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Teachers as Learners: The Impact of Teachers' Morphological Awareness on Vocabulary Instruction

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Abstract: Academic vocabulary knowledge is central to reading and academic achievement. Largely based in the lexicons of Latin and Greek, academic vocabulary comprises morphemic structures. Many teachers devote little time to focused instruction in this area because they may lack pertinent morphological and pedagogical knowledge. This article reports findings from a broader three-year longitudinal qualitative case study that explored the experiences of three elementary teachers who engaged in professional development that included study of the morphemic features of academic vocabulary and instructional techniques. This article describes changes teachers made to practice because of their deeper understanding of Latin and Greek morphology and how to teach it. Data sources included in-depth and semistructured interviews, direct observations of classroom practice, and analysis of instructional artifacts. Data analysis revealed that all three participants moved from teacher-centered, definitional approaches towards instruction that was student-centered and focused on developing metalinguistic awareness. Instructional shifts reflected participants' new understandings about metalinguistic awareness, student-directed problem-solving, and collaborative talk in vocabulary learning. Instructional shifts address metalinguistic awareness, morphology, word consciousness, and Spanish–English cognate instruction—areas that may be overlooked in many classrooms.

Keywords: academic vocabulary instruction; morphology; cognates; metalinguistic awareness; elementary classroom teachers

1. Introduction

Scholars agree that the ability to understand academic vocabulary is central to reading comprehension and academic achievement for all students [1–4]. Chiefly based in the lexicons of Latin and Greek, academic vocabulary comprises complex morphemic structures that generate conceptually important terminology not always heard outside the context of school [5,6]. The primary language mode in school discourse and text, academic vocabulary is also a unique linguistic system [5,7], yet its linguistic structures are independent of home discourse for many students [7–9]. Given the complexities of academic vocabulary, Scott, Nagy, and Flinspach have argued that "Learning to use academic language is one of the greatest challenges of schooling" [7] (p. 185).

A growing body of research has found evidence that explicit instruction in Latin and Greek morphology may be an effective means of helping students develop academic vocabulary knowledge [10,11]. In fact, 76% of high-frequency academic words that students learn in school share morphological roots [12]. Morphological roots provide semantic links between words, resulting in morphological word families [5]. Through analysis of these morphemic patterns, students can make connections between words that are semantically and conceptually related [11]. Moreover, familiar morphemes can generate or be present in hundreds of words [13]. Consequently, instruction in morphological analysis can not only increase definitional knowledge but also help students infer the meanings of unknown words they encounter in academic texts [10,11]. In addition to teaching the

meanings of commonly occurring morphemes, scholars have recommended building metalinguistic awareness by teaching students about the structure of academic words: how morphemes—namely prefixes, suffixes, and bases—fit together to make words [14]. The development of metalinguistic awareness is a crucial component of vocabulary instruction because it can provide students with strategies to determine the meanings of unknown words independently and develop word consciousness: an awareness of and interest in words [11,12,15,16].

While this approach has long been advocated for upper-elementary students, recent research results have provided evidence as to the efficacy of this approach with primary students as well [17–19]. Furthermore, there is compelling evidence that the approach supports students from low-income and Spanish-speaking backgrounds [20]. Yet despite scholarly consensus on the critical need for consistent, purposeful, and effective vocabulary instruction, several decades of research indicate that academic vocabulary has long been undertaught across grade levels [21–27]. One reason why teachers may not adequately address vocabulary is because they themselves often lack metalinguistic and pedagogical knowledge about academic vocabulary [5]. To teach academic vocabulary effectively and develop students' metalinguistic awareness, teachers themselves must first understand the intricate linguistic features and morphological structures that comprise the academic register. To achieve these ends, teachers need opportunities to engage in extended, focused study of the linguistic and morphemic structures of academic vocabulary so that they can develop their knowledge of this instructional domain. This should be paired with opportunities to learn effective and research-based instructional techniques and consistently implement those strategies in their classrooms.

