What Work Samples Reveal about Secondary Pre-Service Social Studies Teachers' Use of Literacy Strategies

By Susan J. Lenski & Gayle Y. Thieman

For the past several decades, research has indicated that content area pre-service and in-service teachers do not use literacy strategies in their teaching (Conley, 2008; Fisher & Ivey, 2005; Lenski, 2009; Nourie & Lenski, 1998). We wondered whether things would be different for 21st century teachers. With a national focus on adolescent literacy, many teacher preparation programs now require secondary pre-service teachers to take a content area literacy course. Furthermore, our state requires every pre-service teacher to develop two work samples in which they need to embed literacy instruction in their unit of study. In light of these new requirements, we wondered whether pre-service teachers were still resistant to incorporating literacy strategies in their lesson planning and teaching.

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The purpose of this study was to answer the following research questions:

- Do secondary social studies pre-service teachers incorporate literacy strategies in their work samples during student teaching?
- To what extent and under what conditions do

secondary social studies pre-service teachers use higher levels of literacy strategies in their work samples?

Theoretical Framework

This study is framed by three areas of research: activity theory, work sample methodology, and disciplinary literacy.

Activity Theory

Researchers have recently begun investigating content area literacy from the perspective of activity theory (Russell, 1997; Van Den Broeck & Kremer, 2000), and researchers investigating reading comprehension have used activity theory to look at how certain tools have shaped the comprehension of texts (Bean, 2001; Smagorinsky & O' Donnel-Allen, 1998). These studies have suggested that examining comprehension from the perspective of activity theory allows for an examination of how psychological tools and instructional artifacts interact with students' prior knowledge as they comprehend texts (Bean, 2001).

Activity theory is among the socio-cognitive concepts emerging from the work of Vygotsky and his colleagues' work on mental processes and language development (Werstch, 1985). Briefly, activity theory posits that cognition and learning are mediated through tools, that these tools are dynamic and shift as learners interact with them, and analyses of these processes and relationships cannot be undertaken outside of a context (Engestrom, 1987; Jonassen & Rohrer-Murphy, 1999; Werstch, 1985). It is a framework for examining how human beings construct and interpret meaning and how that process is mediated through tools of language, or anything used in learning (Jonassen & Rohrer-Murphy, 1999; Kuutti, 1996). In this way tools can be physical, such as a computer, or they can be mental, such as a framework. The individual or group in any activity has intention and is goal directed. Therefore, activity consists of "goal-directed hierarchies of action" (Jonassen & Rohrer-Murphy, 1999, p. 63), and these actions are linked to other activities and operations in dynamic ways.

Work Sample Methodology

Work sample methodology was developed for pre-service teachers to examine ways in which they connect teaching and learning and is currently being implemented in many teacher preparation programs (Girod & Shalock, 2002; Henning, Kohler, Wilson, & Robinson, 2009). We used activity theory as the basis for our investigation of pre-service teachers' construction of literacy in their work samples. We considered work samples a tool that pre-service teachers used to make their knowledge of literacy visible, and we also considered work samples to be a performance assessment tool to evaluate pre-service teachers' ability to apply that knowledge. The research that has been conducted on work samples indicates that works samples are effective

activities for pre-service teachers and also a reflection of pre-service teachers' thinking (Devlin-Scherer, Burroughs, Daly, & McCartan, 2007). None of the research on work samples has examined how literacy is used in secondary pre-service teachers' planning. Not every teacher preparation program requires that literacy be a component of work samples, but the state in which this study was conducted requires all pre-service teachers to integrate literacy in every work sample.

Disciplinary Literacy

Literacy in teacher preparation programs has typically consisted of teaching generic literacy strategies that were assumed to be applicable to the different disciplines. Experts now suggest that teaching generic literacy skills is useful to a certain extent but that literacy means different things in each of the different disciplines (Donovan & Bransford, 2005; Saul, 2004; Wilson & Wineburg, 1988). Not all of the literacy strategies can be transferred to each of the disciplines, and those generic strategies that are taught are more likely to be incorporated in lesson planning if they are used within authentic texts and lessons (Alvermann, 2002). Secondary educators are, therefore, calling for instructional programs that focus on disciplinary literacy (Draper, Broomhead, Jensen, & Siebert, 2010; Moje, 2008).

