter)	Word Web Vocabulary Card (symmetry)		**Not Mentioned/ Listed**
Day 4: Light & Dark	**Not Mentioned/ Listed**	Word Web Vocabulary Cards (luminescent, bioluminescent)		Word Web Vocabulary Cards (transparent, translucent, opaque, diurnal, nocturnal)	**Not Mentioned/ Listed**
Day 5: Shadow	**Not Mentioned/ Listed**				**Not Mentioned/ Listed**
Day 6: Reflection & Mirrors	Word Cards: Reflection Mirror Symmetry	Word Card: Image	**Not Mentioned/ Listed**		Word Web
Day 7: Illusion & Vision	Class word web		**Not Mentioned/ Listed**		Class word web
Day 8: Kaleidoscope	**Not Mentioned/ Listed**				**Not Mentioned/ Listed**

As Table 4.9 reflects, there were not only inconsistencies from lesson plan to lesson plan, there were inconsistencies *within* the lesson plans. Therefore, these differences cannot simply be attributed to the absence of a unified vision among members of the PK team. Rather, these findings additionally suggest that the authors, themselves, did not have a specific plan or set of guidelines with respect to how they would present the Classroom Word Webs within the lesson plans they authored.

Finally, while photographs of a sample Classroom Word Web were shown to teachers during the SI training, no such photographs were included in the lesson plans. Because these pictures were shown just once and very briefly during the SI training (and not revisited), one can assume that the SI teachers would have only had a vague recollection of them seven or eight weeks later when they were constructing their own Classroom Word Webs. This assumption was confirmed by Ms. Keegan, who said, "I would like to see…like an example of how [the Classroom Word Web] went" (Follow-Up Interview, February1, 2018). Although she was referring, perhaps, to other teachers' construction of the Classroom Word Webs, her comment suggests that she wanted to see what a constructed Classroom Word Web looked like; and, as earlier described, the PK team *did* share photographs of the various stages of a constructed Classroom Word Web during the SI training.

Summary of pattern 2: Word Webs lacked a cohesive vision. As discussed, a key aspect of the Vocabulary Component of the curriculum was the Word Webs, both Classroom and Personal. While the PK team provided several opportunities for the SI teachers to learn about Word Webs, the opportunities were not connected: The online professional development module regarding children's mental webs of words provided teachers with necessary background information; however, no references were made to that module during the SI training related to the Classroom and Personal Word Webs. Further, it appears that the SI teachers did not independently remember this module or make that connection on their own. Similarly, while teachers were shown samples of constructed Classroom Word Webs during the SI training, no such pictures were provided in their printed materials, e.g., the lesson plan book. And, based on their

comments, it seems the SI teachers did not remember these examples when it came time to construct the Classroom Word Web. Taken together, the guidance teachers received regarding the Word Web guidance was disjointed.

Moreover, and perhaps more significantly, while the PK team appeared to agree that the Personal Word Webs would be used during the Meeting of the Minds segments, the authors of the lesson plans presented the Classroom Word Web in various fashions—not just regarding the segments in which it would be used, but also *how* it would be used. Therefore, although the SI curriculum provided several opportunities for the use of Word Webs, the PK team did not have a cohesive vision as to whether the Word Webs (especially the Classroom Word Web) were to serve as discrete activities or interactive tools.

Pattern 3: Curriculum Characteristics Provided Guidance but, at Times, Relayed Mixed Messages

The SI curriculum had several characteristics that are worthy of discussion due to their potential influence over the teachers' enactment of the Vocabulary Component. In this section, I discuss three such characteristics: *Voice*; *Look*; and *Educative Features*. I should note that these characteristics were not always exclusively related to the Vocabulary Component of the SI curriculum; however, given the broader, curriculum-related problem of practice, they warrant discussion.

Voice. As discussed in Chapter 2, *voice* is the metaphorical relationship between authors and readers (Herbel-Eisenmann, 2007). In her study of voice in curriculum materials, Herbel-Eisenmann (2007) was interested how an author's choice of linguistic forms (i.e., use of imperatives, pronouns, and modalities) could dictate the interpersonal

function of the text. I was similarly interested in whether the voice of the SI curriculum was explicitly or even implicitly flexible (or inflexible) with respect to the Vocabulary Component. Therefore, using two of Herbel-Eisenmann's terms, I initially coded the directions relevant to the Vocabulary Components of the lesson plan data as *inclusive* or *exclusive*. I defined my use of these codes as follows:

> [Inclusive] I will use this code when the directions regarding the Vocabulary Component (relative to, for example, Daily Terms, the Classroom Word Web, Personal Word Webs) are offered as suggestions or provide flexibility to the teacher. For example, directions including words such as *possible*, *options*, *consider*, and *suggested* indicate that the teacher has choice.
>
> [Exclusive] I will use this code when the directions regarding the Vocabulary Component (relative to, for example, Daily Terms, the Classroom Word Web, or Personal Words Webs) can be connoted as imperatives. For example, directions including imperative verbs (e.g., *do*, *use*, *ask*) suggest that the teacher must follow them with fidelity. (Emerged Codebook, Appendix J)

As I mentioned, I initially applied these codes to the directions in the lesson plans relevant to Vocabulary Components. However, I ultimately examined all or most of the directions, it being difficult to parse out the Vocabulary Components given their ubiquity. For example, Daily Terms were mentioned throughout the lesson plans, even if only incidentally. By more holistically analyzing the lesson plans, though, I was able to get a better sense of their voice: After all, discrete instances of inclusive or exclusive language do not dictate voice; rather, it is the collective message that they send.

The language of directions is, as a general matter, imperative. Therefore, any excerpt containing directions likely will include some exclusive language. That said, in these lesson plans, some directions tended to be more inclusive, while other directions tended to be more exclusive. For example, on Day 1 (*Pattern*), the lesson plan included directions for a nature walk, during which children would have the opportunity to identify

patterns in nature (thereby reinforcing the definition of the Daily Term *pattern*). These directions employed primarily inclusive language. Following is the relevant portion of the lesson plan:

> Take children on a walk allowing ample time and opportunities to observe and record patterns that they see. Allow the children to record in any manner they choose.
> Encourage those who might be struggling with questions such as,
> *What do you see?*
> *What shape is this?*
> *What colors do you see?*
> *Are there lines or patterns you can replicate in your lab notebook?*
> *How could you put this in your lab notebook?*

As already discussed, directions generally include exclusive language, and this excerpt was no exception, it containing the imperative verbs *take* and *allow*, for example. However, much of the language in this excerpt was inclusive, giving it a largely inclusive tone: The phrase *ample time* indicated that teachers would have latitude in the amount of time the activity should take. Moreover, the phrase *such as* indicated that the questions offered were only options, and teachers could choose among them or even ask their own.

Other directions employed more exclusive language. For example, on Day 4 (*Light & Dark*), the lesson plan contained an opportunity for children to create glow-in-the-dark creatures out of clay and other supplies. Afterwards, children were to draw and write about their creatures (thereby reinforcing the definition of the Daily Term *bioluminescent*). The following excerpt provides the scripting that corresponded with the directions for this part of the lesson:

> *Now we need to take some time to describe our bioluminescent creatures! I am going to provide you with a sheet of paper to help you think about your creature and what you might write about it.*
>
> Hand out the Creature Writing Template to the children.

First, let's put our names on the top of our papers. You can use any color you want!

Now listen carefully. At the top of this paper, it says My Bioluminescent Creature*, so this page is going to be all about the creature you created.*

In this space [point]*, you are going to draw your bioluminescent in its surroundings. You may want to draw the water or even other ocean life and creatures around it. It's up to you.*

Then, this says, My name is*, and in this blank* [point]*, you are going to name your creature.*

Next it says, and I am a*, and in this blank* [point]*, you are going name the type of creature it is.*

Last it says, I glow because*, and in this blank* [point]*, you are going to give the reason that your creature glows.*

There are no wrong answers—let your imagination run wild!

- Allow children to draw and write. Encourage invented spelling.
- Allow time for children to glue their creations in their lab notebook. For those who finish earlier than others, encourage them to spend some time writing about the creature on the next page of their lab notebooks (e.g., describe its surroundings, what does it eat—they can even write a story about their creature).
- Time permitting, allow children to share their creatures and descriptions.

As reflected by this excerpt, the directions employed primarily exclusive language like *hand out*, *point*, *encourage*, *allow*, and *time permitting*.

In terms of overall patterns, the lesson plans contained neither entirely inclusive language nor entirely exclusive language; rather, they contained a mix. In other words, there were not certain days that (or, by implication, *authors who*) or even segments that wholly employed inclusive or exclusive language. I did, however, detect one consistency

among the lesson plans, which is reflected in the two foregoing excerpts: The directions and scripting encouraged SI teachers to allow for a variety of responses from children. In the first excerpt, above, teachers were encouraged to allow children to make their recordings *in any manner they choose*, and in the second excerpt, the scripting included statements like, "You can use any color you want!" and "There are no wrong answers—let your imagination run wild!" In fact, when children's responses or forms of expression were explicitly mentioned in the lesson plans, the authors almost always encouraged teachers to allow for a variety of responses or forms of expression from the children. In this way, teachers' discretion was both expanded and limited: After all, teachers had the freedom to allow for variety of responses, but—at the same time—they were encouraged to accept that variety in a rather "blanket" fashion. In sum, the authors of the lesson plans employed a mix of inclusive and exclusive language in their directions to teachers; however, authors generally encouraged teachers to be flexible with respect to the children's responses.

Look. The *look* of a curriculum materials refers to their "visual dimensions" (Remillard, 2005, p. 233). Where commercially-developed materials tend to have glossy, colorful pages replete with photographs, non-commercially-developed materials tend to be printed in black and white and contain fewer photographs (Remillard, 2005). The SI lesson plan books were printed in black and white; however, they contained abundant photographs, for example, photographs of the curriculum's attendant resources, such as book covers, supplies, and games.

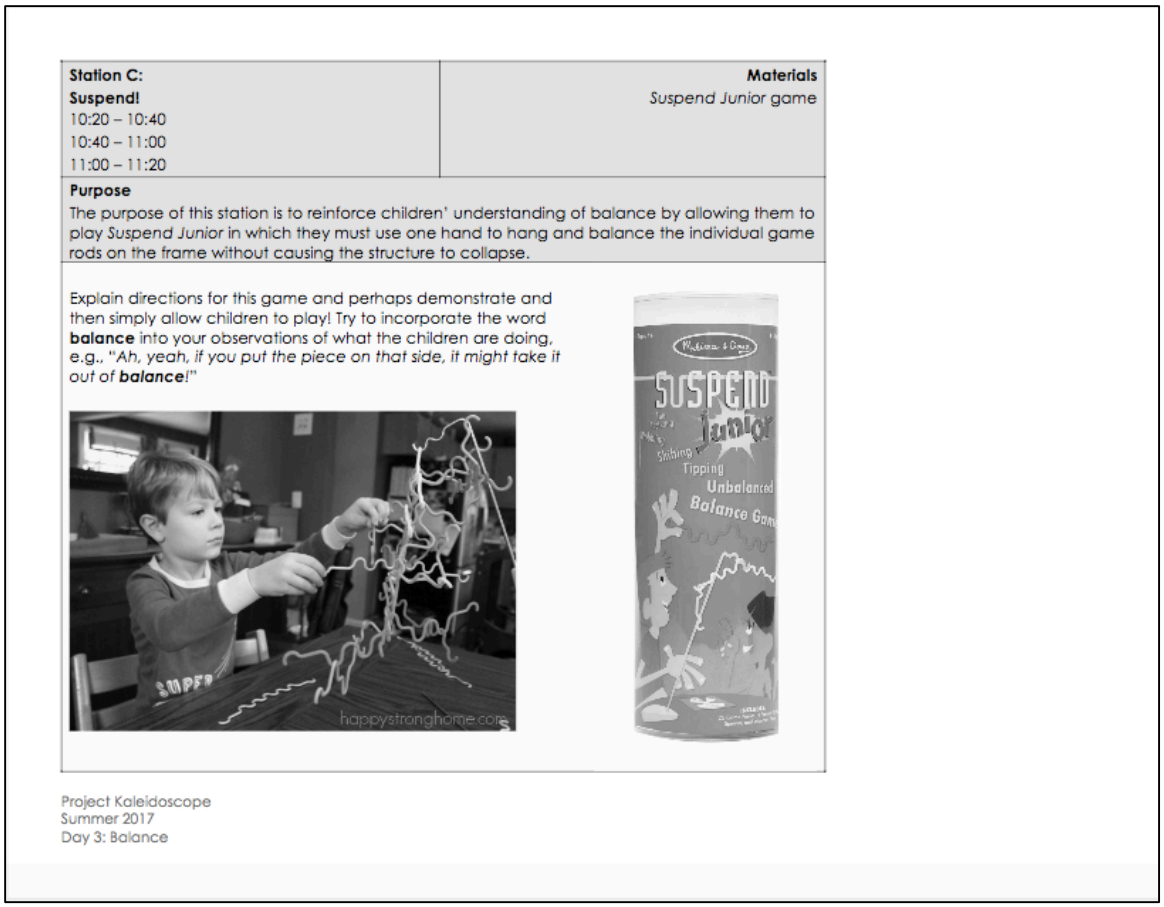


Figure 4.7. Page from Day 3 (*Balance*) of the lesson plan book. As shown, this page contains two images to provide teachers with guidance in enacting the SI curriculum: one of the game that will be played by children during this Exploration Station, and the other of a child playing the game.

The SI teachers appeared to appreciate the photographs, particularly those of the books:

> Ms. Keegan: And you also had the visual of the book…I liked that you guys had the picture of the book because it was just quick to…
> Ms. Lindsey: Right
> Ms. Keegan: Oh, yeah, let me grab that…
> Ms. Lindsey: Yeah
> Ms. Keegan: Just visually (Follow-Up Interview, February 1, 2018)

The teachers also seemed to appreciate the layout of the lesson plans, too: Ms. Lindsey remarked, "I loved the layout, I really don't know how to improve it" (Follow-Up Interview, February 1, 2018). Moreover, they appreciated the space that the lesson

plan books provided for note-taking. In describing her process for preparing for a lesson, Ms. Lindsey described her use of the space provided for notetaking:

> Like, this page [points to a page in her lesson plan book], I obviously highlighted a lot of stuff. So, it was, for me, I had to highlight all the dialogue parts and then just make some notes on the side, which was super helpful to have that space. (Follow-Up Interview, February 1, 2018)

Later in our conversation, both teachers discussed their appreciation of this feature:

> Ms. Keegan: And like Ally said, I liked…we…
> Ms. Lindsey: The extra space
> Ms. Keegan: Well, you even have some stickies here, too. Like when you were thinking ahead about questions we were gonna ask. (Follow-Up Interview, February 1, 2018)

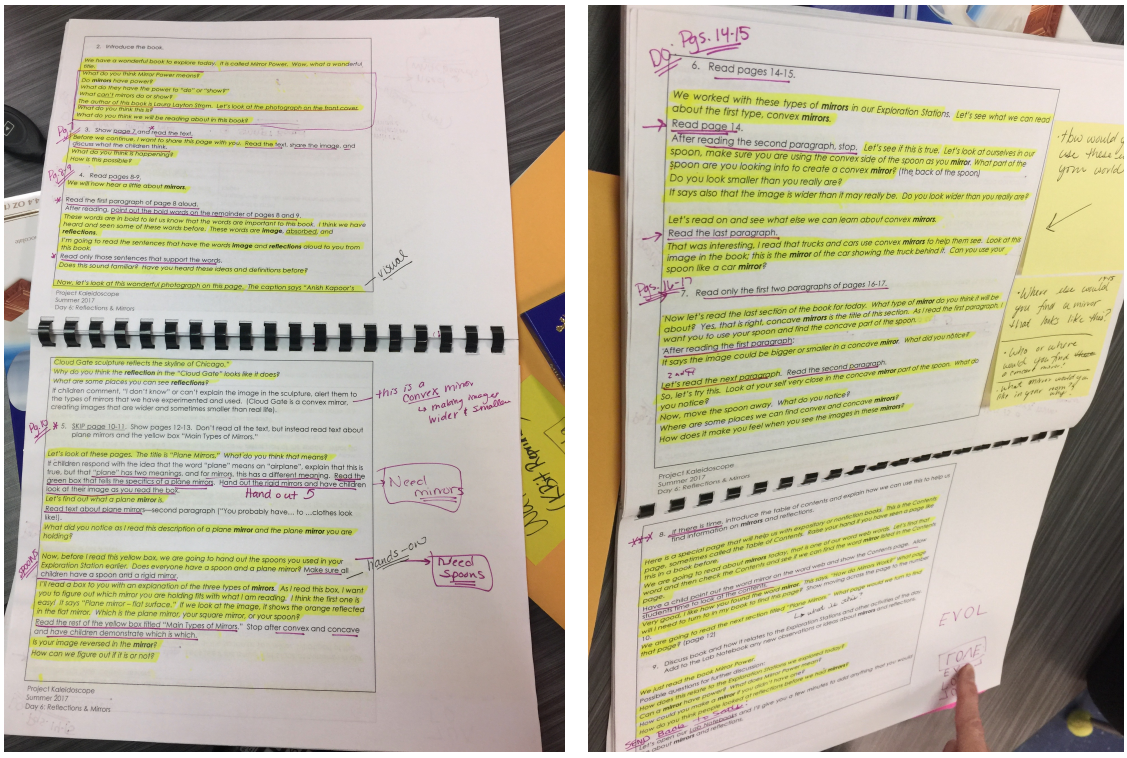


Figure 4.8. Pictures of Ms. Lindsey's lesson plan book. Picture 1 reflects how she used the margins for note-taking, and Picture 2 reflects how the margin provided ample room for "sticky" notes.

Especially relevant to the Vocabulary Component, the lesson plans used bold-faced type to highlight Daily Terms. Again, the SI teachers appeared to appreciate this feature. As discussed above, Ms. Keegan commented as follows:

> Well, just the fact that…me coming from a visual perspective…visually, it was easy-to-follow. Because you know, you've got words in bold, and you've got the script in italics…some of it was italicized, what you're going to say. From that perspective, it was easy. (Follow-Up Interview, February 1, 2018)

As a general matter, then, the "look" of the lesson plans—though not colorful and glossy—appealed to Ms. Keegan and Ms. Lindsey.

Educative features. As discussed in Chapter 2, *educative features* are those curriculum characteristics that are embedded in curriculum resources that are designed to promote teacher learning (Schneider & Krajcik, 2002). Examples of educative features include "'callout' boxes with teacher tips, graphics illustrating conceptual relationships among the ideas in a unit, guides to the use of readings, or suggestions for providing students feedback on their writing" (Davis et al., 2017, p. 294). Here I discuss two such features: the Background section and the questioning opportunities.

Background section. As discussed in relevant to the first pattern regarding curricular guidance, each lesson plan's first section was the *Background* section, i.e., the section in which the author(s) contextualized that day's lesson by providing SI teachers with information foregrounding the lesson. The Background section might include tips for the teachers, offer outside resources, or even provide some historical information.

Teachers appeared to both rely upon and appreciate the guidance provided by the Background sections of the lesson plans. For example, Ms. Lindsey stated the following:

> And some of them [the lesson plans] had like little things at the beginning like *For more information on this topic*…that was helpful…there were like YouTube videos or something for us to look at ahead of time. I was like, *Oh that's good. I*

> *need to watch that because I am not sure about this concept.* So that was super helpful. It was like a little teacher section that was like, *For more information on this topic, you can see this before you teach it.* And that was really helpful…because I did use those. (Follow-Up Interview, February 1, 2018)

Moreover, because Ms. Lindsey's comment, "Oh, that's good. I need to watch that because I am not sure about this concepts," suggests that she perceived the guidance provided in the Background section to be supplemental, rather than mandatory. Her comment, then, likewise suggests that she interpreted the voice of the Background sections to be inclusive. And, indeed, when I went back and re-read the Background sections, I discovered that any directions the Background sections tended to employ inclusive language. Table 4.10 (below) provides both the inclusive and exclusive language in the directions from the Background sections. Of the twelve excerpts presented in Table 4.10, only four contained exclusive language. Moreover, three of the four examples of exclusive language were "you **should** capitalize" (**emphasis added**), which could also be construed as inclusive (e.g., you *should*, not you *must*).

Table 4.10.
Use of Inclusive and Exclusive Language in Lesson Plan Background Sections

	Inclusive	**Exclusive**
Day 1 Pattern	…may be something like… …you might want to watch this…	Decide locations…
Day 2 Color	…we encourage you… …you may want to preview…	…you should capitalize…
Day 3 Balance	You may want to preview… …children will hopefully…	
Day 4 Light & Dark	…we encourage you… …you may want to…	
Day 5 Shadow		…you should capitalize…
Day 6 Reflection & Mirrors	[All informational—no directions to teachers]	
Day 7 Illusion & Vision		…you should capitalize…
Day 8 Kaleidoscope	[All informational—no directions to teachers]	

Questioning opportunities. The PK team prioritized the use, quality, and types of questions that the SI teachers were to ask children during the SI. The PK team dedicated much of the SI training to sharing strategies for maximizing the use of questions. The lesson plans also provided guidance to teachers in how to ask such questions by both building in opportunities to ask them and offering suggested scripting and/or lists of questions to ask. Although the SI training, itself, may not fall squarely within the definition of an educative feature, the information provided to teachers during the SI training supported their use of the scripting and questions offered in the lesson plans. Therefore, in the next two sub-sections, I discuss these ways in which the PK team provided guidance regarding questioning both during the SI training and in the lesson plans.

SI training. As already noted, the PK team invited the SI teachers to a two-day, in-person training focused on the SI curriculum, i.e., the *SI training*. The SI training included opportunities for teachers to explore the curriculum materials and resources; participate in interactive activities in which the SI teachers, themselves, would try some of the activities that they would enact during the SI; and receive background and strategies during six informational sessions. Of the six informational sessions, one focused on classroom management, one focused on the curriculum resources and materials, one focused on writing development, and three focused on read-aloud strategies. In all three of the sessions regarding read-aloud strategies, the PK team explicitly encouraged SI teachers to ask children open-ended questions. More specifically, the topic of the first of the three sessions was *Informational Interactive Read-Alouds*. The notes developed in conjunction with this session indicated that one of the two "teacher learning" foci of this session was "[q]uestions with no right answers" (Interactive Read-Aloud Session 1, Author Notes). In addition, the author listed the following as goals for the session:

- Teachers will understand that open-ended questions are possible with informational text.
- Teachers will use questioning to foster talent development.
- Teachers will learn different strategies for making a read-aloud text visible for all children.
- Teachers will understand that not all science texts work as a read-aloud. (Interactive Read-Aloud Session 1, Author Notes)

As shown, the first two goals privileged the use of open-ended questions by indicating that teachers' use of open-ended questions is possible with respect to informational texts and that teachers should use questioning (presumably open-ended) to foster talent development. This message was further evidenced by the corresponding

PowerPoint presentation. Figure 4.9 (below) shows four of the several slides from this presentation in which the use of questions with no right answer or open-ended questions was emphasized.

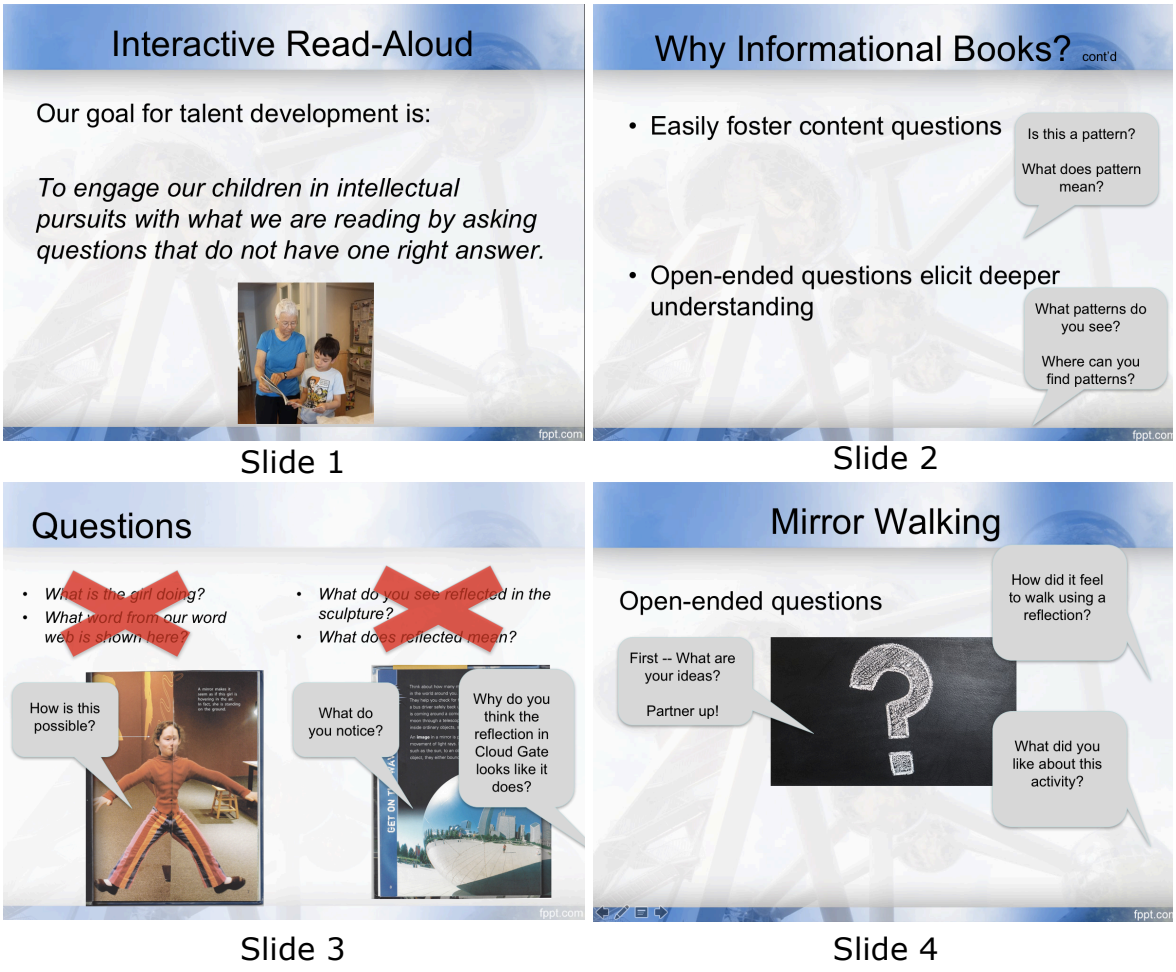


Figure 4.9. Select PowerPoint slides from Interactive Read-Aloud Session 1. Slides are numbered for ease of reference in this report, not in terms of where they fell within the presentation, itself, e.g., Slide 1 was not the first slide in the presentation.

On Slide 3, for example, teachers were discouraged from using close-ended questions or questions with one correct answer such as, "What does *reflected* mean?" Instead, they were encouraged to ask questions like, "How is this possible?" and "What do you notice?" Interestingly, Slide 2 offered two close-ended content-related questions:

"Is this a pattern?" (a yes/no question) and "What does pattern mean?" (similar to the Slide 3 question regarding *reflected*, the use of which was discouraged). Perhaps the distinction was that the Slide 2 questions were simply examples of content-related questions; however, the artifacts from the presentation do not indicate whether the PK team member facilitating this session made that distinction during the SI training or otherwise explained whether or when such close-ended questions would be appropriate. In fact, from the PowerPoint notes that corresponded with Slide 2, it appeared that such questions were, in fact, being discouraged:

> While it is easy to think of a question that asks *Is this a pattern?* a better one is *What patterns do you see?* Since our goal is fostering talent development for our children, open-ended questions, or questions without one correct answer[,] are vital. (Interactive Read-Aloud Session 1, PowerPoint Notes corresponding with Slide 2 as presented in Figure 4.7)

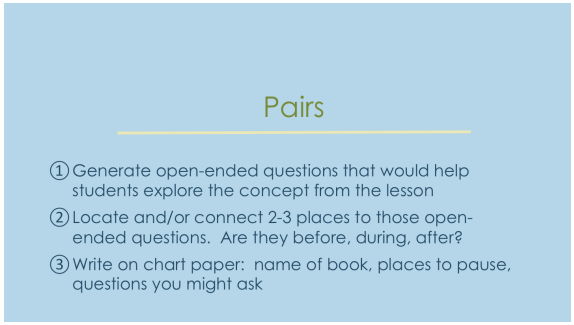
Open-ended questions were likewise emphasized during the second one of these read-aloud informational session, the topic of the which was *Planning for Engagement*. For example, the notes developed in conjunction with this session indicated that, at the end of this session, teachers would be able to:

- Analyze a text for key concept vocabulary/phrases
- Develop purposeful, open-ended questions
- Locate interactive moments in a text
- Distinguish between places for direct instruction and student interaction (Interactive Read-Aloud Session 2, Author Notes)

Here, again, the use of open-ended questions was emphasized. This emphasis was likewise reflected in the corresponding PowerPoint presentation, select slides from which are shown in Figure 4.9 (below). Notably, the second big idea for this session was, "If the question has one right answer, try not to ask it." While this big idea suggests that teachers should avoid closed-ended questions, it is not written as a mandate: the word *try*

suggests license. Nonetheless, the message of this session was that teachers should use open-ended questions, as further evidenced by the corresponding paired activity, in which teachers generated their own open-ended questions (see Figure 4.10).

Slide 1



Slide 2

Figure 4.10. Select PowerPoint slides from Interactive Read-Aloud Session 2. Slides are numbered for ease of reference in this report, not in terms of where they fell within the presentation, itself, e.g., Slide 1 was not the first slide in the presentation.

