Connecticut High School Teachers' Knowledge, Needs, and Expertise in Teaching the New Literacies of the Internet and other Technologies

Connecticut Association for Reading Research

A Summary of the Research Report

Submitted By

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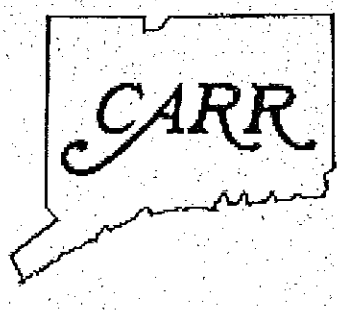

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The **Full Report** of the study (126 pages) will be available on CD and in print format for $15 (to cover the cost of printing and postage). The **Summary Report** and the **Executive Summary** are available for free through the Connecticut Association for Reading Research website at http://users.ntplx.net/~ctread/. A hard copy of the **Executive Summary** is also available to all CARR members for free. For more information on how to obtain any of these documents, please contact Drs. Catherine Kurkjian (kurkjianc@ccsu.edu) and Julia Kara-Soteriou (karaiou@ccsu.edu).

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Purpose

A few years ago, the Connecticut State Department of Education (CSDE), published its first position statement on educational technology and information literacy (Connecticut State Board of Education [CSBE], 2004). Through this publication, the CSBE stated its belief that literacy requires more than the ability to read, write, and compute and that, in order to respond adequately to the needs of the 21st century world, students should also develop and use strong technological skills. To ensure that Connecticut students will acquire these skills and reach technological literacy, the CSBE described the essential role that the CSDE, schools, universities, and families should play. For example, the CSDE is expected to promote technological literacy by establishing high standards and developing a preK-12 technology plan across content areas, as well as developing technological literacy assessments for students and educators. Similarly, school districts are expected to provide ongoing professional development on the integration of technology across the curriculum and ensure that teachers and educational leaders have the qualifications to incorporate technology in their curriculum.

According to the CSBE (2004), educators should also play an essential role in ensuring technological literacy. For example, educators are expected to be teaching their students how to assess online resources, how to follow copyright and citation rules, and how to demonstrate appropriate network etiquette. Educators are also expected to use technology as an effective assessment tool and to teach their students to use technology to conduct research and communicate information and ideas (CSBE, 2004). Briefly the CSBE expects educators to prepare their students for what reading scholars call New Literacies (Lankshear & Knobel, 2003; Leu, Kinzer, Coiro, & Cammack, 2004) of the Internet and other information and communication technologies.

The purpose of this study was to investigate how high school teachers, who teach in the areas of English, language arts, remedial reading, social studies, and technology education, as well as librarians and media specialists, understand and apply the new literacies. In particular the study examined the role of the new literacies in the integration of literacy and technology, through an investigation of the proficiencies in using and implementing the new literacies, the supports and challenges in teaching and learning the new literacies, and the educational background and preparation in integrating the new literacies in the classroom. The overall goal of this study was to inform public policy in light of the Connecticut State Department of Education's position statement on educational technology and information literacy (CSBE, 2004), as well as the Department's framework on information and technology literacy (CSDE, 2006) and the increased use of technology by students in and out of school (The Pew Internet & American Life Project, 2002).

Research Questions

The research questions that guided the study were the following:

1. What do the selected high school teachers report regarding their proficiency in using and in teaching new literacies skills?
2. What do the selected high school teachers report regarding supports and challenges to teaching new literacies?
3. What do the selected high school teachers report regarding their professional development needs on literacy and technology?
4. What are the selected high school teachers' assumptions and understandings regarding the instruction and assessment of the new literacies?

Methodology

Accounting for a 5% error and 95% confidence level, a randomly selected stratified sample (Rea & Parker, 2005) of 1476 participants was selected from a population of 3955 high school teachers in Connecticut. The participants were assigned in three groups, based on their areas of expertise. Group 1 consisted of English teachers, language arts consultants, and remedial reading teachers; group 2 consisted of social studies teachers; and group 3 consisted of librarians, media specialists, and technology education teachers.

Data were collected with the use of the New Literacies Survey (see Appendix), which was developed by the CARR research committee and with the assistance of experts in the field of reading and the new literacies. The survey consisted of five sections of mostly selection type items (i.e., Likert-scale format questions, dichotomous Yes/No questions, choose-a-number/statement questions), as well as open-ended questions and fill-in-the blank questions.

The survey was posted online at http://www.reading.ccsu.edu/Kurkjian/CARR/carr.htm and was then sent to the participants' school principals who were asked to distribute to the randomly selected teachers at their schools. Through an informational letter, the participants were asked to either submit the survey online or use a copy of the paper version of the survey that was sent to the school principal and then mail it to the researchers. From the 465 returned surveys, 445 were submitted online and 20 were sent by mail. Instead of using their names, the participants used IDs provided by the researchers. The survey was sent to the participants in April 2006. The last survey was returned in late June 2006, after an email reminder had been sent to the participants about the importance of their participation in the study.

