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Effects of reading instruction on learning outcomes in social studies: A synthesis of quantitative research ☆

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ABSTRACT

Quantitative research studies examining the effects of literacy instruction set in social studies classrooms (grades 6-12) on students' academic content learning and reading comprehension are synthesized using meta-analytic techniques. An extensive search of the scholarly literature between 1983 and 2013 yielded a total of twelve intervention studies that provided literacy instruction to secondary students within social studies classes and quantitatively measured content learning outcomes, reading comprehension, or both. Findings revealed that content learning outcomes were consistently improved with instruction that included text-processing activities such as summarizing and generating questions. While many social studies teachers do not provide explicit reading supports, in part because they perceive that the time needed to do so is prohibitive, the findings of this synthesis suggest that sound reading practices hold promise as a means through which teachers can help students better access social studies content, thus improving student learning outcomes. More rigorous quantitative research is needed to further understand the causal effects of literacy practices in social studies settings.

Introduction

As students progress out of elementary school to secondary schools, they are expected to transition from acquiring foundational reading skills to acquiring literacy skills and knowledge in specific content areas such as social studies (Gajria, Jitendra, Sood, & Sacks, 2007). This transition necessitates a significant instructional shift as the comprehension of informational text becomes increasingly vital to student academic success (Chall, Jacobs, & Baldwin, 1990). In particular, students frequently struggle with the dual demand of content and literacy mastery, especially as comprehension activities become more abstract and focused on critical thinking (Bulgren, Deshler, & Lenz, 2007). A growing body of research indicates, however, that interventions and instructional practices can help general education social studies teachers balance these dual demands, enabling students to master both social studies content knowledge and reading comprehension. While recent syntheses have reviewed research on reading interventions in social studies classes for students with disabilities, this

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study attempts to summarize extant research with the goal of improving content knowledge or reading comprehension through literacy instruction in social studies classes.

Content demands and reading instruction in social studies

By the time students reach the secondary grades, content instruction is increasingly specialized. Most secondary social studies teachers consider themselves content experts, with little pedagogical knowledge about reading instruction. This issue is exacerbated by the reading demands of content area texts that are often beyond the reading proficiency of many students (Shanahan & Shanahan, 2008, 2012). In secondary social studies classes, the use of difficult expository textbooks and challenging primary sources can make text inaccessible to many students. Clearly there is an interaction between text properties, reader, and comprehension (Yeari & van den Broek, 2011), with less skilled readers failing to recognize connections between successive paragraphs and whether the paragraphs are even related (Perfetti & Hart, 2001). Many adopted textbooks do not assist a reader in making connections because of ambiguous, distant referents or insufficient information to allow the reader to access background knowledge (Cirilo, 1981; Frederiksen, 1982). If a struggling reader is unable to make connections between prior and new information in such texts, comprehension suffers (Beck, McKeown, Sinatra, & Loxterman, 1991), which presents a considerable obstacle to social studies learning where the connections between past and present are crucial to making sense of historical information.

Commonly, secondary social studies teachers have had no formal reading courses as part of their undergraduate coursework (Ulusoy & Dedeoglu, 2011), and they may feel ill-equipped to assist struggling readers (Cantrell, Burns, & Callaway, 2008). In addition, social studies teachers, concerned that teaching reading strategies are an inefficient means to teach content knowledge, may resist the notion of sacrificing social studies content to make time for providing reading instruction (Conley, Kerner, & Reynolds, 2005; Moje, 2008). The issue of having insufficient time to address reading comprehension is reflected in the resounding teacher concern that social studies content is very broad, with many state standards that need to be "covered" (Cantrell et al., 2008; Caron, 2005). As a result, many secondary social studies teachers may rely on lecture and avoid regular use of text, or simply assign reading tasks to students with little regard for students' abilities to comprehend it (Beck & Eno, 2012; Bolinger & Warren, 2007; Russell, 2010). In a recent observation study of middle and high school social studies teachers' instructional practices, students across all observed social studies classes were required to read for only 10.4% of the total observed time (Swanson et al., 2015). When social studies teachers did require reading, they tended to expect students to do it independently with no explicit support from the teacher.

The Swanson et al. (2015) observation study demonstrates that, despite the crucial link of comprehension of informational or expository text to knowledge acquisition, social studies teachers frequently shy away from using text in their daily instructional practices. Comprehending expository text builds students' background knowledge, which in turn contributes to future learning (Dochy, Segers, & Buchl, 1999). Because of this reciprocal relationship, instructional practices intended to improve students' literacy practices in social studies classes may also improve their content knowledge. The recognition of this shared relationship is reflected in the emergence of the Common Core State Standards, which highlight the importance of academic, discipline-specific literacy, including literacy in the social studies (Evans & Clark, 2015; Kenna & Russell, 2014). Students are expected to identify key ideas from primary or secondary sources, analyze text structure, recognize competing perspectives of a historical event, and cite text evidence in support of a claim (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010).

Previous research

Interventions and instructional practices designed to improve learning outcomes for students with learning disabilities using social studies content have been examined in previous studies and syntheses (Gajria et al., 2007; Scruggs & Mastropieri, 2003). Findings suggest that practices such as providing a purpose for learning, engaging students in meaningful learning opportunities, and explicit instruction in the use of strategic tools that make learning concrete (e.g., mnemonics, graphic organizers) are associated with improved learning outcomes for students with learning disabilities (Scruggs & Mastropieri, 2003). However, many of these studies were conducted in one-on-one or small-group settings, or in special education classrooms. Instruction and materials were frequently supplemental to the normal social studies instruction, using expository text or materials beyond those found in the regular social studies curriculum.