The topic of the third read-aloud session was *Questioning*. The notes developed in conjunction with this session read like a script, for example,

> *Today I am presenting the third and final session on read-alouds.*
>
> *The focus of my session is on questioning and how we can use questioning to make read-alouds more interactive and engaging.*
>
> *Some of the strategies I am going to share are things you are likely already doing;*
>
> *However, we hope that this session will give you new ways of thinking about questioning and about the questions you are asking…*(Interactive Read-Aloud Session 3, Author Notes)

The big ideas from this presentation were as follows:

- Open-ended questions remove the fear of being wrong.
- Closed-ended questions should be followed up with questions like *Why?* or *What makes you think that?*
- Purposeful questioning coupled with active listening can lead to rich conversation: Wait time is not wasted time.
- There are a variety of ways to encourage expression among all children. (Interactive Read-Aloud Session 3, Author Notes)

While open-ended questions were, again, emphasized in this informational session, close-ended questions were not entirely discouraged (as indicated by the second big idea). Nonetheless, teachers were encouraged to follow up close-ended questions with open-ended ones. The script corresponding to this point read as follows:

> *So we know that close-ended questions are often necessary—in fact, I often used these questions with my students to insure that they were picking up the critical information that they needed to understand a text. That said, not all close-ended questions are created equal, and we want to make sure that we are asking those that are truly essential to children's understanding. Asking why or what makes you think that afterwards is a good test as to the essential nature of the question.* (Interactive Read-Aloud Session 3, Author Notes)

To demonstrate this point, the slides pictured in Figure 4.11 (below) were used during the SI training.

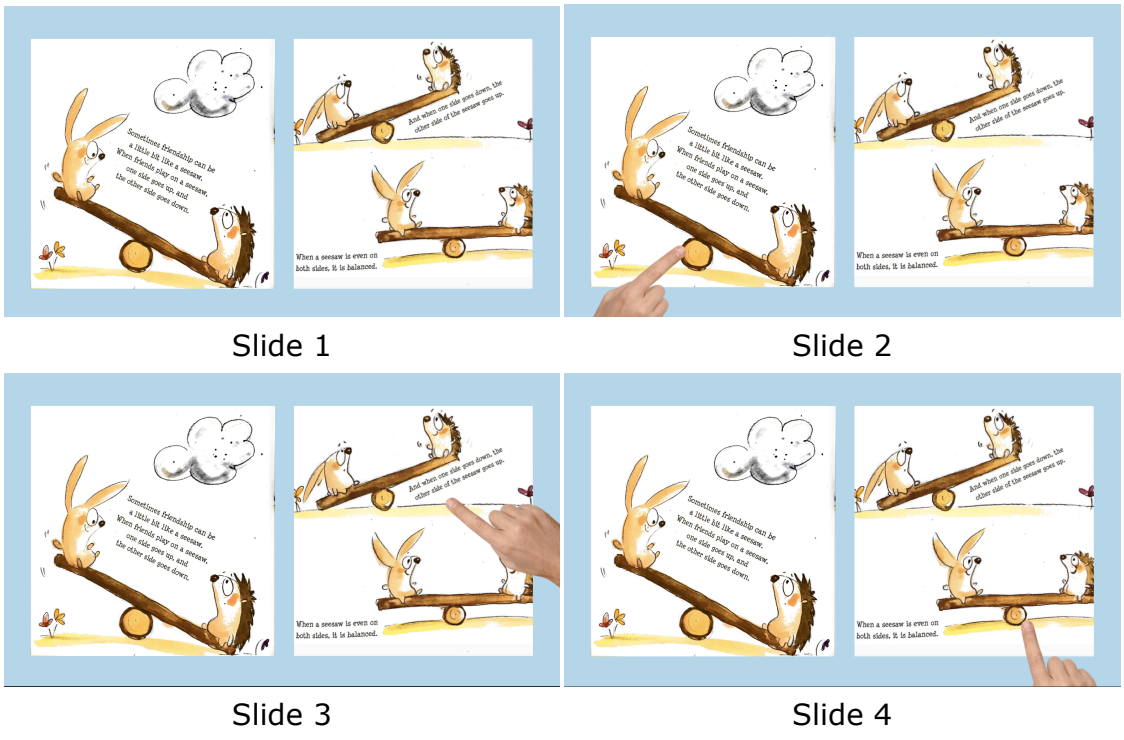


Figure 4.11. Select PowerPoint slides from Interactive Read-Aloud Session 3. Slides are numbered for ease of reference in this report, not in terms of where they fell within the presentation, itself, e.g., Slide 1 was not the first slide in the presentation.

The script corresponding with these slides was as follows:

> [Slide 1] *We might ask…*
>
> [Slide 2] *Who is up in this picture?*
>
> [Slide 3] *Who is up in this picture? Why do you suppose that in on picture the rabbit is up and in the other picture the hedgehog is up?*
>
> [Slide 4] *Who is up here?* [neither—they are balanced…even] *I wonder why? As you can see, understanding which character is up and which is down is an essential question as determined by the "why" test—in fact, by asking these why questions, we helping children uncover the metaphor contained in this text and moving them toward more abstract thinking.* (Interactive Read-Aloud Session 3, PowerPoint Notes corresponding with Slides 1-4 as presented in Figure 4.10)

As reflected by the foregoing slides and notes, the PK team encouraged teachers to limit the use of close-ended questions to only those that were essential to children's understanding. Moreover, teachers were encouraged to use open-ended questions as a tool to test the centrality of any close-ended questions they might ask.

The message regarding open-ended questions appeared to be received by SI teachers. When discussing the increasing complexity of the SI curriculum, Ms. Keegan also noted,

> Well, the fact that we wouldn't answer a question, either. Remember that? We wouldn't answer any of their questions, like at school. *Why do you think that? Well, tell me more.* Or *What do you think?* And sometimes the kids…you could see the frustration on their faces…*Just tell me the answer!* (Follow-Up Interview, February 1, 2018)

In sum, the PK team repeatedly encouraged the SI teachers to (almost) exclusively use open-ended questions during read-alouds. Because many of the read-alouds served as opportunities to teach, explore, and underscore the SI curriculum's vocabulary, any strategies suggested regarding the read-alouds had implications for the Vocabulary Component of the curriculum, too. Therefore, the PK team's implicit

message to teachers was to privilege the use of open-ended questions during enactment of the Vocabulary Component, as well. And as evidenced by Ms. Keegan's comment, these strategies, indeed, carried over to other aspects of the SI curriculum.

Lesson plans. As discussed in the foregoing paragraphs, during the SI training, the PK team explicitly encouraged the SI the teachers to privilege the use of open-ended questions during read-alouds and, implicitly, during their enactment of the Vocabulary Component of the SI curriculum. In addition, this message presented across the lesson plans—and in segments other than Books & Bookworms, i.e., the read-alouds. Sometimes, authors encouraged SI teachers to use open-ended questions by offering lists of questions, most or all of which were open-ended. An example is shown in this lesson plan excerpt from Day 5 (*Shadow*):

> *We have had a chance to talk about shadows and draw our own. Later today, we are going to go back outside and trace our shadows again.*
> *What do you think might be different when we trace our shadows a second time? Will there be any changes? What makes you think that? What is your hypothesis?*

Other times, the authors not only offered open-ended questions, but explicitly encouraged teachers to use open-ended questions, as reflected in this excerpt from Day 3 (*Balance*):

> Conduct an interactive read aloud, asking students **open-ended questions** to engage them in oral language development. Here are possible questions you can ask:
>
> *Who can tell me about a good friendship he or she has? Why is it a special thing to have?*
> *What are some nice things your friends have done for you or that you have done for your friends?*
> *Here we see that the rabbit is up and the hedgehog is down…and here the hedgehog is up, and the rabbit is down. What else does it mean when we are down or low?*
> *When things are balanced, both friends are happy. Are friendships always balanced? Why or why not?*
> *What kinds of problems can we have in friendships?*
> *What are some things that you do to make friendships better or balanced again?*
> (**emphasis added**)

Table 4.11 (below) indicates the number of explicit references that the lesson plan authors made to the use of open-ended questions in the lesson plans (and the segments in which the authors made those references).

Table 4.11.
References to Use of Open-Ended Questions by Segment

	Day 1 Pattern	**Day 2** Color	**Day 3** Balance	**Day 4** Light & Dark	**Day 5** Shadow	**Day 6** Reflection & Mirrors	**Day 7** Illusion & Vision	**Day 8** Kaleidoscope
Meeting of the Minds 1	2							
Books & Bookworms	2	2	1	1				
Activity Central							1	
Exploration Stations	2			1		1		
Munchies & More	1							
Meeting of the Minds 2								
Total	**7**	**2**	**1**	**2**	**0**	**1**	**1**	**0**

As Table 4.11 reflects, the language of the lesson plans explicitly encouraged teachers to use open-ended questions in segments other than the read-alouds, supporting

the notion that this practice was one the PK team wanted teachers to employ, generally. Interestingly, the largest number explicit references to the use of open-ended questions occurred in the Day 1 (*Pattern*) lesson plan, potentially setting the tone for teachers' enactment of the SI curriculum.

I more closely examined the voice (i.e., inclusive or exclusive language) that the authors employed when making these explicit references to the use of open-ended questions. I discovered that the authors employed inclusive language, exclusive language, or a mix of both. For example, the following excerpt from the Activity Central segment on Day 7 (*Illusion & Vision*) provides an example when an author employed inclusive language:

> Give children time to share their reasoning with their partner, then ask for raised hands for children to tell the whole class what they talked about with their partners. Try to ask open-ended follow-up questions.
> - *What about this picture made it the "trickiest optical illusion"?*
> - *What else did that make you think of?*
> - *How is this similar to/different from _____?*
> - *How is the image you selected different from what your partner selected?*

The words *try to* suggest that it was not imperative that teachers ask open-ended questions.

In the following excerpt from Day 1(*Pattern*), the author employed exclusive language:

> How to play "Guess My Rule":
> Children work in pairs.
> Child #1 picks several objects and groups them by their own "rule"—the attribute that they have in common (they are red, short, curvy, etc.).
> The second child tries to guess what the first child's "rule" is.
> Switch.
> As children are talking to their partner, encourage talking and elaborating their rule and thoughts. Allow them time to discuss this with their partner. Use open-ended questions to help children discuss this with their partners.

Here, the word *use* suggests that the author encouraged teachers to use only open-ended question as they assisted children in their discussion with peers.

Finally, in other excerpts, authors employed a mix of inclusive and exclusive language, for example, this excerpt from Day 4 (*Light & Dark*):

> Conduct an interactive read-aloud of *Light is All Around Us* using open-ended questions. Because there are probably some new concepts in this book, you may want to intersperse some comprehension questions, as well. Here are some suggestions of open-ended questions you could use for this read-aloud [the book had not arrived at the time of printing of the lesson plans; however, the one-page directions accompanying the station contained the following questions]:
>
> *What sources of light do you see here?*
> *What time of day is it in this picture? How do you know?*
> *How do you think that sunlight travels to the Earth from the sun?* [This question is asked on page 12, and the explanation is provided on page 13.]
> *Our height is measured in feet and inches. I am* [5 feet and 3 inches]. *Light is measured in lumens. A lightbulb has 1,750 lumens. How many lumens do yo* (sic.) *think that the sun has? Why do you think that?* [This information is provided on page 18.]
> *What was the word we learned that describes fish that glow in the water?* [Fish that glow in the water are described on page 23; however, the author does not use the word bioluminescent, so this might be a nice opportunity to reinforce that word.]

In this excerpt, the author provided directions imperatively: that teachers should "conduct" a read-aloud "using open-ended questions." On the other hand, the author inclusively left space for comprehension questions, as well offered a list of open-ended questions as "suggestions" only. Consistently, some of the suggested questions offered by the author were, in fact, close-ended, e.g., "What was the word we learned that describes fish that glow in the water?"

Ultimately, however, the use of inclusive or mixed language predominated exclusive language with respect to the use of open-ended questions. Table 4.12 (below)

reflects this finding. I provide all corresponding excerpts in a table in contained in Appendix O.

Table 4.12.
Use of Inclusive and Exclusive Language in References to Open-Ended Questions

	Day 1 Pattern		**Day 2** Color	**Day 3** Balance	**Day 4** Light & Dark	**Day 5** Shadow	**Day 6** Reflection & Mirrors	**Day 7** Illusion & Vision	**Day 8** Kaleidoscope
Meeting of the Minds 1	M	E							
Books & Bookworms	I	E	M	M	M				
Activity Central								I	
Exploration Stations	E	E			M		E		
Munchies & More	M								
Meeting of the Minds 2									

Note. Like Table 4.11, this table indicates during which segments lesson plan authors made references to the use of open-ended questions; in this table, however, such segments are filled in with a letter and color. *M* (green cell) indicates that a mix of exclusive and inclusive language was used in the reference; *E* (blue cell) indicates that exclusive language was used in the reference; and *I* (yellow cell) indicates that inclusive language used in the reference. A split cell (e.g., Day 1/Meeting of the Minds) indicates that that were two references made to the use of open-ended questions during that segment.

Summary of pattern 3: Curriculum characteristics provided guidance but, at times, relayed mixed messages. Lesson plans contained a mix of inclusive language and exclusive language. Therefore, the lesson plans' voice implied that teacher discretion was warranted in some situations and not warranted in others. However, no discernible pattern emerged regarding the specific days or segments in which inclusive or exclusive language was used.

In addition, although they were not commercially designed, the lesson plans books' look appeared to appeal to the SI teachers: They specifically indicated their

appreciation for the photographs contained throughout, the authors' use of bold-face type to highlight Daily Terms, and the space provided for note-taking.

Finally, in both the SI training and the lesson plans, the PK team sent a strong message to teachers that they should privilege the use of open-ended questions, as evidenced by the findings relative to the SI training, in particular the informational sessions on read-alouds. On the other hand, the lesson plans contained a mix of inclusive and exclusive directions with respect to the use of open-ended questions, again suggesting teacher discretion in some instances but not in others. However, no obvious patterns emerged with respect to when or under what circumstances teacher discretion was warranted.

Curriculum Enactment

In the foregoing section, *Curricular Guidance*, I answered my first research question: *To what extent did the summer intersession curriculum provide guidance to teachers in supporting children's vocabulary development?* Three significant patterns regarding curricular guidance emerged: that the lesson plans contained a thorough but inconsistent presentation of the curriculum vocabulary, that the Word Webs (in particular, the Classroom Word Web) lacked a cohesive vision, and that the SI curriculum's characteristics sent some mixed messages. The corresponding line of inquiry, then, is how teachers ultimately enacted the SI curriculum. Therefore, this section serves to answer my second research question: *In what ways did teachers enact the curriculum in support of children's vocabulary development?*

As discussed in the *Curricular Guidance* section, daily lesson plans highlighted vocabulary terms that teachers were encouraged to actively integrate into their lessons,

i.e., *Daily Terms*. The PK team envisioned that the teachers would develop their own knowledge of the Daily Terms and then share that knowledge with the children. Moreover, through questioning and conversation (suggestions for which were scripted into the lesson plans), teachers were encouraged to build upon children's prior and new understanding of the Daily Terms. Perhaps most importantly, whenever possible, teachers were encouraged to engage all children in the use and extension of these new vocabulary words.

As evidenced by the completed Classroom Word Web (pictured in Figure 4.12, below), teachers referenced all Daily Terms at some point during their enactment of the curriculum. Nonetheless, some interesting patterns emerged—not only with respect to teachers' use of those Daily Terms, but also regarding other aspects of the vocabulary development component (Vocabulary Component) of the SI curriculum:

1. Teachers appeared to make conscientious efforts to reference previous days' Daily Terms in order to reinforce the content of the curriculum;
2. Teachers' and children's use of Spontaneous Terms served as a means of facilitating children's vocabulary development;
3. Teachers treated Word Webs as beginning- and end-of-day activities, rather than interactive tools for vocabulary development; and
4. Teachers appeared to make both natural and conscientious *adaptations* (Brown, 2009) to the vocabulary development component of the curriculum; however, they did not make *improvisations* (Brown, 2009).

I discuss these patterns in greater detail in the next four sub-sections of this chapter.

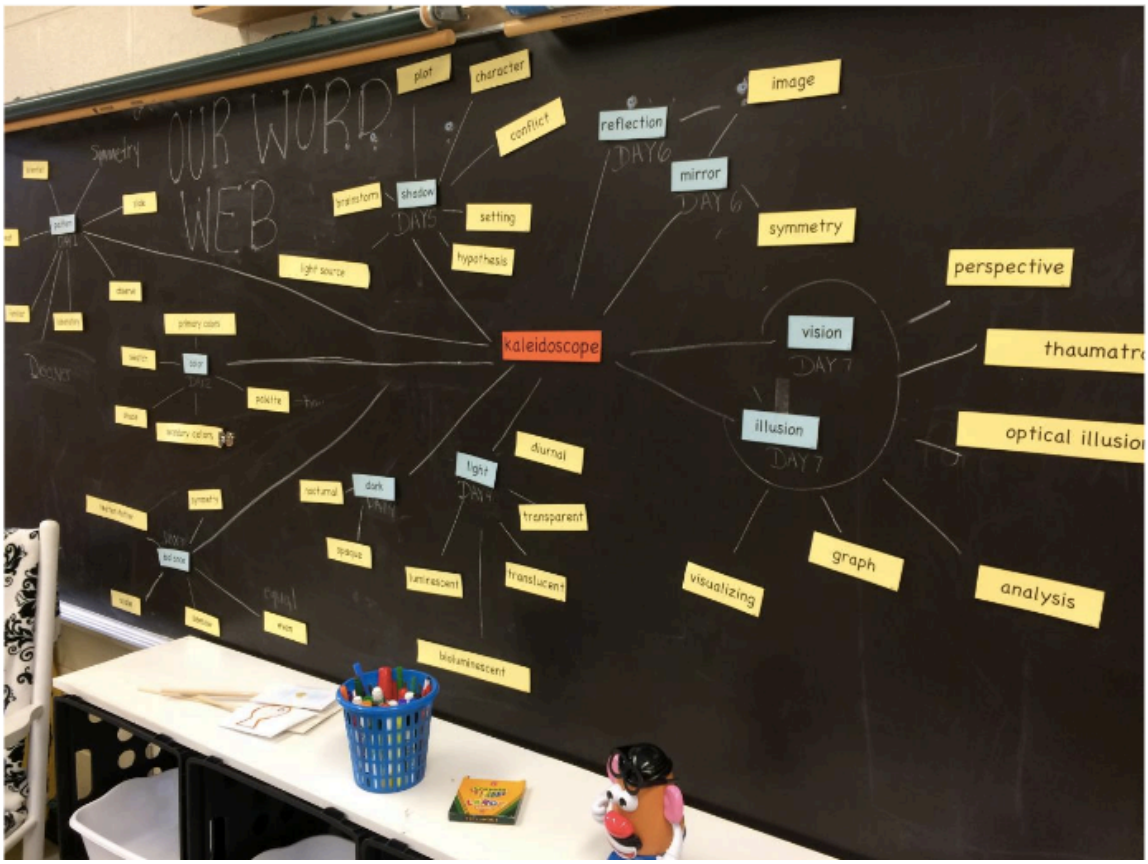


Figure 4.12. Classroom Word Web, completed. Although this picture was taken on Day 7 rather than Day 8, it essentially shows the Classroom Word Web constructed in its entirety as there were no new Daily Terms on Day 8. As reflected in this image, teachers posted all Daily Terms to the Classroom Word Web. For a discussion of the color-coding of the Word Cards used in constructing the Classroom Word Web, see the foregoing *Curricular Guidance* section.

Pattern 1: Daily Terms Served as Vehicles for Intra-Day Connections

As discussed in *Curricular Guidance*, the SI curriculum was designed in such a way that Daily Topics built upon each other, increasing in complexity. Children would gain exposure to the Daily Terms associated with the Daily Topics, as well as come to understand how the Daily Terms (and, if applicable, *Spontaneous Terms*, i.e., unplanned but relevant terms) were connected to one another. As such, the PK team envisioned that chief among the SI teachers' responsibilities would be the facilitation of children's connections between and among the Daily Terms. One way teachers could facilitate such

connections was by referencing previous days' Daily Terms, i.e., *Past Daily Terms*, during the enactment of subsequent days' lessons. In fact, because the PK team recognizing that there were some natural (and even predictable) opportunities for these connections to be facilitated, they authors built them into the lesson plans (primarily did so through the use of scripting).

Because I was interested in the extent to which such facilitations occurred, I analyzed all references made to Past Daily Terms over the course of the enactment of the curriculum. Because my research question was focused on teachers' enactment of the curriculum, I was especially interested in teacher-initiated references to Past Daily Terms; however, I also examined child-initiated references in the event that they served as opportunities for teachers to further facilitate children's connections. Table 4.13 (below) summarizes the number of references made to Past Daily Terms.

Table 4.13.
References to Past Daily Terms During Enactment

	Day 1 Pattern	**Day 2** Color	**Day 3** Balance	**Day 4** Light Dark	**Day 5** Shadow	**Day 6** Reflection Mirrors	**Day 7** Illusion Vision	**Day 8** Kaleido-scope
Total References	0	5	10	3	8	11	1	17
Teacher-Initiated	0	2	8	2	5	2	0	12
Child-Initiated	0	3	2	1	3	9	1	5

Note. These numbers are based on the original reference to the Daily Term. In other words, if the Daily Term continued to be used within a singular conversation or instance, it did not get counted again.

As one would expect, neither teachers nor children made references to Past Daily Terms on Day 1; after all, there were no Past Daily Terms from which to draw, it being the first day of the SI. In terms of total references, teachers and children collectively

made the most references to Past Daily Terms on Day 8 (*Kaleidoscope*). While this outcome was not a given, per se, it was nonetheless somewhat predictable: Not only were there more Past Daily Terms from which teachers and children could draw, the Day 8 lesson was, by design, intended to tie all previous days' content and concepts together.

What occurred on the days in between (Days 2-7) was more difficult to interpret. For example, one might expect that there would be a steady increase in references to Past Daily Terms as the days went on, there being an increasingly greater bank of Past Daily Terms from which teachers and children could draw. Instead, however, the number of references made on Days 2 through 7 lacked a discernible pattern. With respect to total, i.e., collective, references made on those days, the most references were made on Days 3 and 6 (*Balance* and *Reflection & Mirrors*), having ten and eleven total references to Past Daily Terms, respectively. On Day 3 (*Balance*), the references were largely teacher-initiated (eight of the total references), and on Day 6 (*Reflection & Mirrors*), the references were largely student-initiated (nine of the total references). In fact, with respect to Day 3, the observer noticed the efforts made by the teachers to reference Past Daily Terms:

> Ms. Lindsey adds a tally mark "like yesterday" she says.
> [Observer 1: This is a reference to one of the ways students recorded observations on Day 1. The teachers make several attempts to include references to Day 1 throughout this observation. This includes the use of tally marks, Word Web words, and making connections between color and pattern.] (Observation Field Notes, July 19, 2017)

Upon closer analysis of the Past Daily Terms referenced during Day 3, I discovered that three of the ten references were to the Past Daily Term *symmetry*, which also happened to be a Daily Term for Day 3. Accordingly, the enactment of the lesson plan practically necessitated reference to this word. Factoring in this information, then, it

might appear that Day 6 had the most references to Past Daily Terms. However, closer analysis revealed that, like Day 3, *symmetry* was also both a Past Daily Term and a Daily Term for Day 6. Therefore, references to *symmetry* were, again, essential to the enactment of the Day 6 lesson. In fact, of the two teacher-initiated references to Past Daily Terms, one was to the word *symmetry*. Similarly, many of the student-initiated references were to the word *symmetry*. Given the number of child-initiated references occurring on Day 6 relative to other days, I present them in Table 4.14 (below).

Table 4.14.
Child-Initiated References to Past Daily Terms During Day 6

Child	Past Daily Term	Excerpt
Mallory	Source of light	Elizabeth comes in late and the students tell her the word of the day is reflection. Mallory defines it as when the sun hits a surface and bounces off again. Ms. Keegan: does it have to be the sun? Mallory: no. it can be a source of light There is a quick discussion that is a review of different light sources.
Antonio	Symmetrical	Ms. Keegan holds mirror up to the letters. Antonio: It flips it. I know this word. It's love. Libby: it's love Ms. Keegan: Yes, Some of the letters are flipped around. Why is that? Antonio explains that O and V are the right way because they are the same on both sides and they are symmetrical [Observer 2 note: he uses this word without prompting! Ms. Keegan is excited] Ms. Keegan asks the students which letters would you have to flip so the word reads correctly in the mirror. The students erase the Ms. Lindsey and E so they can get it to

		read the right way in the mirror. Connor and Antonio both do this and are excited to see it work. Libby needs help writing the letters backwards and Ms. Keegan gives her the whiteboard to be able to see it. Ms. Keegan: Let's try a different word. Try to work mom and see what happens. Libby: it's just the same because there are two M's. Ms. Keegan: it's just the same because the letter M is symmetrical.
Antonio	Symmetrical	Ms. Keegan: what did we learn? Connor: reflection Antonio: mirror. Some of the letters are symmetrical.
Jonathan	Pattern	She takes their mirrors away and shows them how to bend the mirror. Jonathan: you're making bumps. Jonathan: you're making a pattern.
Mallory	Shadow	Back together in whole group at desks. Mallory: your mirror is like your shadow but with color. [Observer 2: Ms. Keegan asked Mallory to share this insight from earlier with the class.]
Mallory	Shadow	Ms. Keegan: I want you to mirror what Ms. Jessica is doing. Mallory says like the shadow game. Jessica makes lots of motions and walks[. T]he students all mirror her as does Ms. Keegan.
Mallory	Symmetrical	Mallory: she's not symmetrical. Jonathan points out the two sides of the image being different. He also sees that the table is on one side but not the other. He is looking carefully at the whole image. Antonio sees this now too. Michael is the chair on this side but not that side.
Antonio	Transparent	Ms. Keegan is holding up the CD and talking about the colors and reflection, and Antonio comes up and points at the clear plastic part and says this is part is transparent!
Elizabeth	Symmetry	Ms. Keegan talks with Elizabeth about her drawing and

		she said she drew a robin's egg for symmetry and in conversation with open-ended questions Ms. Keegan realizes that she is connecting with the sound 'tree' in the word symmetry to an actual tree and Ms. Keegan helps to clarify this misconception and together they come up with how to indicate the egg shape is symmetrical. Elizabeth comes up with another idea of something to draw before Ms. Keegan leaves her.

Note. All excerpts were taken from Observation Field Notes, July 25, 2017.

Parenthetically, despite the repeated use of the word *symmetry* (it being central to Days 1, 3, and 6), Elizabeth's use of the word reveals her misunderstanding of it during the end-of-the-day Meeting of the Minds, even after three days of *symmetry* being a Daily Term. Table 4.14 also reveals that, as a general matter, most references to Past Daily Terms were made by the same two children, Mallory and Antonio. In fact, it often seemed that when Past Daily Terms were initiated by children, it was the same child or children who happened to fixate on a single word. For example, on Day 2, all three references were to the word *pattern*, two of which were initiated by Elizabeth and the third being initiated by Antonio.

Given that many of the references in Days 3 and 6 were to the term *symmetry*, which was also a Daily Term for those days, the most "true" (i.e., deliberate, rather than incidental) references to Past Daily Terms occurred on Day 5, there being eight such references. However, the Daily Topic for Day 5 was *Shadow*, and almost every reference to a Past Daily Term on that day was an incidental (as opposed to deliberate) use of Daily Terms from Day 4: *light* and *dark*. In other words, these terms came up naturally, rather than in some emphasized fashion:

> We are now back in the classroom.
> Mallory talks about the shadow being "connected" to her.
> Ms. Keegan: When do you have a shadow?
> Sara: when the sun's out

> Mallory: at the beach
> Michael: in the sun
> Ms. Keegan: Why does there have to be a bright **light**?
> Michael says when you are on the river you can see your shadow on the water.
> Mallory says she sees shadows when playing at a friend's house.
> Ms. Keegan: what does the **light** do?
> Sara: you have another shadow to play with when you have two people and that other person's shadow and my shadow…when we play, the shadows play
> Antonio: it helps you like, if it was **dark** you couldn't see anything
> (Observation Field Notes, July 24, 2017, **emphasis added**)

Taken together, my analysis of this data suggests that the variability in the number of references to Past Daily Terms on Days 2-7 was not all that great. In fact, it seems there may have even been a slight taper in teachers' references to Past Daily Terms.

While the foregoing analysis may suggest that Ms. Keegan's and Ms. Lindsey's references to Past Daily Terms only occurred because doing so was necessitated by the lesson (or that the references were merely incidental), I would be remiss if I did not note that these teachers *did* take opportunities to deliberately and purposefully incorporate the use of Past Daily Terms. In the following example, which occurred on Day 3 (*Balance*) when children were creating symmetry art, Ms. Keegan routed a conversation to several Daily Terms from Day 2 (*Color*):

> Ms. Keegan: we are going to make a design but just on one side of your paper. You can use your **primary colors**. You can also mix them together and make…
> Students: **secondary colors**. (Observation Field Notes, July 18, 2017, **emphasis added**)

Similarly, in the following excerpt, which occurred on Day 4 (*Light & Dark*), Ms. Keegan took advantage of the transition time between activities to make reference to the previous day (*Balance*):

> [Ms. Keegan] has the students put their glow sticks on their heads and try to balance it while they pick up one foot. Then balance it as they walk back to their desks. This was a nice segue that connected to yesterday's lesson and use of vocabulary words. (Observation Field Notes, July 20, 2017)

On the same day, when children were creating their own glow-in-the-dark creatures, Ms. Lindsey made a similar effort. The observer noted,

> The students are making their creatures. Ms. Lindsey gives directions for painting their creatures and adding elements. She uses the word shade and pattern as she gives directions referring back to the previous days. (Observation Field Notes, July 20, 2017)

On Day 6 (*Reflection & Mirrors*), Ms. Keegan's references to two Past Daily Terms (*symmetry* and *pattern*) were particularly thoughtful:

> Ms. Keegan introduces reflection and symmetry
> Antonio: symmetry is when both sides are the same.
> Ms. Keegan demonstrates with her patterned pants and the students say they remember. Ms. Lindsey shows them the symmetry page from the *I See a Pattern* book from last week as review. (Observation Field Notes, July 25, 2017)

The foregoing examples reflect the teachers' purposeful attempts to reinforce the curriculum's vocabulary. These efforts suggest that Ms. Keegan and Ms. Lindsey recognized that the Daily Terms and Daily Topics were intended to be connected, and they wanted to facilitate children's connections.