While there have been increasing calls for more pedagogical attention to academic vocabulary [5,7,28,29], to date there has been little sustained research about how to raise teachers' awareness of, and expertise in, the instruction of academic vocabulary [30–32]. This article reports findings from a longitudinal instrumental qualitative case study [33] that examined the experiences of three elementary teachers who engaged in extensive professional development that included the study of Greek and Latin morphology in addition to effective strategies for instruction of academic vocabulary [34]. The larger study was guided by several research questions that explored changes teachers made to practice as well as factors that impacted attempts to alter instruction. In addition, the broader study investigated teachers' perceptions about vocabulary instruction and the impact of professional development on their beliefs and practices. This article describes specific changes the teachers made to their vocabulary instruction over three years as a result of their deeper understanding of Latin and Greek morphology and how to teach it.

2. Materials and Methods

Since the study's objective was to describe how the participants themselves understood their professional experience, an instrumental, multiple case study design [33] was used. The participants, three elementary classroom teachers in a public Title I school in the Northeastern United States, were purposefully selected from a larger group of teachers who engaged in a yearlong site-based professional development cohort. While each participant's story was unique, analysis of their cumulative experiences generated insights about how teachers learned about and implemented vocabulary instruction.

To determine what, if any, instructional changes occurred as a result of participant experiences, the study employed a variety of data sources, including in-depth and semistructured interviews, direct observations of classroom practices, and instructional artifacts [34]. Each participant was interviewed three times throughout the course of the study, for a total of nine interviews. To learn how participants approached vocabulary instruction, direct observations of classroom instruction were conducted. Each participant's instruction was observed three times, for a total of nine classroom observations. Instructional artifacts including lesson plans and student work samples were also analyzed.

Data were analyzed from a social constructivist perspective using the constant comparative method [35]. A social constructivist approach recognizes multiple perspectives without privileging the

realities of some over others [36]. This stance values the complexity of thought, experience, and social interaction from which participants' worldviews and perceptions emerged [37]. Therefore, to ensure accurate and ethical representation of each participant's experiences, descriptive narratives captured participants' own voices whenever possible.

Data analysis occurred in two stages: (1) within-case analysis and (2) cross-case analysis. The constant comparative method was used throughout both stages of data analysis. First, each case was analyzed individually. Through inductive analysis, categories were generated and a profile of each participant was constructed. Second, a cross-case analysis of categories revealed common patterns and trends that resulted in tentative findings. Third, findings were compared to the research question under scrutiny and conclusions were drawn.

To reduce researcher bias and ensure that conclusions were firmly grounded in the data, triangulation occurred through the use of multiple data sources and member checks. Several credibility strategies were employed throughout the processes of data collection, analysis, and writing to ensure that the research process was rigorous and that findings were supported by the evidence. The following credibility strategies were used: long-term involvement, analytic memos, critical friend, and intercoder reliability [38].

2.1. Context of the Study

The study was conducted at Phillis Wheatley Elementary School (PWES). (PWES is a pseudonym.) PWES is in a large public school district in the Northeastern United States, located outside a major metropolitan area. PWES serves a student population that is culturally, linguistically, and economically diverse. At the time of the study, a large percentage of students spoke languages other than English in their homes and therefore qualified as English Language Learners (ELLs).

Administrators at PWES had identified academic vocabulary knowledge as an area of need for students and requested professional development on this topic for teachers. Over the course of one academic year, teachers engaged in monthly cohort sessions in which they studied the linguistic and morphemic structures of academic vocabulary as well as instructional techniques. The researcher designed the professional development, developed the content, and facilitated all sessions. During each cohort session, participants explored morphological roots and Spanish–English cognates—the morphological origins words share across the Spanish and English lexicons [5]. The professional text *Greek and Latin Roots: Keys to Building Vocabulary* [39] was used as the primary resource for the group. Each cohort session also included opportunities for teachers to engage in collegial discourse, plan for the implementation of new techniques in their classrooms, and reflect on practice with peers.