Disciplinary literacy in social studies has most often been defined through the subject of history, but Lee and Spratley (2010) state that the literacy skills in history can be applied to geography, economics, civics, and government. According to Ashby, Lee, and Shemilt (2005), history is an interpretive discipline. Shanahan and Shanahan (2008) and Wineburg (2001) make the case that students in schools need to be taught how to think like historians, or, as VanSledright (2004) writes, to "think historically." To think historically students need to

- read, make sense, and judge the status of various sources of evidence,
- corroborate that evidence by carefully comparing and contrasting it,
- construct context-specific evidence-based interpretations,
- assess an author's perspective or position, and
- make decisions about what is historically significant.

Specialists in social studies suggest that students need to have a grasp of discipline-based literacy strategies to become proficient readers and consumers of social studies (Thieman & Altoff, 2008; Nokes, 2010). In a report on academic literacy, Lee and Spratley (2010) list the kinds of discipline-specific literacy strategies that students use in social studies. They include building prior knowledge, developing vocabulary, learning to deconstruct complex sentences, using knowledge of text structures and genres to predict main ideas, mapping graphic representations against explanations, posing relevant questions, comparing claims across texts, and evaluating evidence and claims. These strategies are necessary for students to learn to think historically.

The National Council for the Social Studies (2010) also suggests literacy strategies that are appropriate for their discipline: before reading (making predictions, identifying text features), during reading (drawing nonlinguistic representations, developing questions, identifying unfamiliar concepts, using advance organizers), and after reading (summarizing and note taking, comparing information with other students). We wanted to know whether secondary social studies teachers were able to incorporate these kinds of literacy strategies into their work samples and whether we could identify the levels of literacy strategies that pre-service teachers used.

Methodology

The study design is a qualitative document analysis (Altheide, Coyle, DeVriese, & Schneider, 2010). First, we invited the social studies pre-service teachers to participate in the study by giving us permission to use their work samples as data. Sixteen pre-service teachers agreed. Of the 32 possible work samples, 27 of them were written for social studies classes: 12 work samples from Student Teaching I, and 15 work samples from Student Teaching II. During both winter and spring terms of student teaching, pre-service teachers complete a work sample that includes the classroom context, unit rationale, detailed lesson plans, sample instructional materials, attention to literacy, lesson reflections, and pre- and post-assessment data. Student Teaching I work samples consist of a unit of study lasting two to three weeks, and Student Teaching II work samples consist of a four to five week unit of study.

Participants

This study was conducted by two researchers in a large urban university in the Pacific Northwest. The university prepares approximately 120 secondary pre-service teachers annually in a post-baccalaureate program. Each year the program graduates approximately 25 social studies teachers. Both authors are experienced teacher educators who work in the same department. The first author is a literacy researcher who teaches Reading in the Content Area and Language Arts Methods and has been a teacher educator for 17 years. The second author is a social studies researcher who teaches Social Studies Methods and Instructional Technology and has been a teacher educator for 10 years.

During the first of a four-term graduate program, pre-service teachers take required coursework that emphasizes principles and practices of multicultural education in urban settings, developmental needs and effective instructional practices with middle level and high school adolescents, and instructional planning. During the second term, while they are engaged in a 90-hour practicum, all secondary pre-service teachers take content area reading, and social studies pre-service teachers take a social studies methods course that emphasizes unit planning, lesson design, and incorporation of differentiation and literacy strategies. During the third term, while they are doing part-time Student Teaching I, social studies pre-service

teachers take a second social studies methods course which emphasizes specific discipline-based reading strategies, such as reading and interpreting primary source documents, and applying the heuristics of historical investigation (i.e., sourcing, corroboration, and contextualization) (Wineburg, 2001).