Recently, Swanson et al. (2012) authored a meta-analysis and synthesis of reading interventions using social studies content for students with learning disabilities. They conducted a systematic search for studies in which at least one outcome measure assessed social studies content learning or reading comprehension related to social studies concepts. They found that, across grade levels, reading interventions (e.g. graphic organizers, mnemonics, guided notes) using social studies content are particularly effective for students with learning disabilities.

Wade (1983) synthesized the research on reading instruction for all students in secondary social studies classes. In her review of studies between 1950 and 1980, Wade found that reading instruction in secondary social studies classes was positively related to students' reading and study skills. Specifically, the most effective strategies involved direct instruction on reading strategies in social studies classes, along with purposeful reading during social studies instructional time. Frequently, students were taught to use several different strategies to improve reading comprehension. While the field of social studies research has grown substantially in the past 35 years, several issues that concerned Wade in 1983 continue to

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be relevant today. Specifically, (a) the disconnect between reading instruction in reading/English classes and content-based instruction in social studies classes; (b) the practice of relying solely on lecture and video to convey content knowledge rather than integrating text; and (c) the lack of rigorous experimental research on reading instruction for secondary social studies students.

The current synthesis

Many students in secondary social studies classes struggle with content knowledge acquisition and reading comprehension (U.S. Department of Education, IES, National Center for Education Statistics, 2013). While recent syntheses have analyzed the influence of reading instruction on social studies students with learning disabilities, few schools have enough resources to provide intervention support outside the general education setting that is specifically focused on social studies content. It is germane therefore to more fully understand how reading instruction in general education settings impacts all students. Particularly relevant is the Swanson et al. (2012) finding that struggling students in grades 7 through 12 experienced even greater benefit when provided reading interventions using social studies content. Therefore, the purpose of this synthesis is to extend the findings of previous syntheses and report both descriptive data and quantitative effects of literacy interventions provided within general education middle and high school social studies instruction on reading comprehension and/or content learning. The authors seek to address the following research questions: What features of research are reflected in this body of literature? What outcomes related to acquisition of content knowledge and/or reading comprehension result from instruction delivered to students in the general education social studies setting?

Method

Selection of studies

Studies were identified through a multi-step process. We first conducted an electronic search of ERIC, Academic Search Complete, Education Full Text and PsychINFO for studies published over 20 years (1983–2013). Key search terms for secondary grade levels (*middle school*, *high school*, *secondary school*) were used in combination with key social studies terms (*social sciences*, *social studies*) and key reading terms (*comprehension in reading*, *reading correlation with other subjects*) to capture relevant articles. A total of 239 abstracts identified were analyzed based the following criteria:

1. Participants were enrolled in grades 6–12 and were 11–18 years old.
2. The intervention was implemented in a general education social studies class.
3. The intervention occurred within regular instructional class time and instructional day. Studies were excluded if the intervention occurred through one-on-one tutoring sessions or small groups outside class time (e.g. Johnson, Reid, & Mason, 2012).
4. A general education teacher implemented the intervention.
5. Less than 50% of the student sample was identified as having learning disabilities.
6. Acceptable research designs were experimental or quasi-experimental.
7. Studies were conducted in the United States.
8. At least one dependent variable measured a learning outcome (content acquisition and/or reading comprehension).
9. The study was published in a peer-reviewed journal.

Upon review of the 239 abstracts, eight studies met the established criteria for inclusion in this synthesis. Reference chasing yielded an additional four articles, for a total of 12 studies meeting criteria for inclusion in this synthesis. Journals included Cognition and Instruction, Exceptional Children, International Research in Geographical and Environmental Education, The Journal of Experimental Education, Journal of Educational Psychology, Journal of Learning Disabilities, Literacy Research and Instruction, Reading Research Quarterly, and Remedial and Special Education.

Coding procedures

A comprehensive coding document was used to organize essential information about each study. The document was based on code sheets used in previous studies (Edmonds et al., 2009; Vaughn, Linan-Thompson, & Hickman, 2003), and reflects elements from the evidence standards as established by the *What Works Clearinghouse* (U.S. Department of Education, Institute of Education Sciences (IES), 2014). The essential information coded included the following: (a) participants; (b) design methodology; (c) intervention and comparison information, including duration and intensity of intervention; (d) clarity of causal inference; (e) measures; and (f) findings. The coding sheet used a combination of forced-choice items (e.g., research design, assignment method, fidelity of implementation), open-ended items (e.g., age as described in text, duration of intervention, selection criteria), and written description of the treatment condition. Articles were double-coded by the authors and inter-rater agreement was 96%. When differences in coding arose, the authors conferred until consensus developed.