2.2. Participants

Study participants were three veteran classroom teachers at PWES who participated in the yearlong professional development cohort. All three participants were Caucasian females. At the time of the study, two of the participants—Lisa and Kim—were third grade teachers. Lisa was in her 5th year of teaching, while Kim was in her 20th year. The third participant, Mandy, was a fourth grade teacher, also in her 5th year of teaching. All three teachers had taught at PWES for the duration of their careers; Lisa transferred to another district school during the third year of the study.

3. Results

Study results indicate that all three participants made and sustained changes to instructional practice. Two broad themes emerged: (1) the shift from a definitional approach to a metalinguistic approach, and (2) a focus on student-led problem-solving and collaborative talk in vocabulary learning.

3.1. Shift to a Metalinguistic Approach

At the onset of the study, all three participants described similar instructional routines in which they taught vocabulary by providing students with definitions of words during content area or reading

instruction. There was some variance in instructional technique, ranging from asking students to look up word meanings in glossaries to teacher-provided explanations of vocabulary during reading instruction. The central focus of instruction, however, was teacher-directed presentation of individual word meanings.

Over the course of the study, participants moved from teacher-centered, definitional instructional approaches towards instruction that was student-centered and focused on developing metalinguistic awareness. These instructional shifts reflected participants' new understandings about the role of morphology, metalinguistic awareness, and student-led problem-solving in vocabulary learning.

Lisa's journey exemplifies this instructional transition. At the onset of the professional development, Lisa described her approach to vocabulary instruction as "kind of sporadic" and "spoon-feeding." She expressed frustration with this approach, feeling it did not adequately address her students' vocabulary needs, particularly as the majority of students were learning English as an additional language. Lisa depicted her instructional routine as "here, these are the words and good luck," noting that she was "giving it [definitions of words] to them. They're not being problem-solvers and trying to figure out the words."

Lisa gradually moved from a focus on providing students with word meanings to the implementation of an approach that emphasized instruction in Greek and Latin roots and word analysis skills. After completing the professional development, a driving instructional objective for Lisa was that students learn the linguistic structures of academic vocabulary and "see that there's a reason why our language was created this way." She shared that this metalinguistic approach deepened her students' understanding about words, allowing them to better decipher the meanings of unknown words. She explained, "I feel like I'm opening up a whole big chunk of words, like the prefix, like they know the meaning of the prefix! Like *re* means this or *pre* means that..." Lisa felt that this approach enabled her students to become more independent as problem-solvers and less reliant on her for support. She elaborated, "They're being problem-solvers by understanding that words are broken into parts and they can analyze the words. They're not being told, 'This word means this and then study it for a test.'"

After participating in the professional development group, Kim employed a similar instructional routine. Kim introduced the study of Greek and Latin roots as part of her content area instruction. This involved moving from content area word lists towards explicitly teaching Greek and Latin roots that frequently occurred in specific areas of study. Kim collaborated with grade level teammates, who were also participating in the cohort, to identify roots that frequently occurred in units of study. She taught these roots to her students, focusing on one or two roots per instructional unit. After introducing the root she showed students how "to break down vocabulary into meaning." This approach involved "pulling out bases and suffixes and prefixes and showing how those go together" to comprise the meaning of the word. Kim likened her new instructional approach to a code:

> It's just so different; it's almost like a code . . . it's like breaking a code, like being a detective. You know, going in and saying: 'Oh, well I can figure that out because I know what this means. Or I can at least give a good guess based on content and what I know that root means.'

All three participants observed that as they broadened their practice to include metalinguistic awareness, they noticed increased student engagement. Specifically, participants noted increased engagement and participation amongst their Spanish-speaking students who had previously struggled with academic vocabulary acquisition. They attributed this to the explicit instructional attention to Spanish–English cognates that became a regular component of their new instructional practices. Mandy, in particular, emphasized Spanish–English cognates as part of her vocabulary instruction. She explained,

> It is great for ELLs! Drawing that connection for them really helps them to not only build their vocabulary but also gives them a lot of the skills to use when they're thinking about words and their meanings. It gives them a key almost to unlock this door.

