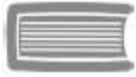




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Connecticut Association for Reading Research



About the Publication

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***CARReader* Call for Manuscripts**

We invite all those interested in literacy research to submit articles for publication. We request scholarly articles, grounded in theory and research that are of interest to both researchers and teachers. We invite a wide range of submissions focusing on critical issues, current research and/or instructional strategies as they relate to literacy issues on the national level and in the state of Connecticut.

We invite:

- reviews of the literature
- graduate /field studies
- action research
- position statements

The *CARReader* is a peer-reviewed publication that is published once a year in the fall. Its contents do not necessarily reflect or imply advocacy or endorsement by CARR, its officers, or members. Inquiries and submissions should be directed to the *CARReader*, Judith Stone Moeller, by sending an email to judystone55@aol.com.

Guidelines for Publication

Publications are limited to 2800 words or fewer and must include a title, author, statement of purpose, review of the literature, methodology, summary of findings, discussion and/or recommendations, conclusions, and references. Manuscripts should be typed double-spaced with ample margins for reviewer comments. All manuscripts should be formatted using APA 6th Edition. The author needs to submit both a hard copy manuscript and an electronic version compatible with Microsoft Word 2000. To be considered for the Fall 2014 volume, the manuscript must be submitted for review before June 30, 2014.

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As a new school year begins, teachers, literacy specialists, and administrators look forward to continuing their professional growth and learning. They strive for excellence with a shared vision focused on how they can help all children achieve at high levels. The Common Core State Standards are in place in districts across the state and technology is being integrated into lessons across the disciplines. Teachers are continually looking for new ways to engage students in their literacy lessons. The *CARReader* plays an important role in helping passionate and dedicated educators achieve their goals.

Twenty-first century instruction requires teachers and students to work more collaboratively than ever before. In order for our students to be prepared for college and careers, we need to work smarter not harder! What are some of the effective instructional strategies currently being used within our classrooms? What does the research say?

We are confident that the articles in this issue of the *CARReader* will engage you as you learn more about current research conducted within Connecticut's classrooms and at Central Connecticut State University, the University of Connecticut, and the University of Bridgeport.

Dr. Catherine Kurkjian and Dr. Penelope L. Lisi of Central Connecticut State University wrote *Creating a Culture of Literacy: Research and Recommendations for Teachers and Educational Leaders*. In their research they explicitly examined the CCSS and the implications to the local ELA classes and schools.

University of Connecticut graduate students, Elena Forzani and Cheryl Maykel, discuss the findings of an on-going project called ORCA - Online Research and Comprehension Assessments - which measured the abilities of seventh-grade students to critically evaluate online information.

Integrating reading with writing is important as students attempt to process and respond to text information. Lindsey Nichols, a University of Bridgeport graduate student and a Reading Consultant, conducted action research on the benefits of using the "RACE" strategy. This strategy enabled her students to successfully write cohesive responses to open-ended questions.

We encourage all CARR members to conduct their own research and share with our community. Keep the love of literacy alive in the hearts of learners of all ages!






President's Message

Agnes Burns

Dear CARR Colleagues and Friends,

Welcome to the Fall 2013 edition of the *CARReader*! Within these pages you will find information on some of our current research projects. These projects represent current best practices in literacy education today and provide insight as to how to prepare today's students for their future.

This journal helps CARR carry out its mission:

-  Improving reading instruction in the State of Connecticut.
-  Advancing the status of reading research throughout Connecticut by aiding in the interpretation and application of research findings and, whenever possible, by sponsoring and participating in research studies.
-  Initiating, sponsoring, and supporting legislation designed to assure high professional standards in the field of reading and language arts.

CARR also provides workshops for literacy educators and joins with Connecticut Reading Association (CRA) to sponsor a fall conference. In addition, the organization provides awards to graduate students in the field of reading and language arts. For additional information on our organization, please visit our website at www.ctreadingresearch.org.

It is an honor for me to serve as president this year. I look forward to continuing the work of this organization as it seeks to serve literacy educators throughout the state in meeting the challenges of these changing times.

Enjoy the ideas presented in this issue of the *CARReader*!



Creating a Culture of Literacy: Research and Recommendations for Teachers and Educational Leaders

Dr. Penelope L. Lisi and Dr. Catherine Kurkjian
Central Connecticut State University

Historically, the teaching of reading has been one of the most critical, and perhaps challenging responsibilities of educators in schools around the world. In the U.S., 30% of all students are not graduating from high school, and 75% of all students with literacy problems in the third grade will still experience literacy difficulties in the ninth grade. One response to the challenges of developing literacy in U.S. schools has been the creation of standards or expectations of what students will know and be able to do. For many years, individual states have been responsible for the development of standards in a variety of content areas. Districts and schools have been expected to support educators in developing an awareness of state standards, who then work to align and implement the standards in curriculum and instruction. Implementation has been uneven and consequently, literacy levels have continued to remain, for the most part, stagnant.

Since 2010, a promising educational reform initiative in the United States has been the development of the Common Core State Standards (CCSS) in the English Language Arts, Mathematics, and other content areas. This reform is a state-led initiative organized by the National Governors Association (NGA) Center for Best Practices and the Council of Chief State School Officers (CCSSO). The common K-12 standards are intended to define knowledge and skills so that upon graduation students are college- and career-ready. A description on the shared website sponsored by NGA and the CCSSO states the standards are aligned with college and work expectations; are clear, understandable and consistent; include rigorous content and application of knowledge through high-order skills; build upon strengths and lessons of current state standards; are informed by other top performing countries, so that all students are prepared to succeed in our global economy and society; and

are evidence-based (CCSS, 2010).

An important goal of this reform is to develop and implement common standards and invite collaboration across states as well as to utilize a common metric in terms of assessment. Thus far, forty-five states, the District of Columbia, four territories, and the Department of Defense Education Schools have adopted the Common Core State Standards. In Connecticut, the context of this research, the strategic plan calls for transitioning from state standards to the CCSS standards, from state assessments to CCSS aligned assessment, and then to the Smarter Balance CCSS Assessments.

Interestingly, much direction for implementation of the CCSS at the local level is coming from the Connecticut State Department of Education (CSDE) as illustrated in Table 1. Implementation work in Connecticut has focused on transitioning from the state standards to the CCSS standards, aligning curriculum, creating Professional Learning Communities (PLCs) at the state and district level, and developing and piloting a practice common core aligned state assessment. Most notable is encouragement for the creation and use of professional learning communities as a strategy to support implementation. According to the CSDE strategic plan, in spring 2013 the CSDE was in the process of further organizing district PLCs, aligning and making available model curriculum, providing exemplar student work and professional learning and assessment tools, and piloting CCSS aligned assessments.

The CCSS English Language Arts Standards are a departure from what has been promoted in the past, and they represent shifts in thinking about teaching and learning. In a recent EPE report three major shifts in the English Language Arts include the following:



Informational Text: Building knowledge through content-rich nonfiction and informational texts.

At the elementary level, the standards call for a 50-50 balance between informational texts and literature. They shift the emphasis to 55 percent informational by middle school, and 70 percent by high school. Such reading includes content-rich nonfiction in history/social studies, science, and the arts. Informational text is seen as a way for students to build coherent general knowledge, as well as reading and writing skills.

Citing Evidence: Reading and writing grounded in evidence from text. The standards place a premium on students' use of evidence from texts to present careful analyses and well-defended claims. Rather than asking students questions they can answer solely from their prior knowledge or experience, the standards envision students' answering questions that depend on reading texts with care. The standards also require the cultivation of narrative writing throughout the grades. The reading standards focus on students' ability to read carefully and grasp information, arguments, ideas, and details based on evidence.

Complex Text: Regular practice with complex text and its academic vocabulary. The standards build a "staircase" of increasing text complexity to prepare students for the types of texts

they must read to be ready for the demands of college and careers. Closely related to text complexity, and inextricably connected to reading comprehension, is a focus on academic vocabulary: words that appear in a variety of content areas (such as "ignite" and "commit"). (*Moving Forward: A National Perspective on States' Progress In Common Core State Standards Implementing Planning*, 2013, February, p.13).

The International Reading Association (IRA) supports the development and implementation of the standards. In a recent paper, the IRA International Reading Association Common Core State Standards Committee (2012) identifies areas that will present challenges to implementation of the standards, and provides guidelines and clarification to state and local leaders, teachers, principals, professors, and others who will implement the ELA standards. The guidelines call for extensive professional development. They note:

Changes this significant are not likely to occur successfully without equally significant investments in the knowledge and skills of educators along with necessary material supports (e.g., texts, technology). There are many things that teachers must do to try to help students reach the expectations detailed in the CCSS....States and schools will need to support such efforts with appropriate and timely professional development for teachers. (p.4)

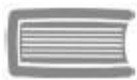
Table 1: Strategic Plan. Adapted from the Connecticut State Department Common Core State Standards Strategic Plan. (Pp 21-23) Retrieved from http://www.sde.ct.gov/sde/lib/sde/pdf/ccss/ccss_strategic_plan_sbe_120512.pdf

	Leadership from CSDE	Leadership from Districts
Dec 2012-Feb. 2013	<ul style="list-style-type: none"> • Exploring and analyzing the possibility of providing a new “Practice” Common Core-aligned state assessment in Spring 2013 • Providing coordinated and consistent communication through the Common Core District Teams; setting Common Core District Team meetings • Aligning, making available model curriculum practices and resources & exemplar student work 	<ul style="list-style-type: none"> • Creating a Common Core District Team with guidance from the CSDE <i>and</i> attending the Common Core District Team meetings • Engaging with the CSDE in content specific Professional Learning Communities (PLCs) • Nominating educators to become Common Core Coaches
March-July 2013	<ul style="list-style-type: none"> • Providing coordinated and consistent communication through the Common Core District Teams; setting Common Core District Team meetings • •Organizing ELA and Math PLCs for districts to share best practices, lessons learned • •Aligning and making available model curriculum practices and resources & exemplar student work, professional learning, & pilot assessments 	<ul style="list-style-type: none"> • Participating in the Common Core District Team meetings • Participating in the ELA and Math PLCs • Planning and training for statewide implementation of the Common Core and new Common Core-aligned assessment in August 2013-2014
August 2013-August 2014	<ul style="list-style-type: none"> • Providing coordinated and consistent communication through the Common Core District Teams • Organizing ELA and Math PLCs for districts to learn and share best practices, lessons learned • Aligning and making available model curriculum practices and resources & exemplar student work, professional learning, assessment tools, & assessments 	<ul style="list-style-type: none"> • Participating in the ELA and Math PLCs • Implementing Common Core and new Common Core-aligned assessment • Participating in the pilot Technology Plan • Inviting CSDE to visit and view implementation of Common Core in classrooms

Clearly, the successful implementation of the CCSS necessitates the creation of a culture of literacy in schools in which all stakeholders, including teachers and leaders, are working together to improve the teaching of reading in PK-12 grades. The primary goal of this research project is to enhance our knowledge of leadership practices in support of a culture of literacy in ways that address significant literacy achievement challenges. In particular, we are interested to learn

about how educators and educational leaders are addressing the reform initiative that requires the implementation of a new set of learning standards in schools across the nation.

This is the first part of a three-part study designed to provide insights into the perceptions of Connecticut teachers and administrators regarding the implementation of the Common Core State Standards (CCSS). The first phase of the investigation serves as a pilot study during



which the survey tool was tested with a group of graduate students at Central Connecticut State University. Our findings will provide a preliminary view into the creation of the culture of literacy.