Summary of pattern 1: Daily Terms served as vehicles for intra-day connections. The foregoing analysis suggests a few things. First, most teacher- and child-initiated references to Past Daily Terms focused on those that were central to the Daily Topic. On the occasions that teachers made references to Past Daily Terms that were less central to the Daily Topic, they did so deliberately and purposefully, suggesting that they recognized the value of making intra-day connections. Ultimately, however, while all Daily Terms and Topics were connected to the Central Theme, *Kaleidoscope*, they were not always as easily connected to the other Daily Terms and Daily Topics; therefore, teachers' (and children's) opportunities to reference Past Daily Terms as a

means of connection and reinforcement varied by day, with the culminating day being the most natural time to incorporate references to Past Daily Terms. In sum, Ms. Keegan and Ms. Lindsey did make deliberate efforts to make intra-day connections, but the Daily Topics did not always lend themselves to making such connections.

Pattern 2: Spontaneous Terms Served as a Means of Facilitating Vocabulary Development

In addition to coding for Past Daily Terms, I coded for *Additional Terms*. Following is how I defined this code:

> An *additional term* is a word that relates to the subject curriculum but has not been explicitly described in any daily lesson plan up to the point that it is used or referenced. I will use this code whenever an *additional term* is used, regardless of whether it is used by a child, teacher, or other individual (e.g., adult helper, researcher). For example, if a teacher is discussing ***reflections*** with children, and a child says, "That is like a ***Xerox copy***!" then ***Xerox copy*** would be considered an *additional term*. (Initial Codebook, Appendix I and Emerged Codebook, Appendix J)

Essentially, Additional Terms were what I described in the *Curricular Guidance* section as *Spontaneous Terms*, i.e., unplanned but relevant vocabulary words that may arise during the enactment of the curriculum. For the sake of consistency, I will refer to them as Spontaneous Terms in the remainder of this section, as well. Initially, I coded for Additional Terms, i.e., Spontaneous Terms, because I was curious whether such terms were being added to the Classroom Word Web. While I describe patterns of enactment related to the Classroom Word Web in a later sub-section, other patterns regarding Spontaneous Terms emerged from the data, which I describe here. As a general matter, Spontaneous Terms were initiated by both teachers and children, and those terms fell into one of three categories: Synonyms/ Clarifiers; Antonyms; and Other Content-Related Spontaneous Terms. I also discuss Spontaneous non-CRTs: those non-content-related

terms that arose spontaneously during the enactment of the curriculum.

Synonyms and clarifiers. Throughout the enactment of the curriculum, teachers and children used Spontaneous Terms as synonyms for other terms or to clarify other terms or content. On some occasions, teachers' use of Spontaneous Terms was deliberate and meaningful; on other occasions, use Spontaneous Terms was either incidental or without meaningful follow-up.

Deliberate and meaningful. Throughout the course of the summer intersession, Ms. Keegan and Ms. Lindsey deliberately and meaningfully provided their own Spontaneous Terms or drew special attention to the Spontaneous Terms offered by the children. In the following excerpt from Day 2 (*Color*), both the teachers and children used synonyms for the Daily Term *palette*:

> Ms. Lindsey: Did we say what this was?
> Elizabeth: **tray**
> Jonathan: paint
> Ms. Lindsey: paint palette
> Katie knew the colors on the palette were primary colors.
> Ms. Lindsey (reading from LP book, circulating around tables of students): what do you suppose will happen if we add white to a color we made?
> Ms. Lindsey: What if you add black?
> Students: There is no black
> Mallory: It would be darker.
> Several children (Connor, Libby, Aidan, Niall) are holding their paint brushes. Others are sitting and just watching Ms. Lindsey and Ms. Keegan.
> Ms. Lindsey calls the palette their "**play station**."
> Ms. Keegan: Should I add palette to our word wall?
> Mallory: yea
> She also adds "tray" because she said Elizabeth called the palette this earlier.
> (Observation Field Notes, July 18, 2017, **emphasis added**)

In the foregoing excerpt, Elizabeth's use of the word *tray* suggests that she did not know the more specific Daily Term *palette*; however, her use of the more familiar term *tray* was nonetheless a synonym for *palette* and served as a basis for defining *palette*. By emphasizing this Spontaneous Term, and even placing it on the Classroom Word Web,

Ms. Lindsey and Ms. Keegan acknowledged *tray* as a synonym for *palette* while honoring the child's background knowledge. Moreover, Ms. Lindsey's analogy of a palette to a play station reinforced the definition of *palette* and underscored the function of a palette. As Ms. Keegan recalled (when I asked her about her addition of the Spontaneous Term *tray* to the Classroom Word Web),

> I remember this one [tray] was a student…these two [tray and cool color] were student-generated because we were asking them like how, what connections they could make to the word palette. Or where had they heard this or used this. Or *Can you make a connection to what a palette is?* (Follow-Up Interview, February 1, 2018)

Ms. Keegan's recollection, some five months after the SI, suggests that the teachers were making deliberate efforts to use Spontaneous Terms to meaningfully connect, define, and clarify Daily Terms.

Incidental or without follow-up. Not all uses of Spontaneous Terms as synonyms or clarifiers were quite as deliberate. Rather, the use of these terms was often an incidental function of the curriculum or incidental to the conversation. For example, the teachers occasionally appeared to be using Spontaneous Terms without recognizing their centrality to the Daily Terms or Daily Topic. In the following excerpt from Day 1 (*Pattern*), Ms. Keegan was working with children at one of the Exploration Stations, in which they were playing a game called *Guess My Rule*:

> Connor: I thought we were going to build something with this.
> Ms. Keegan says they will work in partners and she will be a partner
> Ms. Keegan picks three items and says she has a rule.
> Jonathan: You could put them together, because they're all different
> Ms. Keegan: What can I do with all of these?
> Connor: It doesn't have a string
> Connor: This is white, this is white, this is white.
> Ms. Keegan: Good thinking. That's not my rule but you're on the right track.
> Ms. Keegan: Libby, how are they all alike?
> Ms. Keegan then adds another item and says it fits her rule too.

> Connor: if you stretch that, and slide that, (he seems to change his mind though and quits talking). (Observation Field Notes, July 17, 2017)

In the foregoing excerpt, Ms. Keegan used words like *rule* and *alike*, without making explicit connections to the Daily Term *pattern*. Ms. Keegan may not have recognized the connection, herself. In fact, at the conclusion of the first rotation of this particular station, Ms. Keegan lamented, "I did horrible on that. I'll have to try again," suggesting her general lack of confidence in the activity—which, perhaps, prevented her from doing much more than carry it out at its most basic level.

In the previous example, it was a teacher who used Spontaneous Terms; however, a similar trend occurred when children offered Spontaneous Terms: Teachers did not recognize them as opportunities for connection and/or clarification. In the following two examples from Day 5 (*Shadow*), two different children use the word *copy* (or an iteration of it). Example 1:

> Ms. Keegan says we will go outside and draw shadows with chalk. There is a sentence stem on the board: I think _____ will happen because _____.
> Ms. Keegan: we call this a hypothesis
> Students repeat this: *hypothesis*.
> Ms. Keegan says this is like a prediction and asks students what a prediction is.
> …
> Sara predicts: "My shadow is going to copy me," as she reads this to Ms. Lindsey she touches the words on the page. (Observation Field Notes, July 24, 2017)

Example 2:

> Ms. Lindsey: what's happening in these shadows?
> Connor: it's copying what he does (Observation Field Notes, July 24, 2017)

As evidenced by the lack of follow-up in the foregoing examples, Ms. Keegan and Ms. Lindsey did not consider how the Spontaneous Term *copy* could be used as an opportunity for connection or clarification. Loosely speaking, a shadow is a copy or does

copy its object; on the other hand, *copy* is not a true synonym for *shadow*. Therefore, these children's uses of the word *copy* provided the teachers with opportunities for further defining and clarifying that term, as well as the Daily Term *shadow*: *How does our shadow copy us? How are shadows and copies the same? How are they different?* However, this follow-up did not occur.

Antonyms. Several pairs of the Daily Terms provided in the SI curriculum were antonyms: *light-dark*, *transparent-opaque*, and *diurnal-nocturnal*. In addition, the curriculum offered opportunities for children to be introduced to words that were antonyms, even if these words were not listed as Daily Terms. For example, on Day 6 (*Reflection & Mirrors*), during one of the Exploration Stations, children were introduced to the words *concave* and *convex*. While these words were not Daily Terms, they were explicitly defined in the lesson plan for that day:

> There are three types of mirrors, 1) plane, 2) convex, and 3) concave.
> A *plane mirror* is flat and the image is the same size as the object and same way up, but inverted (left-right).
> A *convex mirror* is curved. It bulges outward and the image is right side up and usually smaller than the object.
> A *concave mirror* is also curved but bulges inward (think of the word cave and you can go in a cave, curved inward). The image in a concave mirror is dependent upon how close you are to it. Up close it is bigger and right side up but, farther away it is smaller and upside down.

Finally, even when not treated as Daily Terms or vocabulary words for children to learn, the concept of "opposites" otherwise presented in the curriculum. For example, Day 2's read-aloud of *Mix It Up!* by Herve Tullet, teachers were encouraged to introduce children to the fact that adding *white* to a color would *lighten* it and how adding *black* to a color would *darken* it, i.e., *white-black* and *lighten-darken*.

Perhaps it is not surprising, then, that other antonyms and opposites naturally presented themselves during the enactment of the curriculum. Table 4.15 (below)

presents excerpts in which antonyms arose over the course of the summer intersession.

Table 4.15.
Spontaneous Terms as Antonyms

Day	Daily Topic Daily Terms	Antonym	Excerpt
1	**Pattern** Repeat Familiar Slide Symmetry Scientist Laboratory Observe	Same and Similar [implicit]/ Different	Connor: I thought we were going to build something with this. Ms. Keegan says they will work in partners and she will be a partner Ms. Keegan picks three items and says she has a rule. Jonathan: You could put them together, because they're all different
3	**Balance** Scale Even Seesaw Teeter-Totter Symmetry	Heavier/ Lighter	Connor: the left side is going to get heavier. Ms. Lindsey asks him to point to the side. He does and continues to explain: The left is going to be heavier and the right will be lighter.
		Same/ Different	She gets to add two sticks and make it balance. Sabrina says: it's the same weight even though there are different shapes.
4	**Light** **Dark** Luminescent Bioluminescent Opaque Transparent Translucent Diurnal Nocturnal	Day [implicit]/ Night Sleep/ Awake	Ms. Keegan: What do you do at night? Students: Sleep Ms. Keegan: Does everyone sleep at night? Students: No Elizabeth shares a story of an animal who is awake at night. Ms. Keegan introduces the words diurnal and nocturnal and has the students say them. Elizabeth notices that night and nocturnal both start with *n* to make it easy to remember.
5	**Shadow** Light Source Brainstorm Plot Character Conflict Setting Hypothesis	Light/Dark Day [implicit]/ Night	We are now back in the classroom. Mallory talks about the shadow being "connected" to her. Ms. Keegan: When do you have a shadow? Sara: when the sun's out Mallory: at the beach Michael: in the sun Ms. Keegan: Why does there have to be a bright light? Michael says when you are on the river you can see your shadow on the water. Mallory says she sees shadows when playing at a friend's house.

			Ms. Keegan: what does the light do? Sara: you have another shadow to play with when you have two people and that other person's shadow and my shadow…when we play, the shadows play Antonio: it helps you like, if it was dark you couldn't see anything Ms. Keegan: could you have a shadow at night? Antonio says yes if you are inside and have a light on. Ms. Keegan: so, it doesn't have to be the sun. Some of you noticed the shadows in the hall, why is that? Aidan: the lights [observer reflection omitted]
		Detached/ Connected	Ms. Keegan: Can your shadow come detached? Sara: No [And then later in the lesson…] We are now back in the classroom. Mallory talks about the shadow being "connected" to her.
7	**Illusion** **Vision** Perspective Visualize Optical Illusion Thaumatrope Graph Analysis	See & Sight/ Blind	Ms. Lindsey begins reading the text. After page 1 Ms. Lindsey: What are they using? Antonio: Hands Students: Sight Several say "Mmmm" on the taste page. Ms. Lindsey: What will be the problem? Students: they won't be able to see it Ms. Lindsey asks how will they be able to see it. Connor says: by opening their eyes but they can't because they're blind [observer reflection omitted]
8	**Kaleidoscope** [all previous Daily Terms]	Uneven/ Balanced	[Ms. Keegan] asks the group if they have their sentence in their head and all do except for Antonio. When she partners them, there is a group of 2 and 3. She says since there is an uneven number they are not balanced.

Note. Daily Topics are bolded. Excerpts were taken from Observation Field Notes for the corresponding day.

Sometimes antonyms presented in a manner that was central to the content being explored. For example, the Spontaneous Terms *heavier* and *lighter* (see Table 4.15, Day 3) were words directly related to *balance*—in this instance, the balancing of the scale. Other times, antonyms presented as a means of defining other words, such as the use of *day* and *night* and *sleep* and *awake* (see Table 4.15, Day 4), in which Ms. Keegan and the children were arriving at the definitions of *nocturnal* and *diurnal*. And still other times, antonyms were used to define or clarify, but were also connected to a previous day's content (see Table 4.15, Days 3, 5, and 8); for example, Ms. Keegan's use of *uneven* and *balanced* to not only introduce Antonio to the word *uneven*, but also to relate back to Day 3's content by incorporating the term *balanced*. Regardless of their use, a closer look at the references to Spontaneous Terms as antonyms suggests that when these words were teacher-initiated, they were used quite purposefully; however, when they were child-initiated, they tended to "evaporate" into the conversation, i.e., Ms. Keegan and Ms. Lindsey did not recognize them as opportunities for vocabulary development (or, if they did, they simply did not capitalize on such opportunities).

Other content-related Spontaneous Terms. In some instances, both teachers and children used Spontaneous Terms that were neither synonyms nor antonyms, but were nonetheless central to the content of the curriculum, often serving as examples that bolstered that content. Table 4.16 (below) lists these "other" content-related Spontaneous Terms by day.

Table 4.16.
Other Content-Related Spontaneous Terms

Day	Topic	Content-Related Spontaneous Terms	
		Teacher-Initiated	Child-Initiated
1	Pattern		Crystally, Shiny
2	Color	Mix, Combine	Cool Color, Evo-green [evergreen]
3	Balance	Calibrate	Weigh
4	Light & Dark	Glow	Fireworks, Moth
6	Reflection & Mirrors		Bounce
5	Shadow	Flashlights	Sunlight, Sun, Lights
7	Illusion & Vision	Senses, Binoculars	Eye Doctor, Glasses, Eyes

The Spontaneous Terms listed in Table 4.16 reflect no discernible pattern in terms of parts of speech: Some were verbs (e.g., *mix*, *combine*), some were nouns (e.g., *flashlights*, *binoculars*), and others were adjectives (e.g., *crystally*, *shiny*). However, they tended to naturally arise during conversations and were not otherwise emphasized by teachers—whether offered by the teachers, themselves, or by the children. For example, on Day 2 (*Color*), the Ms. Keegan is conducting a read-aloud of *Mix It Up!*, a book about mixing colors The following discussion ensued:

> Ms. Keegan: What happened to our red?
> Students: It's pink.
> Antonio: because white and red make pink
> Libby: it's going to be darker green
> Antonio: Green turns evo-green, I heard it at my house and it's a darker green. [Observer 1: I wonder if he means evergreen but he repeats evo-green and says it later in the day too. However, the teachers do not try to "correct" or change his response to evergreen.] (Observation Field Notes, July 18, 2017)

This lack of follow-up or emphasis was not the rule, though: Exceptions included the Spontaneous Terms *calibrate*, *binoculars*, and *cool color*. When Ms. Lindsey used the Spontaneous Term *calibrate*, Ms. Keegan then explained the word to the children:

> Ms. Lindsey puts flat marbles in the scale. Ms. Lindsey defines the word scale. She adds 6 marbles to each side but then realizes that it is not showing them as

> equal weight and has to calibrate the scale, as she does this Ms. Keegan talks about the word calibrate and what that means. The scale is not working so Ms. Keegan asks the students: what do you think she should have to move to make sure it balances? (Observation Field Notes, July 19, 2017)

Similarly, in the following excerpt, which occurred during a Day 7 (*Illusion & Vision*) Exploration Station, Ms. Keegan confirmed that all children understood the Spontaneous Term *binoculars*:

> Ms. Keegan: What are binoculars? Look at what Sara is doing.
> She has her hands cupped around her eyes mimicking the use of binoculars. All three children seem familiar with this term. (Observation Field Notes, July 26, 2017)

And, finally, when Antonio used the Spontaneous Term *cool color* (on Day 2), Ms. Keegan drew special attention to it by adding it to the Classroom Word Web:

> Ms. Keegan: So, when you mix two colors together, combine, when you mix or combine colors, that makes what we call a secondary color.
> Mallory: Secondary
> Antonio: That's also a cool color, I saw in art class before and it was in the cool color too.
> After this comment, Ms. Keegan adds "cool color" to the Word Web. [The children] have their heads tilted up, watching her write this. (Observation Field Notes, July 18, 2017, observer reflection omitted)

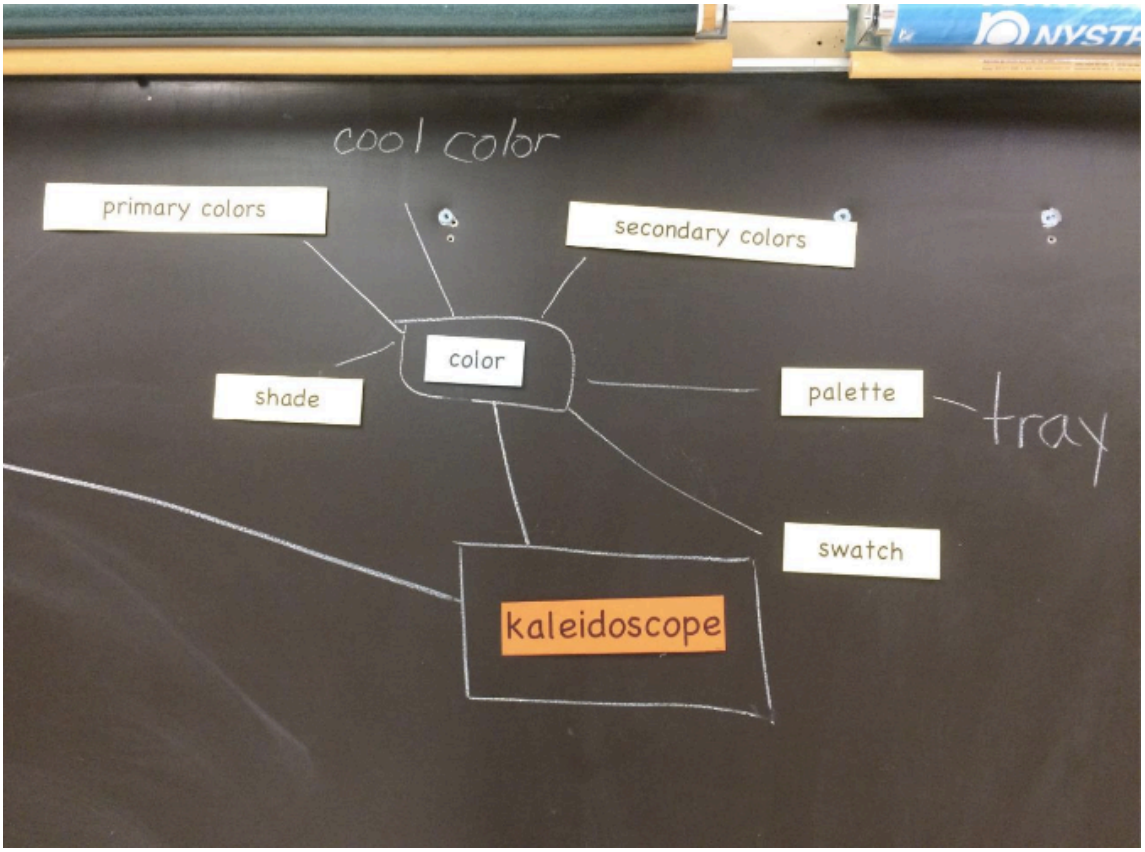


Figure 4.13. Classroom Word Web, Day 2 (*Color*). This picture shows the addition of Antonio's Spontaneous Term *cool color*.

Spontaneous non-CRTs. The foregoing table and examples represent those Other Spontaneous Terms that were content-related; however, there were likewise non-CRTs that arose spontaneously, i.e., words that were not content-related, but still sparked interesting conversation. For example, on Day 4 (*Light & Dark*) during the read-aloud of *Glow*, the following occurred:

> When Ms. Keegan reads…the words **daze** and **dazzle**[,] a few students spontaneously repeat **daze** and **dazzle** and Libby asks what does that mean. Ms. Keegan spend a minute explaining what the words mean and have the students give examples. This was a great spontaneous, quick discussion of vocabulary that was built from the students' own interest in the words. (Observation Field Notes, July 19, 2017, **emphasis added**)

Similarly, two examples both arose on Day 6 (*Reflection & Mirrors*). In the first of the two examples, which occurred during an Exploration Station in which children

played with different types of mirrors, Ms. Lindsey took a moment to demonstrate the meaning of the word *flexible*:

> Aidan and Jonathan are engaged in playing with the mirrors now. Ms. Lindsey tells them it is called a flexible mirror. She shows them how to play with it to bend it.
> Aidan wiggles it around to see himself.
> Ms. Lindsey: what does it mean to be flexible?
> She takes their mirrors away and shows them how to bend the mirror.
> (Observation Field Notes, July 25, 2017)

In the second example, Ms. Lindsey paused the read-aloud of *Mirror Power* to insure children understood the word *hovering*:

> [Ms. Lindsey s]tarts to read. What does hovering mean?
> Mallory: it looks like she is jumping
> They talk for a minute about floating and hovering. (Observation Field Notes, July 25, 2017)

The teachers' actions in these examples suggest that they valued children's vocabulary development, generally. In other words, they recognized the importance of all vocabulary to children's vocabulary development, even if that vocabulary was outside of the curriculum's Daily Terms and Daily Topics.

Summary of pattern 2: Spontaneous Terms served as a means of facilitating vocabulary development. As illustrated, teachers' and children's uses of Spontaneous Terms frequently occurred throughout the enactment of the curriculum. When Spontaneous Terms were used incidentally or without attendant emphasis or meaningful follow-up, Ms. Keegan and Ms. Lindsey missed opportunities to develop children's vocabulary. However, more often than not, Spontaneous Terms served as a powerful tool in children's vocabulary development. In such cases, Ms. Keegan and Ms. Lindsey emphasized the Spontaneous Terms or otherwise used them to provide additional clarification or to serve as content-bolstering examples.

Pattern 3: Word Webs Treated as an Activity Rather Than an Interactive Tool

As more thoroughly described in *Curricular Guidance*, the SI curriculum provided SI teachers with opportunities to support children's vocabulary development via the use of tangible resources, specifically Personal Word Webs and the Classroom Word Web. In the next few paragraphs, I describe how Ms. Keegan and Ms. Lindsey used these resources to support children's vocabulary development.

Personal Word Webs. Children received pre-printed Personal Word Webs, which pre-populated the first few pages of their *lab notebooks*, i.e., composition books children were to use for writing and other activities throughout the SI. As discussed in the foregoing section, the PK team decided that the Personal Word Webs would be used during the Meetings of the Minds (beginning and ending) and, indeed, all lesson plans contained built-in opportunities to use them during those meetings. The teachers' enactment of this aspect of the curriculum mirrored what the PK team described in the lesson plans: Ms. Keegan and Ms. Lindsey provided children with opportunities to engage with their Personal Word Webs in every Meeting of the Minds segments, the only potential exception being the end-of-the-day meeting on Day 8 (*Kaleidoscope*). As the observer noted,

> Ms. Keegan leads meeting of the minds and reviews the main words of the day. [Observer 1: This was very brief. I think she might have rushed this because she wanted to make sure there was time to pack and distribute all of the children's camp items.] (Observation Field Notes, July 27, 2017)

Classroom Word Web. As more thoroughly discussed in the *Curricular Guidance* section, among the curriculum materials and resources provided to the SI teachers were the supplies needed to create a Classroom Word Web, i.e., a web of Word Cards that would be constructed over the course of the SI to visually depict the

relationships between the Daily Topics and Daily Terms, as well as any Spontaneous Terms that might arise. As further discussed in that section, authors of the various lesson plans had different conceptions of the Classroom Word Web: Some authors treated the Classroom Word Web as a discrete activity, while others treated it as an interactive tool. Analogously, a number of interesting patterns emerged with respect to the Ms. Keegan's and Ms. Lindsey's use of the Classroom Word Web.

References to Classroom Word Web in segments other than Meetings of the Minds. Ms. Keegan and Ms. Lindsey rarely referenced the Classroom Word Web during segments other than the beginning- and end-of-the-day Meetings of the Minds, despite the fact that several of the lesson plans offered built-in opportunities to reference the Classroom Word Web. Table 4.17 (below) indicates—by day and segment—during which segments the lesson plans provided the built-in opportunities to reference the Classroom Word Web and, correspondingly, those segments in which Ms. Keegan and/or Ms. Lindsey referenced the Classroom Word Web during enactment.

Table 4.17.
Classroom Word Web Use by Lesson Plan and Enacted Segments

	Meeting of the Minds (beginning)	**Books & Book-worms**	**Activity Central**	**Explora-tion Stations**	**Meeting of the Minds (ending)**
Day 1: Pattern					
Day 2: Color					
Day 3: Balance					
Day 4: Light & Dark					
Day 5: Shadow					
Day 6: Reflection & Mirrors					
Day 7: Illusion & Vision					
Day 8: Kaleidoscope					

Note. Segments marked with green bars indicate those in which the lesson plans contained built-in opportunities to reference the Classroom Word Web. Segments marked with orange bars indicate those segments in which teachers referenced the Classroom Word Web during enactment.

As Table 4.17 reflects, the only day in which the teachers referenced the Classroom Word Web outside of the Meeting of the Minds segments was Day 2 (*Color*), a day in which Ms. Keegan and Ms. Lindsey were potentially more beholden to their lesson plan books. In fact, in her reflection for Day 2, the observer noted, "Ms. Lindsey continued to read from her lesson plan book today. At one point, she was asking questions from the book as she was circulating among students." On all other days, Ms. Keegan and Ms. Lindsey only referenced the Classroom Word Web during the Meeting of the Minds segments. As discussed in the *Curricular Guidance* section of these findings, in the Day 1 (*Pattern*) lesson plan in which the Classroom Word Web was first

introduced, the author referred to "Word Web time" and described the Classroom Word Web as a "quick activity." This language suggested that the Classroom Word Web use would be discrete activity rather than posturing it as an interactive tool to be referenced throughout the day. Because this language was part of the Day 1 lesson plan, if one assumes Ms. Keegan and Ms. Lindsey read the plan, it may have set the tone for their use of Classroom Word Web (and, indeed, appears to be reflected in the pattern of use described here). Of course, an assumption underlying this finding is that the teachers did, in fact, read the lesson plan. I would suggest, though, that the likelihood that they did read the lesson plan was greater on Day 1 than any other day.

As a general matter, children did not engage with or mention the Classroom Word Web unless doing so occurred during the Meetings of the Minds or was in response to a teacher's initiation of its use. The only example I found of a child referencing the Classroom Word Web in a segment other than the Meetings of the Minds was on Day 2 (*Color*) during the Books & Bookworms segment:

> Ms. Keegan asks why she would do this
> Matthew: It's really magic.
> Ms. Keegan: Tell me more.
> He says something about using your hand**.**
> Jonathan says he sees red, yellow, and blue.
> Ms. Keegan asks if they know what these are.
> Several guess and shout out "primary colors."
> One student says "Adding to the web" when she puts primary colors on board. (Observation Field Notes, July 18, 2017, observer reflections omitted)

In this excerpt a child says, "Adding to the web," which is more of an acknowledgment of Ms. Keegan's use of the Classroom Word Web, rather than an example of a child-initiated use of it.

Intra-day connections. During the SI training, SI teachers were encouraged to use the Classroom Word Web to make intra-day vocabulary connections. Figure 4.14 (below) shows the image used during the SI training to demonstrate how, for example, the word *symmetry* could be connected to two days' Daily Topics, *Pattern* and *Balance*.

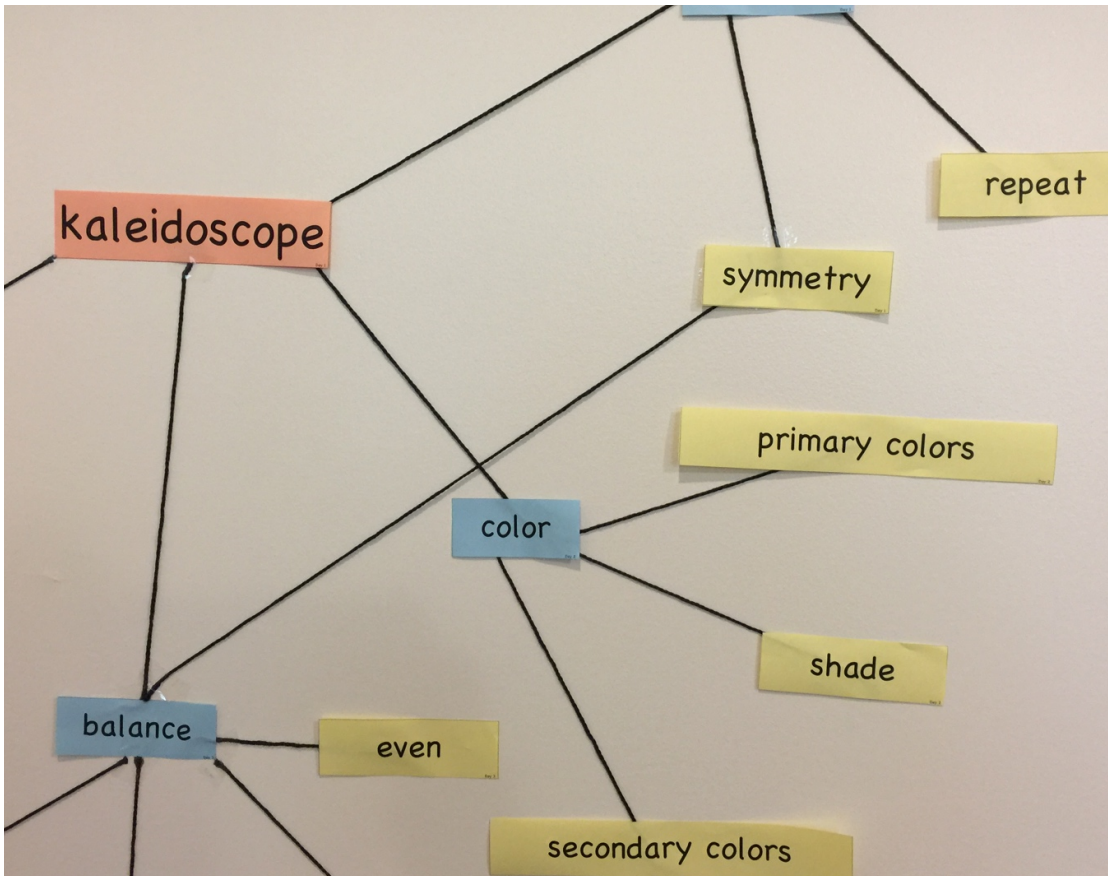


Figure 4.14. Image of Sample Classroom Word Web from the SI training. Here, the Daily Term *symmetry* was shown to be connected to two Daily Topics, *Pattern* and *Balance*.