Data Sources

We used five sections from each work sample as primary data sources: the school and classroom context, the lesson plans, teacher-created instructional materials, teacher reflections on lessons, and a section titled "Attention to Literacy," which summarized the way the pre-service teachers used literacy. These five sections were not written at the same time, and we considered them "documents in action" (Prior, 2010). Before they began instructional planning, pre-service teachers investigated and described the instructional context including school and classroom data such as class size; gender; racial, ethnic, and linguistic diversity; poverty level; and student exceptionalities. We used this section as background to contextualize the lessons and during data analysis. The lesson plans and instructional materials were developed next; the reflections were written after each lesson. The section summarizing literacy was written after the work sample was taught. Since the state endorses secondary teachers in social studies, rather than individual disciplines such as history or geography, work sample topics included history, civics, geography, and economics content.

Data Analysis

As consistent with the emergent qualitative document analysis (Altheide, Coyle, DeVriese, & Schneider, 2010), we kept our analysis flexible as we read the data. Using the constant comparative method (Corbin & Strauss, 2007), we generated categories through the process of open coding, then selected categories within a model (axial coding), and finally showed how these categories were connected through selective coding (Cresswell, 2009). To begin the process of coding, each of the researchers read five work samples in their entirety to get an overall sense of the units of study and to identify the ways the pre-service teachers used literacy in their teaching. As we read the data individually, we highlighted what we considered to be literacy activities in each work sample. During the period of the first readings, the researchers met periodically to discuss the data, comparing the identified literacy activities for five work samples. We had over 90% agreement from 20-25 pages of data for each session so we considered our identification of literacy to be reliable. We continued reading the work samples individually, highlighting literacy strategies, and meeting bi-weekly to compare 25 pages of data to confirm reliability.

During these meetings, we discussed what literacy meant to each of us, using several sources as points of departure, including publications from both of us (Lenski, Wham, Johns, & Caskey, 2011; Thieman & Altoff, 2008). We developed a preliminary list of 28 literacy terms that we agreed represented literacy activities. We identified

five literacy modalities (i.e., reading, writing, speaking, listening, viewing) and 14 separate cognitive/literacy strategies. We then collaboratively applied the terms to two work samples in a joint meeting and resolved any differences. Next, we each read one work sample, applying the literacy terms. We again found a high percentage of agreement, over 90%. During our next meeting, we revised the list of literacy strategies and began reading the work samples individually, identifying reading strategies and activities and noting the type and number of such literacy events for each lesson.

During each meeting we interrogated our analysis by asking each other what we actually meant by each cognitive strategy and literacy activity. We then decided to apply another level of analysis by identifying the Depth of Knowledge (DOK) level for each literacy activity (Webb, 2005, 2007). Depth of Knowledge has been used as an alternative to Bloom's taxonomy and as a way to connect standards and assessments (Herman, Webb, & Zuniga, 2007). To use DOK in our analysis, we developed a chart (see Table 1) which listed literacy activities and identified whether the activity could be characterized as level 1 (recall), level 2 (skills/concepts), level 3 (strategic thinking), or level 4 (extended thinking). We analyzed each literacy strategy and charted it according to the DOK levels.

As we identified the DOK levels, we kept track of the kinds of activities in each level. Typical Level 1 activities included labeling countries on a map, defining vocabulary, recalling information from a film or reading, taking notes from a teacher presentation, and drawing representation of ideas. Level 2 activities involved identifying patterns, summarizing or organizing information from readings or presentations, making predictions or inferences, comparing and contrasting, and interpreting historical documents. Level 3 activities required students to use strategic thinking such as analyzing consequences, evaluating policy proposals or historical interpretations, developing a logical argument, debating the merits of a proposal, constructing visual and written representations, hypothesizing, and drawing conclusions. Level 4 was the most challenging. Students synthesized information from multiple sources and created new understanding or extended their thinking through analysis, synthesis, critique, and application of concepts in novel ways.

After we charted all of the literacy strategies into DOK levels, we developed a "literacy profile" for each work sample and calculated the percentage of strategies that fell into each level. For example, Ted (names are pseudonyms), who taught a unit on the Antebellum period for 8th grade U.S. History, included 44 different literacy events in the work sample lessons: 4 at Level 1, 22 at Level 2, 14 at Level 3, and 4 at Level 4. We calculated the following percentages for this work sample:

Level 1	4/44	9%
Level 2	22/44	50%
Level 3	14/44	32%
Level 4	4/44	9%

To achieve trustworthiness, we triangulated by using three different documents

as data. We developed methodological memos as we collected and analyzed data, and used these memos to refine our investigation. We also considered our very different perspectives as investigators as an additional aspect of triangulation (Glesne, 1999). Finally, we discussed our data analysis procedure with three other researchers to obtain an external audit.