Conceptual Framework for the Study

Why is there a need to create a culture of literacy? In 2005, the National Association for Secondary School Principals (NASSP) published *Creating a Culture of Literacy: A Guide for Middle and High School Principals*, a document that describes the major deficit in the literacy achievement of United States' secondary students. Unfortunately, direct literacy instruction that might address this glaring deficit ends, in most cases, at the third grade. Literacy instruction must not end when students enter middle school. And this necessitates strong and effective leadership. This study is guided by the literature and research about leadership for school improvement, as well as effective instructional practice.

Leadership for School Improvement

The literature is clear about the need for effective leadership as an essential ingredient in educational reform (Wahlstrom, Seashore Louis, Leithwood, and Anderson, 2010). Richard Elmore (2004) lists five principles for leadership that supports major instructional improvement efforts. These principles are that: 1) educational leadership must be focused on the improvement of instruction; 2) instructional improvement requires opportunities for on-going individual and group learning of teachers; 3) leaders must model for teachers what they expect them to do; 4) leadership roles and activities emanate from the expertise needed for learning; and 5) leaders and teachers must be held mutually accountable for outcomes.

The literature on creating a culture of literacy that supports high levels of academic achievement indicate that the following principles must be in place: literacy is the top priority in the

school; educators are committed to impacting student learning; educators maintain high expectations for students; and faculty and administrators maintain a strong academic press (Murphy, 2004). Further, time is managed productively and opportunities exist for staff to engage in professional learning through powerful professional learning communities. According to the report, *Creating a Culture of Literacy* (2005), the Literacy Leader engages teachers in a variety of key activities, including: establishing specific and measurable goals for literacy; aligning curriculum with standards; ensuring that content-area literacy strategies are used daily; and evaluating the use of literacy strategies through formal and informal observations.

The literature in support of school improvement indicates that strong leadership is essential (Creating a Culture of Literacy, 2005; Murphy, 2004). Critical strategies for the literacy leader include: development of a Literacy Leadership Team (LLT); shared faculty commitment to improve achievement; creation of a collaborative environment in which teachers learn from and with each other; use of assessment data to identify specific learning needs; development of a school wide plan to address professional development needs of teachers; a curriculum that is aligned with standards; content-area literacy strategies that are used daily in classroom instruction; and development of an understanding of research-based literacy strategies (Creating a Culture of Literacy, 2005; Murphy, 2004; Reeves, 2004; Schmoker, 2006; Wahlstrom, Seashore Louis, Leithwood, and Anderson, 2010).

Unfortunately, a particularly problematic issue facing classroom teachers around the world is isolation (Short and Greer, 2002). Experienced teachers are often isolated from each other and not provided with significant opportunities for learning from and with each other. Some results of teachers working in isolation are feelings of inadequacy, insecurity, and lack of recognition. Recent research indicates that effectively designed professional development can counteract these feelings. In particular, "Professional development activities that take place at regular intervals and

involve teachers in a rather stable social and collaborative context (*i.e.* networks or mentoring) have a significantly stronger association with teaching practices than regular workshops and courses” (OECD, 2009, p. 117).

Specific to supporting the professional development of teachers in a culture of literacy, the leader should: work closely with the Literacy Leadership Team (LLT) to determine professional learning needs of teachers; identify and use staff members’ skills and interests to support ongoing, job-embedded professional learning; implement coaching for teachers to learn and immerse literacy strategies within content classes; encourage “professional talk” among staff and provide time for discussions; provide resources for professional learning; use classroom observations to identify and support ongoing professional development (Creating a Culture of Literacy, 2005).

Purpose of the Study and Primary Research Questions

This pilot study, the first part of a three-year plan, will lay the groundwork for the second and third phases of our investigation to ascertain perceptions over time of Connecticut teachers and administrators regarding the implementation of the Common Core State Standards (CCSS). In years two and three, data will be collected from a random sample of teachers and administrators in the state using the refined survey to examine perceptions of the implementation of the CCSS over time.

While the study in all of its phases will not directly benefit participants, the perspectives on implementation of Common Core State literacy standards will inform university literacy and educational leadership professors as to how to enhance university-level curriculum related to the CCSS in a way that addresses needs with models of best practice. The study will inform the knowledge base on how leaders can better support large-scale changes.

Research questions that guide this study are

as follows:

- What is the level of awareness on the part of teachers and administrators in Connecticut of the Common Core State Standards (CCSS) in literacy?
- What supports are provided by leaders for implementation of standards-based literacy instruction?
- What types of changes in classroom practice have resulted from the implementation of standards-based literacy instruction?

Methodology

This is a descriptive study. Data are collected using a survey administered over three years. The survey is a 48-item instrument that has been adapted from the Common Core Feedback Loop and is used with permission from the U.S. Education Delivery Institute. Two mirror versions of the instrument were developed: one for educators, and one for educational leaders. Each version has the same number of items, yet the language has been altered slightly to reflect the respondents.

The pilot survey was disseminated in spring 2013 to graduate students in programs in the departments of Educational Leadership and Reading and Language Arts, either in paper format, or as a link to an online version of the survey using SelectSurvey.NET. Twenty-eight graduate level leadership students (who are also teachers and who have some leadership responsibilities) responded to the survey designed for educational leaders.

Sixty-six teachers enrolled in the Masters Degree Program in Reading and Language Arts Department responded to a survey designed for teachers. Eighty percent of the teachers (53) were primary grade school level spanning K-5. The remaining 20% were middle school teachers (9%), high school teachers (4%) or teachers who spanned elementary to middle school (6%). Most



teachers (79%) worked in traditional public schools; another 15% worked in Magnet Schools or Charter Schools. The remaining 6% of the teacher worked in other special school settings (Expeditionary learning school, Montessori School and a Dual Language and International Baccalaureate). One teacher was unemployed. The setting in which teachers worked spanned a range of socioeconomic levels. Data are analyzed using descriptive statistics.

Preliminary Findings

Leadership in Support of the CCSS

In this first year of the study, preliminary data from responses by leaders and teachers provide some useful information to support the investigation of knowledge of leadership practices in support of a culture for literacy in our schools. In particular, preliminary data has been collected about how educators and educational leaders are addressing the reform initiative that requires the implementation of a new set of learning standards in schools in Connecticut.

Awareness of Standards. In terms of survey questions related to *Awareness of Standards*, the data indicate agreement with the following: respondents have read the new standards (81%, Leaders; 99%, Teachers); they have comprehensive knowledge (34%, Leaders; 38%, Teachers); Leaders (76%) agree that they are somewhat prepared to support school educators to teach the CCSS; Teachers (75%) agree they are somewhat prepared to teach the CCSS; both groups agree or strongly agree that the CCSS will lead to improved learning for the majority of students (93% Leaders; 83% Teachers).

The top three reasons provided by leadership students and teachers for why the

CCSS will benefit the majority of their schools' students were the same and are as follows:

- 1) They believe the standards will give students the opportunity to master key competencies, rather than just superficial exposure (75%, Leaders; 59%, Teachers).
- 2) They indicate that the CCSS will help school systems ensure standards are vertically-aligned from kindergarten through grade 12 (Leaders, 71%; Teachers, 58%).
- 3) They believe that standards will help educators focus on what's most important (Leaders, 53%; Teachers, 43%). Each group demonstrated a different preference for their fourth top list of benefits. Fifty percent of the Leaders believe standards will provide students a clearer understanding of what they must know to succeed, while 43% of the Teachers believe that the standards will help focus educators on what is most important. (please see Table 2).

Among the Teachers (14%) who do not think that the Common Core will improve learning for all of their students the provide the following reasons:

- 1) The standards are a "one size fits all" approach (10%).
- 2) They are too rigorous for their students (7%).
- 3) The standards do not provide flexibility for students who are not on grade level.
- 4) The current state standards are better (3%).

While teachers have concerns, it appears that at least half of the Leader and Teacher group see important benefits as a result of the CCSS.

Table 2: Responses to Survey Questions related to Awareness of Standards

Key concept	Leader response	Teacher response
(6) Knowledge of state's transition to the CCSS	34% comprehensive knowledge 54% some knowledge	38% extensive knowledge 54% some knowledge
(7) Have read CCSS	81% yes 19% no	99% yes 1% no
(8) Level of agreement that the CCSS will lead to improved student learning for majority of students in my school	25% strongly agree 68% agree	22% strongly agree 61% agree
(9) Reasons for belief why CCSS will benefit majority of students	75 % believe they will give students the opportunity to master key competencies, rather than just superficial exposure. 71% believe they will help school system ensure standards are vertically-aligned from kindergarten through grade 12. 50% believe they will help educators focus on what's most important. 50% believe they will provide students a clearer understanding of what they must know to succeed. 46% believe they will help educators better prepare students for college.	(59%) believe they will give students the opportunity to master key competencies, rather than just superficial exposure. 58% believe they will help school system ensure standards are vertically-aligned from kindergarten through grade 12 43% believe they will help educators focus on what's most important. 35% believe they will provide students a clearer understanding of what they must know to succeed. 48% believe they will help educators better prepare students for college.
(11) Differences between state's standards and CCSS	75% believe CCSS are more demanding and raise expectations for student learning.	84 % believe CCSS are more demanding and raise expectations for student learning.
(12) Feel prepared to support school's educators to teach the CCSS (Leader Survey 12) Feel prepared to teach the CCSS	75% feel somewhat prepared 11% do not feel prepared	11% feel completely prepared 76% feel somewhat prepared 9% do not feel prepared

Leaders n = 28

Teachers n=66



Understanding of Standards. Leadership and Teacher groups were asked about their beliefs in terms of providing certain types of learning environments that are consistent with ideas embedded in the CCSS. Both surveys revealed that there is an accurate understanding regarding the three key areas that are consistent with the CCSS:

- 1) structuring opportunities for students to have conversations and develop arguments based on the texts they've read (86%, Leaders; 87%, Teachers);
- 2) creating learning experiences that build knowledge using informational texts, not just literature (89%, Leaders; 94%, Teachers);
- 3) providing instruction in academic vocabulary to support students'

understanding of complex text (75%, Leaders; 83%, Teachers)

Misconceptions are evident in both groups regarding the importance placed on:

- 1) providing students with ongoing opportunities to write creatively, drawing from personal experiences (65%, Leaders; 60%, Teachers), and
- 2) utilizing pre-reading strategies to help all students fully understand a text through discussions and/or overviews of context, vocabulary (78%, Leaders; 66%, Teachers). These two learning opportunities are not closely aligned with the CCSS (see Table 3).