Both teachers and students referenced Past Daily Terms during enactment. As earlier discussed, not all such references lent themselves to making intra-day connections; however, even when such opportunities did present themselves, Ms. Keegan and Ms. Lindsey did not make the physical (and visual) connections on the Classroom Word Web (see Classroom Word Web, completed, Figure 4.12, earlier in this chapter). Of course,

other factors—such as space on the board—may have hindered teachers' ability to make these connections.

Connection of non-CRTs to CRTs. As discussed in the foregoing *Curricular Guidance* section, in order to assist SI teachers in constructing the Classroom Word Web, the PK team color-coded the Word Cards that the teachers would use to construct the Classroom Word Web. Specifically, the team printed the Central Theme (which was also a Daily Topic and a Daily Term), *Kaleidoscope*, on orange cardstock. This card was to serve as the center of the Classroom Word Web. The team printed the Daily Topics (which were also Daily Terms), e.g., *Pattern* and *Color*, on blue cardstock. The team printed the remaining Daily Terms, i.e., those that were not also Daily Topics, on yellow cardstock. The team provided green cardstock strips to serve as blank Word Cards to be used for Spontaneous Terms. Table 4.7 (provided in the foregoing section of these findings) lists all Daily Terms along with their respective Word Card color-coding.

During the SI training, SI teachers were encouraged to add the non-content-related terms (non-CRTs) to the Classroom Word Web *without* connecting them to other words on the Classroom Word Web. Figure 4.14 (below) shows the slide used during the SI training to demonstrate this point.

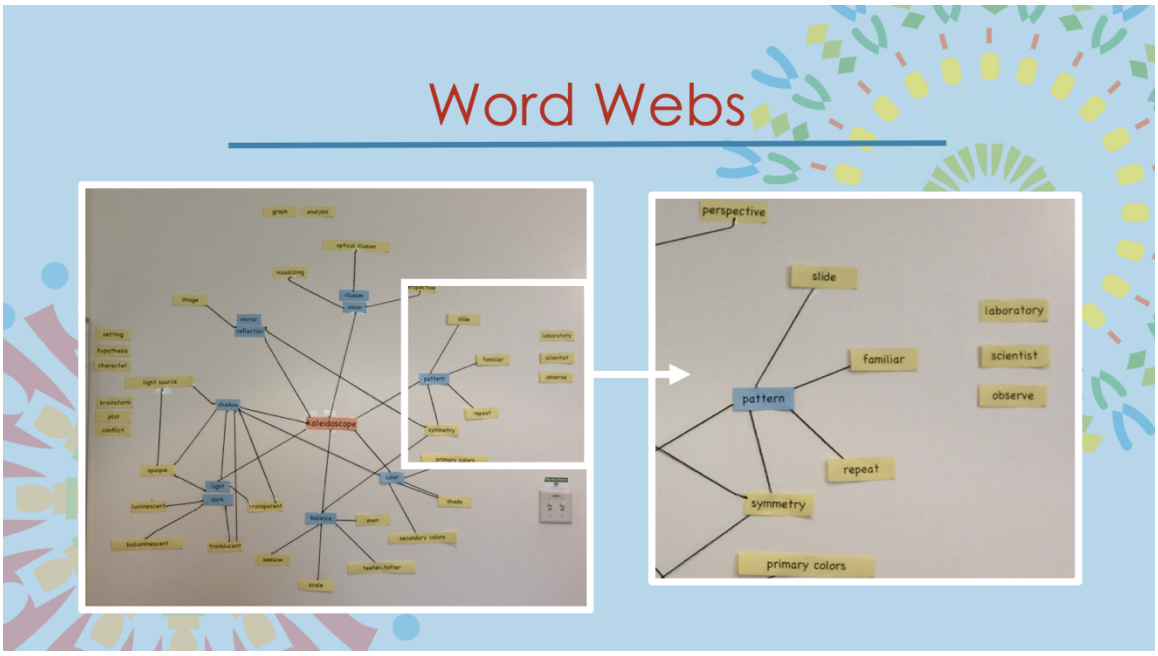


Figure 4.14. Slide from SI training on Classroom Word Webs. Here, the Project Kaleidoscope Team demonstrated how non-CRTs could be added to the Classroom Word Web without being connected to the CRTs.

As shown in Figure 4.14, the Daily Terms *laboratory*, *scientist*, and *observe* (all non-CRTs) were all added to the sample Classroom Word Web, but they were not connected to any of the content-related terms (CRTs).

When constructing the Classroom Word Web during enactment of the curriculum, however, the teachers *did* connect non-CRTs to CRTs (see Figure 4.15, below).

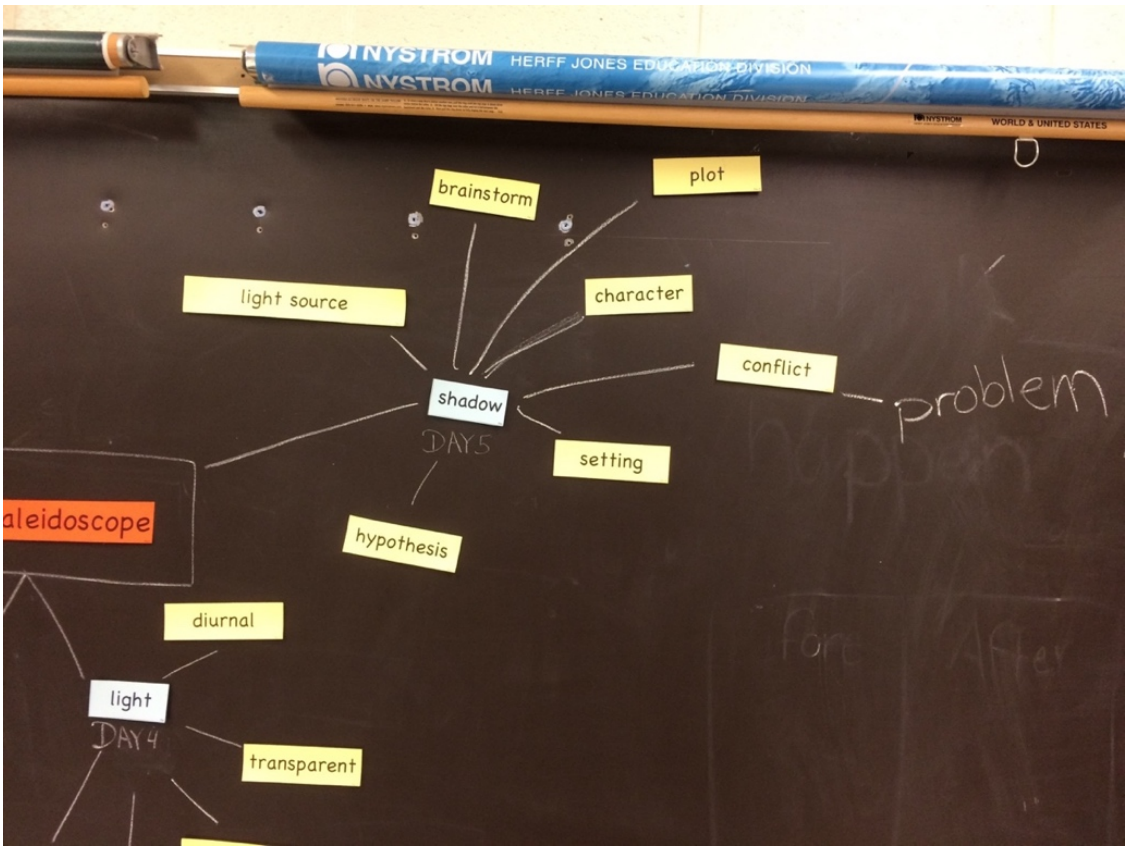


Figure 4.15. Classroom Word Web, Day 5 (*Shadow*). Here, teachers connected non-CRTs (*brainstorm*, *plot*, *character*, *conflict*, *setting*, and *hypothesis*) to the Daily Term and CRT *shadow*.

More specifically, on Day 5 (*Shadow*), the teachers connected non-CRTs *brainstorm*, *plot*, *character*, *conflict*, *setting*, and *hypothesis* to connected to the Daily Term and CRT *shadow*. Similarly, on Day 7 (*Illusion & Vision*), they similarly connected non-CRTs *graph* and *analysis* to the Daily Terms and CRTs *illusion* and *vision* (see Figure 4.16, below).

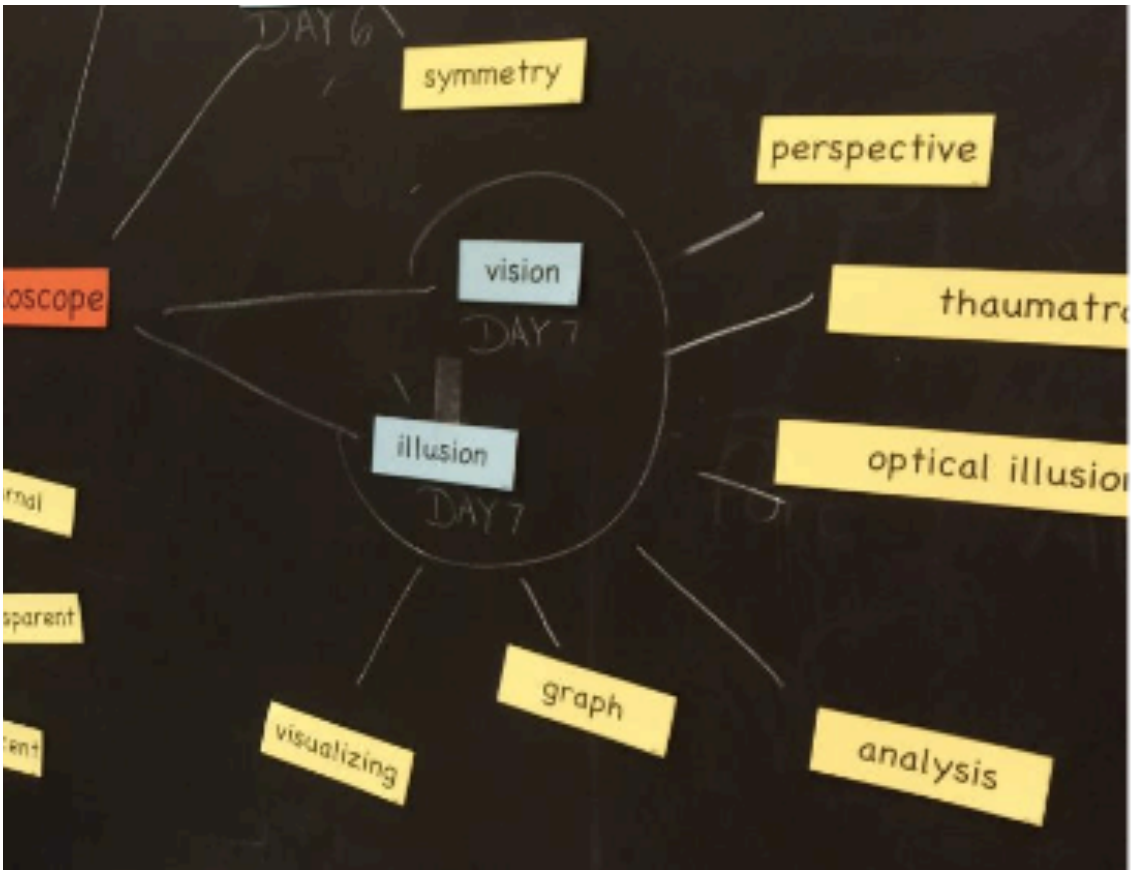


Figure 4.16. Classroom Word Web, Day 7 (*Illusion & Vision*). Here, teachers connected non-CRTs (*graph* and *analysis*) to the Daily Terms and CRTs (*illusion* and *vision*).

Because the Classroom Word Web was designed to be a visual organizer resulting in webs of related words, these connections not only presented an inaccurate picture of the relationship between and among Daily Terms, but they may have also led to misconceptions with respect to that relationship and, consequently, to the meanings of Daily Terms.

Addition of Spontaneous Terms. During the SI training, SI teachers were encouraged to add relevant Spontaneous Terms to the Classroom Word Web. Figure 4.17 (below) shows the slide that was used during the SI training to demonstrate how, for example, the words *glasses* and *plaid* might be Spontaneous Terms that could be added to a Classroom Word Web.

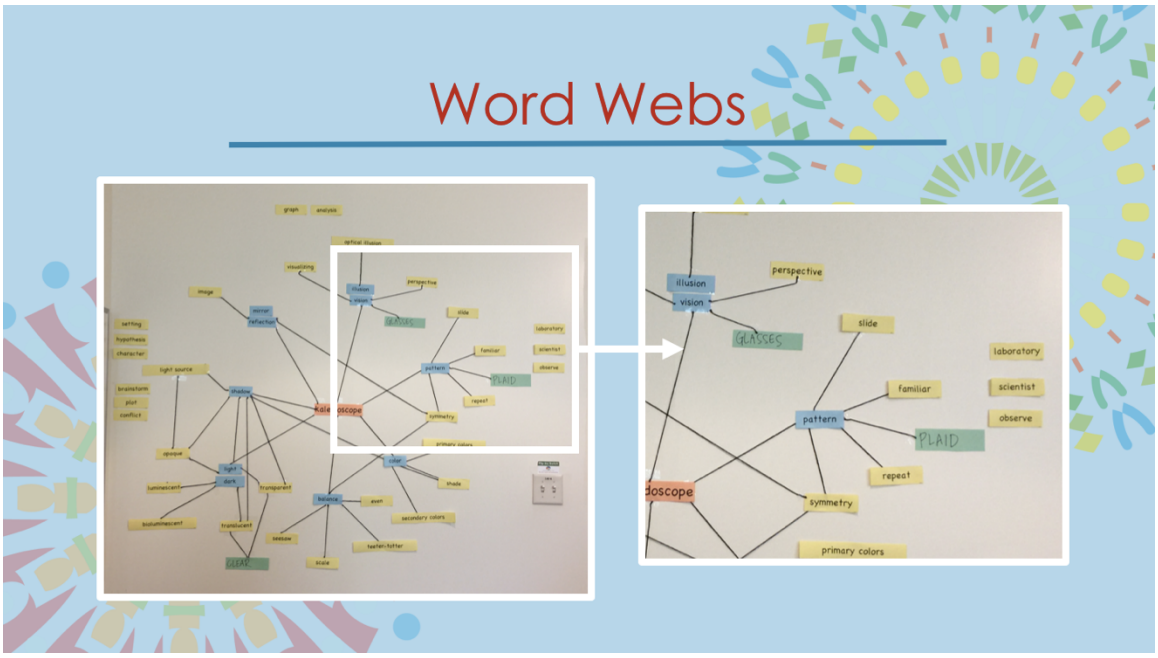


Figure 4.17. Slide from SI training on Classroom Word Webs. Here, the Project Kaleidoscope Team demonstrated how Spontaneous Terms might be added to a Classroom Word Web.

As earlier discussed, throughout the enactment of the SI curriculum, both teachers and children used a variety of Spontaneous Terms. Because these terms were content-related (i.e., falling the in categories of Synonyms/Clarifiers, Antonyms, and Other Content-Related Spontaneous Terms), they could have appropriately been added to the Classroom Word Web; however, as shown in Table 4.18 (below) Ms. Keegan and Ms. Lindsey added few Spontaneous Terms were added to the Classroom Word Web.

Table 4.18.
Incorporation of Spontaneous Term into Classroom Word Web

Day 1 Pattern	**Day 2** Color	**Day 3** Balance	**Day 4** Light Dark	**Day 5** Shadow	**Day 6** Reflection Mirrors	**Day 7** Illusion Vision	**Day 8** Kaleido-scope
Dis-covering	Tray		Equal	Problem			
	Cool Color						

Yet, the fact that they added *any* Spontaneous Terms to the Classroom Word Web suggests that the teachers knew it was appropriate to do so. Moreover, Ms. Keegan and

Ms. Lindsey appeared to have a sense of these noteworthy words—not only based on the several words they did place on the Classroom Word Web, but also based on certain classroom conversations. Consider the following excerpt from Day 6 (*Reflection & Mirrors*):

> Connor: when I move the mirrors together it changes?
> Antonio: when you move it together it become a lot.
> Connor: it is like clones. Clones of yourself.
> Ms. Keegan: what is a clone?
> Libby: it's a copy of yourself.
> Ms. Keegan: how did you know that?
> Libby: I saw it on a TV show.[With Ms. Keegan's prompting Libby explains a little about the TV show and the clones.]
> Ms. Keegan: clone is a great word for your word web today when we go back to your lab notebooks. (Observation Field Notes, July 25, 2017)

In this excerpt, Ms. Keegan had a conversation with two students, one of whom used the word *clone* and another of whom defined *clone* in response to Ms. Keegan's request for a definition. This conversation suggests that Ms. Keegan recognized the value of discussing this Spontaneous Term. What is interesting, however, is that she only encouraged the children who were part of this conversation to include this word in their lab notebooks (likely their Personal Word Webs), rather than adding it to the Classroom Word Web or otherwise bringing it to the attention of the other children. Had Ms. Keegan added the word to the Classroom Word Web, she would have further emphasized its connection to the content for the children involved in the conversation, as well as have facilitated other children's connections.

Finally, it should be noted that the addition of the Spontaneous Term *problem* to the Classroom Word Web is somewhat problematic. While *problem* is an appropriate synonym for *conflict*, as earlier discussed, *conflict* is not related to the Daily Topic *Shadow*—and neither is the word *problem*. Therefore, the issue presented in the

foregoing sub-section, i.e., the addition of non-CRTs to the Classroom Word Web, was further perpetuated when this alleged Spontaneous Term was also added.

Summary of pattern 3: Word Webs treated as an activity rather than an interactive tool. As shown, Ms. Keegan and Ms. Lindsey consistently incorporated both the Personal Word Webs and the Classroom Word Web into their beginning- and end-of-the-day Meetings of the Minds. Moreover, they were careful to add every Word Card to the Classroom Word Web. These efforts reflect their desire to honor the SI curriculum. However, the lack of references to the Classroom Word Web in segments other than the Meeting of the Minds segments, the lack of intra-day connections among Daily Terms, and the small number of additions of Spontaneous Terms to the Classroom Word Web suggest that Ms. Keegan and Ms. Lindsey treated the Word Webs as activities, rather than interactive tools to be used throughout the enactment of the lesson. As earlier discussed, this view of the Words Webs may or may not have been in keeping with the PK team's vision for the Word Webs, it not being clear based on what was presented by the SI curriculum.

Pattern 4: Teachers Made (Natural and Conscientious) Adaptations, but Not Improvisations

The foregoing patterns provide some evidence that, as anticipated, the teachers' enacted curriculum did not necessarily "match" the external curriculum designed and offered by the PK team. After all, teachers play a significant role in the cycle of curriculum development—that of planning and enacting external curricula in ways that are sensitive to a variety of factors. In this sub-section, I discuss the more explicit adaptations Ms. Keegan and Ms. Lindsey made to the vocabulary development

component of the curriculum. Broadly, these adaptations appeared to be either *natural* or *conscientious*.

Natural adaptations. As I analyzed the field notes, it became evident that the Ms. Keegan and Ms. Lindsey had familiarized themselves with their lesson plan books prior to enactment, for example, often asking questions nearly identical to those offered in the lesson plans' suggested scripting. Table 4.19 (below) offers but one example from Day 5 (*Shadow*).

Table 4.19.
Corresponding Lesson Plan-Enactment Excerpts from Day 5

Lesson Plan	Enactment
After the clip, lead a discussion about shadows, focusing on what students already know. We suggest teachers use large chart paper to write key words and phrases the students say as a means to record their ideas and return to them later as the discussion unfolds. Questions may include: *What are shadows?* *Can you pick up a shadow?* *Can your shadow become detached from you, like Peter Pan's? If so, how?*	Ms. Keegan: can you pick up your shadow? Several Ss: no Mallory calls it "fiction." Ms. Keegan: Can your shadow come detached? Sara: No

Note. Excerpts were taken from Lesson Plan, Day 5 (*Shadow*) and Observation Field Notes, July 24, 2017, respectively.

The lesson plan and enactment excerpts shown in Table 4.19 reflect close alignment between the scripting offered in the lesson plan and the questions Ms. Keegan asked during her enactment. In Brown's (2009) language, Ms. Keegan's enactment in this instance would be considered an *offload*, i.e., an instance in which she relied "significantly on the curriculum materials to support instruction" (p. 6).

However, Ms. Keegan and Ms. Lindsey also made changes to the suggested scripting. For example, Table 4.20 (below) provides both the suggested scripting offered in the Day 6 (*Reflection & Mirrors*) lesson plan and the relevant excerpt from that day's enactment.

Table 4.20.
Corresponding Lesson Plan-Enactment Excerpts from Day 6

Lesson Plan	Enactment
*Let's see if we can make a **mirror** that is like the bowl part of our spoons. How could we do this?* Let children experiment with the **mirrors** to create a concave **mirror**. *Who can show us how to make a **concave mirror**? A **concave mirror** is one that is scooped or bulged inward. Think of the word CAVE and that will help you. You can go in a cave, so a **concave mirror** is one that looks like you could go inside the **mirror**. Now, let's see how different things look in the **concave mirror**. How does your nose look in the **concave mirror**? How does a pencil look? Your Lab Notebook?*	Ms. Lindsey: this is called a concave mirror. Aidan: concave. Ms. Lindsey: what word do you hear inside that word that is familiar? Aidan: cave Ms. Lindsey: what do with a cave? Aidan: you go in it. Jonathan: you are going in. Ms. Lindsey bends the mirror the other way. And asks what they notice. Jonathan and Aidan laugh at this image. She explains this is a convex mirror and moves the mirror back and forth so they can see how the images are different.

Note. Excerpts were taken from Lesson Plan, Day 6 (*Reflection & Mirrors*) and Observation Field Notes, July 25, 2017, respectively.

In the lesson plan, the author suggested that SI teachers tell children to think of the word *cave* to help them remember that concave mirrors are scooped in shape. Though only subtly different, Ms. Lindsey instead asked the children which word they heard in the word *concave*, and Aidan volunteered, "Cave." Pressing on, Ms. Lindsey

asked, "What do you do with a cave?" to which Aidan responded, "You go in it." Ms. Lindsey could have simply provided the clue as suggested by the lesson plan; however, this simple adaptation, i.e., her use of questions, was a clever way to have the children arrive at the meaning of the word *concave* on their own. In Brown's (2009) parlance, Ms. Lindsey's action would be considered an *adaptation*, i.e., a deliberate or unintentional instance in which she "adopt[ed] certain elements of the curriculum design, but also contribute[d] her own design elements to the implementation" (p. 5). Incidentally, because of the participatory nature of question-and-answer, Ms. Lindsey's technique may have been more effective in terms of the children (especially Aidan) remembering the definition of concave.

Similarly, on Day 7 (*Illusion & Vision*), the scripting offered in the lesson plan provided the definition of the word *visualize*; however, during enactment, rather than merely providing the definition, Ms. Keegan engaged children engage in a brief activity in which they visualized being on a beach. Table 4.21 (below) provides both the suggested scripting offered in the Day 7 lesson plan and the relevant excerpt from that day's enactment.

Table 4.21.
Corresponding Lesson Plan-Enactment Excerpts from Day 7

Lesson Plan	Enactment
*Before we do that though, I want to add the word **visualize** to our class word web. Does anyone know what it means to **visualize** something? Yes, it is when we imagine something and create a picture in our head.*	Ms. Keegan explains they will visualize today: imagine something and create it in your head. She has them visualize they are at the beach and asks what they see. They all begin shouting what they see: shark, water, surfboard. Then, she asks what they hear: sea gull, shell (Matthew said shell but I am not sure who said sea gull). Ms. Keegan says they all *visualized* different things and shared different *perspectives*.

Note. Excerpts were taken from Lesson Plan, Day 7 (*Illusion & Vision*) and Observation Field Notes, July 26, 2017, respectively.

Like Ms. Lindsey's adaptation when introducing the word *concave*, by asking children to *visualize* being on a beach, Ms. Keegan's adaptation was participatory in nature. And, like Ms. Lindsey's adaptation, Ms. Keegan's adaptation was perhaps more engaging (and, potentially, more effective) than the one offered in the lesson plan: Children's participation in this brief activity allowed them to experience the meaning of the word rather than merely hearing its definition. Moreover, Ms. Keegan was able to incorporate (and, therefore, reinforce) another one of that day's other Daily Terms: *perspective*.

Conscientious adaptations. While the foregoing adaptations appeared to occur quite naturally, i.e., without overt consideration on the part of the teachers, some of Ms. Keegan's and Ms. Lindsey's adaptations appeared more considered. For example, on Day 2 (*Color*), after the read-aloud of *Mix It Up!*, children had the opportunity to mix their own paint colors during the Activity Central segment. Then children were supposed

to name the colors they had created. Ms. Keegan and Ms. Lindsey, however, realized they were off-schedule and thought they may need to skip the color-naming part of the activity:

> Ms. Keegan says we're not too far off [Observer 1: She means off schedule], then says, oh we're about 30 minutes off.
>
> The teachers wonder aloud and say (kind of) to me what they can do to get back on schedule. Ms. Lindsey says naming colors (Activity Central: Part B) is important and gets to the main idea and they consider cutting the second read-aloud. I say this gets to mood so that is big too, maybe we could do color naming during an Exploration Station. They decide to do this and replace Exploration Station B (matching memory game) with naming palette colors. Ms. Keegan says if they have time they can do match after [Observer 1: They do not end up having time.] (Observation Field Notes, Day 2)

Indeed, as Ms. Lindsey noted, this part of the activity was a prime opportunity for children to use the prior knowledge and creatively explore vocabulary by naming their colors. Ironically, then, Ms. Lindsey's adaptation not only served as a departure from the lesson plan (by eliminating one of the Exploration Stations in order to afford children the opportunity to name their colors), but also served the spirit and vision of the SI curriculum as a whole (by prioritizing children's opportunities to explore vocabulary). That said, by looking to and even speaking with the observer, the teachers were soliciting some level of approval for this adaptation.

Figure 4.18. Samples of children's color names. During the Day 2 (*Color*) Activity Central, children were supposed to be given the opportunity to name the colors they had earlier mixed; however, they instead named their colors during one of the three Exploration Stations for that day.

Despite the need for adjustments, or perhaps because of them, Ms. Keegan and Ms. Lindsey appeared to remain enthusiastic about the curriculum:

> Ms. Lindsey says sorry to Ms. Keegan and Ms. Keegan says the book [*Mix It Up!*] just took a long time. I [Observer 1] tell them it's okay and remind them there isn't an activity during read-aloud.
> Ms. Keegan: I just love this! (Observation Field Notes, Day 2, bracketed portions added by this writer)

Ms. Keegan's exclamation, "I just love this!" suggests that she appreciated the curriculum's implicit—or at least perceived—flexibility. And the teachers continued to remain positive throughout the enactment of the curriculum. Even during the final interview, Ms. Keegan noted,

> I felt that everything flowed very smoothly. It was well-organized. Everything was already prepared for us. So, what it allowed us to do was really focus on teaching and observing students, rather than all of the other busy things that teachers have to get done. You took that equation out of it and – by planning the curriculum and having everything already laid out for us – we were able to basically take it and just run with it. (Initial Interview, July 27, 2017)

That is not to say, however, that Ms. Keegan and Ms. Lindsey were without their concerns. One issue, in particular, they noted was the curriculum's emphasis on the use of open-ended questions. In the excerpt that follows, Ms. Keegan expressed her concern, while Ms. Lindsey concurred:

> Well, and I think too like we were constantly answering their questions with questions, which made them think more, which tired them out. [Ms. Lindsey agreeing in bacnground (*sic.*).] They were just like, "Just give me the answer." Sometimes seriously I could see it in their face like when I – Sara was a perfect example. I asked her something and I was like, "Well, why do you think that is?" She physically rolled her eyes at me like, "Oh." I just think sometimes they just would mentally get tired of having to think so much, but it was still so good for them. (Initial Interview, July 27, 2017)

Indeed, in both during the SI training and in the directions from lesson plan books, themselves, the PK team encouraged SI teachers to privilege open-ended questions. Relevant to the vocabulary development component of the curriculum, the use of open-ended questions became an early "sticking point" for the teachers. On Day 1 (*Pattern*), Observer 1 reported the following:

> Overall, the first day felt very successful. The pacing was comfortable with the only (small) rush seeming to be during the first Meeting of the Minds due to a slightly delayed start. The teachers did ask about asking leading questions and giving hints (specifically for Word Web terms) because of their difficulty level. I told them that was okay and they could do what they felt comfortable with. Tomorrow, I will try to see the teacher clipboards to see if any notes were/are taken for individual students. (Observation Field Notes, July 17, 2017)

In the foregoing excerpt, the teachers requested to adapt the curriculum relevant to the use of open-ended questions when working with the Word Web terms, i.e., the Daily Terms. Observer 1 then encouraged the adaptation based on the teachers' comfort level. As with their adaptation to Day 2 (*Color*), though, Ms. Keegan and Ms. Lindsey appeared to seek permission from the observer to make what they perceived to be an

overt deviation. In fact, when later asked under what circumstances they felt they had the freedom to make adaptations to the curriculum, the teachers laughingly responded,

> Ms. Keegan: We asked [Observer 2]! Or [Observer 1]! *Is it okay? Yes, yes. Do what you need to do.* No, I mean…well…partly that, but I think…
>
> Ms. Lindsey: But they [the observers] could see the patterns 'cause they're just stepping back and seeing what…like…we could read their faces too. (Follow-Up Interview, February 1, 2018)

Almost no improvisations. Brown (2009) defined *improvisations* as "instances where teachers pursue instructional paths of their own design" (p. 6). For example, in his study of science teachers, Brown observed one teacher who capitalized on a spontaneous student debate regarding interpretation of a model, turning the debate into a multi-day lesson that was not set forth in the curriculum materials (p. 6). Ms. Keegan and Ms. Lindsey adapted the curriculum (as described above); however, they rarely improvised. I only found one improvisation, and it was subtle at best. This improvisation occurred on Day 2 (*Color*), when they arrived wearing colorful, patterned clothing to reinforce the content of the SI curriculum:

> Both teachers are wearing colorful, patterned tights/leggings. [Observer 1: The teachers had mentioned yesterday how they had patterned tights. When I saw their colorful, patterned clothing today I thought it showed how these teachers are thinking about the curriculum and topics for the day and thinking of ways to incorporate these ideas into the day.]