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Effect size calculation

We calculated effect sizes for treatment-comparison studies that provided sufficient statistical information (e.g., means, standard deviations, sample sizes). Effect sizes were calculated accounting for pretest differences, as seen in previous syntheses (e.g., Edmonds et al., 2009; Wanzek, Wexler, Vaughn, & Ciullo, 2010). Hedge's *g*, a variation on Cohen's *d*, was used to calculate effect sizes because it is less prone to error with small sample sizes than other effect size calculations (i.e., $n < 30$; Hedges & Olkin, 1985). For this study, we calculated Hedge's *g* as

$$g = J\frac{\overline{X}_1 - \overline{X}_2}{S_{\text{pooled}}}.$$

where the difference between the mean score of students in treatment ($\overline{X}_1$) and mean score of students in the comparison ($\overline{X}_2$) are divided by the pooled standard deviation of all groups in the design, and multiplied by a correction factor *J* (Hedges, 1981; Olejnik & Algina, 2000). We approximated *J* using

$$J = 1 - \frac{3}{4df - 1}$$

where the *df* are the degrees of freedom to estimate S_{pooled} (Borenstein, 2009). The pooled standard deviation of all groups was calculated

$$S_{\text{pooled}} = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}.$$

where n_1 and n_2 represent the number of participants and S_1 and S_2 represent the standard deviations in the treatment and control groups.

In general, we consider effect sizes on academic outcomes in general education research between zero and 0.15 to be small, between 0.15 and 0.45 medium, and above 0.90 large (Lipsey et al., 2012). There is some evidence, though, that outcomes in general education research may differ by age groups and typical effect sizes may actually be smaller than these for secondary students (Hill, Bloom, Black, & Lipsey, 2008).

Results

Study features

Seven experimental (Berkeley, Marshank, Mastropieri, & Scruggs, 2011; Cantrell, Fusaro, & Dougherty, 2000; Gersten, Baker, Smith-Johnson, Dimino, & Peterson, 2006; Miller, Miller, & Rosen, 1988; Nokes, Dole, & Hacker, 2007; Taylor & Beach, 1984; Vaughn et al., 2013), and five quasi-experimental (Hinde et al., 2007; Hinde, Osborn Popp, Jimenez-Silva, & Dorn, 2011; Horton, Lovitt, Givens, & Nelson, 1989; Reisman, 2012; Twyman, McCleery, & Tindal, 2006) studies examined reading interventions provided within general education middle and high school social studies classes. In all, the 12 studies included 3448 participants, ranging from grades six to 11. Interventions ranged in duration from three to 84 sessions, with sessions ranging from 20 to 52 min in length. Effects of the 12 included studies are presented by type of outcome measured within the study; content acquisition refers to measures that directly assessed student learning of social studies content and concepts, while reading comprehension measures assessed student comprehension of text not necessarily related to specifically taught content. Table 1 provides a summary of study features.

Table 1
Study features.

Study	*N*	Grade	Treatment frequency	Duration	Reading material
Berkeley et al. (2011)	57	7th	Daily, 20 min	3 Days	Textbook
Cantrell et al. (2000)	89	7th	2–3 Times per week	~8 Months	Textbook
Gersten et al. (2006)	76	7th–8th	Daily, 41–52 min	4–5 Weeks	Textbook, magazines, *The Century*
Hinde et al. (2007)	1316	6th–8th	3–5 Lessons, 1–3 class meetings each	3–4 Months	*GeoLiteracy* curriculum
Hinde et al. (2011)	748	7th–8th	3–5 Lessons, lasting 1–3 class meetings each	3–5 Months	*GeoLiteracy* curriculum
Horton et al. (1989)	19	9th	2 Times	1 Day	Textbook
Miller et al. (1988)	64	7th	2 Times per week, 60 min	8 Weeks	NR
Nokes et al. (2007)	246	11th	10 Lessons, 60 min	15 Days	Textbook, primary sources
Reisman (2012)	236	11th	2–3 Times per week	6 Months	Primary sources
Taylor and Beach (1984)	114	7th	1 Time per week, 60 min	7 Weeks	Textbook
Twyman et al. (2006)	54	8th	17 Lessons, 46 min	5 Weeks	Textbook, resource documents, newspaper
Vaughn et al. (2013)	419	8th	Daily	30 Days	Textbook, primary sources

Note. *N*=number of participants; NR=not reported.

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Table 2
Summary of study findings.