A total of 465 participants (or 31.5% of the sample) returned the survey. Group 1 represented 49.0% of the sample (versus 53.7% of the population), group 2 represented 28.1% of the sample (versus 30% of the population) and group 3 represented 22.8% of the sample (versus 16.3% of the population). From the participants who returned the survey, 41.5% were male and 58.5% were female. While 20% of participants reported more than 25 years in teaching, the average number of years in teaching for all participants was 12.8 years and the average number of years in current position was 8.6 years. Most participants (78.9%) held a degree beyond the Bachelor's level. With the exception of school districts in District Regional Groups (DRG) E and F, and to a lesser extent DRG A, all school districts were represented fairly well.

The collected data were analyzed using both quantitative and qualitative data analysis procedures. In particular, the data analysis focused on how proficient teachers felt they were with the use of certain technologies inside and outside their classrooms, how much access to technology teachers had in their schools, what teachers thought about past professional development as it related to the integration of literacy and technology, what they expected from future professional development and what the teachers' educational background was with respect to literacy, technology and the new literacies.

Summary of Results

Proficiencies in Using and Teaching New Literacies

- The new literacy skill in which most of the participants (81.7%) rated themselves as *Highly* proficient was the use of email for learning purposes. The new literacy skill of using a search engine efficiently was also a skill that a very large percentage of participants (78.5%) rated themselves as *Highly* proficient.

- A higher percentage of participants always rated their proficiency as "High" in *using* the Internet in a particular way than in *teaching* the students to use the Internet in that same way.
- Group 3 reported being more proficient in *using* and in *teaching* students to use text with multimedia and visual information on the Internet to construct meaning than group 1 did. No significant differences were found between group 3 and group 2, or group 1 and group 2 with respect to the same skill.
- Group 3 reported being more proficient than the other groups in *producing* and in *teaching* students to produce electronic information that makes use of visuals (such as graphs and charts) to clarify and extend ideas. Group 2 was more proficient than group1 in using the same skill but not in teaching it to students.
- Group 3 reported being more proficient than group 2 in *publishing* and in *teaching* students to publish writing products (poems, stories, projects) on the Internet.
- Statistically, there was no difference among the three groups with respect to their ratings of their overall proficiency to read and write on the Internet. However, group 3 reported being more proficient than the other two groups in *teaching* overall Internet proficiency.
- Group 3 reported to be overall more proficient than groups 1 and 2 in *multimedia/visual use* and in *publishing on the Internet,* as well as in *teaching* students to use multimedia/visual skills and in publishing their work on the Internet.

The Responsibility to Teach the New Literacies

- A large percentage of participants supported the view that teaching students to read and write in an informational age should be the responsibility of *all* the teachers who interact with students within the classroom context.
- Most participants supported the view that teaching students to read and write in an informational age should become an educational priority for their school.
- Most participants supported the view that students require *explicit* instruction in learning how to read and write in an informational age.

Professional Development and the New Literacies

- Less than 50% of the participants reported that they were provided with professional development in relation to helping students to learn to read and write in an informational age. Statistically, the amount of professional development offered was the same across the three groups of participants, as well as the different District Regional Groups.
- Most participants (85.8%) who attended professional development thought that their professional development was Fair (41.3%) or Good (44.5%). Only 12.4% of the participants rated their professional development as Excellent.
- Groups 1 and 2 called for all teachers to become more proficient in new literacies and to take on a shared responsibility for teaching them to their students. This finding was also supported by the teachers' quantitative responses to section II of the survey (under Responsibility to Teach the New Literacies heading as listed above).
- Participants from all three groups reported having been offered a variety of venues and formats for professional development.
- While they were asked about professional development on the new literacies, participants from all three groups also mentioned professional development on the foundational literacies, including reading comprehension strategies, content area reading, writing workshop, and CAPT workshops.