Because the discussion of teachers' dress was entirely absent from the SI curriculum, Ms. Keegan and Ms. Lindsey improvised by making this addition. To be sure, there were instances when they eliminated activities from the lesson (e.g., one of the Explorations Stations on Day 2 (*Color*), the reading of the book *Eclipse* on Day 5 (*Shadow*), and the magic tube trick on Day 7 (*Illusion & Vision*)); however, these decisions fall more squarely within Brown's (2009) definition of *adaptations*, i.e.,

"instances where teachers adopt certain elements of the curriculum design, but also contribute their own design elements to the implementation" (p. 5) because these were not additions, but modifications to existing elements.

Ms. Keegan's and Ms. Lindsey's perception of their fidelity to the curriculum suggests that they, too, would agree that they did not improvise. In fact, they would likely say that they rarely adapted:

> Ms. Keegan: Honestly, I don't think we strayed…I don't think we strayed a lot.
> Ms. Lindsey: No.
> Ms. Keegan: I really don't. I think we were pretty faithful as far as…
> Ms. Lindsey: Yeah.
> Ms. Keegan: There were just a few times that I remember.
> Ms. Lindsey: Yeah.
> Ms. Keegan: Like maybe a station that we didn't get to…or game. (Follow-Up Interview, February 1, 2018)

In other words, even what Ms. Keegan and Ms. Lindsey (almost apologetically) acknowledge as deviations do not rise to Brown's (2009) definition of an *improvisation*; rather, they were adaptations borne out of the circumstances.

Summary of pattern 4: Teachers made natural and conscientious adaptations to support children's vocabulary development. Ms. Keegan and Ms. Lindsey made multiple adaptations to the curriculum in order to support children's vocabulary development. Sometimes, their adaptations occurred quite naturally—what most would simply refer to as "good teaching." In those instances, the teachers did not question or seek approval for such adaptations; rather, they effortlessly weaved them in as they enacted the curriculum. Other times, Ms. Keegan and Ms. Lindsey made overt adaptations to the curriculum, which appeared to require consideration on their parts. In those instances, they were still ready and willing to exercise their professional judgment;

however, they also sought approval from the observer, who ostensibly served as a proxy for the PK team. As a general matter, Ms. Keegan and Ms. Lindsey did not improvise, i.e., make wholly original additions to the SI curriculum. In sum, these teachers appeared to be attempting to be faithful to the curriculum: When their adaptations were natural and effortless, they did not question them; however, when their adaptations required consideration and were, therefore, overt, they sought approval for their actions. Moreover, they avoided making improvisations.

Chapter Summary

In the foregoing chapter, I answered the two research questions that emerged as a consequence of the problem of practice I sought to address. First, I discussed the patterns that emerged with respect to the curricular guidance that the Project Kaleidoscope team provided to the summer intersession teachers. Second, I discussed the patterns that emerged with respect to Ms. Keegan's and Ms. Lindsey's enactment of the curriculum. To fully address the problem of practice, though, it is not enough to share my findings; I also must offer recommendations. Therefore, in Chapter 5, I make recommendations to the Project Kaleidoscope team. I also discuss the implications of my findings relevant to the broader, curriculum-related problem of practice. Finally, I share some of the limitations of my project and then briefly reflect on my experience as a whole.

CHAPTER 5: RECOMMENDATIONS, IMPLICATIONS, AND LIMITATIONS

Theories are patterns without value. What counts is action.

–Constantin Brancusi

In the foregoing chapters, I situated this capstone project within the greater Project Kaleidoscope, illuminated the problem of practice I sought to address by completing this project, undergirded the project by reviewing the relevant literature, explained the methods I employed in carrying out the project, and shared my findings in the form of the patterns that emerged from my data analysis. As the Brancusi quote (above) indicates, however, theories and patterns have no value without action. Therefore, in this chapter I offer my recommendations regarding the grant-specific problem of practice and the implications relative to the broader, curriculum-related problem of practice. I then discuss some of the limitations of my study, and I conclude with a brief reflection.

Recommendations

As reported in Chapter 4, several patterns emerged with respect to both the guidance provided by the summer intersession (SI) curriculum and with the SI teachers' enactment of it. In this section I offer recommendations to the Project Kaleidoscope (PK) team regarding refinement of the SI curriculum. These recommendations stem directly and inherently from the findings presented in Chapter 4 and are otherwise informed by the research preceding this project.

Recommendation 1: Uniformly Present Daily Terms Across all Lesson Plans

As discussed in Chapter 4, the PK team thoroughly but inconsistently presented the SI curriculum's vocabulary in the lesson plans. Therefore, I recommend that the *Daily Terms* (i.e., the planned vocabulary terms that were pre-printed on Word Cards to be used in constructing the Classroom Word Web) be more uniformly presented across the lesson plans. In the following sub-sections, I suggest some changes that would bring this recommendation into fruition. These changes would require some editing of the lesson plans; however, they have the potential to both create consistency among the lesson plans and better emphasize the SI curriculum's vocabulary development component (Vocabulary Component).

Background section. The PK team designed the *Background* section of the lesson plan template (see the lesson plan template, which I provide in Appendix A) to be a place in which authors could contextualize their lessons and provide SI teachers with foregrounding information. My conversation with the SI teachers indicates that they *did* use the Background sections to inform their own understanding of the curriculum's content (Follow-Up Interview, February 1, 2018). Therefore, the guidance provided in these sections is worthy of evaluation.

As discussed in Chapter 4, in the 2017 SI lesson plans, some authors listed and defined Daily Terms in the Background section, and other authors did not. To create consistency among the lesson plans, I recommend that all lesson plans' Background sections contain a list of all Daily Terms, as well as the definitions for all such terms. Doing so would both underscore the importance of the Vocabulary Component and forecast to the SI teachers which Daily Terms were to be added to the Classroom Word

Web that day. In addition, the definitions of the Daily Terms *are* powerful background information needed by the SI teachers to enact the lessons. Finally, including the Daily Terms and their definitions in the Background sections of the lesson plans would increase the likelihood that the SI teachers will notice them: As discussed in Chapter 4, the PK team member who developed the lesson plan one-pagers (i.e., the condensed versions of the lesson plans) included nearly all of the Daily Terms that were listed in the Background sections in the Key Vocabulary section of the one-pagers; however, he did not necessarily include those Daily Terms that were not. This outcome suggests that by including the Daily Terms in the Background sections, the PK team would likewise bring them to SI teachers' attention.

Materials. The lesson plan template (which I provide in Appendix A) included a *Materials* section for each segment of the daily lesson plans (see Figure 4.5 for a sample Materials section). An inconsistency among the lesson plans was that some lesson plans included neither the Classroom Word Web nor the relevant Word Cards in the Materials sections; some lesson plans referenced the Classroom Word Web, alone; and still other lesson plans listed the specific Word Cards needed for the given segment. To create consistency among the lesson plans, I recommend that the PK team list the relevant Word Cards (by Daily Term) in the Materials section corresponding with the segment in which they are to be used. Doing so will bring SI teachers' attention to the both the Daily Terms and corresponding their Word Cards. Furthermore, highlighting the Word Cards will serve as a reminder to the teachers to use the Classroom Word Web in segments other than the Meeting of the Minds segment. (I further discuss use of the Classroom Word Web in Recommendations 2 and 4, below.)

Recommendation 2: Include Only Content-Related Terms (CRTs) as Daily Terms

As discussed in the preceding section, the authors of lesson plans presented Daily Terms in a variety of ways. In addition, the authors' decisions regarding what type of words should constitute Daily Terms likewise varied: Some authors selected only content-related vocabulary terms (CRTs) as Daily Terms, while others included terms that were related to the lesson, but not related to the content of the lesson (non-CRTs). To explain, a Daily Term *and* CRT for Day 5 (*Shadow*) was *light source* because light sources are needed to create shadows. On the other hand, a Daily Term and *non*-CRT for Day 5 (*Shadow*) was *brainstorm*: This term was relevant to the lesson because children would be brainstorming plot lines for a shadow puppet theater; however, this term did not relate to the Daily Topic *Shadow*. I recommend that Daily Terms include only CRTs; however, that is not to say that non-CRTs do not have their place in the curriculum. Therefore, in the next few sub-sections, I discuss how to bring this recommendation into fruition.

Word Cards. Regardless of whether they were CRTs or non-CRTs, all Daily Terms were printed on yellow cardstock, signaling the third "layer" of the Classroom Word Web. Parenthetically, the Central Theme *Kaleidoscope*, the center, was printed on orange cardstock; the Daily Topics, which were the second layer of the Classroom Word Web, were printed on blue cardstock; and, in addition, the PK team provided green cardstock strips to be used for Spontaneous Terms (see Table 4.8 for Word Card Color-Coding). During enactment, the fact that all Daily Terms were printed on yellow cardstock appeared to connote to the SI teachers that all such Daily Terms should be connected to the Daily Topic, regardless of whether they were CRTs or non-CRTs—and,

therefore, physical connections (lines) were drawn, making the alleged connections that much more explicit. To avoid this issue, I recommend using cardstock in a fifth color for non-CRTs. During the SI training, the PK team can make explicit to SI teachers that non-CRTs are not to be connected to the Classroom Word Web. Alternatively, non-CRTs could, instead, be placed elsewhere; I suggest an "Other Interesting Words" chart, which I further describe, below.

"Other Interesting Words" chart. As discussed, the curriculum included non-CRTs as Daily Terms. In addition, many interesting non-CRTs arose spontaneously during enactment the enactment of the SI, for example, *daze* and *dazzle* (Day 4, *Light & Dark*) and *flexible* and *hovering* (Day 6, *Reflection & Mirrors*). Therefore, I recommend having another "place" to capture such words—a place altogether separate from the Classroom Word Web. This place could be something as simple as an "Other Interesting Words" chart. The chart could be used to list both the pre-planned non-CRTs (those that I am suggesting be placed on a fifth color of cardstock and not be connected to the Classroom Word Web) and those non-CRTs that spontaneously arise during enactment. Figure 5.1 (below) depicts how a chart like this might look.

Figure 5.1. Sample "Other Interesting Words" chart. On the proposed chart, the left column for each day would be pre-populated to include the Daily Terms that are non-CRTs (non-content-related terms), along with corresponding images. Those days without a left column (Days 2, 3, 4, 6, and 8) were those that did not have non-CRTs as Daily Terms. Blank spaces would allow teachers to capture non-content-related Spontaneous Terms. Examples of Spontaneous Terms from the 2017 summer intersession are provided in the chart on the right. For image credits, see Appendix P.

Because the SI teachers connected non-CRTs to Daily Terms and Daily Topics, I further recommend that, during the SI training, the PK team re-emphasize the purpose of the Word Webs (i.e., to visually represent *connected* words)—perhaps even having an informational session dedicated to the curriculum's vocabulary and the Word Webs. As discussed in Chapter 4, this type of information was largely absent from the 2017 SI training. In fact, when Ms. Keegan and Ms. Lacey were asked what aspects of the SI training provided them with guidance in carrying out the Vocabulary Component of the curriculum, they were pressed to describe any:

> Ms. Keegan: Honestly, the training for me…what I remember most, didn't really, it wasn't a lot with the vocabulary. It was more of the

questioning, where we put the sticky notes in the book, and we really went through that book together, collaboratively as a team. And okay, what question do we want to ask? [discusses how she still uses these strategies] I don't necessarily know

Ms. Lindsey: …if we focused on the vocabulary much in the training?

Ms. Keegan: If we did, I don't remember.

Ms. Lindsey: I think we talked…I know…remember briefly talking about the web in the beginning. And I remember thinking, *Like okay, wait, how is it gonna look?* And then we didn't really, maybe, actually do it? Because every time we went over a lesson and did it together, I was like, *Now I understand how this lesson is gonna go.* (Follow-Up Interview, February 1, 2018)

I further discuss my recommendations regarding the SI training in the next sub-section.

The SI training. Prior to the SI training, the PK team assumed that the SI teachers had viewed a series of online professional development modules, one of which focused on vocabulary development. In that module, the module's narrator described the concept of mental word webs. This concept formed the basis of the Classroom and Personal Word Webs designed as a part of the 2017 SI curriculum.

As a general matter, the SI teachers appeared to appreciate the guidance provided by the online professional development modules. For example, Ms. Keegan discussed how helpful she found the modules in terms of demonstrating how to conduct effective read-alouds. However, she had a difficult time remembering whether she had viewed a vocabulary-related module:

> Our little modules that we do are really helpful. When we look at you guys doing your little training with your own personal kids here…Okay, now I get it. Now I understand how to do a read-aloud…an interactive read-aloud. Maybe there needs to be a module…if there is already? Is there a module already that I missed? Forgotten about? Is there a module on the vocabulary? (Follow-Up Interview, February 1, 2018)

To better connect the vocabulary development module and the Word Webs, the SI team could more explicitly connect the two during the SI training. For example, the team

could incorporate segments of or screenshots (like the ones I shared in Chapter 4) from that module into the PowerPoint presentation used for the SI training.

Ms. Keegan also indicated that she "would like to see…like an example of how it [the Classroom Word Web] went" (Follow-Up Interview, February1, 2018). The conversation continued, as follows:

> Ms. Keegan: I think even just a modeling or even having us practice, you know the scripting and the how we're gonna do it and…
> Ms. Lindsey: Yeah, because I [don't] remember that being a big focus during the training? Even though I *knew* it was the big one, but…
> Ms. Keegan: Well it was *the*…to me this was *the* big idea right here [pointing to photographs of the Classroom Word Web I brought with me to the interview] (Follow-Up Interview, February 1, 2018)

As described in Chapter 4, the PK team *did* share examples of constructed Word Webs during the SI training; however, as with the modules, it appears that enough time had passed between the SI training and the enactment of the SI curriculum that the teachers may have forgotten those examples. Therefore, during the SI training, I recommend that the PK team include real examples of Word Webs from the 2017 SI enactment or have the SI teachers participate in a hands-on activity regarding the construction and/or use of the Word Webs. In addition, I recommend that the PK team include pictures of Classroom Word Webs at various stages of construction in the lesson plan books to serve as reminders and/or examples.

Recommendation 3: Change the Order of the Days to Insure Increasing Complexity of Daily Topics and Terms

As indicated, the PK team designed the SI curriculum in such a way that Daily Topics built upon each other, increasing in complexity. However, my findings suggest that Day 1 (*Pattern*) and Day 2 (*Color*) should be reversed. I make this recommendation

based on my finding that the Day 1 (*Pattern*) lesson plan referenced more Future Daily Terms than any other lesson plan. For example, the Day 1 lesson plan referenced the Day 2 Daily Topic several times, suggesting that the Day 2 content was foundational to the Day 1 content. Moreover, the Daily Topic *Color* seems, instinctively, to be more accessible to children than the Daily Topic *Pattern*—the topic of color being such a fundamental one for most children. Finally, the SI teachers, themselves, similarly expressed that *Pattern* might be too complex for the first day of the SI: As Observer 1 noted, "Ms. Keegan and Ms. Lindsey said pattern seems like a hard concept and wonder if color would have been easier to start. I said hopefully they can build and make references back to it" (Observation Field Notes, July 17, 2017).

Unfortunately, making this change would not be as simple as "swapping" the lesson plans. For example, the author of the Day 1 lesson plan dedicated time to the introductory aspects of the summer intersession (e.g., introducing routines), so those aspects would have to be moved from the *Balance* lesson plan to the *Color* lesson plan. However, because these lesson plans do not need to be written "from scratch" in 2019 (as they did in 2017), the PK team can instead use the time to make changes that will maximize the quality of the existing lesson plans.

Recommendation 4: Posture the Classroom Word Web as an Interactive Tool

The authors of the lessons plans sent different messages about the purpose of the Classroom Word Web. More specifically (and as more thoroughly discussed in Chapter 4), some authors postured the Classroom Word Web as a discrete activity to be used at the beginning- and end-of-the-day Meeting of the Minds segments; other authors postured the Classroom Word Web as an interactive tool, something to be referenced and

used throughout the course of the day. In order to prevent the Classroom Word Web from becoming mere "wallpaper" in the classroom, I recommend that it be postured as an interactive tool. There are several ways that the PK team could convey this objective to the SI teachers responsible for facilitating its construction and use.

First, the PK team could make a few subtle changes to the lesson plans. For example, the PK team could change the language of the lesson plans, particularly the Day 1 lesson plan. For example, to solidify the Word Web as a tool, the PK team could remove phrasing like "Word Web time" and "quick activity" and, instead, employ something to the effect of "Classroom Word Web opportunity." Unlike a designated Word Web *time* or a *quick activity*, the word *opportunity* suggests that use of Word Webs is not finite, but something to be used when the opening presents.

As earlier discussed, I also recommend that when the lesson plans contain "built-in" opportunities to reference the Classroom Word Webs, the relevant Word Cards can be listed in the corresponding Materials section. Doing so would draw SI teachers' attention to these opportunities, further relaying the message that Word Webs can (and should) be used in segments other than Meeting of the Minds.

In addition, I recommend that, during the 2019 SI training, the PK team both emphasize the foregoing message *and* provide SI teachers with concrete reminders (in the form of examples) to engage children in use of the Classroom Word Web. For example, in addition to verbalizing that children's Spontaneous Terms should be added to the Classroom Word Web, the PK team could also share examples from the 2017 SI of such terms. I also recommend that, during the training, the SI teachers have an opportunity to

engage with the Classroom Word Web—for example (and as earlier noted), in a hands-on activity.

Perhaps more provocatively, I recommend the PK team reconsider the use of the Personal Word Webs. For example, the team could eliminate the Personal Word Webs, and instead encourage SI teachers to engage children in making direct contributions to the Classroom Word Web. Alternatively, children could still use their Personal Word Webs; however, the PK team could encourage SI teachers to add some of the children's Personal Word Web ideas (e.g., words and pictures) to the Classroom Word Web. Regardless of whether the Personal Word Webs are used, I recommend that the PK team encourage SI teachers to actively integrate children's thoughts to the Classroom Word Web. Admittedly, the latter recommendation regarding the Personal Word Webs would, then, be the safer option: It would allow teachers to "vet" children's additions prior to adding them to the Classroom Word Web, reducing the likelihood of creating or perpetuating misconceptions among children. My recommendation to eliminate the Personal Word Webs stemmed not only from the fact that they seemed somewhat superfluous, but also because I wondered whether the use of them contributed to children's misconceptions. It appears that Ms. Kelly had a similar concern:

> Sometimes…when a student…when you ask them at the beginning of the day …I think at the beginning of the day, if I remember correctly, when we had them do their journal…and it was, Okay, we're gonna learn these words today, I want you to draw a picture of what you think that this means or what you already know, sometimes that could lead them to a misconception about what that word *really* means. And since they've drawn it and put it in their notebook, it's kind of committed to memory at that point. So that is the only that I could see that I would make a change in. If I am going to tell them what a word means and give them a visual, then I need to make sure that they have the correct knowledge of what that word means. (Follow-Up Interview, February 1, 2018)

When we discussed the issue of Personal Word Webs reinforcing misconceptions, Ms. Lindsey—who supported the use of the Personal Word Webs (and uses them in her own classroom)—made the following suggestion:

> The other thing to do is [text omitted]...I think I did this, actually, with Ben Franklin…is that I put his picture on the board, and then I said *Now I want you to write some things that you know about Ben Franklin* [text omitted]. And one of the kids said, like, *Oh, I think he looks like a scientist* based on, apparently, what he was wearing or whatever! So maybe like a visual or like a simple statement that they have to read together...or a picture…then it might help because there are going to be kids who have no idea. (Follow-Up Interview, February 1, 2018)

Perhaps, then, rather than encouraging teachers to ask children to *describe what they already know*, the PK team could encourage teachers to ask children to *make predictions about*. This subtle change would shift the dialogue from *knowledge* to *prediction*—consistent with the "no wrong answer" nature of the SI curriculum.

Finally, I recommend that, when possible (and even in keeping with Ms. Lindsey's suggestion, above), the PK team add pictures or illustrations to the Word Cards. I credit the Ms. Keegan with this recommendation (though Ms. Lindsey concurred):

> Ms. Keegan: Yea, and I was also thinking one idea could be to add some pictorial representations too just to help those–
> Ms. Lindsey: Yea, that's true, maybe a couple
> Ms. Keegan: non-readers (Initial Interview, July 27, 2017)

As Ms. Keegan astutely noted, some children could not read the words that were being added to the Classroom Word Web. Creating a visual component to the Word Cards would have the benefit of aiding these children in their reading and spelling of the words and, incidentally, their ability to make connections between the words. During the SI training, the PK team could also encourage teachers to consider drawing pictures or

icons—when feasible—for any Spontaneous Terms they add to the Classroom Word Web.

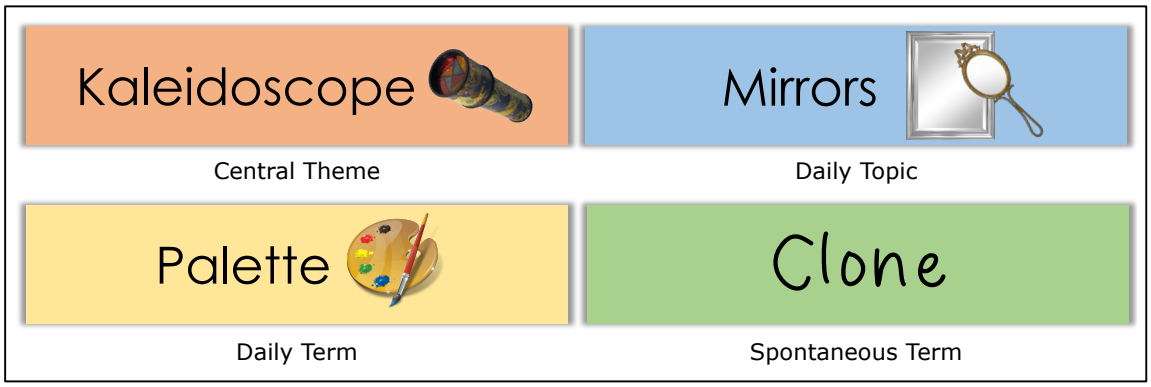


Figure 5.2. Sample Word Cards. For image credits, see Appendix P.

Recommendation 5: Empower Summer Intersession Teachers to be Part of the Curriculum Development Process

As a curriculum designer, I take a variation approach (Brown, 2003): I recognize that teachers have "localized knowledge" regarding their particular students and contexts (Davis, Beyer, Forbes, & Stevens, 2011, p. 798), and I believe that this knowledge should be honored and leveraged. Therefore, I suggest that SI teachers *do* play a role in the overall development of curriculum, and I make the following recommendations accordingly.

Scripting and directions. The lesson plans were highly scripted, including scripting regarding everything from greeting to instructing children. In addition, the lesson plans provided detailed directions for the teachers—some of those directions even relating to the teachers' use of the aforementioned scripting. These directions employed both *inclusive* and *exclusive* language (see Chapter 4). Directions with inclusive language suggested teacher discretion, while directions with exclusive language implied

teacher compliance. Regardless, Ms. Keegan and Ms. Lindsey expressed both concern about and appreciation of the scripting:

> Ms. Lindsey: For me, it was probably the biggest challenge because, in my head, I'm processing like the concept and the knowledge and trying to put it in words that would make sense for me, but then when I had times where I'm like, *I don't know what to say next, okay, well I can just follow the script.* It was kind of nice, like, *Oh, well we're gonna ya, la, la, la.* Like, *I don't know where I'm going with this, but*... So, it was helpful but then other times it was hard, because I didn't feel like it was me.
>
> Ms. Keegan: For me, yeah, well yeah. For me, it's um…I definitely found that it took away from my personal interaction with the kids when I am reading from the book; *however*, it kept me on task.
>
> Ms. Lindsey: Yeah
>
> Ms. Keegan: Um, but what I found myself doing, on nights when I was a little more prepared, I found myself reading the script and just jotting down my own little…
>
> Ms. Lindsey: Mm hm
>
> Ms. Keegan: …big idea here because I found that I could make eye contact with the kids, and I could really engage them more…
>
> Ms. Lindsey: Mm hm
>
> Ms. Keegan: …when I was prepared.
>
> Ms. Lindsey: Yeah
>
> Ms. Keegan: And I knew exactly what…
>
> Ms. Lindsey: Yeah
>
> Ms. Keegan: You know, the gist. I didn't have to read exactly. But as Ally is saying, it was kinda nice on days when I wasn't as prepared. (Follow-Up Interview, February 1, 2018)

The foregoing discussion reveals that Ms. Keegan and Ms. Lindsey felt somewhat "boxed in" by the scripting, but still appreciated it as a "back-up plan" for days on which they felt less prepared. Moreover, without being prompted, Ms. Keegan said she would not eliminate the scripting:

> Ms. Keegan: But the script part, I struggle with a script. I like it because it keeps me, it holds me accountable to make sure that I'm teaching them what they need to know. So, you know, if the question is raised should we get rid of a script, I don't think so.
>
> I know that's not what you asked, but I think the script needs to be there. Some teachers can do a great job of reading from a

> script and making eye contact and being engaging. For me, sometimes it puts me in a box…. (Follow-Up Interview, February 1, 2018)

I agree with Ms. Keegan and do not recommend eliminating the scripting (I *do* have some recommendations for streamlining it, however, which I will describe in a section that follows). However, the PK team may want to consider the nature and presentation of the directions and scripting and make some adjustments accordingly. Because the language of directions is inherently exclusive (due to the use of imperatives), attempting to remove all exclusive language from the lesson plans would be difficult, if not impossible. In addition, because language is always open to interpretation, teachers will interpret them based on their own characteristics, context, and other factors. For example, a teacher who has always taught in a top-down school district may view any scripting as compulsory—*even if* it is introduced using inclusive language. Therefore, I do not recommend making changes to the lesson plan verbiage of the directions. Instead, I recommend that, during the SI training, the PK team more explicitly encourage SI teachers to exercise their discretion. That is not to say that the PK team did not attempt to send this message during the 2017 SI training; indeed, they did. In fact, Ms. Lindsey said, "But I do remember in the training…I don't know who said it, but I remember they told us that, or you guys told us that, you know, use your discretion" (Follow-up Interview, February 1, 2018). However, despite the PK team's efforts to encourage SI teacher discretion, some of Ms. Keegan's and Ms. Lindsey's actions (e.g., seeking assurance for conscientious adaptations) suggest that they did not heed this message. To make this message clearer, the PK team could use several excerpts from the lesson plans (preferably excerpts that include exclusive language in the event it influenced teachers'

decision-making) and then share examples of how those excerpts of the lesson plans were adapted by the SI teachers during the 2017. Sharing such examples would be beneficial in several ways: It would show the types of adaptations the PK team expects *and* encourages; it would provide teachers with concrete examples; and it would celebrate the teachers' past decision-making, honor their competence and expertise, and posture them as having a role in the curriculum development process.

Questioning. In both the SI training and the lesson plans, the PK team encouraged SI teachers to privilege the use of open-ended questions. Specifically, during the SI training, the PK team emphasized open-ended questions during the read-alouds, and the authors of the lesson plans included language that encouraged teachers to use open-ended questions—not just during read-alouds, but in other segments, as well. The SI teachers' enactment suggests that SI teachers received and heeded this message; however, at times, they were uncomfortable using open-ended questions and even grappled with exercising their discretion in this regard. For example (and as more thoroughly discussed in Chapter 4), on one occasion, the teachers asked a member of the PK team for permission to adapt the curriculum relevant to the use of open-ended questions when working with the Word Web terms, i.e., the Daily Terms.

Teachers' discomfort with open-ended questions did not discretely present in this instance; in the following example from Day 4 (*Light & Dark*), Ms. Keegan got "hung up" during a read-aloud after skipping one of the open-ended questions she had planned to ask:

> *Ms. Keegan goes back to the angler fish page to talk about an open-ended question that she had planned but forgot to ask. This did not seem necessary to me and perhaps drew out the reading of the book longer than it needed to be.*

I did not include this example in my findings because it was not directly related to the Vocabulary Component of the curriculum; however, it is nonetheless indicative of an on-going concern I had regarding the use of open-ended questions. Upon initially reading this excerpt, I wrote the following memo in MAXQDA, which remains relevant:

> I wonder why Ms. Keegan felt compelled to do this? A teacher characteristic? A curriculum characteristic? While this example is beyond the scope of my project, which focuses on the vocabulary component, I think about the greater issue—the macro issue—which is the degree to which teachers feel compelled to follow curricula and why—that tension that exists between [design] and enactment.