Study description	Outcome measure	Measure properties	Finding	
Berkeley et al. (2011)				
T: Teacher explicitly taught, modeled, and guided students in the use of a self-questioning strategy	Content knowledge	Researcher developed, unstandardized MC	T versus C ES=0.87[a]	
C: Teacher asked students to read textbook and remember as much as they could	Content knowledge	Researcher developed, unstandardized open-ended	ES=1.52	
Cantrell et al. (2000)				
T1 (Adaptation of K–W–L strategy): Students wrote in journal what they knew (K) before reading	Content knowledge	Teacher constructed, unstandardized matching, MC	T1 versus T2	
T2 (Adaptation of SQ3R strategy): Students were instructed to turn headings and subheadings into questions, and answer their questions in a journal			ES=0.97	
Gersten et al. (2006)				
T: Before reading, video selections (2- to 3-min segments) were shown, peer discussion activities during reading to foster active content processing)	Content knowledge	Researcher developed, unstandardized vocabulary matching	T versus C ES=0.48	
C: Before reading, videos (12- to 15-min segments) were shown, students read and worked on questions and activities independently)	Content knowledge	Researcher developed, open-ended	ES=0.96	
	Content knowledge	Researcher developed, interview	Ss with LD ES=0.75	
Hinde et al. (2007)				
T: Teachers implemented lessons from *GeoLiteracy for English language learners*. Lessons included vocabulary instruction, scaffolding techniques, and ongoing reading assessments	Reading comp.	Researcher developed, unstandardized MC	T versus C	
C: Students received business as usual instruction in Geography content			6th grade ES=0.32 7th grade ES=0.42 8th grade ES=0.46	
Hinde et al. (2011)				
T: Teachers implemented lessons from *GeoLiteracy for English language learners*.	Reading comp.	Researcher developed, unstandardized MC	T versus C	
C: Students received business as usual instruction in Geography content			7th grade ES=−0.02 *ns* 8th grade ES=0.21	
Horton et al. (1989)				
T1: Computerized Study Guide—students read text on computer, completing a study guide and responding to comprehension questions. Then students were assessed and received corrective feedback	Reading skills	Researcher developed, unstandardized MC	T1 versus T2	
T2: Note taking condition—students read a passage for 15 min and were asked to take notes however they wanted			Not calculated[b]	
Miller et al. (1988)				
T (Modified Reciprocal Teaching): Students collaborated in small groups to comprehend text. Students took turns teaching by choosing key statements, summarizing, clarifying, and making predictions	Reading comp.	Researcher developed, unstandardized MC	T versus C ES=1.14	
C: Students received business as usual instruction	Writing fluency	Researcher developed, unstandardized timed writing	ES=1.10	
Nokes et al. (2007)			T2 versus T1	T2 versus T3
T1: Traditional textbook, content focused	Content knowledge	Researcher developed, unstandardized MC	ES=1.43	ES=1.36
T2: Multiple texts, content focused			T1 versus T3	T2 versus T4
T3: Traditional textbook, heuristics focused			ES=−0.01 *ns*	ES=0.84 *ns*
T4: Multiple texts, heuristics focused			T1 versus T4 ES=−0.55 *ns*	T3 versus T4 ES=0.51 *ns*
Reisman (2012)				
T (Read Like a Historian): Teachers provided background knowledge, then presented central historical question. Students read primary sources related to the central question, were provided explicit instruction in strategy instruction for reading historical texts, and participated in class discussion	Reading comp.	Gates-MacGinitie, standardized	T versus C ES=0.44	
C: Teachers relied on classroom textbook, with little historical inquiry	Content knowledge	Researcher developed, standardized MC	ES=0.36	

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Table 2 (*continued*)

Study description	Outcome measure	Measure properties	Finding	
Taylor and Beach (1984)				
T1 (Experimental Reading Instruction): Students were taught how to write a hierarchical summary of social studies text. Students created an outline of key ideas, generated main idea statements, and wrote 1-2 supporting ideas. At the end of each text, students wrote a short summary	Content knowledge	Researcher developed, unstandardized, unfamiliar content writing task	T1 versus C ES=0.80 *ns* T1 versus T2 ES=1.29	T2 versus C ES=−0.43 *ns*
	Content knowledge	Researcher developed, unstandardized, familiar content writing task	T1 versus C ES=0.80 *ns* T1 versus T2 ES=−0.13 *ns*	T2 versus C ES=0.97 *ns*
T2 (Conventional reading instruction): Students received directed reading lessons over same text as experimental group. After reading, students completed questions over main ideas and details from text. Following a brief class discussion, students reported everything they could remember to a partner	Content knowledge	Researcher developed, unstandardized, unfamiliar content open-ended	T1 versus C ES=0.79 T1 versus T2 ES=0.11 *ns*	T2 versus C ES=0.67
	Content knowledge	Researcher developed, unstandardized, familiar content open-ended	T1 versus C ES=0.78 T1 versus T2 ES=0.66 *ns*	T2 versus C ES=0.09 *ns*
C: Students received no reading instruction beyond what was business as usual	Content knowledge	Researcher developed, unstandardized writing task—1 week later	T1 versus C ES=1.24 T1 versus T2 ES=0.68	T2 versus C ES=0.39
T: Students were explicitly taught concepts and problem-solving strategies using content-based instruction (CBI)	Content knowledge	Researcher developed, unstandardized MC	T versus C M ES=0.07 *ns*	
	Content knowledge	Researcher developed, unstandardized vocabulary matching	M ES=0.98	
C: Content was presented using lectures and reading	Content knowledge	Researcher developed, unstandardized writing	M ES=1.23	
Vaughn et al. (2013)				
T: Team-based learning approach, combined with explicit instruction on essential vocabulary words, and frequent reading and discussion of content-based text	Reading comp.	Gates-MacGinitie, standardized	T versus C ES=0.20	
C: Students received business as usual instruction	Reading comp.		ES=0.30	
	Content knowledge	Researcher developed, standardized MC		
		Researcher developed, standardized MC	ES=0.17	

Note. T=treatment; C=comparison; MC=multiple choice; ES=effect size; K–W–L=know, want to know, learned; SQ3R=survey, question, read, recite, and review; Ss=students; LD=learning disabilities; comp.=comprehension; *ns*=not significant ($p > 0.05$); T1=treatment 1; T2=treatment 2; T3=treatment 3; T4=treatment 4; M ES=mean effect size.

[a] Effect sizes presented in this table are statistically significant, ($p < 0.05$) unless indicated by *ns*.

[b] In Horton et al. (1989), outcomes were presented disaggregated across classes and across disability status while sample sizes were not disaggregated, so it was not possible to accurately calculate effect sizes.