- More than 10% of the participants from at least one of the groups reported being offered professional development in the following topics: Software training (all groups, but mostly groups 1 and 3), Internet use (all groups, but mostly group 2), and researching online (all groups, but mostly group 3).
- Participants across all groups (but not more than 10% from each group) reported having been offered professional development on equipment/hardware training (i.e., printers and SMART Boards), Internet resources, online communication tools (i.e., chat rooms and blogging), and content specific to the curriculum needs of particular teachers.
- Mostly group 1 and to a lesser extent group 3 reported having been offered professional development on copyright issues.
- More than 10% of participants from group 2 reported having been offered professional development on pedagogical strategies that could support the use of technology in the classroom.
- Less than 10% of participants from groups 1 and 2 reported having been offered professional development on how to use technology tools and Internet-based instructional frameworks, and how to teach students to write using the Internet, word processing, and other instructional software.
- All three groups recommended that professional development becomes more specific to the participants' content and curriculum needs and provide sufficient time to develop a comfort level, by building in time to practice, explore, and receive help from support personnel in follow-up meetings.
- Participants from all three groups (especially groups 1 and 3) called for professional development by presenters with higher levels of expertise and expertise more relevant to the content presented.
- Participants from all three groups (especially group 1) expressed a frustration for professional development on tools that were not available or easily accessible by teachers.
- Participants recommended school-wide conditions that support professional development, such as collaboration among teachers (this was particularly important to group 3 who indicated collaboration around team teaching of research projects), and curriculum/ instructional and organizational factors (this was particularly important to group 1), including curriculum priorities, administration support, and state/federal mandates.
- While not more than 10% from any group, participants from all groups commented on the need to allocate more resources to offer more frequent professional development on the new literacies, purchase/maintain technology equipment, and pay for technical support.
- While not more than 10% from any group, participants from all groups offered suggestions for professional development with direct classroom applications, professional development on web-based method frameworks, and professional development on how to teach students to locate and evaluate websites.
- Group 2 and group 3 (more than 10% and mostly the technology education teachers) recommended professional development on the "traditional" literacies of print-based materials, including reading in the content areas, critical reading strategies, writing across the curriculum, and reading comprehension strategies.
- More than 10% of participants from at least one of the three groups recommended professional development on software training (all groups), on copyright issues and webpage development (groups 1 and 2), on researching Internet resources, and on content specific to their area and curriculum needs (groups 1 and 3).

- Groups 1 and 2 also shared a common interest in professional development on online research, on publishing their work and their students' work online, and on integrating literacy and technology.

Supports and Challenges in Teaching and Learning New Literacies

- Group 3 had statistically more computers in their classrooms than group 1 and group 2. Access to classroom computers was statistically the same for groups 1 and 2. Only a small percentage (6.0%) of participants did not have access to a classroom computer. Almost 50% of the participants, mostly group 1 and group 2 teachers, had access to at least one classroom computer. A relatively high percentage (26.5%) of participants (mostly group 3) had access to more than 5 computers.
- Most computers in the participants' schools were Internet connected and most participants had access to those computers. The percentage of participants who did not have access to Internet connected computers was 9.5%. Group 3 had statistically more Internet connected computers in their classrooms than groups 1 and 2. Access to classroom computers was statistically the same for group 1 and group 2.
- Almost all participants (93.8%) reported having access to an Internet connected computer lab in their schools. However, some of those who said that they did not have access to a computer lab did not necessarily imply that the school did not have an Internet connected computer lab. Instead, they implied that the participants themselves did not feel they could access the computer lab easily or at all. Responses to open-ended questions about factors that impacted the participants' teaching of the new literacies included the difficulties many had in actually accessing their school's computer lab.
- More than 10% of participants from all three groups considered *access to technology* a key factor in terms of both supports and challenges for using the new literacies. When access was mentioned as a support, it included availability and ease of use of computers in labs, in the media center, and in the students' homes, as well as availability of LCD projectors, SMART Boards, and laptops on mobile carts. Within this category, a cluster of responses focused on the importance of timeliness of availability as it fit in with ongoing curriculum. When access was mentioned as a challenge, it included crowded labs and not enough computers for the numbers of students in a given class and in relationship to the size of the school, as well as difficulties in scheduling computer labs in a way that was timely and paced with daily lessons. Access as a challenge also included outdated computers, technology glitches, bad Internet connections, limited storage space, software mismatches, and school/district policies that blocked easy access to information on the Internet.
- More than 10% of participants from all three groups considered *curriculum, instructional, and organizational factors* as both supports and challenges that appeared to impact the teaching of students to read and write in an informational age, depending on whether these factors were present or not. Supports included administrative support for integrating new literacies into the curriculum, school-wide commitment to preparing students in using new literacies, and cross curricular collaboration and coordination among content area teachers and media specialists. Challenges included lack of instructional and administrative leadership, a focus on curriculum/assessment, the specific programs/classes offered at the school, departmental organizational responsibilities, district initiatives, and state and district mandates, along with the impact of the No Child Left Behind legislation (No Child Left Behind Act of 2001, 2002).

- More than 10% of participants from all three groups cited *Support Personnel* as an essential component to integrating new literacies into the curriculum. Support staff cited by participants included instructional staff, administrative staff, library media specialists and staff, and educational technology support staff. However, it was the library media specialists and the technical support staff that were cited the most as key factors in positively impacting the teaching of reading and writing in an informational age. Participants' comments suggested that it is a major challenge to teachers when there is no technology teacher at the school or when support staff were considered to be ineffective in their positions (i.e., were spread too thinly across schools to be able to keep labs running smoothly, or were seen to be unapproachable).
- More than 10% of participants from groups 1 and 2 referred to *resource allotment* as both a support and challenge. Comments included budgetary issues that, depending on whether they are present or not, could provide or challenge the access to new technologies, to the allocation of resources for technical support, to professional development, to support personnel, and to the maintenance or purchase of new materials/equipment.
- More than 10% of participants from groups 2 and 3 reported several *student factors* as being challenges to using the new literacies. These factors included student academic factors, student dispositional factors, instructional factors, and social factors.