This tension is not easily resolved and will not be resolved by this project alone; however, I can make a recommendation specific to the questioning aspect of the lesson plans: that while the PK team continue to place emphasis on open-ended questions, they also make it clear that the SI teachers need not use open-ended questions to the exclusion of close-ended questions. Admittedly, despite some of my concerns, the use of open-ended questions appeared to yield great results. As Ms. Keegan explained (and Ms. Lindsey concurred),

> Ms. Keegan: We got some amazing answers.
> Ms. Lindsey: Yeah.
> Ms. Keegan: They were pulling stuff out that I'm like, I had no idea they would have said, that they would have understood. I don't remember off the top of my head, but I know our first interview should have some of that. I just know that I remember them like, blowing me away with their knowledge. That if I had just answered it I wouldn't have gotten that, but by saying does anyone have an idea, or what do you think, why do you think that is? It was a lot of guessing on their end, well, maybe it's because, and then you're just like, well actually that's exactly [emphasizes *exactly*] because… Some of that kind of stuff. (Follow-up Interview, February 2, 2018)

Interestingly, when asked about the detriments of using open-ended questions, Ms. Keegan said,

> And then the detriment would be just the mental exhaustion of sometimes, and as teachers we use our professionalism on that one. But sometimes [emphasizes *sometimes*] you just have to give them the answer because they need to know, and it's kind of knowing your student a little better too.

Although Ms. Keegan indicated that sometimes "you just have to give them the answer," she and Ms. Lindsey's actions suggest they were not always comfortable exercising that professional discretion.

To send the message that teachers privilege the use of open-ended questions, but still feel comfortable using close-ended questions and even defer to their own judgment, I recommend a change to the lesson plans with respect to the scripted (generally, open-ended) questions provided in the lesson plans: that the PK team create a separate appendix for these questions (or at least those relevant to the read-alouds). Although the questions would still be included in the lesson plan book, they could instead be placed at the back and separated by a tab or a piece of colored paper or cardstock (and, for ease of reference, be categorized by day and book title). Because the questions would be removed from the body of the lesson plans, the language of the lesson plans could be changed to read, for example, "For suggested read-aloud questions, see the Appendix located behind the [tab/blue page] of this lesson plan book." This change would have at least two benefits: First, it would reduce some of the "bulk" in the lesson plans by streamlining their text. Second, it would connote that the questions the PK team has offered are merely suggestions, thereby suggesting to the teachers that they can exercise their discretion.

Vignettes. For their study of educative curricular support, Arias, Davis, and Palinscar (2016) used a curriculum in which they embedded a "suite of educative features" (p. 422). Rather than looking at a curriculum as a whole, Arias et al. were

interested in the effects of specific educative features. Among the features of interest were *fictional narratives*, i.e., vignettes depicting teachers' decision-making and enactment. The researchers found that the teachers in their study engaged with the fictional narrative in a more personal fashion, for example, referencing the name of the fictional teacher rather than referencing the name of the feature (e.g., a callout box or overview page). Furthermore, the teachers relied on these features to plan, anticipate challenges, and identify specific instructional moves.

I recommend modifying the SI curriculum's lesson plans to include vignettes derived from the 2017 SI enactment. The PK team could draw upon the extensive field notes to uncover the most powerful and salient examples, even combining the best aspects of several enactments to create exemplar vignettes. Here I offer a sample vignette based on this study's participants' enactment on Day 2 (*Color*). Leading up to this part of the lesson, children had participated in an activity in which they guessed each other's favorite color. The next part of the activity was outlined in the lesson plan in the excerpt that follows:

> *Okay, we now have several colors listed on the board: _____, _____, and _____.* [If the opportunity presents itself based on the colors listed, discuss the word *shade*.]
>
> *But what other colors are there? I am going to project a picture of a very colorful piece of art to see if we can come up with some more colors.*
>
> Project PPT, Slide 2.
>
> *Does anybody know what this is a painting of?* [US Capital/Washington DC]
>
> *How does the artist of this painting use colors?*
>
> *What time of day is this supposed to be? How do you know?*
>
> *Are there any patterns in the painting? What makes you think that?*

Now using your white boards, write down any other colors that you see that we haven't put on the board already.

Allow a minute or two for writing. Then ask children to list any additional colors that they haven't already listed, writing them on the board as they are offered. Save this list for discussion later today. [If the opportunity presents itself based on the colors listed, discuss the word shade. For example, if a child mentions the blue that is in the painting, ask a child whose favorite color is blue if that is the same *shade* of blue that is his/her favorite.]

The following excerpt from the observation field notes captures the corresponding enactment:

> Ms. Lindsey tells them to look around the room and make sure their favorite color is still here. A few say "yay."
>
> The group begins adding colors to their list:
> Ss: purple
> Antonio: orange
> Mallory: black
> Libby: gold
> Matthew: grey
> Antonio: black is another of my favorite colors
> Katie turns to him and says "what?"
> Ss: grey/red
> Connor: indigo
>
> Ms. Lindsey displays the [painting] of the capital:
>
> Students are calling out colors: blue, green, gold.
> Antonio: I think I see some indigo.
> He then makes a comment about the indigo being in the water.
> Ms. Lindsey: How do you know this is water?
> Antonio: Because it looks like it's moving almost.
> Antonio and Connor both make motion with arm that resemble waves.
> Ms. Lindsey then asks if they see patterns in the image.
> Antonio: brown, gold, brown
> Matthew: black, orange, red, black, orange
> Jonathan: gold, blue, gold, blue (Observation Field Notes, July 18, 2017)

Based on the foregoing, I offer a possible set of directions and vignette that could be used to replace much of the lesson plan excerpt:

> Facilitate a conversation about children's favorite colors and the painting on PPT, Slide 2.
>
> ***Vignette:***
> Ms. Jennings marveled at the number of colors the children had offered as their favorite colors. She was particularly impressed by Connor's color: *indigo*. Having reviewed her lesson plan book earlier that morning, Ms. Jennings recalled that *shade* was one of the Daily Terms to be introduced later in the day; however, she decided now would a great opportunity to reference it. "Connor, tell us more about the color indigo." Connor replied, "It's blue." Emphasizing the word *shade*, Ms. Jennings then explained, "That's right; it's a *shade* of blue. Is it a darker shade or a lighter shade?" After Ms. Jennings and the children wrapped up the "favorite color" conversation, Ms. Jennings projected the painting of the United States Capitol. Drawing upon the previous day's topic, Ms. Jennings started a new conversation, even tying in the previous day's topic: "I see a lot of colors here, but do we see any *patterns*?"

Using these simplified directions and corresponding vignette would not only streamline the lesson plan, but may send several messages. First, in the vignette, "Ms. Jennings" capitalized on Connor's word *indigo*, which may encourage SI teachers to likewise build on children's discussion contributions. Second, the language of the vignette may subtly encourage teachers to review their lesson plans: Because Ms. Jennings had reviewed her lesson plan in advance, she knew *shade* was a Daily Term and was able to naturally incorporate earlier in the lesson plan than if she had just read the lesson plan as written. Parenthetically, it should be noted that the author of this particular lesson plan anticipated the possibility of using the word *shade* in this segment and wrote it into the lesson plan; however, authors cannot anticipate every such opportunity. Therefore, sharing examples of teachers taking the initiative "plants the seed" for teachers and dispenses of the need for authors to anticipate and build each such instance into the lesson plans. Third, the vignette illustrates how Ms. Jennings deliberately made

references to past Daily Terms and Topics (in this case *Pattern*), which may remind teachers to do the same. Again, the author of this lesson plan suggested this reference; however, by using a vignette instead, it appears as though Ms. Jennings made this connection without being prompted by the author.

Based on the foregoing, I believe that—in addition to the message they would send to the SI teachers—using vignettes would have several benefits. First, based on Arias et al.'s (2016) study, teachers appear to appreciate this type of educative feature. While not entirely generalizable, Arias et al.'s study involved elementary teachers using a science curriculum. In addition, vignettes would provide the SI teachers with insights into how other teachers enacted the lessons, the challenges or opportunities those teachers encountered, and how they responded to those challenges or opportunities. Third, the vignettes would be drawn from real and even local enactments of the SI curriculum. In other words, they would be largely context-specific. Furthermore, because they would be based on the 2017 teachers' enactment, the SI teachers may see "themselves" in the vignettes, which could be especially reassuring and affirming. Ultimately, then, use of vignettes could serve as a means of empowering teachers as curriculum developers.

Table 5.1.
Findings and Corresponding Recommendations

RQ1: Curricular Guidance	RQ2: Curriculum Enactment	Recommendation(s)
The lesson plans contained a thorough but sometimes inconsistent presentation of the curriculum vocabulary. (see Pattern 1)		*Uniformly present daily terms across all lesson plans (see Recommendation 1) *Include only CRTs as Daily Terms (see Recommendation (see Recommendation 2) *Change the order of Daily Topics to insure increased complexity of vocabulary and concepts (see Recommendation 3)
The Word Webs (in particular, the Classroom Word Web) lacked a cohesive vision. (see Pattern 2)	Teachers appeared to treat the Word Webs as a beginning- and end-of-day activities, rather than interactive tools for vocabulary development. (see Pattern 3)	Posture the CWW as an Interactive Tool (see Recommendation 4)
	Teachers appeared to make conscientious efforts to reference previous days' Daily Term as a means of reinforcing the content of the SI curriculum, i.e., used Daily Terms to facilitate intra-day connections. (see Pattern 1)	
	Both teachers' and children's use of Spontaneous Terms served as a means of facilitating children's vocabulary development. (see Pattern 2)	
The curriculum's characteristics provided guidance to the SI teachers but, at times, relayed mixed messages. (see Pattern 3)	Teachers appeared to make both natural and conscientious *adaptations* (Brown, 2009) to the vocabulary development component of the curriculum, but they did not make *improvisations* (Brown, 2009). (see Pattern 4)	Empower SI Teachers to be Curriculum Developers (see Recommendation 5)
	Teachers appeared to make conscientious efforts to reference previous days' Daily Term as a means of reinforcing the content of the SI curriculum, i.e., used Daily Terms to facilitate intra-day connections. (See Pattern 1)	
	Both teachers' and children's use of Spontaneous Terms served as a means of facilitating children's vocabulary development. (see Pattern 2)	

Note. I provide a larger, vertically-formatted version of this figure in Appendix Q.

Implications

In the previous section, I offered recommendations regarding the refinement of the SI curriculum based on my findings. In that way, I attempted to address the grant-specific "micro" problem of practice. However, as discussed in Chapter 1, a broader, more "macro"-level problem of practice acted as a perpetual undercurrent to this project: first, that of the tension that existing between curriculum and teacher and, second, the consonant fidelity-variation (Brown, 2003) tension with which curriculum designers must grapple. Curriculum designers are placed in a difficult limbo, navigating the spectrum between "teacher-proof" curricula intended for teachers to follow with fidelity and flexible curricula that defers to teachers' discretion. And teachers, too, must grapple what is presented by a curriculum and the realities of their students and classrooms. To

complicate matters, no two teachers are alike. The obvious example would be a novice teacher who would prefer as much guidance as she can get versus the experienced teacher who believes she knows her job "inside out" and would prefer autonomy. Ironically, it may be the new teacher who has fresh ideas that could positively challenge the curriculum if she only trusted her instincts, and it may be the experienced teacher who has not evolved to meet the needs of her students—those students not being the same as the ones she taught twenty years ago. So what, then, do curriculum designers do?

Of course, this study cannot answer this question, but—perhaps—it can contribute to the conversation. Notably, this curriculum was designed with a relatively narrow context in mind: While few curricula are designed with specific classrooms in mind, this one came close, having been designed for five sites with hand-selected students and hand-selected teachers—a luxury, to be sure. Moreover, it was designed as a part of a research project and, therefore, the designers (i.e., the PK team) communicated the expectation of some consistency in terms of the SI teachers' enactment at the five sites. Also, the curriculum and its attendant resources were tightly packaged (instructions, containers, labeled baggies, etc.) and delivered to the SI teachers. It certainly appears that these factors influenced Ms. Keegan's and Ms. Lindsey's desire to stay faithful to it. Ms. Lindsey contrasted the SI curriculum to the commercial curricula to which she was accustomed:

> Because we knew, well in the back of my mind, *Well they* [the PK team] *spent all this time putting it together, and they kind of, you know, created it so it has a flow, so I am just gonna go with it because it's here*, you know kind of thing, so…But then the other part of me, the other teacher part of me, like knowing that with our own teaching manuals or curriculum…sometimes we're like, *Mm, skip that*, you know? That's gonna be too much. But because I knew this was hand-picked curriculum, I was like, *No, I think it's probably gonna matter if we go through it all*. (Follow-Up Interview, February 2, 2018)

Ms. Kelly followed up Ms. Lindsey's point with the following statement:

> Well and also, though, because it was mirror, reflection, and image…and it had such an impact on the theme of the kaleidoscope, and it built upon this lesson, like the rest of the curriculum built on this. That's how I thought…Well they have to know, you know, this whole reflection and mirror because that's such a big component of the kaleidoscope. (Follow-Up Interview, February 2, 2018)

Ms. Keegan's and Ms. Lindsey's points suggest that when a curriculum appears to be "hand-picked" or personalized, teachers are more willing to reserve judgment and invest in it. Moreover, if a curriculum is designed with a clear purpose (in the case of this curriculum, concepts that built upon each other), teachers are apt to follow it, knowing that not doing so could compromise the overall integrity. Curriculum designers, then, should consider ways to write cohesive (and even thematic), rather than disjointed, curricula. They should also strive to find ways to make curricula feel more authentic and personal to the teachers tasked with enacting it.

In addition, when asked what it means to be faithful to a curriculum, Ms. Keegan responded,

> Well, you have to trust the person that wrote it. And I think that we made a personal connection with you guys in the training. And you've been volunteering in our school, and we truly have a partnership in what the kids need to know and what's gonna be helpful…whereas, as Ally pointed out, a big ginormous textbook company that just writes these books, then you have to, then the county says you have to be faithful to this curriculum…you don't have a personal connection with the curriculum. Whereas for us, this experience…we know how much work went in to writing it, and we know how much research is behind it. And, for us…well, for me…sorry, Ally, for me…that's, I know I trust…I would have to trust the person that wrote it. (Follow-Up Interview, February 1, 2018)

Ms. Lindsey added, "I think after the training, well, I know after the training, we were both really excited. Afterwards I said, *Wow, this is going to be great!*" (Follow-Up Interview, February 1, 2018). Again, Ms. Keegan's and Ms. Lindsey's comments offer

more points for curriculum designers to consider, namely, the value of relationship-building and trust. Ms. Keegan and Ms. Lindsey were not simply handed a curriculum to enact: They received training regarding the curriculum, but—more importantly—they received the training from the team of individuals who designed it. In this way, they were able to forge a relationship with the designers, which led to their "buy-in." Ms. Keegan's and Ms. Lindsey's buy-in lead to (what appeared to be) a strong desire to enact the curriculum in concert with Project Kaleidoscope's vision.

It is interesting, then, that I may not have directly addressed the many tensions that exist in in the world of curriculum, e.g., those quandaries curriculum designers face in *designing* curricula and that teachers face in *enacting* curricula. Nonetheless, I think that my study offers promise: It seems that when curriculum designers and teachers forge a relationship, many of the tensions that could exist (e.g., those between fidelity and variation, design and enactment) are ameliorated. Specifically, curriculum designers come to trust the teachers to enact the curriculum they have designed, and—in turn—the teachers come to trust the curriculum that has been designed for their use. Although adaptations may occur, those adaptations are made in the spirit of the curriculum. As a consequence of the reciprocal relationship between designers and teachers, both the curriculum and the teachers' discretion are honored. To put it in terms of the SI curriculum, a *balance* is struck. To bring this project full circle and to directly respond to the broader problem of practice—the "how much is too much?" when it comes to curriculum design—I would make this statement: I believe that curriculum designers should err on providing complete and comprehensive curriculum materials (for some teachers, perhaps, "too much"), but champion teachers as the arbiters of how those

materials are enacted. This message can be sent via professional development where materials are explored (and, ideally, relationships are forged), language in and structure of the materials suggesting teacher discretion, and built-in and explicit opportunities in the materials for teachers to adapt the curriculum.

As it turns out, I was also forced to consider another question with respect to the design of the curriculum: *When it comes to curriculum design, are two heads really better than one?* As discussed, the SI curriculum was written by a team of several individuals; and, at times, having several individuals authoring the lesson plans seemed to lead to inconsistencies between and among the lesson plans. Regardless, I *do* think that two (or more) heads are better than one: Because the object of this report was refinement of the curriculum, discussing the many things that were done *right* would have not achieved that end. Therefore, the story that is *not* being told in this capstone project report is that of the collaboration, contribution, and—yes—consistency that occurred as a consequence of having several individuals assigned to designing the curriculum.

Based on the assumption that the SI curriculum was more successful than not (and, based on Ms. Keegan's and Ms. Lindsey's experience, it seems that it was), I would recommend that—when feasible—curricula are designed by teams, rather than individuals. By way of example, I recommend that the PK team continue to have a team of curriculum designers. Perhaps surprisingly (given some of the inconsistencies I described in this report), I would further recommend that single authors or pairs of authors work on discrete days of the curriculum. Although this move places the authors in "silos" in terms of knowing the details about what is being planned for the other days, it will allow them to concentrate on the content of (and consistency within) their assigned

days. To remedy the silo effect, however, each author could also edit a particular daily segment (e.g., Background, Meetings of the Minds, Books & Bookworms) in the lesson plans—thereby requiring an author to also have to read *across* all days of the lesson plans for a given segment. Doing so would allow authors to note any inconsistencies in their assigned segments and make recommendations accordingly. In other words, having authors write discrete days of curriculum *and* edit segments across the curriculum would insure both vertical and horizontal alignment. As an implication of this study, I would make analogous recommendations to curriculum design teams at large.

Limitations

Although I attempted to negotiate and address potential threats to my capstone project's trustworthiness through a sound research design, limitations remained. For example, because I did not collect all the data myself, I was unable to personally "experience" the data. Furthermore, because the data were not collected with my capstone project in mind, certain occurrences (and, therefore, the corresponding data collected) were, understandably, privileged at the expense of capturing occurrences that may have been more relevant to this project. Consequently, I may have made certain assumptions about the data based on omissions—for example, that something did not happen when it, in fact, did.

Second, because the teachers were aware that they were part of a research study, they may have modified their behaviors during the observations and the interviews. Ms. Keegan and Ms. Lindsey seem to have enjoyed participating in the SI and have expressed interest in doing so again; therefore, they may not have been entirely forthcoming if they thought doing so could compromise their ability to participate in the future.

Third, I did not conduct the second interview until February 1, 2018, some five months after the teachers' enactment of the SI curriculum. While the passage of time could be viewed as an opportunity for teachers to reflect on the experience and develop a more holistic and even nuanced perspective of it, their specific recollection of details may have been lost.

Finally (though not exhaustively), I only have the PowerPoints, authors' notes, and my own memories regarding the SI training. The training *was* video-recorded, but for the limited purpose of allowing an absent SI teacher to remotely participate in the training. Therefore, I could not use this recording as data and, consequently, I have somewhat limited data with respect to this aspect of the SI curriculum.

Reflection

Understanding the process by which teachers engage with curricula holds exceptional promise for curriculum design: By studying how teachers "transform the core ideas of the curriculum materials into practice" (Brown, 2009, p. 17), researchers "can help curriculum and professional development designers create materials that are useful to teachers and professional learning experiences that support them in using these materials to meet their goals" (Brown, 2009, p. 26). I began this journey as a member of a curriculum design team; however, this capstone project provided me with an opportunity to wear a different hat: that of a researcher who studied how teachers used the curriculum that our team designed. To bring this project full circle, it is now incumbent upon me to share my findings and recommendations with my team so that the SI curriculum can be refined in such a way that better supports teachers in their enactment of it.

Taking my findings, recommendations, and implications together, I would encourage all those who "touch" curriculum (teachers included) to move beyond the notion that curriculum is something designed, selected, and adapted in a linear fashion. I would even encourage them to go a step beyond the idea that "teachers adapt curriculum to fit their teaching practices, but also adapt their practices in order to align with curriculum" (Drake & Sherin, 2006, p. 160)—this notion keeping change at the classroom level. Instead, I suggest that curriculum be viewed as cyclical; in this conception, teachers' adaptations not only contribute to their classroom curriculum, but have the possibility of informing future iterations of the curriculum as a whole.

Through this experience I have learned that curriculum is dynamic—constantly and cyclically evolving in response to the contributions of designers, teachers, and students. Because teachers serve as liaisons between designers and students, I especially value their contributions. Therefore, when I return to my work in a K-12 setting, I will continue championing teachers, especially now that I am that much more cognizant of their important—if not, *vital*—role in curriculum development.

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Appendix A

Lesson Plan Template

Camp Kaleidoscope
Day __: Theme

Background	
Provide lesson background here.	
Understandings	**Essential Questions**
Provide understandings here.	Provide essential questions here.
Schedule (Times are Approximate)	
Activity name	_:__ – _:__ (__ minutes)
Optional Quiet Space	
Purpose On each day, a space will be established where children can go to read other books on the relevant topic, books from prior lessons, and/or take their lab notebooks and write or create. Feel free to allow children to visit this space any time they seem disengaged from an activity or if they finish an Exploration Station early (or simply don't want to participate in a given Exploration Station). The purpose here is to provide both you and children alternatives.	
Today's Alternate Books (to be added to any prior days' books):	

Project Kaleidoscope
Summer 2017
Day _: Theme

Meeting of the Minds _:__ – _:__ __ minutes	**Materials** List materials here
Purpose Share the purpose of the activity here.	
1. Number directions 2. *Italicize scripting – intersperse as appropriate* 3. Continue numbering directions	
Books & Bookworms: *Name of Book* _:__ – _:__ __ minutes	**Materials** List materials here
Purpose Share the purpose of the activity here.	
1. Number directions 2. *Italicize scripting – intersperse as appropriate* 3. Continue numbering directions	
Transition/Video _:__ – _:__ __ minutes	**Materials** List materials here

Project Kaleidoscope
Summer 2017
Day _: Theme

Purpose Share the purpose of the activity here.
1. Number directions 2. *Italicize scripting – intersperse as appropriate* 3. Continue numbering directions

Activity Central: Name of Activity _:__ – _:__ __ minutes	**Materials** List materials here
Purpose Share the purpose of the activity here.	
1. Number directions 2. *Italicize scripting – intersperse as appropriate* 3. Continue numbering directions	
Munchies & More _:__ – _:__ __ minutes	
Exploration Stations (__3 X ~__ minutes/each) _:__ – _:__ __ minutes	

Project Kaleidoscope
Summer 2017
Day _: Theme

Script how you might preview the stations for the children. Example: *For our next activity, we are going to move into our Exploration Stations! Each of you will have a chance to go to all three stations. First, I am going to divide you into three groups.* [Assign groups.] *Group 1, you are going to go to Station A, where you will get to do some fun experiments with color. Group 2 will go to Station B, where you will get to play a fun color memory game. Group 3 will go to Station C, where you will go on a color scavenger hunt. You will be in each station for about 15 minutes, and then we will tell you where you go next. So everyone go ahead and report to your first station!*

Station A: **Name of Station** _:__ – _:__ _:__ – _:__ _:__ – _:__	**Materials** List materials here
Purpose Share the purpose of this station/activity here.	
1. Number directions 2. *Italicize scripting – intersperse as appropriate* 3. Continue numbering directions	
Station B: **Name of Station** _:__ – _:__ _:__ – _:__	**Materials** List materials here

Project Kaleidoscope
Summer 2017
Day _: Theme

_:__ – _:__	
Purpose Share the purpose of this station/activity here.	
1. Number directions 2. *Italicize scripting – intersperse as appropriate* 3. Continue numbering directions	
Station C: **Name of Station** _:__ – _:__ _:__ – _:__ _:__ – _:__	**Materials** List materials here
Purpose Share the purpose of this station/activity here.	
1. Number directions 2. *Italicize scripting – intersperse as appropriate* 3. Continue numbering directions	
Closure _:__ – _:__ __ minutes	

Project Kaleidoscope
Summer 2017
Day _: Theme

Allow time for clean-up, as necessary, and announcements (e.g., preview tomorrow's lesson and provide reminders to students as necessary). Make sure students have any items (personal or camp-related) that you want them to take home with them.

Project Kaleidoscope
Summer 2017
Day _: Theme

Appendix B

Project Kaleidoscope Summer Intersession Observation Protocol

Summer Session Observation Protocol

Teachers: _____
Assistants: _____
Site/School: _____
Date: _____
Topic: _____
Number of Children: _____

DO NOT TAKE PICTURES OF CHILDREN

Prior to Observations

- Prior to observations, copy lesson plan for annotating significant "moments": Consider deviations for possible follow-up, conversations and engagement (or lack thereof), etc. [See **Materials** and **Instruction** below.]
- Attach student list.
- Discussion with teacher regarding any anticipated changes.

Environment

- Note whether teacher is in her own classroom or someone else's [may impact extent to which teacher posts items on the wall or makes other decisions]
- Orient yourself to the classroom by describing the locations of stations, materials, student desks, etc. Look for examples of literacy embedded within the classroom. You may wish to draw a map, but all of this is only necessary one time. [If you are a subsequent observer, get map from prior observer and supplement as appropriate]
- Take daily pictures of Word Web to see the evolution [beginning and end of day]
- What things get written on the board?
- What things get hung on the wall?

Materials: Make note of deviations

Instruction

- Make note of deviations
- Notable interactions (e.g., student questions/teacher responses; unexpected moments, good or bad; student responses to activities, good or bad)
- Implementation of aspects from modules

Assessment and Data

- How are teachers using data, both formal and informal (e.g., child work, responses, behavioral cues, etc.) to inform their instruction?
- Do teachers appear to be assessing (formally or informally) children and, if so, how?
- What type of feedback are teachers providing to children?
- Photograph data collection to the extent possible (clipboard use, etc.)

Talent Development

- The extent to which teachers facilitate talent (e.g., not being "sidetracked" by behavioral issues and instead positively redirects, allowing children to explore ideas)
- Do the teachers appear to recognize that students have different language backgrounds (different size webs)?
- How is language instruction differentiated by the teachers? How do they make these decisions? [Differentiation does not need to be built into lesson, but can happen in the moment.]
- Are children interacting with texts (whether they can read them or not)?
- Are teachers allowing for children to go beyond the original scope of activities?
- Are open-ended questions being asked, and if so does the teacher allow for a follow up question that "pushes" student understanding?

Read-Alouds

- Open-ended questions (as opposed to yes/no questions)
- Follow-up questions
- Think time
- Honoring children's unique/creative responses
- Introduction of new vocabulary (and how?)
- Who (and how) are children being selected for responses and/or being provided opportunities respond? Consider opportunities for children to
- Manner in which text is used (e.g., read, shown, summarized, etc.)
- Note substantive versus tangential conversations regarding the texts

Student Work

- Photographs of creations
- Capturing data from lab notebooks via photographs and/or field notes

Observer Reflection: Voice memos permissible

Appendix C

Project Kaleidoscope Initial Interview Protocol

Summer Session (2017) Interview

Thanks for teaching these past two weeks. It really was great to be able to see the kids in action and to provide them with opportunities that they might not otherwise have access to. Thanks also for your willingness to talk with me today. I've got some questions that focus on 3 big areas. I'll ask you some questions about the curriculum and camp generally, the students, and the data you collected. There's no right or wrong answer and you both should feel free to pipe in to respond. Do you mind if I record our conversation? It's just easier so that I don't have to try to write down what you say. We'll have the recording transcribed and then it will be destroyed.

NOTE: Interviewer: If they don't want you to record, then you will need to scribe the best you can how they respond.

Remember you will need to listen to hear the data…this is where follow-up questions come from…building off their responses to your question.

Make sure they have access to the data that they collected on each student.

The first topic is on the Curriculum and the Camp itself:

1. What were your overall impressions of the two-week camp experience for you? For the kids?

2. What lessons/activities did you think were the best? Why?

3. What lessons/activities didn't work? Why?

4. As you know, the interactive read alouds were a central part of the lesson each day. Would you describe how the read-alouds went over the two weeks?

   What worked well or what didn't work? Why?

5. The word webs on the board and in the students' journals addressed key terms each day and tied all of the days together. Would you describe how the word web activities went over the two weeks?

   What worked well or what didn't work? Why?

I want to move to a couple questions about the kids.

As you know, the camp lessons were designed to foster student literacy through a talent development activities that didn't feel like typical school. The kids that were invited were kids that had a discrepancy in their PALS scores and either the DAP or the CogAT.

6. Overall, what did you notice about students in these two weeks?

7. Were there any particular students that stood out for you? Who? Why? **(You may have a couple students that you are particularly interested in and if they don't name them you can ask specifically about them.)**

8. Would you refer any of the students from this past two weeks to receive Gateways services?
   If yes, who and why?

I'd like to ask you about the data that you collected over the two weeks.

9. I noticed that you collected data by <<<FILL IN THE BLANK (clipboard, notebook with a tab for each student>>>.

10. Is this something that you do during the regular school year?
    If yes, how often? How do you use the data?

11. In general, what are the types of things that you noted about students?

Final question

12. What did you learn from teaching the summer session? Is there anything you plan to take from this experience and implement during the school year? If so, what? Why?

Appendix D

Follow-Up Interview Protocol

Follow-Up Interview Protocol

Thank you for agreeing to participate in this follow-up interview regarding the summer intersession. Let me remind you that this interview is entirely voluntary. Do I still have your permission to proceed?

I know that a fair amount of time has elapsed since the session, but now that we have had some time to go through our data and reflect, we wanted to get some additional information to try to make the future lesson plans and professional development even stronger. No matter what I ask, remember that there is no right or wrong answer: I just want your input and impressions.

First and foremost, do I have your permission to I audio-record this conversation?

[Thank you. This will make it easier for me to capture your responses, and the recording will be destroyed once it is transcribed. –or– No problem, I am happy to make notes of your responses.]

SI Curriculum, Generally

Although the focus of my questions today is vocabulary component of the curriculum, I want to start a bit more broadly…

Tell me about your process of reviewing lesson plans in preparation for the summer intersession…
Possible Follow-Up/Probes:

- *Weekly/daily/on-going?*
- *Close read/skim – based on what factors?*
- *Notes taken in lesson plan books?* [Be sure to ask teachers to bring their lesson plan books when setting up the interview]

Based on the written aspects of the lesson plans, share your perceptions in terms of the demands made by lesson plans. In other words, how much did you feel that it required you to follow what was written? NOTE to SELF: Other language for the question: *demands, requests, invitations to consider*

Whether positive or negative, what features of the lesson plans caught your attention? Why/how/in what ways?
NOTE to SELF: Here we are looking for features that actually "caught their eyes" for one reason or another. I will ask about the quality of the features in the next question.