Table 3: Responses to Survey Questions related to Understanding of Standards

Key concept	Leader response	Teacher response
(14a) Extent to which it is important to provide students ongoing opportunities to write creatively drawing from personal experiences	77% very important or important 21% somewhat important	90% very important or important 9% somewhat important
(14b) Extent to which it is important to give students opportunities for conversations and develop arguments based on texts they've read (CCSS Aligned)	100% very important or important	100% very important or important
(14c) Extent to which it is important to utilize pre-reading strategies to help all students fully understand a text through discussions and/or overviews of context, vocabulary	86% very important or important 15% said somewhat important or unimportant	92% very important or important 8% somewhat important or unimportant
(14d) Extent to which it is important to create learning experiences that build knowledge using informational texts (CCSS Aligned)	93% very important or important 7% said somewhat important	100% very important or important

Key concept	Leader response	Teacher response
(14e) Extent to which it is important to provide instruction in academic vocabulary to support student understanding of complex text (CCSS Aligned)	92% very important or important 7% somewhat important	95% very important or important 5% somewhat important
(15a) Extent to which this practice is aligned with CCSS: Providing students ongoing opportunities to write creatively drawing from personal experiences	65% very significantly aligned or very aligned 25% somewhat aligned or insignificantly aligned 11% don't know	60% significantly aligned or very aligned 35% somewhat aligned or insignificantly aligned 5% don't know
(15b) Extent to which this practice is aligned with CCSS: Structuring opportunities for students to have conversations and develop arguments based on the texts they've read (CCSS Aligned)	86% very significantly aligned or very aligned 4% said somewhat aligned	87% very significantly aligned or very aligned 8% said somewhat aligned or unimportant
(15c) Extent to which this practice is aligned with the CCSS: Utilizing pre-reading strategies to help all students fully understand a text through discussions and/or overviews of context, vocabulary	78% very significantly aligned or very aligned 14% somewhat aligned or insignificantly aligned 11% don't know	66% very significantly aligned or very aligned 25% somewhat aligned 8% said insignificantly aligned 1% don't know
(15d) Extent to which this practice is aligned with the CCSS: Creating learning experiences that build knowledge using informational texts (CCSS Aligned)	89% very significantly aligned or very aligned 11% don't know	94% very significantly aligned or very aligned 5% somewhat aligned 1% don't know
(15e) Extent to which this practice is aligned with CCSS: Providing instruction in academic vocabulary to support students' understanding of complex text (CCSS Aligned)	75% very significantly aligned or very aligned 11% somewhat aligned 14% I don't know	83% very significantly aligned or very aligned 11% somewhat aligned 1% not aligned 5% don't know

Leaders n = 28

Teachers n=66

Leader Support. While the implementation of the Common Core State Standards in classroom teaching and learning is a very new initiative,

respondents were able to comment on leader support for the implementation of standards-based literacy instruction. In response to the question



about the availability of different types of activities and resources, respondents reported availability of the following: collaborative planning time for deconstructing the CCSS (43%, Leaders; 48%, Teachers); collaborative planning time to align curriculum to the CCSS (39%, Leaders; 48%, Teachers); content-focused trainings on the CCSS (36%, Leaders; 43%, Teachers); resources on research/best practice in CCSS implementation (32%, Leaders; 25%, Teachers); job-embedded training or coaching focused on CCSS (29%, Leaders; 25%, Teachers); professional learning community focused on CCSS (29%, Leaders; 30%, Teachers). Additionally, 58% of the Leaders indicated there was a staff member who serves as a CCSS resource, while 22% of the Teachers indicated that this was so.

When asked about challenges to the implementation of the CCSS, the following needs were reported: more quality professional development (54%, Leaders; 41%, Teachers), more time to collaborate with colleagues (39%, Leaders;

29%, Teachers). Teachers (52%) also reported that they needed more aligned textbooks and materials.

According to Leaders, the following changes were made to the ways in which educators are supported in their understanding and use of the CCSS: they are sharing information and resources with educators about CCSS (61%); they are placing more emphasis on vertical alignment between grade levels (54%); they are creating more opportunities for collaboration among educators on CCSS (43%), and; and they are providing professional development opportunities that support CCSS (46%) (please see Table 4).

Thus far, nearly three fourths of leadership and teacher groups have received professional development on the implementation of the CCSS, and most participants agreed or strongly agreed that it was of high quality. The challenges facing them intersect. While they indicate availability of professional development and time for collaboration, they request that they need more.

Table 4: Responses To Survey Questions Related To Leader Support For Implementation Of Standards-Based Literacy Instruction

Key concept	Leader response	Teacher response
(18) What activities or resources have been made available to teachers	43% collaborative planning time for deconstructing the CCSS 39% collaborative planning time to align curriculum to the CCSS 36% content-focused trainings on the CCSS 32% resources on research/best practice in CCSS implementation 29% job-embedded training or coaching focused on CCSS 29% professional learning community focused on CCSS	49% collaborative planning time for deconstructing the CCSS 48% collaborative planning time to align curriculum to the CCSS 43% said content-focused trainings on the CCSS 25% resources on research/best practice in CCSS implementation; 25% job-embedded training or coaching focused on CCSS 30% professional learning community focused on CCSS
(19) Have you participated in professional development on the CCSS?	67% yes 33% no	70% yes 30% no

Key concept	Leader response	Teacher response
(20) What type of PD opportunities have you had?	46% said one-day training 29% said Job-embedded training or coaching 21% said multi-day training	32 % of the teachers report they received job embedded training, 30% a one-day training opportunity 22% of the teachers report multi-day training. 23% report the formation of Professional Learning Communities, 6% report training in the form of a webinar or video, and 13% report that the Common Core Standards are a focus in their university classrooms.
(21) Who provided the training?	46% staff member from my district 25% someone from outside the district	54% staff member from my district 22% training brought in from outside of district 4% said Department of Education 6% said independent professional provider 12% university instructor
(23) Is there a staff member who is a resource?	58% yes 35% don't know	22% yes 43% don't know
(29) Challenges to implementing CCSS	54% need more quality professional development 39% need more time to collaborate with colleagues 36% student knowledge	52% need more aligned textbooks and materials 43% need more time to collaborate with colleagues 41% need more quality professional development 29% need more formative assessments aligned to the Common Core 25% student knowledge
(32) What changes are you making to the ways you are supporting educators as a result of the CCSS? (Leader Survey) 32) What changes are you making to your teaching as a result of the CCSS? (Teacher Survey)	46% creating more opportunities for collaboration among educators focused on CCSS 21% ensuring curricular materials reflect CCSS expectations 21% sharing information and resources related to CCSS	51% incorporating curricular materials and instructional strategies into their teaching 51% structuring opportunities for more students to develop and solve their own problems 49% asking students more questions and encouraging them to develop answers independently



Key concept	Leader response	Teacher response
		22% increasing collaboration with colleagues within their schools and in other schools.
(35) Changes to ways educators are supported in understanding and using CCSS	61% sharing information and resources with educators about CCSS 54% placing more emphasis on vertical alignment between grade levels 43% creating more opportunities for collaboration among educators on CCSS 46% Providing professional development opportunities that support CCSS 36% using classroom observations as opportunities to provide feedback on CCSS	41% ensuring curricular materials reflect CCSS expectations 39% providing more professional development opportunities on the Common Core 35% placing more emphasis on vertical alignment between grade levels 36% said creating more opportunities for collaboration among educators focused on CCSS 32% said sharing information and resources related to CCSS

Leaders n = 28

Teachers n=66

Changes in classroom practice. The data from the Leadership and the Teacher Survey indicate that there are changes in teacher practice as a result of implementation of the CCSS. When asked if their school's educators had incorporated the standards into their teaching expectations and practice, 75% (Leaders) and 70% (Teachers) agreed that some have incorporated them; 7% (Leaders) and 17% (Teachers) agree that all have fully incorporated them, and: 18% (Leaders) and 2% (Teachers) agree that they don't know.

According to the Teacher Survey, the following kinds of CCSS-aligned changes are being made by teachers: 51% are structuring opportunities for more students to develop and solve their own problems; 49% are asking students more questions and encouraging them to develop answers independently; 22% are increasing collaboration with colleagues within their schools and in other schools. However, in regards to differentiation of instruction there

appears to be some concern about differentiation of instruction among Leaders in comparison to the Teachers. Fifty-six percent (Leaders) and 77% (Teachers) report that the support provided to educators is helping them to differentiate instruction, while 46% (Leaders) and 17% (Teachers) disagreed with this statement.

Sixty percent of the leader respondents said they were confident in their ability to identify instructional practices that reflect the CCSS during classroom observations, though 28% disagreed or strongly agreed with this statement. Eighty-nine percent of leaders agreed that the CCSS will help them know what content should be taught and the sequence in which it should be taught. Leaders are mixed on their agreement as to whether the CCSS will improve their ability to identify the most effective educators (36% agree, 28% agree or strongly agree, and 25% do not know) (see Table 5).

Table 5: Responses to Survey Questions related to Changes in Classroom Practice as a Result of Implementation of the Common Core State Standards

Key concept	Leader response	Teacher response
(31) My school's educators have incorporated CCSS into their teaching expectations and practice	7% agree that all have fully incorporated them 75% agree that some have incorporated them 18% agree that they don't know	17% indicate they have fully incorporated the Common Core into their teaching. 70% of the teachers have incorporated the CCSS in some areas of their teaching, 2% agree that they do not know
(34a) In my school, the CCSS and support provided to educators help them differentiate instruction to meet unique learner needs. (Leader Survey) Effective practices to teach the Common Core will help me to differentiate instruction (Teacher Survey)	54% agree or strongly agree 46% disagree or strongly disagree	77% agree or strongly agree 17% disagree or strongly disagree
(34b) The CCSS will require that my school's educators incorporate instructional technology into classroom learning. (Leader Survey) The CCSS will require that I change the way I incorporate instructional technology into classroom learning. (Teacher Survey)	86% agree or strongly agree 11% disagree or strongly disagree	69% agree or strongly agree 12% disagree or strongly disagree
(34c) I feel confident about my ability to identify instructional practices that reflect the CCSS during my classroom observations.	60% agree or strongly agree 28% disagree or strongly disagree 11% don't know	No comparable question
(34d) The CCSS will improve my ability to identify the most effective educators in my building.	36% agree or strongly agree 28% disagree or strongly disagree 25% don't know	No comparable question
(34f) The CCSS will help me know what content should be taught, and in what sequence it should be taught in order for them to master key competencies.	89% agree or strongly agree 7% disagree or strongly disagree	69% agree or strongly agree 24% disagree or strongly disagree

Leaders n = 28

Teachers n=66

Discussion

Research Question #1

In considering data that addresses Research

Question #1 (What is the level of awareness on the part of teachers and administrators in Connecticut of the Common Core State Standards in Literacy?), responses by educational leader students indicate that the CCSS initiative is not



intended to be something in which educators are “tinkering” around the edges of what impacts students directly in the classroom. The focus of this initiative at the national, state, and local level is on teaching and learning in the classroom. This is clearly in line with Elmore’s (2004) first principle for leadership that supports major instructional improvement, and that is that leadership must focus on the improvement of instruction. Educational leaders appear to be growing in their awareness of this initiative, which is a critical first step in deep and meaningful change. It is very difficult to support improvement in teaching and learning if the key stakeholders do not understand or do not know about the essential ideas and concepts in the initiative.

Similarly, teachers are growing in their awareness, yet nearly three fourths of the teachers report that they are only somewhat prepared to implement the CCSS. These findings on levels of preparedness are consistent with a recent national survey conducted by the Hewlett Foundation (2012) in which 92% of participating teachers indicated that they were at least slightly prepared, and with one third of the respondents indicating that they were very familiar with the standards. In this same survey teachers indicated that they are less confident in their ability to implement the standards with certain student groups such as English Language Learners and students with disabilities, and with low-income students. (Gewertz, 2012). At the time of this survey there is a seemingly limited, but emerging preparedness among the participants in this study.

Research Question #2

When reflecting on data that addresses Research Question #2 (What supports are provided by leaders for implementation of standards-based literacy instruction?), preliminary data appear to indicate that leaders are engaging teachers in a variety of activities. This is consistent with the description of the Literacy Leader (Creating a Culture of Literacy, 2005). There does seem to be an effort to align the standards with the

curriculum in many instances. And consistent with another of Elmore’s (2004) key principles, leader students indicate there are some opportunities for collaborative activity related to the CCSS implementation.

It appears as though the leader students have been educated deeply enough themselves in the standards such that they can observe classroom practice and make sure that content-area literacy strategies are used daily and evaluate the use of literacy strategies through formal and informal observations. This is consistent with the stipulations of the Literacy Leader outlined in *Creating a Culture of Literacy* (2005).