Findings and Discussion

In answer to our first research question, our analysis indicated pre-service teachers did indeed incorporate literacy strategies in their work samples. However, they

Table 1
Literacy Strategies and Depth of Knowledge Levels

Initial Literacy Terms	*Depth of Knowledge (DOK) Levels*
Define Vocabulary Take Notes Label Maps Recall Information Illustrate	I Recall
Cause/Effect Compare/Contrast Organize Information Graph Predict Interpret Summarize Identify Patterns Describe Sequence/Chronology	II Skills/Concepts
Develop Argument Draw Conclusions Differentiate Evaluate Apply Concepts Investigate Cite Evidence	III Strategic Thinking
Analyze Create Maps or Models Connections Persuade Critique Synthesize	IV Extended Thinking

appropriated literacy strategies to fit their social studies lesson plans. In response to the second research question, our analysis indicated that pre-service teachers, in general, used higher-level literacy strategies in their second work sample. However, the levels of literacy strategies they used varied with the ethnic diversity and poverty level of their students.

Literacy Strategy Use and Appropriation

According to our data analysis, all 16 pre-service teachers were aware of and used literacy strategies in their work samples. The average number of literacy events used in the 12 work samples from Student Teaching I was 24 (range 11-40). The average number of literacy events in the 15 work samples from Student Teaching II was 29 (range 10-44). The higher number of literacy events in the second work sample may be related to the increased number of lessons.

Based on our findings, we concluded that the social studies teachers in this group were all well acquainted with literacy strategies, and they used them when planning lessons. The critical factor about this finding, however, is that the literacy strategies the pre-service teachers used were embedded in their teaching in a much more natural way than was taught in the content area literacy class. For example, the students were taught the Discussion Web (Alvermann, 1991), a literacy strategy that has students think about a topic from two different perspectives. Although the pre-service teachers were enthusiastic about learning this strategy, none of them used it in their work samples. Many pre-service teachers, however, had their students read primary source documents, watch films, and listen to lectures, and then develop an argument with claims and counter claims, the same thinking strategy that is taught with the Discussion Web.

One example of this type of appropriation can be found in Ryan's first work sample that he taught to an 11th grade history class. One of Ryan's activities was to have students read an article that compared Presidents Kennedy and Obama. He had students underline the points of comparison and then asked students in what ways they agreed or disagreed with the ideas presented in the article. Another example from Ryan's work sample that appropriated critical reading strategies was having students read primary source documents of actual Soviet and American propaganda serving to discredit both countries' economic and political systems. After students read the documents, Ryan had them critically interpret the documents and then develop a written reflection about what they learned. Ryan did not use one of the specific named strategies he had learned; instead, he had students use reading and writing for the purpose of understanding texts.

Pre-service Teachers Adjusted Levels of Literacy Strategies with Practice

In answer to our second research question, we found that more than half of the pre-service teachers incorporated deeper levels of literacy strategies with their second work sample (see Tables 2 and 3). Of the 27 work samples we analyzed,

11 pre-service teachers submitted two work samples, allowing us to compare the number and type of literacy strategies.

We hypothesized that students would decrease the percentage of Level 1 strategies in Work Sample II. This proved to be the case for 5 of the 11 pre-service teachers. Our findings indicated that the average percentage of Level 1 strategies for Work Sample I was 26%. The average percentage of Level I strategies in Work Sample II decreased to 21%. Similarly there was a drop in Level II strategies between Work Sample I (52%) to Work Sample II (47%).

We also hypothesized that pre-service teachers would increase the percentages of high level literacy strategies as evidenced by Levels 3 and 4. Our findings substantiated this as well. The average use of Level 3 strategies increased from Work Sample I (18.5%) to Work Sample II (27%). The average use of Level 4 strategies increased slightly from Work Sample I (3.5%) to Work Sample II (4.7%).