Kim noted that as a result of cognate instruction, language learning extended beyond the parameters of the classroom for her Spanish speakers. She recalled one student's spontaneous recognition of the Spanish–English cognate *parasol* while on the playground.

> When it's sunny I use a parasol because I don't like sun on me. And one day, we were walking out and one of my students said, 'Parasol—para sol? For sun?' Oh my God! It was, 'For sun!' I was like, 'Oh my God!' *Sol* is *sun* and *para* is *for*—parasol! Isn't that so cool?!

Participants' insights about the impact of their vocabulary instruction on student engagement for Spanish-speaking students who were learning English was particularly meaningful as all three participants had expressed concern about the demands of academic language on these students at the onset of the study.

3.2. Student Problem-Solving and Collaborative Talk

At the onset of the study, Lisa, Mandy, and Kim offered students few opportunities to collaborate and problem-solve about language. As they engaged in sustained professional development, participants shifted instruction to include opportunities for students to work collaboratively and apply their understanding of linguistic structures to decipher word meanings. This was a marked shift from an earlier instructional approach in which students relied on the teacher for word meanings.

Of special note was the participants' increased use of instructional time for students to talk with each other about words that either challenged or interested them. In addition, all three participants deliberately provided opportunities for students to apply their developing skills through a variety of hands-on and collaborative learning experiences, including word play activities such as student-created word spokes, webs, graffiti boards, and riddles that engaged students in peer talk. As a result of these student-centered instructional approaches, participants noted a surge in students' engagement with and enthusiasm about word learning. Lisa explained,

> I didn't realize that there would be so much student talk versus teacher talk. It's good for them to be talking about words! That was my biggest take-away: that it's okay for kids to talk about these words and it's okay for the classroom to be loud! So many times I felt like I needed to have kids diligently doing work at their desks and it doesn't need to be like that for them to learn; that might not be the best thing for them. So, what I took away was the student talk and realizing that they can be enthusiastic learners and they can be interested in where words come from and what they mean.

Building students' word awareness was an integral component of this problem-solving approach. Mandy prompted students to notice prefixes and suffixes they studied as they read and wrote: "I would have them try to be aware, as they're reading, and have them write down in their independent reading or guided reading the times when they saw that prefix and then we would share those." Mandy engaged students as word learners by "giving the students a chance to talk about things with each other and reflect on things that they've learned through conversations about words."

Mandy believed that as students became more word-aware, their engagement increased:

> I remember students being excited when they found words that they had learned, or prefixes that they had learned, in their independent reading. They would find them on their own and they would be so excited about it, so that was really cool to see!

At times, instructional shifts were difficult for the participants because it required them to alter instructional identities, moving from positions in which they assumed authority for word knowledge toward an instructional stance that allowed for ambiguity as students engaged as problem-solvers. Lisa explained that this shift required her to "step away from always wanting to be right and always wanting to have the answer." These instructional changes occurred gradually as each participant cultivated her own understanding of vocabulary teaching and learning. As participants deepened

their own understandings of academic vocabulary and how to teach it, they made changes that reflected newfound insights about the value of student talk, engagement, and problem-solving in vocabulary learning.

4. Discussions

As demonstrated above, all three participants underwent significant changes to their instructional practice. These changes were generated largely by the participants' deepened understanding of the linguistic structures of academic vocabulary. As part of the professional development cohort, Lisa, Mandy, and Kim had consistently engaged in extended and focused study about the linguistic and morphemic structures of academic language. As they themselves engaged in word analysis, they developed new insights about the importance of morphology, metalinguistic awareness, and problem-solving. When Lisa, Mandy, and Kim became vocabulary students themselves, they realized that students needed more than definitions and isolated word instruction: they needed to understand how language works. Ultimately, this experience led to what Kim characterized as a "shift in thinking." This shift facilitated the changes participants made to practice.