Not necessarily apparent from the data are the following critical literacy leader strategies: use of assessment data to identify specific learning needs; development of a school wide plan to address professional development needs of teachers; use of a curriculum that is aligned with standards; use of content-area literacy strategies daily in classroom instruction; and development of an understanding of research-based literacy strategies (Creating a Culture of Literacy, 2005; Murphy, 2004; Reeves, 2004; Schmoker, 2006; Wahlstrom, Seashore Louis, Leithwood, and Anderson, 2010). It will be interesting to discern over time whether or not the leader also works to integrate these strategies.

Seventy percent of the teachers received professional development in one or multiple formats, with 67 % reporting that the professional development provided was of high quality. At this point in time 30% of our sample have been afforded the support of professional learning communities. Collaboration among teachers is one of the most prevalent supports for the purposes of understanding the standards and learning how to implement them. It would be expected that over time opportunities to collaborate in professional learning communities would increase since these supports are key components of the State Department of Connecticut’s strategic plan.

One of the prevalent concerns that teachers reported was the need for Common Core aligned materials. This is not surprising since teachers are accountable for day-to-day implementation of the

Common Core and the focus on the CCSS to a great degree revolves around the use of exemplar texts, with a focus on nonfiction. This is likely to be a change for some teachers. Teachers also indicate that they need more professional development. These findings are consistent with the findings from a national survey of Teacher Perspectives on the Common Core (2013) regarding challenges that teachers face in implementing the Common Core.

Surveys revealed that most teachers and leaders are aware of and support three of the major shifts in the CCSS: 1) structuring opportunities for students to have conversations and develop arguments based on the texts they've read; 2) Creating learning experiences that build knowledge using informational texts, not just literature; and 3) Providing instruction in academic vocabulary to support students' understanding of complex text.

The data also revealed that both teachers and leaders have misconceptions regarding practices that are now being downplayed by the CCSS. About two thirds of each group believe in the importance of personal response through writing and drawing and the practice of front-loading pre-reading strategies prior to having students read a text. Respondents from each survey indicated that they think that these practices are aligned with the CCSS. Clearly, professional development will be needed to clarify the shift and to help leaders and teachers decide the conditions under which these practices are most appropriate.

Our findings regarding misconceptions are supported in the literature by a myriad of articles clarifying the shifts and misconceptions surrounding the Common Core (Gewertz, 2013; Short, 2013; IRA, 2012; Strasser & Dobberton, 2012a, 2012b). As leaders prepare educators and as teachers implement the standards with students, it is essential that professional development address the standards beyond the declarative and procedural knowledge level. The implementation of the CCSS will require that both leaders and teachers develop conditional knowledge as to how the Common Core Standards will impact teaching

and learning. For example, under what circumstances and for whom is it appropriate to spend time building background, and when does this become less productive in terms of allowing students to problem solve while reading? This kind of knowledge will require Professional Learning Communities that work together to study the standards, read professional literature, generate questions and systematically examine the impact of their teaching within the wide range of diversity that exists within the classroom and at the school level.

Research Question #3

When looking at responses that address Research Question #3 (What types of changes in classroom practice have resulted from the implementation of standards-based literacy instruction?), the preliminary data appear to indicate that opportunities to collaborate on aspects of the CCSS have been put in place, yet teachers still consider this to be an area of need. Both the Leadership Survey and Teacher Survey concur that changes have been made to incorporate the CCSS in some areas of teaching. It appears that teachers are making a shift towards a more rigorous curriculum in alignment with the CCSS. At least half of the teachers report posing more evidence-based questions and requiring their students to answer them independently. Similarly, they report that they are structuring opportunities for more students to generate and answer their own questions.

The literature on creating a culture of literacy that supports high levels of academic achievement indicates that the following principles must be in place: literacy is the top priority in the school; educators are committed to impacting student learning; educators maintain high expectations for students; and faculty and administrators maintain a strong academic press (Murphy, 2004). Furthermore, time is managed productively and opportunities exist for staff to engage in professional learning through powerful professional learning communities. While there is



movement towards supporting teachers in implementing the Common Core Standards, in light of what was learned from Research Questions 1 and 2, the work of forming powerful professional learning communities to support the implementation of the CCSS initiative has only just begun.

Recommendations

As leaders continue to work to develop a culture of literacy in light of the new standards reform initiative, the preliminary data from this study may provide insights into what leaders might do. Leaders in support of a culture of literacy are encouraged to:

- Continue to support the development of PLCs during which educators can share best practice and learn from and with each other.
- Have a clear professional development plan in place that includes job-embedded learning opportunities and time for collaboration.
- Ensure that both leaders and teachers have

a deep and conditional understanding of the shifts that the CCSS are requiring and that this understanding addresses the need to modify and differentiate instruction to meet the wide range of diversity existing at the classroom and school level.

- Provide a range of resources to implement the shifts particular to nonfiction, along with other CCSS aligned materials and assessments to inform instruction.

Summary

There is strong consensus within the education community that American schools need to prepare students to participate in a global society. In particular, there is an especially strong focus on the need to address literacy challenges. In light of recent reform initiatives, most notably the Common Core State Standards, are leaders creating a culture or environment for enhancement of literacy? Preliminary data from the current study point to the fact that schools and school leaders do seem to be headed in a positive direction. There is still much room for additional and extensive support in order for this initiative to take deep root.

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Connecticut Association for Reading Research



Wirth-Santoro Scholarship *for* **Literacy Research**

The Wirth-Santoro Scholarship is a \$1,000 grant established to encourage and support reading research by promising scholars. The purpose of this scholarship is to support research efforts in the area of reading instruction.

Purpose of the Scholarship

The Wirth-Santoro Scholarship is a \$1,000 grant established to encourage and support advanced-studies research in literacy by promising scholars. This scholarship award has been established to honor and carry on the work in remembrance of Ethel Wirth and Ida Santoro. In honor of their dedication to literacy instruction and their commitment to the Connecticut Association for Reading Research (CARR), the excellence of the proposal will be a primary consideration in the selection process.

Eligibility

Open to doctoral, master's and post master's candidates. The award is intended to support a study, in progress or completed within the last year, that is deemed worthy of dissemination and recognition in the field. Applications will include a letter of nomination from a faculty sponsor who has or had oversight responsibilities for research. Applicants are limited to one application per year, but may apply in future years.

Deadline

Proposals must be submitted by February 15th.

See CARR website at <http://ctreadingresearch.org> for application process and contact information.



Evaluating A Representative State Sample of Connecticut Seventh-grade Students' Ability to Critically Evaluate Online Information

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Authors' Note: The results presented in this paper are part of a larger study with Donald J. Leu, University of Connecticut; Jonna Kulikowich, The Pennsylvania State University; Nell Sedransk, National Institute of Statistical Sciences; and Julie Coiro, University of Rhode Island, and are based upon work supported by the U.S. Department of Education under awards R305G050154 and R305A090608. Opinions expressed herein are solely those of the authors and do not necessarily represent the position of the U.S. Department of Education. The authors also thank the following individuals for their valued assistance with this study: Greg McVerry, Ian O'Byrne, Lisa Zawilinski, Heidi Everett-Cacopardo, Mike Hillinger, Mark Lorah, Donna Bone, and an exceptional team of undergraduates at the Neag School of Education at the University of Connecticut.

Abstract

This study investigated the extent to which a sample of seventh grade students ($n = 591$) in Connecticut critically evaluated online information both within and across three different assessment formats. The formats included Closed (simulated Internet environment requiring constructed responses), Open (actual, unrestricted Internet environment requiring constructed responses), and Multiple Choice. Results indicated that critical evaluation was more difficult for students than the three other online reading and research skill areas assessed (i.e., Locate, Synthesize, and Communicate) in all three formats combined, and was one of the most difficult of the skill areas within each of the three formats. Additionally, among the four critical evaluation tasks assessed (e.g., finding out the author of a website, determining if that author is an expert, evaluating the author's point of view, and evaluating the overall reliability of a website), evaluating the author's expertise and evaluating the overall reliability of a website was the most difficult for students. Finally, students performed better on critical evaluation tasks in the Multiple Choice format than they did in either of the two performance-based formats. Findings suggest that critical evaluation persists as one of the most difficult online comprehension and research skills for students, especially when measured in a

performance-based format.

Evaluating A Representative State Sample of Seventh-grade Students' Ability to Critically Evaluate Online Information

The new Common Core State Standards (2012) that Connecticut has adopted call for students to "assess the credibility and accuracy" of a variety of digital information sources (p. 41). This means that today's students must become proficient not just at gathering information sources and using them to produce writing, but also at evaluating them first to determine their relevancy and accuracy for the task at hand. As more and more of the texts students read and use move online, this skill becomes increasingly important for readers.

Digital information sources, like the Internet, have necessitated the use of new literacy skills as well as new ways of thinking about traditional literacy skills (Coiro, Knobel, Lankshear, & Leu, 2008; Lankshear & Knobel, 2006), such as source evaluation. Students today must learn how to conduct online research and comprehend various types of online texts if they are to be successful both with the Common Core standards and in today's digital world (Common Core State Standards Initiative, 2012; Organisation for Economic Co-operation and Development



& the Centre for Educational Research and Innovation, 2010). When using online information, higher-level skills, such as critical evaluation (CE), become especially important (Goldman, Braasch, Wiley, Graesser, & Brodowinska, 2012), since anyone can publish to the Internet (Cope & Kalantzis, 2000; Fabos, 2008). Therefore, the reader, rather than a publisher, bookseller, or other intermediary, becomes the first, and, in many cases, only judge of the accuracy and reliability of information.

Many may assume that today's students are skilled at effectively collecting and communicating reliable online information, since they have, presumably, used the Internet for much of their lives. However, this assumption may not be accurate. Although adolescent "digital natives" (Prensky, 2001) may be skilled with texting, gaming, social networking, creating mash-ups from multiple media sources, and downloading video and MP3 files, they are not always as skilled with the use of online information, and especially with the CE of online information (Bennett, Maton, & Kervin, 2008; Sutherland-Smith, 2002; Wallace, Kupperman, Krajcik, & Soloway, 2000). In fact, adolescents often overgeneralize their ability to read and research online information effectively because they are skilled with other online and tech-related tasks (Grimes & Boening, 2001; Kuiper, 2007).

Success in conducting research online often is dependent on the reader's evaluation of the information found (Goldman et al., 2012; Wiley et al., 2009). As students search for and synthesize information from various sources, CE skills help guide their decisions about the accuracy of that information (Goldman, Braasch, Wiley, Graesser, & Brodowinska, 2012). A recent study showed how valuable CE skills are to an online research task. Goldman and colleagues (2012) found that students who were more skilled in CE were more focused and efficient (Goldman et al., 2012). When students searched for and incorporated information from various sources, CE skills guided their decisions about the accuracy of that information, helped them to determine what information to use from each source, and

informed them of what to look for next (Goldman et al., 2012). As the Internet becomes increasingly central to full participation in today's society, the critical evaluation of information found online becomes more important for both students and educators to understand.

Perspectives and Theoretical Background

The current study is framed by both a dual level theory of New Literacies (Coiro, Knobel, Lanskshear, & Leu, 2008; Leu, O'Byrne, Zawilinski, McVerry, & Everett-Cacopardo, 2009) and by perspectives on the critical evaluation of online information, especially the reliability of sources. It builds on previous work to investigate how well students in Connecticut critically evaluated online information both within and across three different assessment formats.