Assessment of the New Literacies

- One hundred and seventy-nine participants (179) agreed and 224 participants disagreed with the statement that teachers would have more of an incentive to learn and teach new literacies if students were assessed on their new literacies skills on the state exam. From those who agreed with the statement, 56 had reservations about or disagreed with the *idea* of having a state exam on the new literacies. Among the 224 who disagreed with the statement, 212 participants provided a rationale for their disagreement and/or why they thought it was not a good idea.
- Among the participants who agreed with the statement and the idea, 106 reported a range of reasons for doing so, in part clustering around the view that this policy would result in bringing resources, professional development, administrative support, and positive curriculum reform and accountability to an area that they considered to be a priority for them.
- Those who had reservations or disagreed with the idea had a range of concerns including:
    - Lack of resources, professional development, and technological access in certain socioeconomic groups.
    - Lack of teacher readiness to teach to such a test.
    - Negative view regarding high stakes assessments and its interference with teaching and learning.
    - Lack of clarity between new literacies and foundational literacies.
    - Higher priority for traditional literacies for less advanced students.

Educational Background in Literacy, Technology, and the New Literacies

- A large percentage from group 1 (91.7%) and a smaller, but not insignificant, percentage (54.2%) from group 2 had taken undergraduate and/or graduate *literacy courses*. From group 3, however, a large number of media specialists and technology education teachers had not taken any literacy courses.

- Approximately two-thirds of group 1 and two-thirds of group 2 had not taken any technology courses, whereas almost 85% of group 3 had taken undergraduate and/or graduate *courses in technology*.
- A large percentage of participants (69.2%) had not taken any new literacies courses and no statistical differences were found among the three groups. A small percentage (5.8%) of participants reported having taken undergraduate courses that embedded the new literacies. A slightly larger, but still small, percentage (13.1%) of participants reported having taken graduate courses that embedded the new literacies.

Discussion

The research questions guiding this study focused on teacher self-reports regarding their assumptions, understandings, and proficiencies in using, teaching, and assessing new literacies, as well as educational background in new literacies, and professional development, supports and challenges to teaching new literacies. This is the first study that provides answers to these questions based on data collected from a large, randomly selected sample of high school educators in Connecticut.

The results of this study point to positive indicators regarding the teaching and learning of new literacies. Participants saw themselves as proficient in using and teaching a variety of new literacies and appeared to have positive dispositions towards the importance of new literacies and their responsibility in teaching them. Further, the rate of professional development offered was reported to be slightly higher than the national average, with nearly 50% of participants having reported participation in inservice programs related to new literacies. Moreover, many key factors deemed essential to technology integration in schools/districts were reported to be in place, to varying levels of degrees, for the participants of this investigation.

At the same time, the results in this study indicated that there is work to be done in each of the areas addressed: Proficiency in using and teaching new literacies; responsibility to teach the new literacies; professional development and the new literacies; supports and challenges in teaching and learning the new literacies; assessment and the new literacies; and educational background in literacy, technology, and the new literacies.

Proficiencies in Using and Teaching New Literacies

Participants consistently reported high and/or moderate proficiency in the use, and less so (even though still high and/or moderate proficiency) in the teaching of a variety of new literacy strategies (use of email, synthesizing multiple source of information, and critically evaluating information on websites). These results are supported by open-ended responses across categories in which participants requested that professional development focus on pedagogy to help them develop the instructional skills to teach their students new literacies.

Less confident were the participants' self-reports regarding their proficiency in using and in teaching students to produce text with multimedia and visual information (charts, graphs, video) on the Internet; in producing and in teaching students to produce electronic information that makes use of visuals (i.e., graphs and charts); in publishing on the Internet; and in teaching students to publish on the Internet. This self-reported weakness in the area of multimedia communication is supported in open-ended items in which participants request professional development in basic technology workshops on software and hardware that make the use of multimedia possible. Publishing on the Internet interfaces with traditional literacies in that it entails foundational strategies, such as identifying one's purpose and audience. However, it

addresses new literacies because it involves making use of the affordances of the Internet to support online communication, such as making use of multiple modalities and hypertext in conveying one's message. Participants' self-reported weakness in using and teaching publishing on the Internet is also supported by their requests for professional development on publishing on the Internet.

It is interesting to note that participants in group 3 consistently reported higher proficiencies than group 1 or group 2 in the aforementioned skills (using and in teaching students to use text with multimedia and visual information on the Internet; in producing and in teaching students to produce electronic information that makes use of visuals; in publishing writing on the Internet; and in teaching students to publish on the Internet). Group 3 participants consisted primarily of technology educators and library media specialists, whose positions call for the use of technology in a way that is integral to their curriculum. Additionally, these participants reported having significantly more access to computers and significantly more courses in technology than group 1 and group 2. The finding that teachers in group 3 see themselves as more proficient than the other groups in teaching these skills makes sense in light of research that speaks to the role of access, teacher training, and technology use and integration into the curricular framework as key factors in supporting the use of technology (O'Dwyer, Russell, Bebell, & Tucker-Seeley, 2005; Ringstaff & Kelley, 2002).