Content acquisition

Six of the 12 studies included literacy practices in social studies instruction with a focus on mastery of content as an outcome variable (Berkeley et al., 2011; Cantrell et al., 2000; Gersten et al., 2006; Nokes et al., 2007; Taylor & Beach, 1984; Twyman et al., 2006). All six of the studies measured content acquisition outcomes with researcher-developed measures, with four of these (Cantrell et al., 2000; Gersten et al., 2006; Nokes et al., 2007; Taylor & Beach, 1984) reporting the technical adequacy of their measures. No standardized or norm-referenced measures were administered. Table 2 provides a summary of study findings, including calculated effect sizes.

In an experimental study, Berkeley et al. (2011) investigated the effectiveness of a self-questioning strategy on seventh grade students' ability to recall social studies content. A total of 57 seventh grade students were randomly assigned to either experimental or comparison conditions. Using sections of the state adopted social studies textbook, the classroom teacher explicitly taught, modeled, and guided students in the use of a self-questioning strategy with the experimental group. Students were given a prompt sheet that contained strategy steps, examples for each step, and suggestions for what else to

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do if questions could not be answered. The strategy steps instructed students to (a) "turn headings and subheadings into questions"; (b) "read the section"; (c) "stop!"; and (d) "try to answer your question." Students were also provided strategy-monitoring sheets on which to record their questions and indicate whether they had been able to answer them. The strategy-monitoring sheets were intended to help students recognize when their comprehension was faltering and require them to utilize strategies found on the prompt sheet: (a) "re-read the section", (b) "check your understanding of vocabulary", (c) "look for other text structures (e.g., maps, graphs, pictures) that can help you", and (d) "write down questions to ask your teacher." The comparison condition received typical social studies instruction, in which teachers told students to read a number of sections from the adopted textbook and remember as much as they could. Students in the experimental condition outperformed students in the comparison condition on a multiple-choice content posttest (ES=0.87) and an open-ended content assessment (ES=1.52).

Cantrell et al. (2000) conducted an experimental study in which they compared the effect of two types of writing on the content learning of seventh graders (n=89). Both experimental conditions required students to use reading strategies to process information from their regular social studies textbook and record knowledge in a journal. The first experimental condition utilized an adaptation of the K–W–L strategy; students wrote what they already knew (K) about a topic before beginning to read. Next, they recorded what they wanted to know (W), and after reading the text they wrote about what they learned (L). The second experimental condition utilized an adaptation of the SQ3R (survey, question, read, recite, and review) strategy (Moore, Moore, Cunningham, & Cunningham, 1998), in which students used the SQ3R protocol to summarize text in journals. Like the Berkeley et al., 2011 study, students in the SQ3R condition were asked to turn chapter headings and subheadings into questions after they read a portion of the textbook, but then try to answer the questions in their own words in their journals. The K–W–L group outperformed the SQ3R group on a teacher-constructed posttest over the content (ES=0.97).

Taylor and Beach (1984) examined the effects of hierarchical summary tasks on seventh and eighth grade students' ability to recall social studies content using a quasi-experimental research design. Participants were 114 suburban junior high students, with two classes randomly assigned to two experimental conditions taught by one teacher and a second teacher instructing a comparison class. The first experimental condition focused on text structure; students were explicitly taught how to write a hierarchical summary of social studies text. Students began by creating an outline to identify key ideas and then generated main idea statements per section of text that included 1–2 supporting ideas. The outline activity culminated in a full written summary of text. The second experimental condition consisted of conventional reading instruction using the same text. Students in this condition wrote answers to questions about main ideas and details from the text, participated in a brief whole class discussion over the questions, and then reported to a partner everything they could remember about the text. The third group of students served as a comparison and received no explicit reading instruction. To assess whether the learned skills would transfer to other knowledge domains, students read a passage containing relatively unfamiliar information. The hierarchical summary group performed better on a recall measure than did the conventional reading group (ES=1.47) or the comparison (ES=0.85). However, on a passage over information relatively familiar to students, the hierarchical summary and conventional groups did not differ significantly from each other. On this more familiar reading material, the hierarchical summary group performed better than the comparison (ES=0.76), while the conventional group yielded the greatest effects when compared to the comparison (ES=1.13) on the researcher-developed recall measure. On the researcher-developed writing task measuring students' ability to recall and apply content one week later, the hierarchical summary group outperformed both the comparison (ES=0.71) and the conventional group (ES=0.34).

In a quasi-experimental study, Twyman et al. (2006) examined the effects of a set of problem-solving strategies on social studies content knowledge and corresponding vocabulary knowledge acquisition. Using a two-group repeated-measures design, students in the experimental and comparison groups received instruction over the same content; the experimental group use concept-based instruction (CBI), focused on conceptual understandings of social studies content, while comparison instruction was more traditional (i.e., textbook-based lecture and discussion centered on learning facts). Through explicit instruction on social studies thematic concepts (e.g., civilization) and additional readings on conceptual topics beyond textbooks, researchers provided means for students to categorize social studies knowledge for later recall. Declarative content knowledge was assessed using two factual knowledge assessments and three vocabulary assessments, along with five problem-solving essays measuring student problem-solving skills. While there were not statistically significant differences between the experimental and comparison groups across the factual knowledge assessments, there were significant differences favoring the experimental group across vocabulary assessments (Mean ES=0.98) and problem-solving essays (Mean ES=1.23).