New Literacies: A Dual Level Theory

As the pace of technology change accelerates, so too does the pace with which literacies change. The literacies we use in our everyday and working lives are thus always continuously new. This poses a challenge for educators, who must keep up with the many new literacies available to their students. Some (Leu, O'Byrne, Zawilinski, McVerry, & Everett-Cacopardo, 2009; Leu, Kinzer, Coiro, Castek, & Henry, 2013) have thus proposed a dual level theory of New Literacies to address the challenge of conceptualizing literacies that are constantly changing. This theory conceives of literacy as having two interacting levels: an uppercase *New Literacies* and a lowercase *new literacies*. Uppercase New Literacies are broader, more stable, and consist of multiple, integrated perspectives. Lowercase new literacies are more rapidly changing and are comprised of more specific tools, such as text messaging (e.g., Lewis & Fabos, 2005), or of focused disciplinary areas, such as the semiotics of multimodality in online media (e.g., Kress, 2003). The frequent changes occurring within new

literacies are guided by the broader, uppercase New Literacies, just as New Literacies are expanded upon and informed by changes within the specific contexts of the lower case literacies.

A commonality across uppercase New Literacies is that the Internet facilitates the advent of new online social practices (lowercase new literacies) that use lower case technologies, such as instant messaging, wikis, blogs, email, search engines, and social networks (Greenhow, Robelia, & Hughes, 2009; Lankshear & Knobel, 2006). The assessment used in this study was situated within a social network environment that required students to interact with student avatars through instant messages, emails, and wikis in the process of completing a research task. The assessment was thus informed by the uppercase concept that acknowledges the importance of online social practices while at the same time utilizing many lower case new literacies and acknowledging that online social practices occur with the use of many different tools.

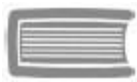
The new literacies of online research and comprehension (Coiro, 2003; Leu, et al., 2011) is one of many lowercase theories. This theory seeks to describe what happens when we conduct research and read online. It suggests that at least five processing practices occur during online research and comprehension with a complex layering of both traditional and new skills and strategies that appear in several areas: 1) reading to define important questions or problems (Leu, Kinzer, Coiro, & Cammack, 2004); 2) reading to locate information (Bilal, 2000; Guinee, Eagleton, & Hall, 2003); 3) reading to evaluate information (Sanchez, Wiley, & Goldman, 2006); 4) reading to synthesize information (Goldman, Wiley, & Graeser, 2005; Leu et al., 2013; Jenkins, 2006); and 5) reading and writing to communicate information (Greenhow, Robelia, & Hughes, 2009). Within these five areas reside the skills, strategies, and dispositions that are both important for offline reading comprehension and also distinctive to online research and comprehension. This creates an interaction of both old and new literacies that we are still seeking to fully understand.

In the current study, we used both levels of New Literacies theory to frame our investigation. An uppercase theory of New Literacies suggests that new, online social practices have become important. Online research and comprehension, one of several lower case theories of new literacies, suggests that locating, evaluating, synthesizing, and communicating information are important areas to consider when we conduct research and read online. Thus, we evaluated students' ability to locate, evaluate, synthesize and communicate information within an online research task that required students to engage in several social practices using text messaging, wikis, email, search engines, and a social network. We focused particular attention in this study on the evaluation of online information, specifically the evaluation of author, point of view, and reliability of source.

Critical Evaluation

The critical evaluation of online information is one of the most important skill sets required by readers today (Goldman, et al., 2012; Wiley et al., 2009). Yet, it is often the area of online research and comprehension with which students struggle the most (Kuiper & Volman, 2008). Lower-level skills, such as locating information on the Internet, may be easier for students to master than higher-level skills, such as evaluating the source and reliability of information. Thus, students may acquire and use information without having the skills to effectively evaluate its accuracy (Grimes & Boening, 2001). Moreover, students may overestimate their ability to critically evaluate online sources (Grimes & Boening, 2001). Students who are less skilled at determining the quality of information and who merely locate information without strategically evaluating it may end up falling behind their more savvy peers, who have the skills to effectively evaluate information before deciding whether and how to use it.

Research on critical evaluation has focused on a variety of information quality markers (e.g.,



accuracy, authority, comprehensiveness, coverage, currency, objectivity, reliability, and validity), but it often condenses these markers to credibility and relevance as the two main constructs (Judd, Farrow, & Tims, 2006; Kiili, Laurinen & Marttunen, 2008). This study focused on the credibility of the author or source of a website, defined in terms of expertise (Bråten, Strømsø, & Britt, 2009; Judd, Farrow, & Tims, 2006; Rieh & Belkin, 1998), and on the evaluation of the reliability of information (Goldman, et al., 2012; Kiili, Laurinen, & Marttunen, 2008; Sanchez, Wiley, & Goldman, 2006).

Much of the previous research on critical evaluation has focused on college students' abilities (Bråten, Strømsø, & Britt, 2009; Goldman, et al., 2012; Sanchez, Wiley, & Goldman, 2006). This research has had an important impact, leading to critical evaluation and higher-level thinking becoming important components of the recent Common Core State Standards (2012) in the U.S. This research also has had a similar impact on frameworks for K-12 education in other nations such as the recent Australian Curriculum (Australian Curriculum Assessment and Reporting Authority, n.d.). While our understanding of college-aged students' ability to evaluate information, especially online information, has gained greatly from this work, we know much less about younger students' ability to critically evaluate online sources. Given that this is now part of many nations' curriculum frameworks, it is an important area of inquiry. Teachers need to know students' current capabilities as they begin to plan for and teach these important aspects of curriculum.

Thus, this study sought to determine how well students in Connecticut performed on a measure of critical evaluation compared to three other online research and comprehension skills: locating, synthesizing, and communicating online information. This study also evaluated how well students performed in four different aspects of critical evaluation. Two of these were related to the credibility of the author or source of a website, defined in terms of expertise (Judd, Farrow, & Tims, 2006; Rieh & Belkin, 1998), and two were

related to the evaluation of the reliability of information (Bråten, Strømsø, & Britt, 2009; Goldman, et al., 2012; Kiili, Laurinen, & Marttunen, 2008; Sanchez, Wiley, & Goldman, 2006).

Specifically, this study evaluated seventh grade students on their ability to: 1) identify the author of a webpage; 2) evaluate the author's expertise; 3) identify the author's point of view; and 4) evaluate the overall reliability of the webpage. This study also sought to determine how well students performed on critical evaluation in three separate assessment formats, including a closed Internet assessment context (Closed, a simulated Internet environment), an open Internet assessment context (Open, the actual, unrestricted Internet), and a multiple choice context. While all three formats followed similar research scenarios, only the Closed and Open formats were performance-based, and most directly represented an actual online research experience.

Method

Participants

This study is part of a larger study that sampled seventh-grade students in two states in the northeastern United States. The present study, however, reports on the results of a representative sample of students' performance from only one of these two states. A total of 19 school districts were included in the sample, with one participating school per district. In each school, one teacher with two classes of approximately 20 students participated. In a few smaller schools, it was necessary to include two teachers with one class of approximately 20 students each. Districts and schools were selected using stratified random sampling. The sampling plan stratified schools according to three factors: 1) district percentage of Free and Reduced Price Lunches, (a proxy measure of socioeconomic status); 2) performance on the state reading comprehension assessment; and 3) geographical location (rural, urban, and suburban). This was done while taking note of

school size. Schools were randomly sampled within each of these strata.

Principals at each of the selected schools identified the English Language Arts teacher or teachers (in the case of smaller schools) whose students best represented the school population and who were willing to participate. Teachers then selected two of their classes that best fit this description. Students from the selected classrooms who had parental consent and who gave their assent were allowed to participate in the ORCA assessments. This included a total of 725 seventh graders. Each student was assigned to complete one assessment activity on each of two days. The majority of students completed both of the planned assessment activities. However, due to absences and a few system errors, 18.5 percent of the sample did not complete both activities. Thus, the final sample for the present study included 591 students.

Online Research and Comprehension Assessments (ORCAs)

Eight research scenarios were developed using eight different life science topics, all requiring students to read and conduct research online. Each of these scenarios was developed in three different formats that included Closed, Open, and Multiple Choice (see Table 1). The Closed format allowed students to conduct their research in a closed online environment. This environment was created so that students could search for, select, and use websites from the project's search engine, "Gloogle," which was only populated with a predetermined set of websites. The Open format allowed students to search for, select, and use websites from the actual, Open Internet using Google. The Closed and Open formats were thus largely performance-based measures. Finally, the Multiple Choice format confined students to selecting sites and answers from a set of four answer choices per question. Each question and answer set was accompanied by screenshots of the websites or other web tools (e.g. emails, wikis) that students needed to use in order to successfully

answer the questions. Students could toggle between the different screenshots as needed by clicking on various links or tabs. The Multiple Choice format thus attempted to provide students with a richer context than traditional multiple choice assessments.

In all scenarios, students were presented with science research problems that focused on the domain of health and human body systems, an area common to many seventh grade science curricula, with each of the eight scenarios focusing on a different topic. All topics are listed in Table 1. The scenarios were framed around two types of research: "Learn More About (LMA)" and "Investigate Conflicting Claims (ICC)." Half of the scenarios presented the research problem to students via an email message from the school board president (LMA scenarios) and half via a class wiki with a message from the teacher (ICC scenarios). LMA scenarios asked students to learn more about the research topic and to form a main idea about what they learned. ICC scenarios, on the other hand, asked students to investigate two sides of an issue and to take a position (See Table 1).

Each scenario included items assessing students' ability to locate, evaluate, and synthesize information during their research. The scenarios also included items assessing students' ability to communicate the results of the research via either email or wiki. Each scenario, called a LESC, represented each of the four skills areas of Locate, Evaluate, Synthesize, and Communicate with 16 score points per LESC and 4 score points per skill area. Each score point evaluated an online research and comprehension skill identified both from previous research and from discussions with researchers in this area. Each skill area (Locate, Evaluate, Synthesize, and Communicate) included three process skills and one product skill, with one score point assessing each skill, for a total of four score points in each of the four LESC skill areas.

The LESC questions appeared within a Facebook-like environment through avatars named Brianna and Jordan, who were introduced as students from another school. The questions did not appear in a linear sequence according to skill



Table 1: The Eight LESC Scenarios by Topic

Topic	Research Question	Type of Research	Communication Tool Used in the Research
Energy Drinks	How do energy drinks affect heart health?	Learn more about	Email
Heart-Healthy Snacks	How do snacks affect heart health?	Learn more about	Email
Volume Level	Can listening to volume levels on an MP3 player cause hearing loss?	Learn more about	Email
Ringtones	How well can adults hear mosquito ringtones?	Learn more about	Email
Third-hand Smoke	Is third-hand smoke dangerous to lung health?	Investigate conflicting claims	Wiki
Asthma	Can Chihuahua dogs cure asthma?	Investigate conflicting claims	Wiki
Contact Lenses	Do cosmetic contact lenses harm your eyes?	Investigate conflicting claims	Wiki
Video Games	Do video games harm your eyes?	Investigate conflicting claims	Wiki

Note. Each Topic was developed in three different formats that included Closed, Open, and Multiple Choice.

area. Rather, a more natural and logical sequence was used according to the nature of the research task. Students were guided to engage in the four skill areas through their online research tasks via requests and questions from Brianna and Jordan.