Of particular note was that five of the pre-service teachers taught both work

Table 2
Number of Literacy Strategies and Depth of Knowledge (DOK) Levels from Work Sample 1

Name	*School*	*Grade*	*Class*	*Literacy Strategies*	*Level 1 %*	*Level 2 %*	*Level 3 %*	*Level 4 %*
Aaron	Conlin M.S.	6	Geogr.	25	32	44	16	8
Ashley	Raymond M.S.	6	Wld His. Sheltered	28	22	68	10	0
Tom	Four Pines M.S.	6	Wld. His.	17	29	71	0	0
Luke	Hanfield M.S.	8	US His.	19	21	79	0	0
Maria	Lake Oswald H.S.	8	US His.	23	18	50	32	0
Cornel	Graham H.S.	9	Wld. His.	11	27	64	9	0
Mark	Mason Alt. H.S.	9/10	Geogr.	27	44	52	4	0
Allie	Mason Sci/Tech	9/10	Wld. Geogr.	23	35	30	22	13
Sheila	Prairie H.S.	10	Honors, Global St.	13	46	31	15	8
Lily	Prairie H.S.	10	Global St.	16	19	56	25	0
Ryan	Vanport	11	Econom.	40	18	40	42	0
Charlie	Layne H.S.	11/12	IB Theory of Knowl.	32	6	34	47	13

samples in the same class with the same students. The other pre-service teachers either taught in a different school or in a different class. These five pre-service teachers increased the percentages of higher-level strategies, even in schools with high percentages of poverty. We accounted for this finding in two ways: 1) The pre-service teachers knew the students better and did not have classroom management issues so were able to develop lessons that had a higher degree of student freedom, and 2) The students were familiar with the pre-service teacher's expectations.

Table 3
Number of Literacy Strategies and Depth of Knowledge (DOK) Levels from Work Sample 2

Name	*School*	*Grade*	*Class*	*Literacy Strategies*	*Level 1 %*	*Level 2 %*	*Level 3 %*	*Level 4 %*
Ashley	Bentley H.S.	10	Global St.	10	30	50	20	0
Tom	Four Pines	6	Wld. His.	36	33	36	19	11
Luke	South H.S.	12	Wld. His.	17	24	41	35	0
Maria	Lake Oswald	8	US His.	20	30	30	20	20
Cornel	Graham H.S.	9	Wld. His.	13	15	70	15	0
Mark	Mason Alt. H.S	9/10	Geogr.	22	27	45	23	5
Allie	Mason Sci/Tech	11/12	US His.	30	10	57	30	3
Sheila	Prairie H.S.	10	Honors, Global St.	22	18	64	18	0
Lily	Prairie H.S.	11	US His.	27	30	48	22	0
Ryan	Vanport H.S.	11	US His.	34	21	50	29	0
Charles	Layne H.S.	11/12	IB Theory of Know.	39	13	33	38	10
Ted	Handsen M.S.	8	US His.	44	9	50	32	9
Chuck	Mason Alt. H.S.	11/12	US Gov.	30	27	33	40	0
Hillary	Altan Alt. H.S.	12	Global St.	31	16	58	23	3
James	Century H.S.	10	US His.	39	18	36	36	10

Number and Level of Literacy Strategies Varied by Context

Our third finding is that the level of literacy strategies varied with the classroom context of the student teaching placements. In the large urban area where our pre-service teachers student taught, a few were placed in schools with specialty programs such as a science and technology focus, International Baccalaureate, or honors class, but most were placed in Title I schools, alternative schools, and schools with high numbers of English Language Learners (ELLs), and ethnically and racially diverse populations. We collected information from each work sample about the grade level and subject. The number of students in the classes taught by the pre-service teachers varied from 12-35. We collected classroom percentages of diversity, English Language Learners, students with Individual Education Plans, and Talented and Gifted (see Tables 4 and 5). As we read the contexts of the work samples, we made an interesting observation. Despite the relatively high percentages of diversity in most classrooms,