Gersten et al. (2006) used an experimental design to compare two approaches to teaching history in 7th and 8th grades using the documentary *Eyes on the Prize* (DeVinney, 1991) and peer discussion. Both experimental and comparison conditions used the same curricular content (i.e. the documentary and brief primary source readings). In the experimental condition the teachers broke the documentary into short 2–3 min segments and utilized partner activities and discussion. These activities were designed to further engage students and enhance processing of content while partner reading primary source documents. While the students in the comparison condition also viewed the documentary and read the same texts, reading and related activities were completed independently. There was no partner discussion in the comparison condition. Students in the experimental condition outperformed students in the comparison on the vocabulary-matching task (ES=0.48) and the content written exam (ES=0.96).

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Nokes et al. (2007) used an experimental design to examine the effects of teaching 11th grade students ($n=246$) to use heuristics while reading historical texts over 15 days of instruction. Students were randomly assigned to one of four experimental conditions: (a) traditional textbooks and content-focused instruction, (b) traditional textbooks and heuristic-focused instruction, (c) multiple texts and content-focused instruction, or (d) multiple texts and heuristic-focused instruction. The content-focused instruction students received reading lessons designed to help them learn historical content of text. The heuristic-focused instruction students received reading lessons designed to help them view documents as evidence and develop three heuristics (i.e., sourcing, corroboration, contextualization). Content knowledge was measured by a 40-question, multiple-choice assessment. Students who read multiple texts and received content-focused instruction outperformed those who only read from the traditional textbook, regardless of whether the instructional focus was on learning content (ES=1.43) or understanding heuristics (ES=1.36).

Reading comprehension

Four studies implemented interventions in social studies classes with a focus on reading comprehension outcomes (Hinde et al., 2007, 2011; Horton et al., 1989; Miller et al., 1988). While all four of the studies measured outcomes with researcher-developed measures, one of the four studies (Hinde et al., 2011) used an assessment that correlated at a moderately high level (0.50, 0.62) with the state standardized reading assessment. No standardized or norm-referenced assessments were administered. See Table 2 for a summary of study findings.

Two quasi-experimental studies (Hinde et al., 2007, 2011) examined the effects of a set of established social studies lessons from the *GeoLiteracy for English language learners* curriculum on the reading comprehension of middle school students. This standards-based curriculum linked geography content to reading and writing through vocabulary instruction, scaffolding techniques, and ongoing assessment of reading skills. Reading skills examined included cause and effect, summarizing, identifying main idea, sequencing, drawing conclusions, following directions and interpreting graphic displays. The geography content varied, as teachers were given a list of lessons from which to choose; regardless of the content, however, the emphasized reading skills remained constant. A comparison condition received typical geography instruction with no reading focus. Across the middle grades, results indicated the reading achievement of students who were taught using the integrated geography-literacy curriculum either improved or maintained. In the first study, Hinde et al. (2007) found significant effects in 6th (ES=0.32), 7th (ES=0.42), and 8th (ES=0.46) grades. In the replication study (Hinde et al., 2011), effects were statistically significant for 8th grade students (ES=0.21), however, for 7th grade students, the effects were not statistically significant.

Horton et al. (1989) used geography content when they examined the effects of using a computerized study guide on the reading comprehension of students enrolled in two ninth-grade world geography classes ($n=19$). In the first experimental condition, students were instructed to carefully read text, complete a computerized study guide, answer questions about the text, and then were assessed over content in the text. Assessment results were immediately available for teachers to analyze and teachers provided corrective feedback by giving students a hard copy of the assessment with the answers. In a second experimental condition, students read a less difficult passage, took notes in whatever way they preferred, and then took an assessment over content in the text. Results indicated that students in the computerized study guide experimental condition outperformed the note taking experimental condition in both geography classes. However, while means and standard deviations were reported and disaggregated across experimental conditions and disability status, sample sizes were not reported, and therefore we were unable to calculate effect sizes. Pooling the data without accurate sample sizes might have created biased pooled means and standard deviations. In addition, it was not possible to calculate effect sizes for the disaggregated groups without knowing disaggregated sample sizes.

Miller et al. (1988) examined how a modified reciprocal teaching (MRT) model of instruction impacted the reading comprehension of seventh grade social studies students ($n=64$) using an experimental design. Students in the MRT experimental condition participated in four reciprocal teaching activities: summarize, question, clarify, and predict (Palinscar & Brown, 1984). Students in the MRT condition worked in small groups to read and comprehend a portion of social studies text. Students also identified key words and phrases to be learned from text (Winograd, 1984). Students took turns "teaching" the group, assisting the group in choosing key words and phrases, summarizing information, clarifying, and making predictions about what would happen next. College-age psychology students facilitated learning in the small groups. Reading comprehension was measured for each session through a 10-question formative multiple-choice assessment while writing fluency was measured through a 3-min timed writing assessment. Students in the two comparison conditions, taught by the same teacher, received typical instruction over the same content. In one comparison condition, students completed the formative multiple-choice assessments and timed writing samples each day. Results indicated significant differences favoring the MRT condition existed on the comprehension assessments (ES=1.14) and writing fluency (ES=1.10).

Content acquisition and reading comprehension

Two studies (Reisman, 2012; Vaughn et al., 2013) examined the effects of reading interventions set in social studies classes on both the acquisition of social studies content knowledge and reading comprehension. Both studies used a

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standardized assessment of reading comprehension and researcher-developed standardized measures of content knowledge. The findings of these studies are included in Table 2.