Based on our findings on teacher proficiencies in using and in teaching the new literacies, as well as on research that draws on adult learning theory (National Staff Development Council [NSDC], 2000), we recommend that any professional development that is offered focus on practical applications and learning relevant to the unique needs of the participants (Cradler & Cradler, 1995). More specifically, we recommend that:

- English/reading/language arts teachers, social studies teachers, technology education teachers, librarians, and media specialists are offered learning opportunities on the pedagogical aspect of the new literacies, rather than simply the use of a new technology. Learning opportunities should be focused on how the technologies can be integrated in the classroom through specific strategies and instructional frameworks and models.
- Teachers are offered professional development or other type of learning experiences that will help them use and teach the use of multimedia and visual information on the Internet, with the objective to construct meaning. Particular support should be offered to the English/reading/language arts teachers.
- Teachers are offered opportunities to learn to produce and teach students to produce electronic information that makes use of visuals (i.e., graphs and charts). Particular support on this skill should be offered to the English/reading/language arts teachers. The social studies teachers will find particularly useful the learning opportunities that are more focused on the pedagogy of this new literacies skill.
- Teachers are offered professional development or other type of learning experiences that will help them learn how to publish online and how to teach their students to publish online. Particular support should be offered to the social studies teachers.

The Responsibility to Teach the New Literacies

A large percentage of participants supported the view that teaching students to read and write in an informational age should become an educational priority for their schools and that this responsibility belongs to everyone. Not only was this supported by closed items on the survey but also comments on open-ended items that called for collaboration among classroom teachers

and media specialists, as well as collaboration on collegial projects within and across their disciplines. Additionally, participants agreed with the position that students needed to be provided with *explicit* instruction in new literacies. This implied that participants were aware of the important role that teachers play in helping their students develop new literacies.

The finding that teachers believe that teaching students new literacies is everyone's responsibility is in keeping with a view of professional development as a collective effort, focusing on school communities, school goals, and school problems, and in which school leaders play a key role in cultivating success (Cradler & Cradler, 1995; Honey & McMillan, 1996; Little, 2006). Based on the finding that most participants believed that it is everyone's responsibility to teach new literacies, we recommend that:

- As part of a school-wide technology plan, school and district administrators support teachers in a collaborative endeavor to teach the new literacies by creating supportive forums, such as flexible scheduling for team teaching and shared planning, and structures that facilitate teacher collaboration, including time for teachers to plan, experiment, and teach/assess new literacies skills.
- Professional development in school community settings should build on individual and collective expertise to tackle common goals.

Professional Development and the New Literacies

Many of the teachers in this study did not grow up in an information age, did not have new literacies embedded in their teacher preparation programs, did not take technology courses as part of their teacher preparation and/or graduate courses, and many of those who did take technology courses, did not make the connections between technology and literacy. Thus, for these teachers, effective technology integration and use, and the preparation of students to read and write in an informational age rests primarily on the shoulders of professional development. However, similar to other studies (Hernandez-Ramos, 2005), this investigation indicated that less than 50% of participants were offered professional development for technology use and integration and, from these participants, more than 40% thought their professional development was not good enough.

Research in effective professional development speaks to the need for teachers to have a voice in the direction of their professional development (Coiro, 2005; Northwest Regional Educational Laboratory [NWREL], 2001; Robb, 2001; Wells, 2007), the need for ongoing professional development during the course of a teacher's career (International Society for Technology in Education [ISTE], 2000b; North Central Regional Educational Laboratory [NCREL], 2000), and the need for long-term staff development rather than one-time workshop approach (Apple Education, 2004; Cradler & Cradler, 1995; NSDC, 2000). Moreover, literature on professional development advocates the importance of research-based and results driven (Cradler & Cradler, 2000) professional development that is also aligned with curriculum goals, state/national content standards, and an overall vision (Hayes, Schuck, Segal, Dwyer, & McEwen, 2001; ISTE, 2000a; NCREL, 2000).