Table 4
Classroom Contexts and Literacy Strategies for Work Sample I

Gr.	*Class*	*% Ethnic Diversity/ Poverty*	*% Level I Recall*	*% Level II Skills & Concepts*	*% Level III Strategic Thinking*	*% Level IV Extended Thinking*
10	Honors Global	50 5	46	31	15	8
9/10	Geog.	8 45	44	52	4	0
11	Econ.	45 61	18	40	42	0
6	Wld. His. Shelter	100 75	22	68	10	0
9	Wld. His.	33 NA	27	64	9	0
10	Global St.	53 50	19	56	25	0
6	Wld. His.	64 55	29	71	0	0
9-10	World His.	41 NA	35	30	22	13
11/12	I.B. Know.	18 NA	6	34	47	13
8	US His.	12 NA	21	79	0	0
8	US His.	16 NA	18	50	32	0
6	Geog.	27 NA	32	44	16	8

the percentages of ELLs were low. We found that many of the students whose first language was not English were not officially classified as ELLs because they had been in the school system for more than three years. Even though ELLs typically take more than three years to develop academic language (Cummins, 1979), they were not considered in need of support in these classrooms.

Levels of literacy strategies varied with the ethnic diversity and poverty level of students in the classrooms. Eleven of the 16 classrooms were in high poverty

Table 5
Classroom Contexts and Literacy Strategies for Work Sample II

Gr.	*Class*	*% Ethnic Diversity/ Poverty*	*% Level I Recall*	*% Level II Skills & Concepts*	*% Level III Strategic Thinking*	*% Level IV Extended Thinking*
10	Honors Global St.	50 50	18	64	18	0
10	US His.	40 48	18	36	36	10
9/10	Geogr.	8 45	27	45	23	5
10	Global St.	62 45	30	50	20	0
12	History	78 68	16	58	23	3
11	US His.	45 61	21	50	29	0
11/12	US Gov Alt H.S.	23 53	27	33	40	0
8	US His.	21 41	9	50	32	9
11	US His.	53 50	30	48	22	0
6	Wld. His.	64 55	33	36	19	11
8	US His.	16 NA	30	30	20	20
12	Wld. His.	37 NA	24	41	35	0
9	Wld. His.	33 NA	15	70	15	0
11/12	I.B. Know.	18 NA	13	33	38	10
11/12	US His.	22 NA	10	57	30	3

schools (free/reduced lunch ranging from 45% to 75%) with levels of ethnic and linguistic diversity that ranged from 21% to 100% of the students in the class. Eight of the 16 work samples from these diverse classrooms had a relatively high percentage of Level 1 literacy strategies (30%), while the other eight of the work samples from similar high poverty, high diversity classrooms had a much smaller percentage of Level 1 literacy strategies (17%).

Several factors may account for this dichotomy. The pre-service teachers who employed fewer Level 1 strategies and, conversely, more Level 3 and 4 strategies were the most capable graduate students. Also, five of the eight work samples that evidenced higher literacy levels were taught after the pre-service teachers had taken a second social studies methods course that emphasized Level 3-4 literacy strategies. Overall, however, the work samples from highly diverse classes had a greater focus on lower level thinking skills.

This finding concerned us. Our faculty spend a great deal of time teaching pre-service teachers about equity and social justice. We wondered whether our pre-service teachers were continuing the practice of low expectations for diverse students. Therefore, we also analyzed the percentages of higher levels of literacy strategies in these classes to determine whether the work samples included higher-level literacy strategies along with the focus on Level 1. We coded literacy strategies that included all of the literacy modalities: reading, writing, speaking, and listening and different types of texts. Our analysis indicated that the work samples from classes with high levels of diversity had lower percentages of Levels 3 and 4.

Ashley, for example, taught in a high poverty middle school for the first work sample and a high poverty high school for the second work sample. Her middle school placement was a Title I school and her classroom had 100 percent ELLs. In her unit on Rome, Ashley had students spend most of their classroom time labeling maps, defining terms, and recalling terms using game-like formats. In her high school placement, which was also a Title I school, Ashley taught a unit on ancient China. Again, she had students spend most of their time defining terms and summarizing their reading. She had a few higher-level literacy skills in the second work sample, but not as high a percentage as other student teachers' work samples.

As we analyzed this information we found that Ashley had learned in multicultural education coursework to provide comprehensible input, to spend time teaching vocabulary, and to provide students with "hints" for answers to encourage student success. We believe that Ashley also needs to help students think more deeply about Rome and ancient China, and her failure to do so inhibited students from developing the kinds of thinking skills to "think historically."