Which of these features did you find most helpful?
NOTE to SELF: If prompting is needed, have teachers flip through their lesson plan books or offer an example or two to orient them, e.g., background sections, materials sections, one-pagers for lessons, one-pager for Exploration Stations.

Which features did you find least helpful?
Distracting? Overwhelming? Otherwise in need of refinement?
[Follow up with probes listed below]

What did you think about the "density" of the curriculum—in particular, the lesson plan books? Too much, too little, just right? Please elaborate.

How would you describe your comfort level with the overall content of the curriculum? [Follow up with probes listed below]

Teacher Characteristics Regarding the Vocabulary Component

As I mentioned, the focus of my questions today is about the vocabulary component of the curriculum. As you know, we had daily vocabulary words and built in opportunities to engage with those words throughout the summer intersession—for example the Word Webs. So I want to narrow our focus a bit…

How would you describe your confidence in terms of having an understanding of the vocabulary words in the curriculum?

And a slightly different question…

How would you describe your confidence in terms of teaching the vocabulary words?

And what was your perception of children's understanding and learning of the words in response? [Follow up with probes, below, as necessary]

Curriculum Characteristics Specific to the Vocabulary Component

What features in the curriculum aided in your understanding of the vocabulary words? [Why/how/example?] What about your ability to teach the words? [Why/how/example?] And your confidence in teaching the vocabulary words? [Why/how/example?]

What features could have been added to the curriculum that would have aided in your understanding of the words? What about your ability to teach the words? Are there any features that we should consider removing?

Now let's talk about the Classroom Word Web, the one you built on the wall…

What did you perceive as the purpose of the Classroom Word Web?

I noticed that you added some extra or spontaneous terms to the CWW [have picture available]…

How did you decide which words to add to the web?

In what ways do you feel that the CWW contributed to children's vocabulary development?

Based on what you saw, how do you feel that the CWW may have detracted from children's vocabulary development?

How could the CWW be improved or refined to aid in children's vocabulary development?

[If necessary, based on previous response] *What other supplies, support, or guidance could we have provided with respect to constructing the CWW?*

How can we make the CWW more interactive?

Let's talk for a moment about the children's Personal Word Webs, the ones in their lab notebooks…

In what ways do you feel that PWWs contributed to children's vocabulary development?

How did they detract?

How could they be improved or refined?

SI Training

Let's revisit the summer training you attended…

What aspects of the summer training helped you carry out the vocabulary component of the curriculum?

How can we improve the summer training regarding the vocabulary component of the curriculum? The Classroom Word Webs, specifically? The Personal Word Webs?

Rounding Out My Conceptual Framework

So I have just a few more questions about the curriculum and the lesson plans...

The lesson plans contained a fair amount of scripting. How did you feel about that? [If possible, narrow to scripting relevant to vocabulary]

You may have heard the term fidelity of implementation*, which is essentially being faithful to a curriculum. What does it mean to be faithful to a curriculum?*

How important was it to you to follow the curriculum?

Tell me about times that you felt adaptations to the curriculum were necessary. What factors contributed to your decision to make adaptations? [If possible, narrow to scripting relevant to vocabulary]

In what ways, either implicit or explicit, did you feel you were given the freedom to make adaptations to the curriculum?

Concluding Questions

And just two more questions…

First, what did you learn from participating in the summer intersession?

In what ways has the curriculum, in particular, the vocabulary component of the curriculum influenced your professional practice?

That is all of my questions. And, again, this recording will be destroyed once it is transcribed. Thank you so much!

Probes (will be used as needed)

Please tell me more about that.
Can you give me an example?
Why do you say that?
Could you expand on that a little bit more?
What do you mean by that?
What would that look like?
It sounds like you are saying, "…" Is that a fair summary?

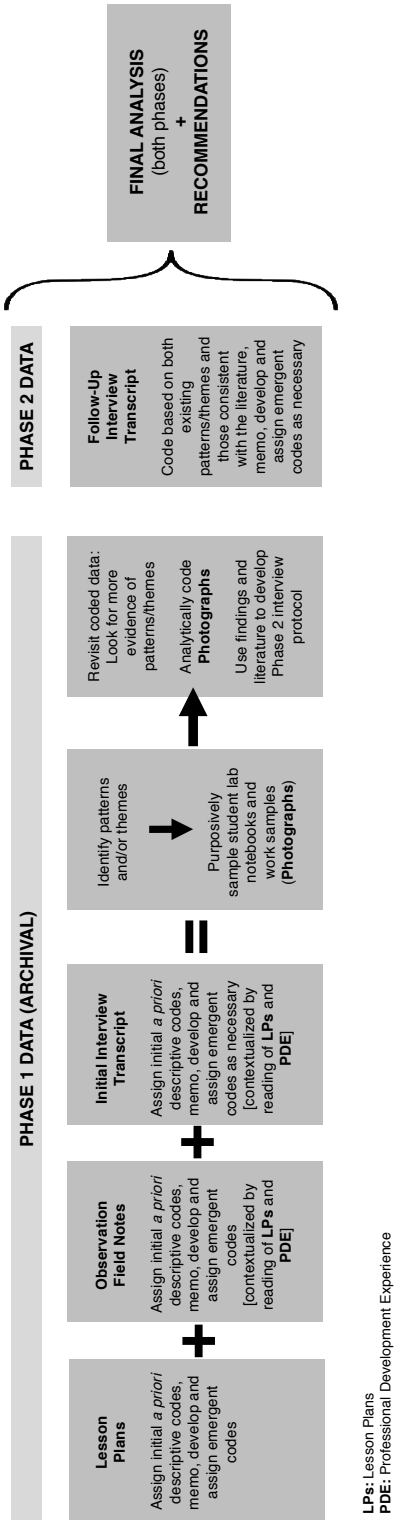
Appendix E

Data Sources Used to Address Research Questions

Research Question	Obs's	Photos	Lesson Plans	PDE	Initial Interview	Follow-Up Interview
To what extent did the summer intersession curriculum resources provide guidance to teachers in supporting children's vocabulary development?		X	X	X	X	X
In what ways did teachers enact the curriculum in support of students' vocabulary development?	X	X			X	X

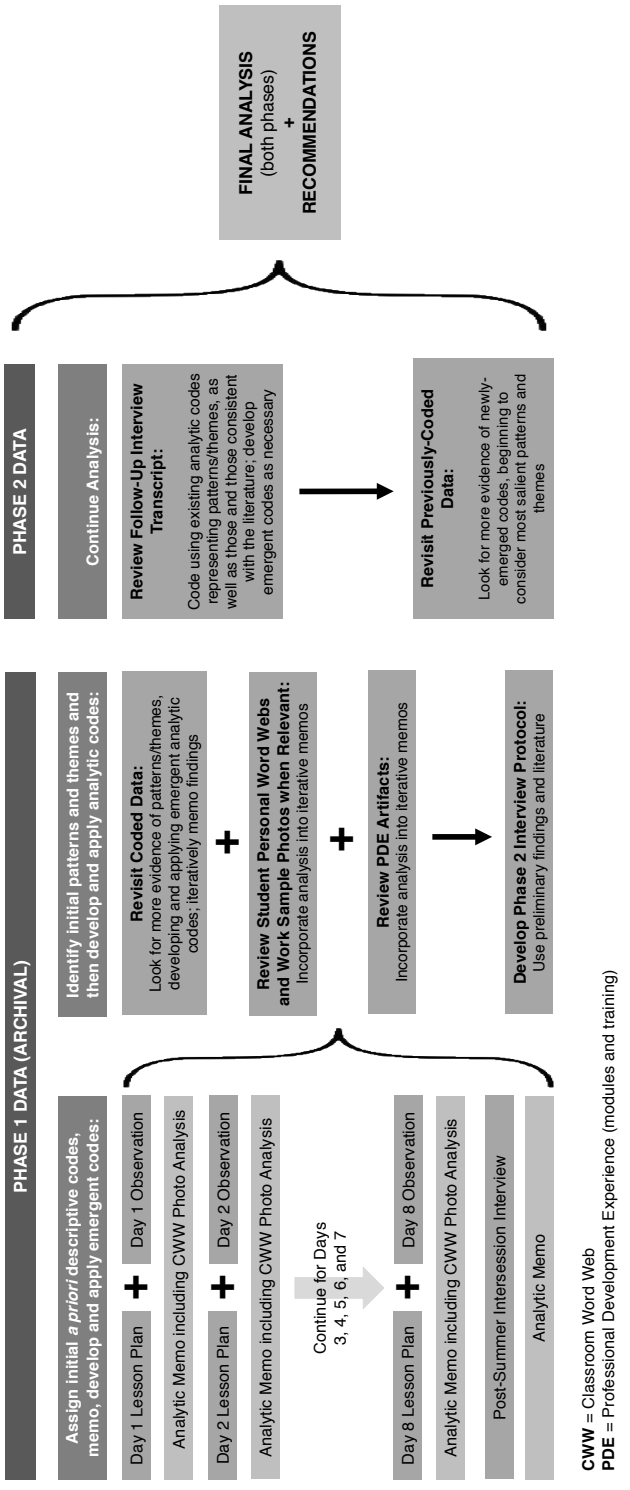
Appendix F

Initial Data Analysis Plan



Appendix G

Final Data Analysis Plan



Appendix H

Initial Codebook

DESCRIPTIVE CODE BOOK

UNIVERSAL CODES (to be applied to Lesson Plans, Observation Field Notes, and Interview Transcripts)

Daily Term:	A *daily term* is a vocabulary word associated with a given day's lesson. For example, on Day 2 (Color), *daily terms* include ***color*** and ***shade***. I will use this code whenever a *daily term* is used or referenced—whether that occurs in the written lesson plan, in the enactment of that lesson plan, or during the interview and regardless of whether it is used by a child, teacher, or other individual (e.g., adult helper, researcher).
Past Daily Term:	A *past daily term* is a vocabulary word associated with any previous day's lesson. For example, the term ***shade***, which is a *daily term* for Day 2, would be considered a *past daily term* if used or referenced in the Days 3-8 daily lesson plans or in the enactment of those lesson plans. I will use this code whenever a *past daily term* is used or referenced— whether that occurs in the written lesson plan, in the enactment of that lesson plan, or during the interview and regardless of whether it is used by a child, teacher, or other individual (e.g., adult helper, researcher).
Additional Term:	An *additional term* is a word that relates to the subject curriculum but has not been explicitly described in any daily lesson plan up to the point that it is used or referenced. I will use this code whenever an *additional term* is used, regardless of whether it is used by a child, teacher, or other individual (e.g., adult helper, researcher). For example, if a teacher is discussing ***reflections*** with children, and a child says, "That is like a ***Xerox copy***!" I will also use this code if a *daily term* that is intended for a future lesson is used prior to the enactment of that lesson. For example, if a teacher is discussing ***light and dark***, and a child says something about ***shadows***, it would be coded as *additional term*.
Past Additional Term:	I will use this code whenever there is use of an *additional term* (see previous code) in conversation or writing by or among teachers, children or other individual (e.g., adult helper, researcher) during a day subsequent to when that term was originally used. For example, to refer back to the example from *additional term*, above, if a teacher says, "This reminds me a lot of what you said about ***Xerox copies*** yesterday!" If the *past additional term* also happens to a *daily term* or a *past daily term*, I will double-code it, i.e., code it as both. For example, if a a child said something about ***shadows*** during a previous day's discussion of ***light and dark***, and the term

	shadows is discussed on Day 5, it would be coded as both a *past additional term* and a *daily term*.
Classroom Word Web:	I will use this code anytime there is any reference to or use of the *Classroom Word Web* (*CWW*) in a lesson plan or in the enactment of that lesson plan and regardless of whether the *CWW* is being referenced or used by a child, teacher, or other individual (e.g., adult helper, researcher). I will also apply this code to any observer notes or reflections that reference the *CWW*.
Personal Word Web:	I will use this code any time there is any reference to or use of *Personal Word Webs* (*PWWs*) in a lesson plan or in the enactment of that lesson plan and regardless of whether *PWWs* are being referenced or used by a child, teacher, or other individual (e.g., adult helper, researcher). I will also apply this code to any observer notes or reflections that reference the *PWWs*.
Meeting of the Minds:	I will use code to identify any time that children, teachers, and/or other individuals are engaged in a Meeting of the Minds segment of the lesson, coding the entire block of observer field notes related to this segment. I will also apply this code to the corresponding segment of the written lesson plan. ***Note:*** *This code is adapted from Project Kaleidoscope's "first-round" descriptive codebook for the Summer Intersession.*
Books and Bookworms:	I will use this code to identify any time that children, teachers, and/or other individuals are engaged in the Books and Bookworms segment of the lesson, coding the entire block of observer field notes related to this segment. I will also apply this code to the corresponding segment of the written lesson plan. ***Note:*** *This code is adapted from Project Kaleidoscope's "first-round" descriptive codebook for the Summer Intersession.*
Activity Central:	I will use this code to identify any time that children, teachers, and/or other individuals are engaged in the Activity Central segment of the lesson, coding the entire block of observer field notes related to this segment. I will also apply this code to the corresponding segment of the written lesson plan. ***Note:*** *This code is adapted from Project Kaleidoscope's "first-round" descriptive codebook for the Summer Intersession.*
Exploration Stations:	I will use this code to identify any time that children, teachers, and/or other individuals are engaged in the Exploration Stations, coding the entire block of observer field notes related to this segment. I will also apply this code to the corresponding segment of the written lesson plan. ***Note:*** *This code is adapted from Project*

Kaleidoscope's "first-round" descriptive codebook for the Summer Intersession.

Munchies and More: I will use this code to identify the entire block of observer field notes taken during children's snack time, coding the entire block of observer field notes related to this segment. I will also apply this code to the corresponding segment of the written lesson plan.

LESSON PLAN-SPECIFIC CODES

Educative: I will use this code any time a *daily term* or *past daily term* is defined or otherwise explained in the curriculum. Therefore, when I use the **Educative** code, I also should be using one of the following codes: **Daily Term** or **Past Daily Term**.

Scripting: I will use this code any time scripting is used relative to a *daily term*, a *past daily term*, the *Classroom Word Web*, or the *Personal Word Webs*. This scripting can be suggested language regarding the use of these terms or tools in context, conversation, or questioning. Therefore, when I use the **Scripting** code, I also should be using at least one of the following codes: **Daily Term**, **Past Daily Term**, **Classroom Word Web**, or **Personal Word Web**.

ENACTMENT-SPECIFIC CODES

Teacher-Initiated: I will use this code any time the use of or reference to a *daily term*, a *past daily term*, an *additional term*, a *past additional term*, the *Classroom Word Web*, or *Personal Word Webs* is initiated by a teacher. Therefore, when I use the **Teacher-Initiated** code, I should also be using at least one of the following codes: **Daily Term**, **Past Daily Term**, **Additional Term**, **Past Additional Term**, **Classroom Word Web**, or **Personal Word Web**.

Student-Initiated: I will use this code any time the use of or reference to a *daily term*, a *past daily term*, an *additional term*, a *past additional term*, the *Classroom Word Web*, or *Personal Word Webs* is initiated by a child. Therefore, when I used the **Student-Initiated** code, I also should be using at least one of the following codes: **Daily Term**, **Past Daily Term**, **Additional Term**, **Past Additional Term**, **Classroom Word Web**, or **Personal Word Web**.

Other-Initiated: I will use this code any time the use of or reference to a *daily term*, a *past daily term*, an *additional term*, a *past additional term*, the *Classroom Word Web*, or *Personal Word Webs* is initiated by a

	someone other than a teacher or child. Therefore, when I used the **Other-Initiated** code, I also should be using at least one of the following codes: **Daily Term**, **Past Daily Term**, **Additional Term**, **Past Additional Term**, **Classroom Word Web**, or **Personal Word Web**.
Curriculum Deviation:	I will use this code any time I note that the external curriculum has been modified, supplemented, and/or omitted during the enactment of it. If there is an absence, I will memo it because there will not be text to code. ***Note:*** *This code is adapted from Project Kaleidoscope's "first-round" descriptive codebook for the Summer Intersession.*

PERCEPTION CODES

Curriculum Characteristics:	I will use this code whenever any characteristic of the curriculum (e.g., look, tone/voice, utility or lack thereof, flexibility or lack thereof, educative features) is referenced or any opinion about the curriculum is indicated or relayed. Such references or opinions will likely be offered by the teacher (e.g., during the interview, during a sidebar conversation with a researcher), but may also manifest in a researcher's reflection (e.g., a perception of or an inference made about a teacher's thoughts regarding the curriculum). Given the nature of this research, application of this code will be limited to those aspects of the curriculum related to the vocabulary component. Moreover, given the emergent nature of this codebook, more detailed codes (i.e., sub-codes) may be warranted and will be considered, e.g., **Curriculum Look**, **Curriculum Tone/Voice**, **Utility**, **Flexibility**.
Teacher Characteristics:	I will use this code whenever any teacher characteristic (e.g., beliefs about the content or the curriculum, PCK, self-efficacy) is referenced or made relative to her enactment of the curriculum. Such references will likely be made by the teacher (e.g., during the interview, during a sidebar conversation with a researcher), but may also manifest in a researcher's reflection (e.g., a perception of or an inference made about a teacher's characteristics relevant to the curriculum's enactment). Given the nature of this research, application of this code will be limited to those aspects of the curriculum related to the vocabulary component. Moreover, given the emergent nature of this codebook, more detailed codes (i.e., sub-codes) may be warranted and will be considered, e.g., **Beliefs About Content**, **Beliefs About Curriculum**, **PCK**, **Self-Efficacy**.

MISCELLANEOUS CODES

Planning:	I will use this code whenever any reference to planning for the enactment of the curriculum is made. Such references will likely be made by the teacher (e.g., during the interview, during a sidebar conversation with a researcher), but may also manifest in a researcher's reflection (e.g., a perception of or an inference made about teachers' planning of curriculum). Given the nature of this research, application of this code will be limited to such planning specifically related to the vocabulary component of the curriculum.
Influence of Co-Teacher:	I will use this code whenever any reference to the influence of the co-teacher is made. Such references will likely manifest in a researcher's reflection (e.g., a perception of or an inference made regarding teachers' influences on one another); however, they may arise in conversations with or interviews of the teachers. For now, I will not limit these codes to the vocabulary component of the curriculum in an effort to more holistically capture this potential influence; however, modification of this code may be required.
Teacher-Teacher Interactions:	I will use this code whenever the two teachers are interacting with one another. This could include conversations between the teachers before, during, or after the daily lesson. Specific examples might include discussion of how the teachers would share classroom responsibility (e.g., who would lead what activity, division of work), support one another during instruction, or tensions between teachers. Naturally, there is a possibility that there could be double-coding with **Influence of Co-Teacher** here. ***Note:*** *This code is adapted from Project Kaleidoscope's "first-round" descriptive codebook for the Summer Intersession.*
Perception of Students:	I will use this code whenever a teacher's perception of a student or students is indicated. A teacher, herself, may express such a perception in conversation or during the interview, for example; however, I will also use this code if a researcher infers a teacher's perception of a student or students (e.g., in a researcher's reflection). For now, I will not limit these codes to the vocabulary component of the curriculum in an effort to more holistically capture the teachers' perceptions; however, modification of this code may be required.

Appendix I

Emerged Codebook

DESCRIPTIVE CODE BOOK

UNIVERSAL CODES (to be applied to Lesson Plans, Observation Field Notes, and Interview Transcripts)

Daily Term:	A *daily term* is a vocabulary word associated with a given day's lesson. For example, on Day 2 (Color), *daily terms* include ***color*** and ***shade***. I will use this code whenever a *daily term* is used or referenced—whether that occurs in the written lesson plan, in the enactment of that lesson plan, or during the interview and regardless of whether it is used by a child, teacher, or other individual (e.g., adult helper, researcher).
Past Daily Term:	A *past daily term* is a vocabulary word associated with any previous day's lesson. For example, the term ***shade***, which is a *daily term* for Day 2, would be considered a *past daily term* if used or referenced in the Days 3-8 daily lesson plans or in the enactment of those lesson plans. I will use this code whenever a *past daily term* is used or referenced— whether that occurs in the written lesson plan, in the enactment of that lesson plan, or during the interview and regardless of whether it is used by a child, teacher, or other individual (e.g., adult helper, researcher).
Future Daily Term:	A *future daily term* is a vocabulary word associated with a future day's lesson. For example, the term ***reflection***, which is a *daily term* for Day 6, would be considered a *future daily term* if used or referenced in the Days 1-5 daily lesson plans or in the enactment of those lesson plans. I will use this code whenever a *past daily term* is used or referenced— whether that occurs in the written lesson plan, in the enactment of that lesson plan, or during the interview and regardless of whether it is used by a child, teacher, or other individual (e.g., adult helper, researcher).
Additional Term:	An *additional term* is a word that relates to the subject curriculum but has not been explicitly described in any daily lesson plan up to the point that it is used or referenced. I will use this code whenever an *additional term* is used, regardless of whether it is used by a child, teacher, or other individual (e.g., adult helper, researcher). For example, if a teacher is discussing ***reflections*** with children, and a child says, "That is like a ***Xerox copy***!" then ***Xerox copy*** would be considered an *additional term*.
Past Additional Term:	I will use this code whenever there is use of an *additional term* (see previous code) in conversation or writing by or among teachers, children or other individual (e.g., adult helper, researcher) during a day subsequent to when that term was originally used. For example,

	to refer back to the example from *additional term*, above, I will use the *past additional term* code if a teacher says, "This reminds me a lot of what you said about ***Xerox copies*** yesterday!"
Classroom Word Web:	I will use this code anytime there is any reference to or use of the *Classroom Word Web* (*CWW*) in a lesson plan or in the enactment of that lesson plan and regardless of whether the *CWW* is being referenced or used by a child, teacher, or other individual (e.g., adult helper, researcher). I will also apply this code to any observer notes or reflections that reference the *CWW*.
Personal Word Web:	I will use this code any time there is any reference to or use of *Personal Word Webs* (*PWWs*) in a lesson plan or in the enactment of that lesson plan and regardless of whether *PWWs* are being referenced or used by a child, teacher, or other individual (e.g., adult helper, researcher). I will also apply this code to any observer notes or reflections that reference the *PWWs*.
Meeting of the Minds:	I will use code to identify any time that children, teachers, and/or other individuals are engaged in a Meeting of the Minds segment of the lesson, coding the entire block of observer field notes related to this segment. I will also apply this code to the corresponding segment of the written lesson plan. ***Note:*** *This code is adapted from Project Kaleidoscope's "first-round" descriptive codebook for the Summer Intersession.*
Books and Bookworms:	I will use this code to identify any time that children, teachers, and/or other individuals are engaged in the Books and Bookworms segment of the lesson, coding the entire block of observer field notes related to this segment. I will also apply this code to the corresponding segment of the written lesson plan. ***Note:*** *This code is adapted from Project Kaleidoscope's "first-round" descriptive codebook for the Summer Intersession.*
Activity Central:	I will use this code to identify any time that children, teachers, and/or other individuals are engaged in the Activity Central segment of the lesson, coding the entire block of observer field notes related to this segment. I will also apply this code to the corresponding segment of the written lesson plan. ***Note:*** *This code is adapted from Project Kaleidoscope's "first-round" descriptive codebook for the Summer Intersession.*
Exploration Stations:	I will use this code to identify any time that children, teachers, and/or other individuals are engaged in the Exploration Stations, coding the entire block of observer field notes related to this segment. I will also apply this code to the corresponding segment of the written

lesson plan. ***Note:*** *This code is adapted from Project Kaleidoscope's "first-round" descriptive codebook for the Summer Intersession.*

Munchies and More: I will use this code to identify the entire block of observer field notes taken during children's snack time, coding the entire block of observer field notes related to this segment. I will also apply this code to the corresponding segment of the written lesson plan.

LESSON PLAN-SPECIFIC CODES

Background: I will use this code to isolate the "Background" segment of each lesson plan. This section was designed to preview the lesson and provide teachers with the necessary background to enact the lesson.

Educative: I will use this code any time a *daily term* or *past daily term* is defined or otherwise explained in the curriculum. Therefore, when I use the **Educative** code, I also should be using one of the following codes: **Daily Term** or **Past Daily Term**.

Scripting: I will use this code any time scripting is used relative to a *daily term*, a *past daily term*, the *Classroom Word Web*, or the *Personal Word Webs*. This scripting can be suggested language regarding the use of these terms or tools in context, conversation, or questioning. Therefore, when I use the **Scripting** code, I also should be using at least one of the following codes: **Daily Term**, **Past Daily Term**, **Classroom Word Web**, or **Personal Word Web**.

Inclusive: I will use this code when the directions regarding the Vocabulary Component (relative to, for example, Daily Terms, the Classroom Word Web, Personal Word Webs) are offered as suggestions or provide flexibility to the teacher. For example, directions including words such as *possible*, *options*, *consider*, and *suggested* indicate that the teacher has choice.

Exclusive: I will use this code when the directions regarding the Vocabulary Component (relative to, for example, Daily Terms, the Classroom Word Web, or Personal Words Webs) can be connoted as imperatives. For example, directions including imperative verbs (e.g., *do*, *use*, *ask*) suggest that the teacher must follow them with fidelity.

Open-Ended Questions: I will use this code whenever the curriculum promotes the use of open-ended questions is used relative to teaching or otherwise discussing content-related vocabulary terms.

Close-Ended Questions:	I will use this code whenever the curriculum offers sample close-ended questions relative to teaching or otherwise discussing content-related vocabulary terms.
NCR Vocabulary:	I will use this code whenever the curriculum defines, provides uses for, and/or anticipates children's responses, interpretations, and/or thinking regarding vocabulary that is not content-related (e.g., *graph*, *observation*, etc.).

DAVID & KRAJCIK (2005) ADAPTED CODES

Anticipates:	[E]ducative curriculum materials could help teachers learn how to anticipate and interpret what learners may think about or do in response to instructional activities (Ball & Cohen, 1996; see also Collopy, 2003; Heaton, 2000; Remillard, 2000) (p. 5).	I will use this code whenever the curriculum provides anticipatory children's responses, interpretations, and/or thinking regarding content-related vocabulary and guides teachers accordingly; warns of pitfalls and/or misconceptions regarding content-related vocabulary.
Defines CR Vocabulary:	[C]urriculum materials could support teachers' learning of subject matter (Ball & Cohen, 1996; see also Heaton, 2000; Schneider & Krajcik, 2002; Wang & Paine, 2003) (p. 5).	I will use this code whenever the curriculum defines and/or provides background of content-related vocabulary terms; this code will not be applied to scripting the incorporates the definition of a content-related vocabulary term (use **Provides Vocabulary Uses** code, instead).
Provides CR Vocabulary Uses:	[See previous]	I will use this code whenever the curriculum offers or suggests approaches for using content-related vocabulary in context; this code will include instances in which scripting provides the definition of a content-related vocabulary term.
Relates/Connects CR Vocabulary:	[C]urriculum materials could help teachers consider ways to relate units during the year (Ball & Cohen, 1996) (p. 5)	I will use this code whenever the curriculum indicates how content-related vocabulary relates to previous or future content-related vocabulary.

Conveys Transparency:	[Curriculum materials should] make visible the developers' pedagogical judgments (Ball & Cohen, 1996; see also Heaton, 2000; Petish, 2004). Curriculum materials should "speak to" teachers about the ideas underlying the tasks rather than merely guiding their actions (Remillard, 2000, p. 347); in doing so, the materials should educate teachers while promoting their autonomy (Shkedi, 1998) and help teachers to make decisions about how to adapt curriculum materials (p. 5).	I will use this code whenever the curriculum explains why vocabulary (whether content- or non-content-related) is important, thereby implicitly promoting teachers' autonomy in its use.
Promotes Autonomy:	[Curriculum materials should] promote a teacher's *pedagogical design capacity,* or his ability to use personal resources and the supports embedded in curriculum materials (i.e., the curricular resources) to adapt curriculum to achieve productive instructional ends (Brown & Edelson, 2003) … Each of the first four suggestions for educative curriculum materials outlined above could contribute to increasing the curricular and personal resources available to teachers and thus helping them find productive ways of adapting curriculum materials. Promoting a teacher's pedagogical design capacity can help him participate in the discourse and practice of teaching; rather than merely implementing a given set of curriculum materials, the teacher be- comes an agent in its design and enactment (pp. 5-6).	I will use this code whenever the curriculum suggests or guides teacher decision-making regarding (whether content- or non-content-related) vocabulary use and teaching—use of inclusive (rather than exclusive) language.

PERCEPTION CODES

Curriculum Characteristics:	I will use this code whenever any characteristic of the curriculum (e.g., look, tone/voice, utility or lack thereof, flexibility or lack thereof, educative features) is referenced or any opinion about the curriculum is indicated or relayed. Such references or opinions will likely be offered by the teacher (e.g., during the interview, during a sidebar conversation with a researcher), but may also manifest in a researcher's reflection (e.g., a perception of or an inference made about a teacher's thoughts regarding the curriculum). Given the nature of this research, application of this code will be limited to those aspects of the curriculum related to the vocabulary component. Moreover, given the emergent nature of this codebook, more detailed codes (i.e., sub-codes) may be warranted and will be considered, e.g., **Curriculum Look**, **Curriculum Tone/Voice**, **Utility**, **Flexibility**.
Teacher Characteristics:	I will use this code whenever any teacher characteristic (e.g., beliefs about the content or the curriculum, PCK, self-efficacy) is referenced or made relative to her enactment of the curriculum. Such references will likely be made by the teacher (e.g., during the interview, during a sidebar conversation with a researcher), but may also manifest in a researcher's reflection (e.g., a perception of or an inference made about a teacher's characteristics relevant to the curriculum's enactment). Given the nature of this research, application of this code will be limited to those aspects of the curriculum related to the vocabulary component. Moreover, given the emergent nature of this codebook, more detailed codes (i.e., sub-codes) may be warranted and will be considered, e.g., **Beliefs About Content**, **Beliefs About Curriculum**, **PCK**, **Self-Efficacy**.
Perception of Students:	I will use this code whenever a teacher's perception of a student or students is indicated. A teacher, herself, may express such a perception in conversation or during the interview, for example; however, I will also use this code if a researcher infers a teacher's perception of a student or students (e.g., in a researcher's reflection). For now, I will not limit these codes to the vocabulary component of the curriculum in an effort to more holistically capture the teachers' perceptions; however, modification of this code may be required.