In the study, teachers expressed their opinion about the strengths and weaknesses of the professional development they were offered and made suggestions as to how their professional development could have better prepared them to integrate literacy and technology into their content areas. Participants also demonstrated a wide range of interests in varying aspects of new literacies to be covered in future professional development. These included mostly copyright issues, webpage development, exploration of Internet resources, and focus on specific content

areas, and, to a lesser extent, basic technology workshops, use of charts, graphs, and visuals, publishing on the Internet, reading on the Internet, using technology to differentiate instruction, and learning to use communication tools and various software. We believe that schools and districts need to tailor their professional development in light of the teachers' comments and recommendations. These, however, should not lead to a laundry list of topics; instead these recommendations should be a starting point for discussion in creating a school-wide vision as to how new literacies and the teachers' needs and suggestions fit in and enhance academic learning. Therefore, based on the participants' input and research in the field of professional development, we recommend that:

- School and district key stakeholders develop a technology plan that articulates a vision of technology use and new literacies in a way that is integral to subject areas and overall curriculum, and incorporates ongoing program evaluation and learning outcome assessments.
- Professional development continues to build on what the participants consider to be the strengths of their current professional development, such as the wide range of venues and formats for professional development (i.e., inservices and conferences).
- Professional development is driven by a needs assessment that is based on concerns and areas of interests shared by the teachers.
- Professional development is clearly aligned with a school-wide technology plan that addresses a range of developmental and curriculum needs in teaching new literacies as a way to promote higher-level academic learning in subject areas.
- Professional development makes clear the distinctions between online and offline reading/writing, and addresses new literacies more as a literacy concern and less as a technology issue.
- Professional development is hands-on and practical and focuses on instructional applications.
- Professional development is supported by learning communities in which participants collaborate on a shared focus aligned with their technology plan and integral to the participants' content areas and curriculum.
- Professional development encourages library/media specialists and teachers from within and across content areas to work towards a common vision.
- Professional development is long-term and provides time for collaborative planning, experimentation, development of comfort level, and implementation.

School/District Supports and Challenges

Availability and *Easy Access* to technology, *Support Personnel*, *Resource Allotment*, *Student Factors*, and *Curriculum, Instructional, and Organizational Factors* (i.e., instructional and administrative leadership, curriculum/assessment focus, programs/classes offered, departmental organizational responsibilities, district initiatives, state and district mandates) were identified by the participants as key categories of conditions which when present were considered supports and when absent were considered challenges in teaching new literacies skills. Based on the participants' comments on supports and challenges and on research about the impact of technology on student performance (Alvermann, 2001; Ringstaff & Kelley; 2002; Sivin-Kachala & Bialo, 2000), as well as research on concerns about limited or outdated hardware and software, slowness of Internet, minimal technical support, time constraints, and poor maintenance (Brown, 2001; Lazarus & Wainer, 2005; O'Bannon & Judge, 2004), we recommend that:

- School districts assess, report, and address the teachers' access to technology, by taking into account many factors that may come into play, including condition and age of equipment,

timeliness and ease of access to computer labs, maintenance of technology, and student access to technology at home.

- Greater access to computer online technology is provided to allow for transparent and seamless integration of new literacies into the curriculum in a way that enhances academic learning.
- Library/media specialists are recognized as an important resource for curriculum integration and support for the teaching and learning of new literacies and are supported in offering their services to their colleagues. As such, we reiterate our recommendation for the creation of forums in which curriculum-based projects are designed collaboratively, and in which responsibilities are shared equitably among participants. Professional development should support this ongoing collaboration.
- Technical support personnel are recognized for the key role they play in facilitating access to teachers, and thus sufficient technical personnel is in place and available in timely way to provide instructional support to teachers, manage and maintain equipment, and, depending on their area of expertise, engage in collaborative instructional projects that support the curriculum.
- Adequate resources are in place to provide support personnel and technical assistance, maintain/purchase new materials/equipment, provide professional development, and ease the access to technology integration and the teaching and learning of new literacies.
- Teacher training is fine-tuned to address the needs of a variety of marginalized student populations with the objective to differentiate instruction and improve student performance.
- When integrating technology in their content area subjects, teachers take into consideration their students' access to computer and online technologies at home.
- School leaders take the initiative to secure community and state support for resources, including, when needed, computer technologies for students to use at home.
- Schools and districts use research-based essential conditions for technology integration (i.e., ISTE, 2000b) to guide them in a systematic self-assessment where they consider the degree to which:
    - their technology plan is integral to curriculum and content standards to enhance and support content goals;
    - structures are put into place to allow for teacher collaboration, shared responsibilities for teaching and learning of new literacies;
    - leadership is proactive in creating and supporting contexts for technology use in teaching and learning new literacies;
    - program evaluation and assessment of student learning outcomes related to new literacies are being addressed; and
    - professional development is aligned with the school technology plan to support and enhance content standards.
- Given the participants' concerns about the mismatch between a new literacies focus and mandated assessments, literacy assessments are developed and constantly reevaluated to ensure they are aligned with and support a construct of literacy that is consonant with what it means to be literate in an informational age.

Assessment of the New Literacies

Participants who either agreed or disagreed with the statement "teachers would have more of an incentive to learn and teach new literacies if students were assessed on their new literacies

skills on the state exam" justified their position with comments about the need for resources, professional development, and access to technology. This finding reinforces concerns addressed previously about these issues. Additionally, while most teachers disagreed with the idea of assessing new literacies on the state assessment, on the whole teachers appeared to value technology integration in its own right. Their comments supporting new literacies focused on students' intrinsic motivation, and the real world need to integrate technology to prepare students for the workforce. In fact, while some participants suggested no need for assessments, others suggested internally developed assessments and supports and structures to ensure that teachers are teaching new literacies.