The four score points for CE related directly to three of the traditional critical evaluation criteria that include authority, objectivity, and accuracy (Judd, Farrow, & Tims, 2006; Rieh & Belkin, 1998; Bråten et al., 2009; Goldman, et al., 2012; Kiili, Laurinen, & Marttunen, 2008; Sanchez, Wiley, & Goldman, 2006). Students were prompted by Jordan to determine the author of a given website (authority), evaluate the

author's expertise (authority), identify the author's point of view with a supporting detail (objectivity), and evaluate the overall reliability of the site using at least one piece of valid reasoning (accuracy). The responses for the four CE score points were obtained through an instant message conversation with the avatar Jordan, who prompted students to access a website at a provided link. From the website, students had the opportunity to navigate to the author biography page, which was hyperlinked to the given site. If students navigated to the biography page, they then had the opportunity to gather more information on the author to inform their responses.

However, students were not directly asked to navigate to the biography page, and the link appeared somewhat differently in different LESC's, depending on the site that was used. Therefore, not all students accessed the additional information, and responses varied greatly.

Scoring the ORCA

An auto-capture system recorded students' responses for all score points for later scoring. Video screen captures recorded students' performance as a backup for the auto-capture system, and to score search activities that occurred outside of the assessment system in the Open Internet format. Three process score points and one product score point were calculated for each of the four major skill areas (Locate, Evaluate, Synthesize, and Communicate) using a binary (1 or 0) score point system. Each student completed two LESC's, so each student's final score was comprised of an overall total of 32 score points.

The Multiple Choice reports were scored automatically by the ORCA scoring system. However, the Closed and Open reports were hand-scored by a team of eight scorers, with one scorer assigned to one of the eight topics each. Scorers were trained by two expert scorers to a minimum inter-rater reliability level of 90% accuracy for each score point. Each scorer was then released to score his or her LESC topic. Throughout the scoring process, the scoring of each score point was checked using a random sample of 20 student reports by one of two expert scorers within each set of 100 reports scored (20% of all Closed and Open assessments). Scorers who did not continue to meet 90% accuracy for each score point, within each set, were retrained and retested to this level before continuing scoring.

Procedures

LESC Administration

The ORCAs were administered during two

assessment days held at each school. Before testing began, students were assigned to assessment topics and formats following a specific assignment plan that was designed to ensure equal and random assignment of students from various schools across LESC's. They were then entered into the ORCA database and assigned a unique identification number by the system. On each assessment day, students were read brief, standardized instructions before beginning the ORCAs, which used an automated start-up sequence on a set of MacBook Airs. By entering their unique ORCA identification numbers into the login screen, students were brought directly to their assigned ORCA in the online system. Students who typically received accommodations in the classroom received the same accommodations during the ORCA assessments. The test administrators for the ORCA were two graduate students from the university who, together with the lead Investigator, developed a protocol for school set up and test administration.

Scoring Procedures

The operational definition for each score point was similar across all three formats of the ORCA: Closed, Open, and Multiple Choice. However, the scoring process differed slightly for each format. For the Closed and Open formats, score reports were generated by the data capture tool of the ORCA system for each completed LESC and were used to score the Closed and Open formats, with one exception. In the Open condition on Synthesis tasks, QuickTime videos were used to score the Locate questions since the auto capture system could not capture students' searches on the open Internet.

Analysis

Analysis of variance (ANOVA) was used to answer all four of the present study's research questions:



- 1) How well do seventh-grade students, in all three formats combined (Closed, Open, and Multiple Choice), perform on critical evaluation compared to three other online research and comprehension skills (locating, synthesizing, and communicating)?;
- 2) How well do seventh-grade students perform in four dimensions of critical evaluation, including identifying the author of a webpage, evaluating the author's expertise, identifying the author's point of view, and evaluating the overall reliability of the webpage?;
- 3) How well do seventh-grade students perform in each format separately on critical evaluation compared to three other online research and comprehension skills, including locating, synthesizing, and communicating information?; and,
- 4) How well do seventh-grade students perform on critical evaluation, comparatively, in each of the three formats?

Results

Prior to the statistical analysis, all data were examined and found to meet assumptions of analysis of variance (ANOVA), including repeated measures ANOVA. A bonferroni correction was used to control for Type I error when conducting all post-hoc comparisons. To investigate the first research question, a one-way repeated measures ANOVA was conducted to compare students' scores in each of the four skill areas in all three formats combined. Multivariate statistics revealed that there was a significant effect for LESC skill area score, Wilks' Lambda = .418, $F(3, 588) = 272.76$, $p < .0005$, multivariate partial eta squared = .582. An analysis of pairwise comparisons showed that there was a significant difference among each of the four skill areas and each other skill area ($p < .05$ for all pairwise comparisons). Students' scores were highest in Synthesize ($M = 6.07$, $SD = 1.81$), followed by Locate ($M = 4.52$, $SD = 2.21$), Communicate ($M = 4.22$, $SD = 2.28$) and, finally, by Evaluate ($M = 3.61$, $SD = 1.88$). Thus, students scored the lowest on Evaluate (Table 2).

Table 2: Student Performance by LESC Skill Area Within and Between Three Formats

	Locate M (SD)	Evaluate M (SD)	Synthesize M (SD)	Communicate M (SD)	Statistical Test M (SD)	Effect Size M (SD)
All Three Formats**	4.52 (2.21)	3.61 (1.88)	6.07 (1.81)	4.22 (2.28)	$F(3, 588) = 272.76$	$\eta_p^2 = .58$
Closed only	3.85 (2.27)	2.84 (1.54)	6.32 (1.76)	3.12 (1.86)	$F(3, 191) = 327.44$	multivariate $\eta_p^2 = .84$
Open only	4.44 (2.32)	2.71 (1.43)	6.06 (1.86)	3.00 (1.74)	$F(3, 167) = 209.14$	multivariate $\eta_p^2 = .79$
Multiple Choice only	5.15 (1.87)	4.95 (1.67)	5.87 (1.78)	6.07 (1.67)	$F(3, 224) = 43.19$	multivariate $\eta_p^2 = .37$

Note. $p < .05$

To address the second research question, a second one-way repeated measures ANOVA was conducted to compare students' scores on the four Evaluate skills. The means and standard deviations are presented in Table 3. Multivariate statistics showed a significant overall effect for all four Critical Evaluation score points, Wilks' Lambda = .390, $F(3, 588) = 306.950$, $p < .0005$, multivariate partial eta squared = .61. An examination of pairwise comparisons showed that

there was a significant difference in student performance between each of the four score points and each other score point ($p < .0005$ for each pairwise comparison), except between score point 2 (evaluating author expertise) and score point 4 (determining the overall reliability of a website). Score point 1 (determining the author of a website) had the highest mean ($M = 1.62$, $SD = .61$), followed by score point 3 (determining the author's point of view and providing supporting

Table 3: Student Performance by Critical Evaluation Score Point Dimension in All Three Formats Combined

Score Point 1	Score Point 2	Score Point 3	Score Point 4	Statistical Test	Effect Size
Determining the author of the website	Evaluating the author's expertise	Identifying the author's point of view and one piece of evidence that supports that point of view	Evaluating the overall reliability of the site using one piece of evidence from the site	---	---
1.62 (.61)	.65 (.74)	.77 (.77)	.57 (.72)	$F(3, 588) = 306.95$	$\eta_p^2 = .61$

Note. $P < .05$.

evidence; $M = .77$, $SD = .77$), score point 2 (determining author expert status; $M = .65$, $SD = .74$), and, finally, by score point 4 (evaluating the reliability of a website; $M = .57$, $SD = .72$). Thus, students' scored significantly higher on score point 1 (determining the author of the website) than on score points 2, 3, and 4. Similarly, scores on score point 3 (author's point of view) were significantly higher for students than on score point 4 (evaluating the reliability of a website). However, score point 2 (author expertise) and score point 4 (evaluating the reliability of a website) were not significantly different, meaning students performed at a similar level on these two different questions.

To address the third research question, three repeated measures ANOVAs were used to compare mean differences in CE to mean differences in each of the other four LESC skill areas (Locate, Synthesize and Communicate), within each of the three formats (Closed, Open, and Multiple Choice). The means and standard deviations of these analyses are presented in Table 2. The first repeated measures ANOVA was conducted to compare scores in the Closed format. Multivariate results show that there was a significant overall effect for LESC Skill Area in the Closed format, Wilks' Lambda = .163, $F(3, 191) = 327.44$, $p < .0005$, multivariate partial eta squared = .84. Follow up, post hoc analyses of pairwise comparisons showed that each LESC Skill Area was significantly different from each

other LESC skill area ($p < .005$), except for Evaluate and Communicate. This indicated that student performance in these two skill areas was not statistically different in the Closed format. Students scored higher on synthesize ($M = 6.32$, $SD = 1.76$) than on Locate ($M = 3.85$, $SD = 2.27$), followed by Communicate ($M = 3.12$, $SD = 1.86$) and Evaluate ($M = 2.84$, $SD = 1.54$).

The second one-way repeated measures ANOVA was conducted to compare scores in each of the four skill areas in the Open format. These means and standard deviations are also presented in Table 2. There was a significant effect for LESC Skill Area, Wilks' Lambda = .210, $F(3, 167) = 209.14$, $p < .0005$, multivariate partial eta squared = .79. Follow-up post hoc analyses of pairwise comparisons showed that each LESC Skill Area was significantly different from each other LESC skill area ($p < .005$), except Evaluate and Communicate, as was found in the Closed format. Synthesize ($M = 6.10$, $SD = 1.74$) scores averaged higher than Locate ($M = 4.44$, $SD = 2.32$), Communicate ($M = 3.00$, $SD = 1.74$), and Evaluate ($M = 2.71$, $SD = 1.43$) scores, with Locate scores ranking second highest. Communicate and Evaluate score averages were lowest.

The third one-way repeated measures ANOVA was conducted to compare scores in each of the four skill areas in the Multiple Choice format. The means and standard deviations are presented in Table 2. There was a significant effect for LESC Skill Area, Wilks' Lambda = .63,



$F(3, 224) = 43.19, p < .0005$), multivariate partial eta squared = .37. Additionally, post hoc analyses of pairwise comparisons showed that there was significant difference ($p < .0005$) between Locate and Synthesize, Locate and Communicate, Evaluate and Synthesize, and Evaluate and Communicate. Evaluate scores were significantly lower ($M = 4.95, SD = 1.67$) than both Synthesize ($M = 5.87, SD = 1.78$) and Communicate scores ($M = 6.10, SD = 1.67$), but not significantly lower than Locate ($M = 5.15, SD = 1.87$) scores.

To answer the fourth and final research question, a one-way, between groups ANOVA was conducted to evaluate whether there was a significant mean difference in CE scores between the three formats, including Closed, Open, and Multiple Choice. A one-way between groups

ANOVA was conducted to determine how well CE performed in each of the three LESC formats. Means and standard deviations are presented in Table 4. There was a statistically significant difference at the $p < .0005$ level in CE scores for the three formats: $F(2, 588) = 135.69, p = .000$. The effect size, measured using eta squared, was .316. Post-hoc comparisons indicated that the mean score for CE in the Multiple Choice format ($M = 4.95, SD = 1.67$) was significantly different from mean scores of CE in both the Closed format ($M = 2.84, SD = 1.54$) and the Open format ($M = 2.71, SD = 1.43$). Students scored higher on CE in the Multiple Choice Format than in either the Closed or Open formats. There was no statistically significant difference for CE between the Closed and Open formats.

Table 4: Student Performance on Critical Evaluation in Each of the Three Formats: Closed, Open, and Multiple Choice M (SD)

Format Group	Format Group	Statistical Test	p
Multiple Choice 4.95 (1.67)	Closed 2.84 (1.54)	$F(2, 588) = 135.69$.000
	Open 2.71 (1.43)		.000

Note. Effect size: Eta squared = .316

Discussion

This study sought to determine how well seventh graders in a large, representative state sample ($n = 591$) critically evaluated online information. Specifically, this study examined students' performance in overall CE compared to their performance in three other skill areas, both within and across three different assessment formats. It also evaluated how well students performed in CE in each of the three formats.