Reisman (2012) conducted a quasi-experimental study investigating the effects of the *Reading Like a Historian* (RLH) curriculum on 236 11th grade students through their US history class. The RLH curriculum requires students to utilize their background knowledge to question and then reconcile historical accounts from multiple primary source documents. All lessons in the experimental condition began with explicit strategy instruction through modeling and student practice, followed by work in small groups, and a culminating whole-class discussion. The 83 RLH lessons occurred 2–3 times per week over a six-month period. Teachers of the comparison condition continued with typical social studies instruction, which included the same content but no RLH strategies or lessons. A content acquisition measure incorporated 30 multiple-choice released items from two standardized state exams in US history while the Gates-MacGinitie Reading Test (GMRT; MacGinitie, MacGinitie, Maria, & Dryer, 2000) was used to measure reading comprehension. A main effect for the experimental condition was found on the content acquisition measure (ES=0.36) as well as the GMRT (ES=0.44).

Vaughn et al. (2013) conducted an experimental study investigating the effects of a text-focused instructional approach with 419 eighth graders in general education US history classes. Employing a within-teacher design, teacher participants taught approximately 50% of their classes using the experimental components and continued with typical instruction for the other 50% of their classes for a comparison condition. Components of the intervention included activities to access or build background knowledge, vocabulary instruction, a text-focused approach to reading instruction, inference making, and team-based learning. The primary goal of team-based learning activities (TBL; Michaelsen & Sweet, 2008) is to increase student acquisition and depth of content knowledge. However, Vaughn and colleagues adapted TBL to focus on improved reading comprehension as well. Students were assigned to teams for several activities, including a culminating activity that applied knowledge acquired through the unit of study. The GMRT was used to assess reading comprehension and a standardized, researcher-developed multiple-choice measure assessed content acquisition. Students in the intervention condition significantly outperformed those in the comparison classes on both the content acquisition measure (ES=0.30) and the GMRT (ES=0.20).

Discussion

The primary purpose of this synthesis was to report both descriptive data and quantitative effects of reading instruction provided within middle and high school general education social studies classes on reading comprehension and content learning. We prioritized secondary students because of the critical content acquisition demands in the secondary grades and because previous research has suggested that interventions provided to older students in social studies yield higher effect sizes than at the lower grades (Swanson et al., 2012). We recognize that typical practice in social studies classes may not involve reading instruction (Bolinger & Warren, 2007; Paxton, 1999) and sought to more fully understand the effect of reading instruction on the reading comprehension and content knowledge acquisition of secondary social studies students.

Study features

Overall, the number of available studies for analysis was relatively small ($n=12$). These studies represented a range of intervention approaches that included explicit vocabulary instruction (Hinde et al., 2007, 2011; Vaughn et al., 2013), explicit instruction and supports for various reading comprehension strategies (Berkeley et al., 2011; Hinde et al., 2007, 2011; Reisman, 2012), explicit instruction in challenging the content of text (Nokes et al., 2007; Reisman, 2012), support to help students organize their prior knowledge and knowledge acquired while reading (Cantrell et al., 2000; Horton et al., 1989; Taylor & Beach, 1984; Twyman et al., 2006; Vaughn et al., 2013), and modified reciprocal teaching and collaborative reading activities (Gersten et al., 2006; Miller et al., 1988; Vaughn et al., 2013). A larger number of studies examined reading practices in relation to a measure of social studies content acquisition ($n=6$) with a smaller number ($n=4$) examining reading practices in relation to measures of reading comprehension. Only two studies simultaneously examined social studies reading practices in relation to measures of both content acquisition and reading comprehension.

Overall, implementing reading instruction in general education social studies classes was associated with improved social studies learning outcomes and reading outcomes. In standards-based educational systems, student learning of content-specific knowledge cannot be ignored. Many social studies teachers currently shy away from the use of text (Swanson et al., 2015) and avoid providing explicit reading supports because they fear the time required to introduce reading supports is prohibitive. For decades the claim has been that content area instruction can improve reading achievement (Moore, Readence, & Rickelman, 1983). However, the results of this synthesis reinforce the suggestion of a strong relationship between reading instruction and content acquisition.

The eight studies that included measures of content acquisition are of particular importance to practicing social studies teachers. These studies shared several characteristics. First, they all utilized reading instruction embedded in social studies classes as a means for enhancing social studies content acquisition. Rather than a dichotomous approach, abandoning delivery of content to provide explicit reading support, the teachers instructed the participants how to use reading skills to access the content. Thus, reading was used as a tool with which students could more successfully learn social studies. Second, while each experimental condition was unique, all shared the common goal of teaching students to more successfully navigate and extrapolate key ideas from text. Whether students were taught to summarize text, generate

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questions, organize their ideas using a graphic organizer, all emphasized the active processing of information through text. Finally, general education social studies teachers were the implementers of these instructional practices, suggesting feasibility. The findings of these studies are important, because they suggest that the benefits of reading instruction on reading skills need not occur at the expense of required content knowledge.

Implications for practice

The findings of this synthesis suggest that sound reading practices hold promise as a means through which social studies teachers can help students to better access content. Social studies teachers should therefore not avoid including literacy strategies as part of their social studies instruction. Social studies texts include a structure and style unique to the genre, and social studies teachers can empower their students by helping them become more adept consumers of these types of texts.