The strong negative onslaught of responses appeared to be in response to mandated testing in general. Based on the responses of our participants it appeared that the impact of NCLB runs counter to its intent to support technology integration and the learning and teaching of new literacies. Instead, it appeared that the sanctions attached to mandated high stakes assessments contributed to the mismatch between state assessments and a new literacies curriculum. Comments expressed resentment regarding the negative impact mandated testing had on learning, on teaching, and on teachers' autonomy to use their professional judgment. The issue of assessment policies related to NCLB that interfered with teaching and learning consistently surfaced in the professional literature (Guilfoyle, 2006; Scherer, 2006; Zellmer, Frontier, & Pheifer, 2006). The National Reading Conference Policy Brief on High Stakes Assessment and Reading Assessment delineates liabilities of high stakes assessment (Afflerbach, 2005).

There are no easy answers to this dilemma short of a reconsideration and reconfiguration of assessment policies that deter teachers from preparing their students to be fully literate citizens in an informational age. Based on the study's findings on the issue of assessment in the new literacies and the research on literacy assessments, we recommend the following:

- Given the changing nature of what it means to be literate in an informational age (Afflerbach, 2005; Leu, 2000), we must reevaluate and align our assessments so that they address the skills and strategies required of our citizenry in an informational age.
- If any assessments on the new literacies are introduced, they are first discussed and developed in collaboration with teachers and researchers in the field of new literacies.
- Before any assessments on the new literacies are developed and implemented, teachers' reports on needs and challenges to learning and teaching new literacies skills are taken into consideration and are addressed in a timely manner.

Educational Background

The new literacies are not simply an issue of adding a technology component in the classroom. The new literacies are a literacy issue (Leu, 2005) and need to be addressed as such. Therefore, a strong background in literacy is necessary for the teacher to make the instruction of the new literacies easier and more effective. The data have shown that not many participants from group 2 and group 3 had taken undergraduate and/or graduate courses in the traditional/foundational literacies. Further, technology educators, in particular, requested that this area becomes more of a focus for them in future professional development so they can better support their students in the reading and writing of technical information.

While the new literacies are a literacy issue, they require the ability to use hardware, software, and other technology equipment as tools to deliver instruction in the new literacies. Therefore, teachers who lack the technology background need to be offered the opportunity to become more technologically literate and confident (ISTE, 2000a; 2000b). Data analysis has

shown that only group 3 had a large number of participants with undergraduate and/or graduate courses in technology. Given the nature of the positions held by the participants in group 3, it was expected that they would have significantly more training in this area.

Given the demographics of the study's population and the fact that courses in new literacies are not required for initial or advanced certification, we anticipated the small percentages of teachers who took undergraduate courses (1.7%) and graduate courses (6.5%) in the new literacies. It was, however, encouraging to see that the new literacies were embedded in undergraduate and/or graduate courses that a slightly higher (even though still small) percentage of participants had taken. More research, however, is needed to precisely assess how the new literacies were embedded and the degree to which this is occurring.

Based on our findings about the participants' educational background in literacy, technology, and new literacies, we recommend that:

- More research is conducted to find out how the new literacies are currently addressed and assessed in literacy, technology, and other content area courses and whether the embedded new literacies are seen as a literacy issue.
- Schools and district administrators offer supports to their English/reading/language arts and social studies teachers whose technology background is not as strong as the librarians/media specialists and the technology education teachers. These supports should include professional development tailored to the technology needs of their teachers, or financial support to take graduate or non-credit courses with a focus on the development of technology skills.
- Schools and district administrators offer supports to their social studies teachers, librarians, media specialists, and particularly technology education teachers with limited background in literacy. These supports should include professional development or graduate level courses or non-credit courses in the instruction of foundational literacies, as well as the instruction of the new literacies in relation to both technology and the traditional/foundational literacies.
- School administrators offer opportunities for more collaboration among the English/ reading/language arts teachers, the social studies teachers, the librarians/media specialists, and the technology education teachers, with the objective to interact more and to help each other acquire the skills they are lacking.
- While making the connections between technology tools and new literacies, schools of education prepare their undergraduate and, when needed, their graduate student populations to use hardware, software, and other technologies that are frequently found in schools.
- Universities develop and offer undergraduate literacy and other content area courses that either embed the new literacies or focus primarily on the instruction of the new literacies as they relate to the foundational literacies and the other content areas (i.e., social studies and technology education).
- Universities develop and offer graduate level courses that explicitly and extensively embed the new literacies.
- Universities develop and offer graduate level courses that focus on the theoretical underpinnings and the teaching of the new literacies.