Comparing CE to Locate, Synthesize and Communicate in All Formats Combined

Results from the analysis of our first research question indicated that CE was the most difficult of the four skill areas for students in all three

formats combined, though the difference between CE and Communicate in the Open and Closed formats was not statistically significant. This finding supports an existing body of research that shows online CE is one of the most difficult online reading comprehension skills. As with studies of CE among older, college-aged students (Bråten, Strømsø, & Britt, 2009; Goldman, et al., 2012; Sanchez, Wiley, & Goldman, 2006), in this study, CE persisted as one of the most difficult skill areas for this younger, seventh-grade student population. The current study also demonstrates that even within a performance-based environment like the Closed and Open formats that more closely mimics an authentic Internet context, CE was one of the most challenging of the four skill areas for students.

Therefore, CE is one of the five skill areas of the new literacies of online research and

comprehension (Coiro, 2003; Leu, et al., 2011) that may warrant the most instructional attention.

However, additional research is needed to determine in what ways CE is more difficult than other online reading and research skills, and how teachers should approach instruction of these skills. We do not know, for example, the types of challenges CE poses for students, or the ways in which students typically understand CE and attempt to use it when gathering sources. A follow-up qualitative analysis of students' responses to the four critical evaluation questions would be useful in adding to our understanding of this issue. Nevertheless, findings from the present study can inform both research and practice by helping to make us more aware of the significant difficulty students face when attempting to evaluate the information they find online.

Comparing the Four Dimensions of CE in All Formats Combined

Findings from the analysis of our second research question also can inform research and practice by showing us which online CE dimensions are most difficult for students and where there is a greater need to focus instruction. Students scored highest on score point one, identifying the author of the website ($M = 1.62$, $SD = .61$). This was followed in order of difficulty by score point three, or identifying the point of view of the author and a piece of evidence that supports that point of view ($M = .77$, $SD = .77$). There was no statistically significant difference in student performance between score points two and four, though score point two, evaluating the expertise of the author, had a higher mean score ($M = .65$, $SD = .74$) than score point four, evaluating the overall reliability of a site ($M = .57$, $SD = .72$).

These results show that score point two (determining author expert status) may have been more difficult for students than was score point three (providing author's point of view). One reason for this could be that score point two measures a higher-level skill than score point three. Although the score points were designed to

be increasingly challenging, it appears that students actually had more difficulty determining expert status, even though it came before evaluating point of view in the task. However, it may be useful for students to evaluate the author's expertise prior to examining the author's point of view. Students' knowledge of author background and expertise may help to inform their evaluation of an author's point of view. This raises questions about whether skills in an assessment of online comprehension and research should be ordered from lower to higher levels of difficulty, or if it is more important for the questions to follow the logical sequence of the task. It may also be that an assessment that mirrors the complexities of an authentic online research experience, one in which students are naturally and logically moving back and forth between lower- and higher-level skills, is the best kind of assessment to determine students' actual capabilities.

Comparing CE to Locate, Synthesize, and Communicate in Each Format

When we investigated our third research question, we found a significant difference in the mean scores of Evaluate compared to the mean scores of Synthesize, in each of the three formats, with students scoring higher on Synthesize items than on Evaluate items. In the Closed format, the mean scores for Evaluate also were significantly lower than those for Locate. In the Multiple Choice format, the mean scores for Evaluate were significantly lower than those for Communicate. As the analyses that combined the three formats showed, the difficulty of CE persisted when we looked at its effect in each of the three formats separately, especially compared to Synthesize. Thus, CE was one of the most difficult of the four skill areas regardless of the format in which it was assessed.

In the Closed and Open formats, it may be that Communicate posed as great a challenge as Evaluate, since students had to know how to use the email or wiki communication tools in order to be successful. In the Multiple Choice format,



these questions were simplified, as students did not have to perform these actions but simply had to choose from a set of answers. Thus, it makes sense that Evaluate would be significantly harder than Communicate in the Multiple Choice format.

That CE persisted as one of the most difficult of the four skills across all three formats may suggest that all three formats are valid ways of measuring students' ability to critically evaluate information online. It may also suggest that CE is, in fact, one of the most difficult of the four online reading and research skill areas for seventh-graders, since students consistently scored lower in this skill area regardless of the format in which it was measured. Teachers should thus pay particular attention to both instruction and assessment of this important yet challenging skill.

Comparing CE in Three Formats: Closed, Open, and Multiple Choice

When we compared CE in the three formats to investigate our fourth and final research question, we found a significant difference in the mean scores of CE in the Multiple Choice format compared to both the Closed and Open formats, though there was no significant difference in mean scores between the Closed and Open formats. While the three formats were developed to be similar to one another, these results show that CE poses less of a challenge in the Multiple Choice format than it does in the other two formats.

One reason for this may be that the Multiple Choice format offers a time advantage to test takers that the other two formats do not. The four CE score points appear in a linear sequence about three quarters of the way into each assessment in all three formats. Students tended to finish the Multiple Choice sessions much more quickly than they finished the Closed or Open sessions. Thus, it is possible that students taking the Closed and Open formats were fatigued by the time they engaged in the four CE skills, while students taking the Multiple Choice format were not.

It is also important to consider that students

taking the Multiple Choice test may have had a navigational advantage that students taking the other two formats did not. Students taking the Closed and Open formats had to click on a link in order to navigate to the website they were to evaluate. The CE website contained a hyperlink that students could click on in order to obtain information about the author on the author biography page. However, the student had to decide whether or not to access this page and to figure out how to access the page with additional information. In the Multiple Choice format, however, both the CE website and corresponding author biography page were presented to students alongside the question and answer choices. Thus, students taking the Multiple Choice format had a greater chance of reading both pages since they were guided to do so.

A third possible reason that CE performed better in the Multiple Choice format than in either the Closed or Open format may be that CE was measured somewhat differently in the Multiple Choice format. Because of the nature of multiple choice testing, it is possible that the presentation of the CE items may have been less complex in this format, and may therefore have required less cognitive demand for students than it did in the other two formats. Rather than generating a response to the four CE questions on their own, as they were required to do in the Closed and Open formats, students taking the Multiple Choice assessment only had to choose from four possible answers. Each question also was presented on its own with its own images to use as reference points, whereas in the Closed, students had to manage multiple windows and types of information, including a notepad, a search window, the social networking site, and the email or wiki window. The CE task was thus much more complex in the Closed and Open formats than in the MC format.

Non-performance based assessments, such as the Multiple Choice format used in the present study, may overestimate students' critical evaluation abilities. While performance-based assessments such as the Closed and Open formats used in the current study may be more difficult

and time consuming to construct and score than non-performance based formats, they may also more accurately estimate students' abilities. Test creators of multiple choice assessments, and those using and interpreting test results, should therefore keep this in mind when examining test data and forming conclusions about students' ability to critically evaluate online information.

Implications and Limitations

Findings from this study contribute to literacy research and teaching practices in several key ways. First, findings add to existing research on CE by expanding our knowledge of how students perform in CE when it is assessed in performance-based and non-performance based ways. This study is one of the first to evaluate adolescents' use of CE in an online environment within a performance-based assessment. Thus, the findings from this study, especially those that compare the three formats, are particularly informative for understanding how students actually conduct research in an online context.

Second, findings contribute to a growing body of research on CE showing it is a difficult skill area for students. CE may be one of the five online reading comprehension skills that is the most difficult for students and thus warrants the most careful instructional attention. Findings can inform existing literature on how students perform in online CE to support future studies and practice. Findings thus inform thinking about on which online skill areas teachers should focus the most, given what many students currently are able to do. Additionally, results show with which dimensions of CE students struggle the most and thus can guide teachers to focus on teaching and assessing the most complex and nuanced skills involved in the already complex skill area of CE. This may be especially timely, as teachers will need to teach and assess these types of skills with the implementation of the new Common Core State Standards (2012) in 2014.

Finally, findings from this study raise important questions about how best to teach and

assess the CE of online information. The analyses conducted in this study show that CE may be one of the most persistently difficult skills for students when reading and conducting research online. The analyses conducted in this study do not show what effective instruction that addresses deficits in CE skills might entail, and spending more time teaching CE skills will not necessarily result in increasing students' ability to effectively evaluate online information. Additionally, teachers may not have adequate technological skills to begin teaching online CE to their students. Thus, more research needs to be conducted to determine what effective versus ineffective instruction in CE of online information entails and how teachers can prepare for this instruction.

Without knowing how to teach and assess CE, we risk students learning only lower-level digital literacies skills, such as locating information, without also learning the higher-level skills necessary for using that information effectively. As teachers begin to plan for and implement the Common Core State Standards, an important question for both researchers and practitioners to ask is: What is the best approach to teaching and assessing online CE skills, which may be the most difficult and yet also the most critical for students to learn when reading and conducting research online?

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Connecticut Association for Reading Research



Beverly Pearson Memorial Grant *for* **Action-Research**

The *Beverly Pearson Memorial Grant for Action-Research* is an award for up to \$600 intended to encourage and support literacy research by practicing educators.

Purpose of the Grant Award

Teachers, literacy consultants, literacy specialists, or administrators who are current members of CARR and are interested in conducting action-research in the area of literacy may submit a proposal not to exceed a budget request of \$600.00. It is expected that these proposals will be scholarly and will be based on scientific principles of quality action-research. The purpose of this proposal ultimately will be to share action-research that is grounded in theory and practice with the CARR membership.

Eligibility

Application is open to teachers and educators who are current members of CARR. Teams of teachers/educators may apply as long as one member of the team is a current CARR member in good standing. Approval by building and/or district supervisor is required.

Application

Proposals must be submitted by November 15th
If awarded, applicants will be notified in December.

See CARR website at <http://ctreadingresearch.org> for application and contact information.



**The Effectiveness of Using a Written Response Strategy
for Responding to Texts
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Author's Note: Lindsey Nichols, School of Education, University of Bridgeport. This research was submitted in partial fulfillment for the Reading and Language Arts Consultant Sixth Year Certification Program with Dr. Patricia Mulcahy-Ernt, Advisor, University of Bridgeport.

Abstract

This study examined the effectiveness of using the RACE strategy in students' written responses to text. The strategy was taught to sixth grade students in an average level reading class in order to determine if it helps students write more thorough, elaborated, and organized responses to texts. The students were given a pre-assessment prior to learning the RACE strategy and a post assessment upon three months of practice applying the strategy in their own written responses. It was predicted that the RACE strategy would help students to write more thorough, organized, and elaborated responses to text and improve students' scores on reading assessments containing open-ended responses. The RACE strategy did have a significant effect on students' reading assessment scores, and the overall quality of the students' written responses improved.

RACE Strategy: The Effectiveness of using a Written Response Strategy for Responding to Texts.

Students in classrooms across the nation are being asked to demonstrate their reading comprehension of both expository and narrative texts through their written responses on state and district assessments. The Common Core State Standards (CCSS), which have been accepted by forty-five states, emphasize higher-level comprehension skills to a greater degree than previous standards. Reading and writing are equally important according to the new standards.

Reading is now being assessed through student writing.

The current study was designed to determine the effectiveness of using RACE as a response strategy when composing a written response to text. It was predicted that students who accurately use the RACE response strategy would have improved scores on the school's benchmark assessments and the state reading assessments, and that the overall quality of their written responses to text would improve.