Implications

We found many implications for our practice as teacher educators. Pre-service teachers in our program take a content area literacy course and a social studies

methods course prior to developing their work samples. They also take a second social studies methods class that emphasizes integration of literacy strategies while teaching the first work sample and before teaching the second work sample. Despite taking these courses, our students do not integrate literacy to promote higher levels of thinking with all students.

Thus, we believe we need to revise our content literacy course to help students understand literacy processes rather than "named strategies." For example, in the content literacy course students learned the strategy Think, Predict, Read, Connect (TPRC) (Ruddell, 2005) and were given a social studies example. We believe we need to spend more time explaining the need to give students the opportunity to think before reading, to predict, to read independently, and to connect what they learned to what they already knew. We also need to have students look for ways to incorporate many of these strategies in the content of their units rather than teaching them in isolation.

In addition to widening the ways we teach literacy strategies, we believe we should continue to work together as literacy and social studies instructors to identify shared vocabulary about literacy. For example, the literacy instructor teaches the Cornell method of taking notes on primary text documents, and the social studies teacher uses document questioning techniques. We believe it would be in the best interest of the students to identify those areas in which we are teaching similar literacy strategies but using different techniques or strategies.

The second implication is that pre-service teachers must be able to teach a balance of the levels of literacy strategies adjusting them as needed. In our courses, we taught students how to teach each of these levels, but we did not explicitly discuss when and how often to teach Level I strategies. We focused heavily on teaching vocabulary strategies in the content area literacy class, most of which were Level I strategies. However, we believe we should help pre-service teachers understand how students can use their new vocabulary in higher-level strategies as well. For example, we teach students to use the Vocabulary Four Square strategy (Lenski, Wham, Johns, & Caskey, 2011) to learn new words. We could also help pre-service teachers develop lessons that used these words in writing summaries and in preparing arguments.

We also found that preservice teachers did not teach students from high poverty schools and schools with high percentages of diversity the kinds of deeper comprehension levels that students need. Our pre-service teachers have been taught how to differentiate instruction for students who are reading below grade level and about ways to provide comprehensible instruction for ELLs. Our findings indicate that perhaps our pre-service teachers do not understand how to teach lessons that have students think deeply.

This finding led us to another issue. All of the pre-service teachers had students read a wide variety of texts: primary documents, textbooks, internet sites, political cartoons, and so on. Most of the lessons included support in reading the texts when necessary. For example, when Chuck found that his students could not read

the textbook, he implemented a graphic organizer that helped students understand how the textbook was organized, and he had students take notes using the graphic organizer. Many other pre-service teachers taught students how to take notes from their readings and how to summarize information. None of the pre-service teachers, however, varied the level of text difficulty for students with differing literacy abilities. We concluded that we need to demonstrate more explicitly how to use texts in this way.

Finally, our findings made us rethink our field placement program. Currently, pre-service teachers spend two days observing in schools in the fall term, student teach three days a week in the winter term, and student teach full time during spring term. Students are typically placed in the same school for fall and spring and spend winter term in a second placement. Our findings indicated that pre-service teachers benefit from teaching both work samples in the same class, especially for classes with high levels of poverty, diversity, and/or ELLs. Since one of the goals of our program is to prepare pre-service teachers for high-poverty schools, we need to think about ways that students can stay in the same placement for two consecutive terms.

Conclusions

The purposes of this study were to determine whether pre-service teachers used literacy strategies in their work sample and to determine the extent to which they used higher-level literacy strategies. Our findings indicated that all of the pre-service teachers used literacy strategies to varying degrees but the literacy strategies they used were embedded in content and looked different from the strategies they were taught in their content area literacy class. We also learned that pre-service teachers used higher-level literacy strategies, and these levels varied by the classroom context. Classes with higher levels of poverty and racial and linguistic diversity were taught lower-level strategies, and students in higher SES schools were taught higher-level strategies. We are pleased that the pre-service teachers are applying literacy strategies, and yet we are concerned that they are propagating the kinds of low expectations that have existed in high-poverty classrooms for decades. Our findings have prompted us to redouble our efforts to educate a new generation of teachers who are better prepared to successfully teach all students in all classrooms.

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