For all participants, this experience was the first time they had ever studied the linguistic and morphemic structures of academic vocabulary. As Lisa, Mandy, and Kim acquired a deeper understanding of the role of morphology in academic vocabulary, they came to understand the concept of metalinguistic awareness. As a result, all three participants moved away from instruction that was mostly definitional and teacher-directed. They adopted student-centered instructional techniques focused on the morphemic structures of words and problem-solving strategies that enabled students to become independent and strategic word learners.

Researchers agree that the depth of a teacher's knowledge about an instructional domain significantly influences instructional practice [22,40]. Results of this study are consistent with this body of scholarship. As Lisa, Mandy, and Kim deepened their knowledge of academic vocabulary and instructional techniques they made dramatic changes in their practice from teacher-directed definitional approaches to student-directed problem-solving approaches. Furthermore, it was their new understanding of the morphological foundation of academic vocabulary that served as the catalyst for this new instructional approach. Results of this study suggest that when given sufficient instruction and time to engage in extended, focused study of the linguistic and morphemic structures of academic vocabulary, teachers can develop both their content and pedagogical knowledge of this instructional domain.

Increasingly, research has established that vocabulary instruction must address both definitional and metalinguistic word knowledge [41,42]. Similarly, to understand the complexities of academic vocabulary, teachers must provide frequent and consistent opportunities for students to learn new words in a variety of contexts, acquire a range of word-solving strategies, develop metalinguistic awareness, and become word conscious [14,42–44]. Yet, to date, a sustained focus on the development of metalinguistic awareness and word consciousness is often overlooked [24].

The instructional shifts Lisa, Mandy, and Kim made are therefore particularly important because they address metalinguistic awareness and word consciousness. As Lisa, Mandy, and Kim taught from a metalinguistic stance they observed that their students developed word consciousness [15]. Word consciousness is an important element of word learning because it increases motivation to learn about language [15]. While this study did not include a measure of students' vocabulary achievement, participants noticed that as students developed metalinguistic awareness, their engagement with academic language and word consciousness improved [34].

In addition, it is noteworthy that instruction in Spanish–English cognates appeared to be beneficial for Spanish-speaking students. Again, while this study did not include a formal measure of students' vocabulary acquisition, participants noted significant changes in their Spanish-speaking students' engagement with vocabulary and increased independence as problem-solvers when they taught from a metalinguistic approach. This finding is consistent with earlier research that suggests instruction

in Spanish–English cognates may be an effective means of supporting vocabulary development for Spanish-speaking students [20,45]. Analysis of academic texts has determined that one-third of English words in academic texts have Spanish cognates [46]. Given this abundance of Spanish–English cognates in the academic register, cognate instruction may be an effective means of increasing access to academic vocabulary for all learners, but especially for those students who are familiar with Spanish.

This finding may be particularly important as research suggests that Spanish-speaking students who are learning English may be at increased risk of low academic achievement due to limited academic vocabulary knowledge [47]. Yet, while a growing number of scholars have called for increased instructional attention to cognate connections between Spanish and English [5,29,48], this appears to be an area that is currently undertaught in many classrooms [20]. It is noteworthy that prior to participation in professional development, all three participants expressed minimal awareness of Spanish–English cognates or their role in vocabulary instruction. This is concerning given that a large percentage of students at PWES spoke Spanish as a first language. Results of this study suggest that professional development that includes explicit attention to Spanish–English cognates may be one way to deepen teachers' knowledge of this important component of academic vocabulary instruction.

While earlier research has suggested that focused study of instructional content can lead to improvements in practice [49], this is the first study to explore the impact of focused study of academic vocabulary as a content area. As Lisa, Mandy, and Kim's understanding of academic vocabulary developed, each became better equipped to teach it to her students. As each teacher deepened her knowledge of academic vocabulary, she made shifts in practice, often in instructional areas that appear to be undertaught [20,24]. Results of this study suggest that teachers need time to engage in extended, focused study of the linguistic and morphemic structures of academic vocabulary so that they can develop their knowledge of this instructional domain and enrich students' experiences with academic vocabulary.

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