Explicit vocabulary instruction remains an effective way to promote academic content knowledge and reading comprehension (see Hinde et al., 2007, 2011; Vaughn et al., 2013). Improved vocabulary knowledge enables students to process complex academic texts with greater fluency, allowing them to focus their cognition more broadly and performing higher level tasks such as organizing content knowledge in historical concepts, themes, and questions (Bargh & Ferguson, 2000; Barrett, Tugade, & Engle, 2004).

Social studies information is often taught as a set of isolated facts or events (Scruggs & Mastropieri, 2003; Beck & Eno, 2012) that can make the content feel abstract or unconnected to students; however, strategies that help them organize both prior knowledge and new knowledge gleaned from reading texts can be effective (see Cantrell et al., 2000; Horton et al., 2011; Taylor & Beach, 1984; Twyman et al., 2006; Vaughn et al., 2013). Strategies such as these help students distinguish between important and unimportant information and make connections to background knowledge. For example, Twyman et al. (2006) found that teaching history through thematic concepts (e.g., civilization) rather than through specific topics (e.g., Mesopotamia, Indus River Valley) positively influenced students' vocabulary knowledge and content knowledge. If students can better grasp how facts and ideas relate to each other they seem better able to retrieve knowledge.

Explicit instruction in specific reading strategies may influence students' social studies content knowledge (see Berkeley et al., 2011; Nokes et al., 2007; Reisman, 2012) and reading comprehension (see Hinde et al., 2007, 2011; Reisman, 2012). The use of reading strategies helped students distinguish important from unimportant ideas in text, while also helping them self-regulate their own reading comprehension (e.g., self-questioning in Berkeley et al.; Read Like a Historian in Reisman). In addition, strategies that encourage students to challenge authors (e.g., Nokes et al.; Reisman) create active readers willing to challenge the author's perspective and historical content of texts. Such strategies can engage students, as they begin to see text as fallible and worthy of grappling with (Beck & McKeown, 2001).

Finally, there is growing evidence that structured peer discussion and collaborative reading activities can improve the acquisition of content knowledge (Gersten et al., 2006; Vaughn et al., 2013) and reading comprehension (Miller et al., 1988; Vaughn et al., 2013). Collaborative activities foster student motivation (Gersten et al., 2006) while providing students with immediate feedback from peers (Vaughn et al., 2013). When discussing academic content with each other, students tend to use less formal language and rephrase their understanding in their own words. This type of conversation can be of great benefit to students, as teacher-talk can be more expert-like and difficult to understand (Eun, 2010; Klingner, Vaughn, & Schumm, 1998).

Limitations

As is the case with all syntheses, the findings of this synthesis are limited by the quality of the research included. A majority of the studies ($n=10$) utilized research-developed, unstandardized measures of social studies content acquisition and/or reading comprehension and boasted moderate to large effect sizes. However, while these data are encouraging, researcher-developed measures tend to indicate changes in learning that are more proximal to the particular practices taught in the experimental condition and do not provide the same confidence derived from more distal measures that may be less closely aligned with the immediate goals of the experiment (Swanson, Hoskyn, & Lee, 1999). In light of this, the findings of Reisman (2012) and Vaughn et al. (2013) on standardized measures of reading comprehension are of particular significance. However, the paucity of standardized measures and wide use of researcher-developed measures require that findings of this synthesis be considered with a degree of caution.

Only 7 of the 12 studies used random assignment to assign participants to conditions. Random assignment enables researchers to make more causal claims, positing that posttest differences between randomly assigned groups are likely to be due to the experimental condition, rather than unmeasured (and unseen) confounds. Quasi-experimental approaches may come close to making causal claims, however, in these designs it is more likely that unmeasured confounds may be responsible for group differences rather than experimental effects. In addition, few studies in this synthesis reported fidelity of implementation data. Without fidelity of implementation data it is difficult for the reader to discern the degree to which participants in the experimental conditions adhered to the intervention program as described by researchers (O'Donnell, 2008). Finally, few studies described the nature of the comparison condition in much depth. There is wide variance in comparison (i.e., business as usual) conditions across sites and the nature and quality of these conditions might have a strong influence on the strength of effect sizes in favor of experimental conditions (Lemon, Fuchs, Gilbert, & Fuchs, 2014).

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Implications for future research

Taken as a whole, these studies indicate that reading instruction embedded in social studies classes has positive effects for secondary students. Importantly, there is no extant evidence that reading instruction in social studies classes has negative or harmful effects for students' social studies content knowledge. However, more rigorous quantitative research examining reading practices in these settings is warranted. Studies which compare the effectiveness of specific instructional practices with clearly defined fidelity of implementation data, well defined comparison conditions, and standardized measures of content knowledge and reading comprehension may help social studies educators make important decisions about program efficacy.

As researchers attempt to understand "What works" for students in social studies education, they might consider the importance of rigorous replication studies (Makel & Plucker, 2014). We did not find any replication studies that fit our search criteria. Increased use of replication studies in social studies may enable researchers to create more reliable and trustworthy understandings of how students' reading comprehension and content knowledge can be positively influenced in social studies classes. The studies outlined in this synthesis, and methodological guidelines for rigorous research provided by the What Works Clearinghouse (U.S. Department of Education, IES, 2011) may provide excellent starting points for educational researchers interested in literacy instruction and secondary social studies students.

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