MISCELLANEOUS CODES

Planning:	I will use this code whenever any reference to planning for the enactment of the curriculum is made. Such references will likely be made by the teacher (e.g., during the interview, during a sidebar conversation with a researcher), but may also manifest in a

	researcher's reflection (e.g., a perception of or an inference made about teachers' planning of curriculum). Given the nature of this research, application of this code will be limited to such planning specifically related to the vocabulary component of the curriculum.
Influence of Co-Teacher:	I will use this code whenever any reference to the influence of the co-teacher is made. Such references will likely manifest in a researcher's reflection (e.g., a perception of or an inference made regarding teachers' influences on one another); however, they may arise in conversations with or interviews of the teachers. For now, I will not limit these codes to the vocabulary component of the curriculum in an effort to more holistically capture this potential influence; however, modification of this code may be required.
Teacher-Teacher Interactions:	I will use this code whenever the two teachers are interacting with one another. This could include conversations between the teachers before, during, or after the daily lesson. Specific examples might include discussion of how the teachers would share classroom responsibility (e.g., who would lead what activity, division of work), support one another during instruction, or tensions between teachers. Naturally, there is a possibility that there could be double-coding with **Influence of Co-Teacher** here. ***Note:*** *This code is adapted from Project Kaleidoscope's "first-round" descriptive codebook for the Summer Intersession.*
Curriculum Deviation:	I will use this code any time I note that the external curriculum has been modified, supplemented, and/or omitted during the enactment of it. If there is an absence, I will memo it because there will not be text to code. ***Note:*** *This code is adapted from Project Kaleidoscope's "first-round" descriptive codebook for the Summer Intersession.*

Appendix J

Project Kaleidoscope's Codebook

New Indexed Code List **Summer Session 2017**

- *Read-aloud*
  - Use this code whenever teachers or another adult are engaging in reading a text to students. This is not limited to read-alouds occurring during Books and Bookworms and can occur during any type of instructional grouping, such as in whole group, small group, or one-on-one. Code the entire block of observer field notes related to read-alouds.
- *Exploration Station*
  - Use this code whenever students are in Exploration Stations. Code the entire block of observer fields notes related to Exploration Stations.
  - If the Quiet ES is referenced during other parts of the lesson, use this code. However, if it is referenced during Exploration Stations, simply add a Memo indicating the use of the Quiet ES. If the Quiet ES is not mentioned at all, no codes or memos are needed.
- *Meeting of the Minds*
  - Use this code during Meeting of the Minds. Code the entire block of observer fields notes related to Meeting of the Minds.
- *Activity Central*
  - Use this code during Activity Central. Code the entire block of observer fields notes related to Activity Central.
- *Word Web*
  - Use this code any time there is a direct reference to the word web. This includes when teachers are physically at the word. web placing words on it. Additionally, use this code if teachers or students directly reference the word web or any observer notes referencing the word web.
- *Classroom Arrangement*
  - Code the classroom description and arrangement, including written description and any images/drawings. This includes placement of student desks, Word Web, stations, etc. Additionally, use this code if the observer included notes about the arrangement of the classroom such as a change in the classroom arrangement or arrangement that is not conducive to a particular task/activity.
- *Teacher-Teacher Interactions*
  - Use this code when teachers are interacting with one another. This might include conversations between the teachers before, during, or after the daily lesson. Specific examples might include discussion of how the teachers would share classroom responsibility (who would lead what activity, division of work, etc.), support one another during instruction, or possible tensions between the teachers. Please note, this is not the same as co-teaching.
- *Student Writing*
  - Student writing is recording thoughts and ideas. Use this code any time students are writing or drawing. This includes in their lab notebooks, on whiteboards, worksheets/handouts, and during other opportunities.
- *Choice and Autonomy*

    - Whether teacher driven or student initiated, use this code whenever choice or autonomy presents itself. Also use this code when choice and autonomy is denied.
- *Management*
    - Code for any of the skills and techniques that adults used to keep students organized, orderly, focused, attentive, and on-task. This includes transitions between activities (such as songs or the Shadow Dance transition in Day 5). Management could also refer to the skills and techniques used to organize resources and other camp materials.
    - Also, use this code when field notes indicate an absence or lack of management regarding any of the above.
- *Curriculum Deviation*
    - Use this code any time the observer indicates the curriculum is modified, supplemented, substituted, and/or omitted. Code all observer notes relevant to the deviation. If the coder notices any deviations not referenced by the observer, add a Memo in MAXQDA to draw attention to this deviation.
- *Data*
    - The teacher gives *feedback* to the student based on informal data. This could be praise feedback, effort feedback, ability feedback, and/or negative feedback. Ex: PRAISE feedback: excellent, good job, that's a great job; EFFORT feedback: You're working so hard on your reading; ABILITY feedback: you're really smart; NEGATIVE feedback: your work is really messy
    - Teacher makes notes (e.g., in a notebook) about student(s). These notes could be about responses that students made, teachers' perceptions of student(s) responses, teacher descriptions of student characteristics (e.g., quiet, shy). Conversation between teachers or between teacher(s) and observer about student data should also be coded using this code.

Appendix K

Analytic Codebook

Analytic Code Book

Code	Description *This code will be applied when the following point(s) or topic(s) are raised during the discussion:*	Possible Example(s)
Findings		
Guidance: Vocabulary Presentation	Vocabulary in lesson plans Vocabulary during SI training Background information for lesson plans Scripting with vocabulary Complexity of Daily Terms and Daily Topics	
Guidance: Word Webs	Significance of Word Webs PD modules re: Word Webs SI training re: Word Webs	
Guidance: Voice and Questioning	Curriculum characteristics Open-ended questions Fidelity Teacher autonomy/discretion	
Enactment: Use of Daily Terms	Vocabulary use (especially Past Daily Terms) Vocabulary connections	
Enactment: Use of Spontaneous Terms	Spontaneous Terms as synonyms/clarifiers as antonyms	
Enactment: Word Webs	Word Web use Significance of Word Webs PD modules re: Word Webs SI training re: Word Webs Beginning/end-of-day	
Enactment: Adaptations	Adaptations Fidelity Teacher autonomy/discretion	
Recommendations		
Uniform Presentation/Vocabulary	Vocabulary in lesson plans Background information for lesson plans Scripting with vocabulary	
Complexity/Daily Topics	Complexity of Daily Terms and Daily Topics	

Word Web/Interactive Tool	Word Web use Significance of Word Webs PD modules re: Word Webs SI training re: Word Webs Beginning/end-of-day	
Empower Teachers	Adaptations Fidelity Teacher autonomy/discretion Questions Scripting Seeing "themselves" in curriculum (vignettes)	
Implications		
Implications	Adaptations Fidelity Teacher autonomy/discretion Density – how much is too much? Enthusiasm for curriculum	

Appendix L

First Page of Running To Do List (January 13, 2018)

Running To Do List

	Task/Concern	Date Resolved	Resolution/Notes
1	Be consistent with use of curriculum, curriculum resources/materials, lesson, lesson plan, etc…may want to define…even if just for myself. May change research question from "curriculum resources" to "curriculum" and then define SI curriculum to include each of those things (materials, lesson plans, teacher training)	Jan 2	*SI curriculum* is the PK external curriculum and includes the lesson plans, Word Web materials, and the PDEs – the complete "vision"; the lesson plans speak to the written materials alone I chose the term *curriculum materials* to refer to things like lesson plans; however, sometimes I do use the word *resources* to refer to those components of the external curriculum that move beyond just the written aspects of the curriculum (e.g., PDEs)
2	Be sure to think about calling the summer training of teachers the "teacher training" rather than PD…PD could include that teacher training, but other PD was also offered by PK (e.g., modules), so I need to make sure those terms are used consistently…also teacher training versus SI training—be consistent	Jan 2	PDEs will include both modules and teacher training; teacher training, alone, will be referred to as the *SI training*
3	Double-check cardstock/card stock	Jan 2	Used *cardstock*
4	Change Capstone Project to capstone project (or vice-versa)	Jan 2	Used *capstone project*
5	Work on headings for Chapters 4 and 5 (make sure APA-compliant)		
6	Decide how and when to use Project Kaleidoscope versus PK and make sure that when PK is used, it is used in a section where "Project Kaleidoscope (PK)" has been used at least once.	Jan 2	Used *PK team* to avoid anthropomorphism; for each chapter, there is at least one preceding reference to *Project Kaleidoscope (PK)* before I use *PK team*.
7	Final check for widows, orphans, and tables all on one page		
8	Be clear that I determined the Daily Terms by looking at the printed Word Cards	Jan 2	Double-checked for consistency
9	Decide whether I want to refer to the lesson plans in the current or past tense	Jan 2	Past tense

Appendix M

Agenda for the Summer Intersession Training

Camp Kaleidoscope Teacher Training Agenda

Day 1: June 7, 2017

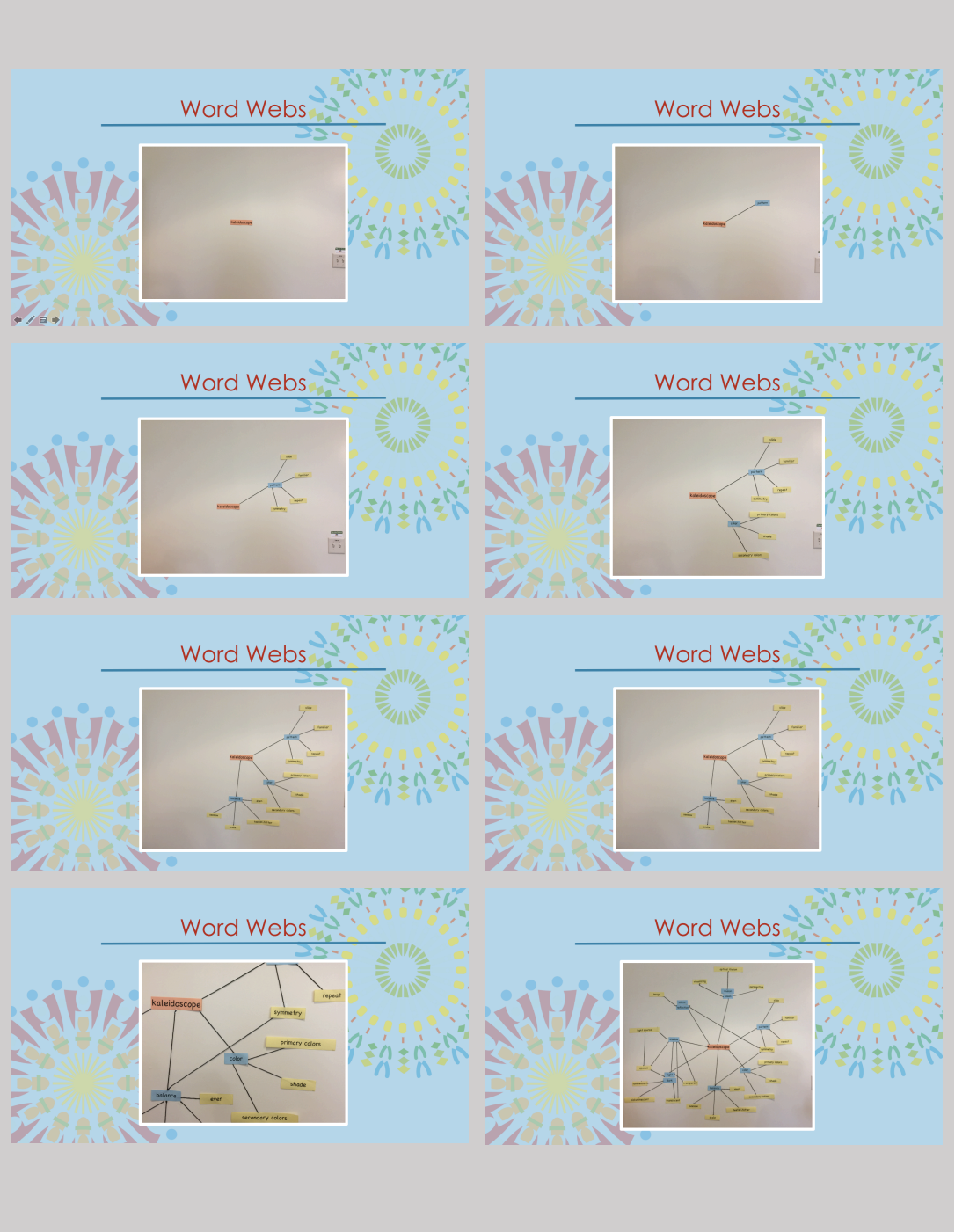
10:00-10:30	*Introductions and Overview*
10:30-11:15	*Resource Preview, Team Teaching, and Word Web*
11:15-11:30	*Break*
11:30-12:00	*Interactive Read-Aloud 1*
12:00-12:30	*Activity—Mirror Walking*
12:30-1:30	*Lunch & Partner Activity*
1:30-2:00	*Overview of Big Ideas for Camp Kaleidoscope*
2:00-3:00	*Interactive Read-Aloud 2*
3:00-3:45	*Activity—Exploration Stations*
3:45-4:00	*Question & Answer Session*

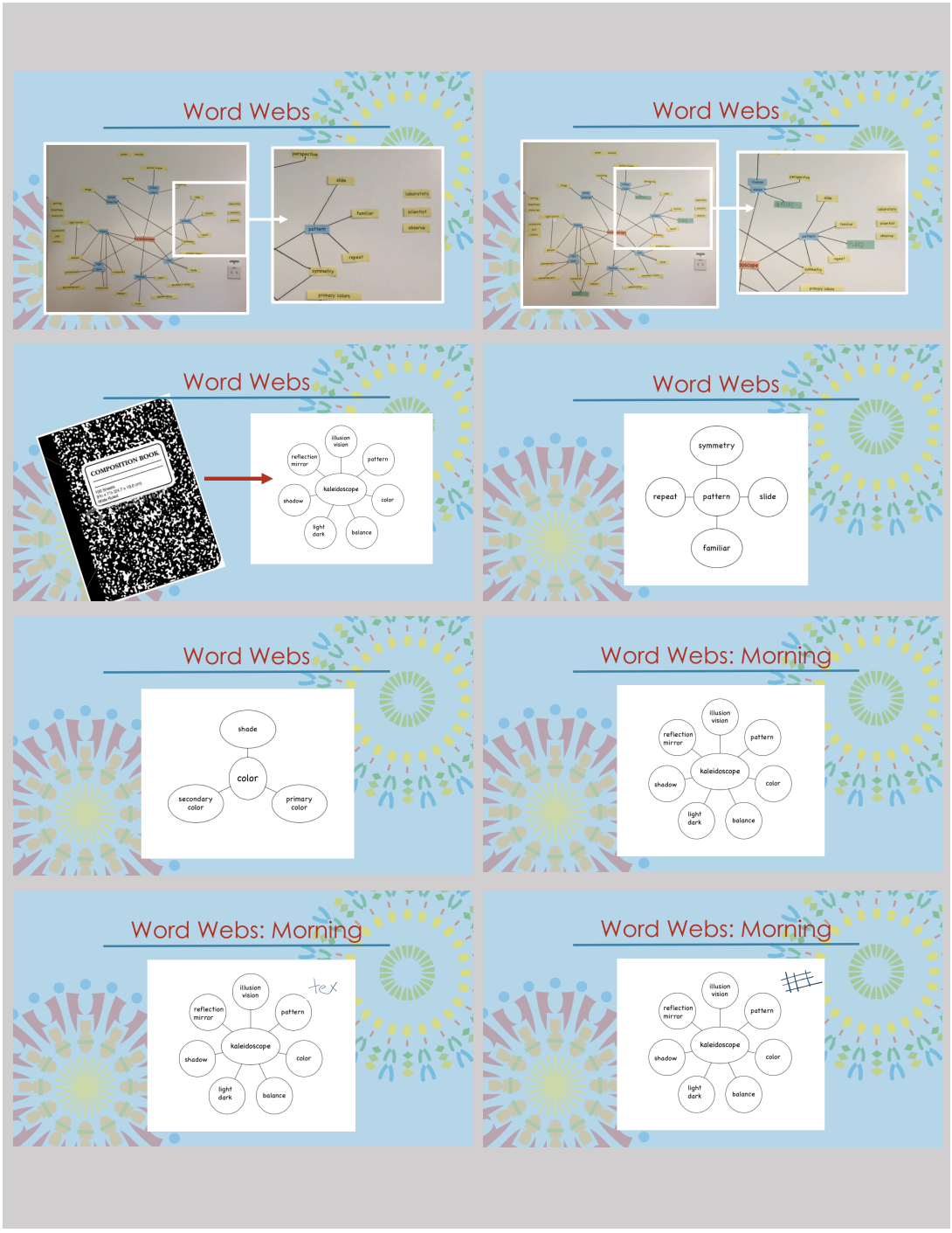
Day 2: June 8, 2017

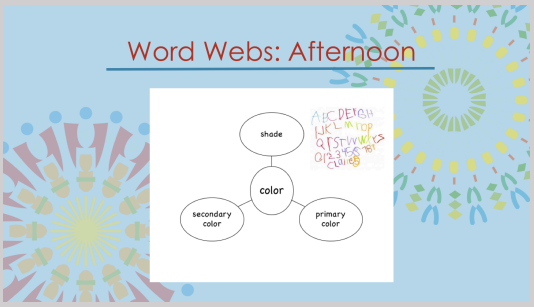
9:00-9:30	*Activity Kit Exploration and Discussion*
9:30-10:00	*Classroom Management & Morning Meeting*
10:00-10:15	*Break*
10:15-11:20	*Interactive Read-Aloud 3*
11:20-11:40	*The Continuum of Writing Development*
11:40-12:30	*Activity—Exploration Station with Writing*
12:30-1:30	*Lunch & Activity*
1:30-2:00	*Activity—Build a Kaleidoscope*
2:00-2:30	*Review Lesson Plans and Address Final Questions*

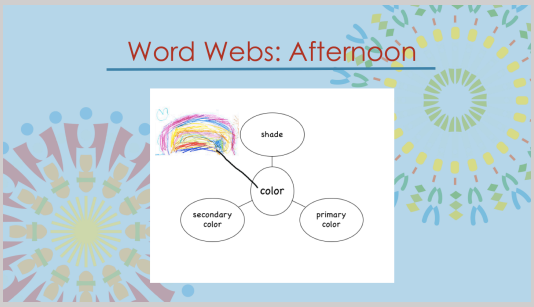
Appendix N

Teacher Training Presentation Slides Relevant to Word Webs




Word Webs
Word Webs
Word Webs
COMPOSITION BOOK
illusion vision
reflection mirror
pattern
kaleidoscope
shadow
color
light dark
balance
Word Webs
symmetry
repeat
pattern
slide
familiar
Word Webs
shade
color
secondary color
primary color
Word Webs: Morning
illusion vision
reflection mirror
pattern
kaleidoscope
shadow
color
light dark
balance
Word Webs: Morning
Word Webs: Morning


Word Webs: Afternoon
shade
color
secondary color
primary color


Word Webs: Afternoon
shade
color
secondary color
primary color

Appendix O

Lesson Plan Excerpts Referencing the Use of Open-Ended Questions

Day 1 Pattern	**Meeting of the Minds**
	Ask the children open-ended questions to discuss the phrase "Meeting of the Minds". Have the children whisper answer what they think to another child in the group. Possible questions: *Why would we call it this?* *Why is the word "mind" important?*
	Meeting of the Minds
	Elicit responses from the children about the image using open-ended questions. Have the children tell an elbow buddy the answers. Sample questions to choose from: *What do you think this is?* *What do you see in this image?* *What does this make you think of?* *How does this make you feel?*
	Books & Bookworms (Read-Aloud of *I See a Pattern Here*)
	Possible general open-ended questions for an informational book: *What is going on here?* *How is this possible?* *How could we solve this?* *How do the words connect to the illustrations?*
	Books & Bookworms (Read-Aloud of *I See a Pattern Here*)
	Begin reading the book. Pick only 3-4 places to stop and have a discussion, but if students want to discuss, allow them. Open-ended questions will be the best way to encourage discussion about the book and **patterns**. Below are possible stopping places.
	Munchies & More (Read-Aloud of *Pattern Bugs*)
	Remember to use the Interactive Read-aloud questioning format with this book. Use open-ended questions about text or illustrations in the book. Relate the book to the children's lives. Reference the author, illustrator, title, front and back covers, endpapers. Springboard children statements and questions with additional questions if warranted. Scaffold children's learning about patterns and literacy. Allow children to talk in pairs when possible. Possible open-ended questions include: *What pattern do you see on this page?*

	What do you think the butterfly is feeling here? *Why do you think they used the words "skitter-scoot"?* *What is another pattern phrase you could make for the cricket?* *Can you think of a pattern phrase to go with the light page?*
	Exploration Station B (Playing "Guess My Rule")
	How to play "Guess My Rule": Children work in pairs. Child #1 picks several objects and groups them by their own "rule"—the attribute that they have in common (they are red, short, curvy, etc.). The second child tries to guess what the first child's "rule" is. Switch. As children are talking to their partner, encourage talking and elaborating their rule and thoughts. Allow them time to discuss this with their partner. Use open-ended questions to help children discuss this with their partners.
	Exploration Station C (Making Pattern Art)
	As children are working, use open-ended questions to discuss their work. Make sure to have children put their names and date stamp their papers/artwork.

Day 2 Color	**Books & Bookworms** (Read-Aloud of *My Many Colored Days*)
	Ask open-ended questions as you conduct the read-aloud. Examples: *How do you think he feels when his days are yellow? Why? Would a different shade of yellow make him feel a different way?* [The latter question might be saved for and/or revisited in other places in the book.] *How do you think he feels when his days are blue? Why?* *How do you think he feels on red days? What feeling does a horse kicking give you?* *How do you think he feels when he is flapping his wings?* *What does it mean to feel down? Does brown always feel sad? What some brown things that make you happy?* *Is this yellow bright or pale? It's very bright! Why do bright colors make us feel busy? How might we feel if this were a soft, pale yellow?* *How does the color gray make you feel? How do you feel when the sky is gray?* *What does this [point] orange remind you of? What does this [point] orange remind you of? Here we see several shades of orange. This one is hot and fiery like the sun, and this one is soft and smooth like an orange-sicle/creamsicle!* *Here, the fish is cool and quiet. What if this were bright green instead? How do you think the fish would feel?* *What do pink and yellow remind you of?*

	Who remembers what happens when we add black to another color? What two colors made this [point to gray] color? *Has anyone ever had a mixed up day when they felt all kinds of feelings at once? Have you ever laughed so hard you cried? Have you ever started a day off in a sad mood, but were happy by the end of the day?*

Day 3 Balance	**Books & Bookworms** (Read Aloud of *Friendship is Like a See-Saw*)
	The purpose of this read aloud is to take the more concrete idea of balance and make it a bit more abstract and conceptual, exploring the "ups and downs" of friendship and the types of balance that occurs in friendships. You will engage children in an interactive read aloud of *Friendship is Like a Seesaw* by Shona Innes. We encourage you to incorporate questions (especially prediction or those that allow children to speak about their own experiences and/or prior knowledge).
	Books & Bookworms (Read Aloud of *Friendship is Like a See-Saw*)
	Conduct an interactive read aloud, asking students open-ended questions to engage them in oral language development. Here are possible questions you can ask: *Who can tell me about a good friendship he or she has? Why is it a special thing to have?* *What are some nice things your friends have done for you or that you have done for your friends?* *Here we see that the rabbit is up and the hedgehog is down…and here the hedgehog is up, and the rabbit is down. What else does it mean when we are down or low?* *When things are balanced, both friends are happy. Are friendships always balanced? Why or why not?* *What kinds of problems can we have in friendships?* *What are some things that you do to make friendships better or balanced again?*

Day 4 Light & Dark	**Books & Bookworms** (Read-Aloud of *Glow*)
	Conduct an interactive read-aloud of *Glow* using open-ended questions. Because there are probably many new concepts in this book, you may want to intersperse some comprehension questions, as well. You may find it inappropriate to read every single word; in other words, at times, it might be most appropriate to summarize lines or even skip a few. Here are some suggestions of open-ended questions you could use for this read-aloud: *Why do you suppose that some of these underwater animals need to glow?* [Allow for a variety of responses…if students are stuck, ask them to consider the reasons that they need light and that animals

	above the water need light.] *How would they use glowing to hide? Wouldn't that make them show up more? Can anyone try to explain that?* [Allow for a variety of responses.] *How might one of these creatures use their light to trick other creatures?* [Allow for a variety of responses.] *How do we, as people, call for help? How is that that like these creatures? How is it different?* [Allow for a variety of responses.] *Have you ever seen a bunch of little lights work together to make something really big? Like what?* [Allow for a variety of responses.] *So did we learn about any other light sources in this book?* [Allow for a variety of responses. Allow children to flip through the book if they need to do so.]
	Exploration Station B (Read-Aloud of *Light is All Around Us*)
	Introduce book to children (title, author). *What do you think that this book will be about?* [Allow for a variety of responses.] Conduct an interactive read-aloud of *Light is All Around Us* using open-ended questions. Because there are probably some new concepts in this book, you may want to intersperse some comprehension questions, as well. Here are some suggestions of open-ended questions you could use for this read-aloud [the book had not arrived at the time of printing of the lesson plans; however, the one-page directions accompanying the station contained the following questions]: *What sources of light do you see here?* *What time of day is it in this picture? How do you know?* *How do you think that sunlight travels to the Earth from the sun?* [This question is asked on page 12, and the explanation is provided on page 13.] *Our height is measured in feet and inches. I am* [5 feet and 3 inches]. *Light is measured in lumens. A lightbulb has 1,750 lumens. How many lumens do yo* (sic.) *think that the sun has? Why do you think that?* [This information is provided on page 18.] *What was the word we learned that describes fish that glow in the water?* [Fish that glow in the water are described on page 23; however, the author does not use the word bioluminescent, so this might be a nice opportunity to reinforce that word.]

Day 6 Reflection & Mirrors	**Exploration Station C** (Mirror Writing)
	Here are your Lab Notebooks, pencils, and a mirror. Let's open our Lab Notebook to the next clean page and I want you to write these

	letters on the page. E V O L -- Good. Now, let's hold our mirror up to our word. *What do you notice?* *Why do you think it looks like this?* (It should look similar to the word LOVE, but the E is backwards. Allow the children time to arrive at this conclusion on their own, if not, use open-ended questions to help.)

Day 7 Illusion & Vision	**Activity Central** (Illusion Gallery Walk)
	Give children time to share their reasoning with their partner, then ask for raised hands for children to tell the whole class what they talked about with their partners. Try to ask open-ended follow-up questions. • *What about this picture made it the "trickiest optical illusion"?* • *What else did that make you think of?* • *How is this similar to/different from _____?* • *How is the image you selected different from what your partner selected?*

Appendix P

Image Credits for Figures 5.1 and 5.2

Kaleidoscope:
http://leadict.com/images/kaleidoscope.png

Palette:
https://cdn4.iconfinder.com/data/icons/SUPERVISTA/graphics/png/400/palette.png

Mirrors:
http://pngimg.com/download/17363/?i=1
and
https://cdn0.rubylane.com/shops/1315993/340.1L.jpg

Scientists:
https://www.istockphoto.com/photo/concentrated-scientist-gm520831636-91124399?esource=SEO_GIS_CDN_Redirect

Children Observing:
http://www.inquiryinaction.org/img/content/chapter1/1.4/observe_m&ms_in_cup_1.jpg

Plot (Book with Open Pages):
http://mediafiles.parentscanada.com/Images/Articles/October2014/book_come_to_life.jpg

Brainstorm:
https://t3.ftcdn.net/jpg/01/13/49/70/240_F_113497041_uRQ4Avyr09W7mEMGImSRqJP87z9pHFt1.jpg

Winnie the Pooh:
https://vignette.wikia.nocookie.net/epicrapbattlesofhistory/images/8/83/Winnie_the_Pooh.png/revision/latest?cb=20130223075304

Setting (Small City):
http://images.huffingtonpost.com/2015-05-27-1432738482-470049-SmallCities_2.jpeg

Graph:
http://www.selectiveschoolexam.com/wp-content/uploads/2015/07/graph2.jpg?x86383

Analysis:
https://greatbrook.com/wp-content/uploads/2015/05/data-analysis-charts.png

Hand-Drawn Arrow:
http://moziru.com/images/drawn-arrow-2.png

Scared Face:
http://www.getcoloringpages.com/coloring/213696

Appendix Q

Findings and Corresponding Recommendations

RQ1: Curricular Guidance	RQ2: Curriculum Enactment	Recommendation(s)
The lesson plans contained a thorough but sometimes inconsistent presentation of the curriculum vocabulary. (see Pattern 1)		*Uniformly present daily terms across all lesson plans (see Recommendation 1) *Include only CRTs as Daily Terms (see Recommendation (see Recommendation 2) *Change the order of Daily Topics to insure increased complexity of vocabulary and concepts (see Recommendation 3)
The Word Webs (in particular, the Classroom Word Web) lacked a cohesive vision. (see Pattern 2)	Teachers appeared to treat the Word Webs as a beginning- and end-of-day activities, rather than interactive tools for vocabulary development. (see Pattern 3)	Posture the CWW as an Interactive Tool (see Recommendation 4)
	Teachers appeared to make conscientious efforts to reference previous days' Daily Term as a means of reinforcing the content of the SI curriculum, i.e., used Daily Terms to facilitate intra-day connections. (see Pattern 1)	
	Both teachers' and children's use of Spontaneous Terms served as a means of facilitating children's vocabulary development. (see Pattern 2)	
The curriculum's characteristics provided guidance to the SI teachers but, at times, relayed mixed messages. (see Pattern 3)	Teachers appeared to make both natural and conscientious *adaptations* (Brown, 2009) to the vocabulary development component of the curriculum, but they did not make *improvisations* (Brown, 2009). (see Pattern 4)	Empower SI Teachers to be Curriculum Developers (see Recommendation 5)
	Teachers appeared to make conscientious efforts to reference previous days' Daily Term as a means of reinforcing the content of the SI curriculum, i.e., used Daily Terms to facilitate intra-day connections. (See Pattern 1)	
	Both teachers' and children's use of Spontaneous Terms served as a means of facilitating children's vocabulary development. (see Pattern 2)	