RACE is an acronym that reminds students of the specific criteria needed in a quality written response. The R in RACE represents the topic sentence in which the student restates the question, framing the entire response. The A signifies the answer to the question, articulating the student's thoughts and/or ideas. The C represents the text citations, which are needed to support the answers. Finally, the E reminds the student to explain how textual evidence supports the answers, concluding the responses.

In the past decade there has been an emphasis on the connection between reading and writing. In today's classrooms, reading and writing are taught together rather than in isolation from one another. "A growing body of research has demonstrated that reading and writing are closely related and that both processes can be learned better in connection with each other rather than in isolation. Making meaning is the core of the reading-writing connection" (Savage, 1998, p. 342). Both involve critical thinking skills. "Today's readers are asked to integrate information from several texts and to explain



relationships between the ideas and author's craft. The CCSS expect students to cite evidence as they explain what the text teaches in their writing" (Calkins, Ehrenworth, & Lehman, 2012, p. 41).

Under the new Common Core Standards, by the third grade students are expected to explicitly refer to the text and cite specific examples and pages to support their written responses. By fifth grade, students must accurately use quotes from the text to explicitly explain their answers. As a reading teacher, I frequently ask my students to demonstrate their thinking about a text through an open-ended written response. In the book, *Pathways to the Common Core*, Calkins et al., (2012) state that, "The ability to convey knowledge is becoming just as important as knowledge itself" (p.110). The more students write about literature the more proficient they become with reading and writing; therefore, their reading comprehension increases. Students need specific strategies when writing an open-ended response text. "Reading-writing connections must be made explicit. The transfer of knowledge between reading and writing is not automatic. Writers construct meaning as they select words and craft language structures so that they will convey on paper this meaning to others" (Savage, 1998, p. 344-346).

Many students struggle with writing quality answers to the open-ended comprehension questions on reading assessments. Teachers do their best to explain to students how to formulate and write a written response to text, but there is no specific formula that students learn year after year for something they are constantly asked to do. Students now more than ever need to be able to effectively demonstrate their reading comprehension through their written responses with the new Common Core Standards that are currently taking effect.

The stakes have been raised for students' written responses to text. Student responses and scores on district and state testing are compared between classrooms as well as between different schools and districts within each state. In her book, *Teaching Written Response to Text*, Nancy Boyles explains, "We should not assume that

children can automatically translate their thinking out loud about text into thinking on paper" (Boyles, 2002, p.2). To help students write clear and logical responses to text, they need to be familiar with the expository text structure.

During my first few years of teaching, I noticed that my students' written responses to text lacked specific information, organization, and overall quality. In addition, several teachers that I spoke with at the elementary and middle-school level also expressed that getting students to write quality responses to text was a common challenge. One teacher commented that her students' responses, "lacked organization and elaboration." It is my hope that students' responses to text will improve through the use of the RACE strategy.

A written response to text is a form of expository writing and can be explicitly taught just as the five-paragraph essay is taught in classrooms. Teachers must make students aware of the type of information that should be included in their responses and how each response should be organized. Calkins states, "It is important to teach students how to organize and elaborate on facts and ideas, to decide on priorities, to look at information through different lenses, and to entertain questions" (Calkins et. al., 2012, p.153). The CCSS expect that students can independently include a variety of types of evidence (e.g., facts, definitions, quotes) and use language that connects that evidence within their writing. Under these new standards, students learn to craft their writing, find key details, elaborate on the details, and include them within their own writing in a way that clearly expresses their ideas.

A typical written response to text contains a topic sentence, some details from the text and/or quotes, and a concluding sentence. In order to write a quality response to texts, students need to have a solid comprehension of the text. "We cannot expect students to respond to literature they don't understand" (Boyles, 2002, p.28). Writing a thorough, organized, response requires good instruction in the process of writing. Explicit instruction (also known as direct instruction) is important to teaching students how to write effective responses. It sets the purpose for

learning and provides clear explanations of what to do. It begins by modeling the process and is followed by multiple opportunities for guided practice until students gain independence. This is the gradual release of responsibility to the students.

Teachers often ask students to add more details to their written work, but students typically do not understand what the teacher means when he or she says this. “This may mean adding a physical description, a private thought, a gesture, dialogue, a comparison, examples, and/or anecdotes. Teachers sometimes assume that students understand exactly what the word ‘details’ means” (Boyles, 2002, p. 14.) Teaching students what adding details means and showing them modeled examples of responses with the ideal number of details helps them to better understand what to do when they are asked to add more details to their written work.

Methodology

Participants

Participants included thirty-one sixth grade middle schools students from a rural community. The students were of average ability and placed in an average level reading class. Class placements were determined based on the Connecticut Mastery Test results from the previous school year and teacher recommendations.

Materials

Students read four passages and answered eight open-ended responses on both the pre-assessment and post assessment. The reading passages and questions were taken from *4th-Generation CMT Language Arts Coach* books. The written responses of the students were measured using the same criteria as the Connecticut Mastery Test. Students responses were scored with a 0, 1, or 2.

Procedure

Students were given a pre-assessment at the beginning of the school year prior to any instruction on the RACE written response strategy. The pre-assessment contained three reading passages along with eight open-ended responses for students to answer which were based on the readings. Unlimited time was given to all participants to complete the assessment. A post-assessment was administered after three months of explicit instruction and guided practice on how to effectively use the RACE strategy. The post-assessment was in the same format as the pre-assessment. An unlimited amount of time was given to read the passages and write eight responses to the open-ended questions.

The written response strategy used during the study was termed RACE. RACE is an acronym that reminds students of the specific criteria needed in a quality written response. The strategy is a tool to help students write more thorough, elaborated, and structured responses to text. The RACE written response strategy was shared with me by a fellow colleague. My colleague had observed her mentor teacher use the strategy during her student teaching. It is unknown where or from whom this strategy originates.

The purpose of this research study was to determine if using the RACE strategy would improve the overall quality of students’ written response on reading assessments containing open-ended responses. Although, there may be some relationship between using the RACE strategy and students’ reading comprehension, the central purpose of the strategy is to improve written responses to text using specific textual evidence which is needed to support their answers. A strategy poster explaining RACE was posted in the classroom and a copy was given to the students to use as a resource when writing a response to text.

The RACE strategy was taught at the beginning of the school year in order to allow students multiple opportunities to practice it and become proficient using it. A poster containing the



acronym RACE and the meaning of each letter was posted in the classroom so that students were constantly aware of the criteria needed in order to write a well-crafted written response to text.

Instruction began by first making sure students were aware of what the questions were really asking. This was done by showing students how to carefully read the questions and highlight key words or phrases. This step was modeled for the students until they were able to recognize the key words and phrases on their own.

Once students had analyzed the questions and determined the type of information needed to answer the question they began using RACE. The R in RACE represents the topic sentence in which the student restates the question, framing the entire response. This demonstrates that the student understands what the question is asking. The A signifies the answer to the question, articulating the student's thoughts and/or ideas. The C represents the text citations, which are needed to support their answers. The citations must be relevant and meaningful to the answer. Finally, the E reminds the students to explain how their textual evidence supports their answers, concluding the responses.

In order for the students to accurately do this, the RACE written response strategy must be modeled and many opportunities for guided practice must be given.

The RACE strategy was explicitly taught to the students beginning the day after the pre-assessment was administered. Using a PowerPoint presentation, students were introduced to the term and what it represented. The students looked at actual samples of student responses and how the strategy applied to the responses. They were able to see the difference between responses that were general and vague when the strategy was not used, compared to the responses that were more detailed and organized when the strategy was applied. Just as with teaching any new skill or concept, it was important to model the use of the strategy first. In order to show each element of the strategy, I would highlight or color code each part of the acronym in a sample response. This helped students visualize each step of the strategy. For

example, R is highlighted in red, A in blue, C in green, and E in yellow. The students could then look at the modeled responses and clearly identify how each part of the strategy was used to create a complete response.

Students were continuously exposed to the strategy during the three months time between the pre-assessment and the post-assessment. Initially, the strategy was modeled using a picture book. Students were asked to identify which word best described the main character. Through the use of think alouds, the students were always aware of my thought process as I was responding to the question. When the response was complete, I asked several students to color code my response.

The Value of a Sample Response

“Good written responses don’t magically occur in most students’ writings. Students need help with understanding how to write with clarity, organization and insight. If you want your students to delve into characters’ motivations and choices, you may need to model your own response in front of them and help them pick out the words writers use to get across a point” (Boyles, 2002, p. 17). Many great literature teachers model writing assignments in front of their students - perhaps writing on the overhead or on chart paper and thinking aloud as they go. This makes the composing process more visible to students. In addition to modeling their own writing, teachers can save student samples and use them (anonymously) as examples in later classes.

Results

The initial data taken from the pre-assessment of the thirty-one students indicated that 36% of the students passed or reached the goal score of 10 points or higher on the pre-assessment. Sixty-four percent of the students failed or did not meet goal on the pre-assessment. The majority of students appeared to struggle with the phrasing and/or the format of their responses during the pre-

assessment. The results showed that many students also struggled citing specific text details and/or explaining their responses.

The data from the post-assessment show that 67% of the students passed or met goal and 33% of the students failed or did not meet goal. Goal was a score of 10 points or higher. There was a significant increase in the number of students who passed from the pre-assessment to the post-assessment. It appears that the RACE written response strategy was effective in helping students write more thorough, organized, and elaborated responses to the texts.

Out of the thirty-one students who participated in the study approximately 80% of the students' scores increased from the pre-assessment to the post-assessment. This does not mean that everyone whose score increased passed or met goal on the test, but rather it shows the percentage of students who displayed growth from the September assessment to the December assessment. On average, students' scores increased by 2.3 points and students whose scores decreased did so by an average 3.44 points.

Discussion

The purpose of this study was to determine if using the RACE written response strategy helped to improve the overall quality of students' written responses to texts. It was predicted that when applying the strategy to their open-ended response, students would have more thorough, organized, and elaborated written responses. The results of the study showed that using the RACE strategy when answering open-ended responses did in fact help to improve students' responses overall. The hypothesis was supported in this study. Of the thirty-one students analyzed during the research, 80% of the students' scores increased after being taught how to use and apply the RACE strategy to their own written responses. Not all of the 80% of students whose scores increased reached goal. The students whose scores increased did so by an average of 2.3 points; however, the students whose scores decreased from the pre-

assessment to the post assessment decreased by an average of 3.44 points.

It is interesting to see that although only nineteen percent of the students' scores decreased, their scores decreased by a greater numbers of points than the number of points the students' scores increased. It is unclear as to why this may have happened, but it may be due to poor comprehension of the text. The texts given to the students were selected from the *4th-Generation CMT Language Arts Coach* books. All of the texts students were asked to read were at the sixth grade reading level. Students' interest level in the text topics from the pre-assessment to the post-assessment may have decreased or may have been a contributing factor as to why some students' scores were lower on the post-assessment.

Both the pre-assessment and the post-assessment were given at the same time of day for the students; however, the time of the school year in which the tests were given may have also affected the scores. The post-assessment was given close to the holiday break when students' excitement level tends to be much higher and their concentration is lacking.

The RACE written response strategy may not improve students' reading comprehension, but rather helps educators understand students' thinking about a particular text. The strategy allows students to better organize and elaborate their written responses clearly showing their thinking on paper. Students not only answer the questions when using the strategy but are also able to support their answers with specific text citations and explain how the citations they chose help to support their answers. In conclusion, the results of this study show that the RACE written response strategy is effective in helping students improve the quality of their responses with respect to organization, elaboration, fluency, and thoroughness.

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