Recommendations for Stakeholders

The overall goal of this research, however, was to inform public policy in light of the Connecticut State Department of Education's expectations for students and teachers, in particular, with respect to educational technology and information literacy (CSBE, 2004; CSDE, 2006) and the increased use of technology by students in and out of school (The Pew Internet & American Life

Project, 2002). Therefore, based on the results of this investigation and the recommendations made by several professional organizations in the field (i.e., IRA/NCTE, 1996; ISTE, 2000a, 2000b, 2000c), the Connecticut Association for Reading Research (CARR) offers the following recommendations to the Connecticut State Department of Education and other policymakers, school districts, principals, and other educators, as well as universities that prepare pre- and inservice teachers:

State Department of Education and Other Policymakers

- Offer complete and varied types of support to help school districts, schools, and teachers to ensure that they meet the expectations of the Connecticut State Department of Education (CSBE, 2004; CSDE, 2006) with respect to educational technology and information literacy.
- Legislate policies and create funding that support rather than deter teaching, learning, and assessing of technological and new literacies. This may involve a rethinking of the curriculum and what it means to be literate in an informational age, as well as a consideration of the impact that high stakes assessment may have in preparing students for their technological literacy futures.
- Allow for transparent and seamless integration of technology and new literacies in the curriculum through the appropriation of resources and funding. This includes, but goes beyond ready access to computers and technological equipment, and entails securing money for:
    - Sufficient and timely technical support;
    - Management and maintenance of equipment;
    - Support personnel who will engage in collaborative and instructional projects to support the curriculum; and
    - Professional development that addresses ongoing developmental needs during the course of teachers' careers.

School Districts, Principals, and Other Educators

Curriculum, organizational, and instructional/assessment structures should be in place or strengthened to support the learning, teaching, and assessment of technology and new literacies. These structures should include a *school/district technology plan* that is integral to the curriculum and should promote higher academic learning that incorporates new literacies. The development of this plan should comply with federal and state mandates to include key stakeholders and articulate a vision of technology that should include new literacies in a way that is integral to subject areas and overall curriculum. This plan should also incorporate ongoing program evaluation and learning outcome assessments.

As part of a school-wide technology plan, district/school administrators should actively support teachers in a collaborative endeavor to teach the new literacies by creating *supportive forums*, such as flexible scheduling for team teaching and shared planning, and structures that facilitate teacher collaboration, including time for teachers to help each other develop the new skills, plan, experiment, and teach/assess new literacies skills. Financial support or other incentives to take graduate or non-credit courses with a focus on new literacies, as well as technology and foundational literacies, should be provided to help teachers acquire the technology or literacy instruction skills they are lacking due to a limited educational background in the areas of concern. More specifically, school districts, principals, and other educators should:

- Provide access to courses with a focus on the development of technology skills, particularly for English/reading/language arts and social studies teachers whose technology background is not as strong as the librarians/media specialists and the technology education teachers.
- Provide access to courses on the foundational literacies, as well as the instruction of the new literacies in relation to both technology and the traditional/foundational literacies, particularly for social studies teachers, librarians, media specialists, and technology education teachers with limited background in literacy instruction.
- Provide professional development that enhances and that is clearly aligned with the school/district technology plan. Our recommendations for professional development are grouped under general and more specific guidelines:

  General Guidelines for Professional Development:
  - Provide professional development that is ongoing, addressing developmental needs of participants, focusing on teaching, and is hands-on and practical.
  - Provide professional development that is supported by learning communities in which participants collaborate on a shared focus that is aligned with their technology plan and is integral to the participants' content areas and curriculum.
  - Provide professional development that offers time for collaborative planning, experimentation, development of a comfort level, and implementation.

  Specific Guidelines for Professional Development:
  - Provide professional development that makes distinctions between online and offline reading/writing, and places new literacies more as a literacy concern and less as a technological issue.
  - Provide professional development that is fine-tuned to address the needs of a variety of marginalized student populations with the goal to differentiate instruction.
  - Provide professional development for English, language arts teachers, remedial reading teachers, social studies teachers, technology education teachers, librarians, and media specialists, which offers learning opportunities on the pedagogical aspect of the new literacies, rather than simply the use of a new technology.
  - Provide professional development that helps teachers to use and teach the use of multimedia and visual information on the Internet for constructing meaning from online texts. Particular support should be offered to the English/reading/language arts teachers.
  - Provide professional development that offers opportunities to learn to produce and teach students to produce electronic information that makes use of visuals. Particular support on this skill should be offered to the English/reading/language arts teachers. The social studies teachers will find more useful the learning opportunities that are more focused on the pedagogy of this new literacies skill.
  - Provide professional development that helps educators learn how to publish online and how to teach their students to publish online. Particular support could be offered to the social studies teachers.

Universities
- Conduct more research and self-assessment to find out how the new literacies are currently addressed and assessed in literacy, technology, and other content area courses, whether new literacies are embedded and whether they are seen as a literacy issue.

- Prepare undergraduate and, when needed, graduate student populations to use hardware, software, and other technologies that are frequently found in schools. Make the connections between technology tools and new literacies.
- Collaborate with schools to develop field placements that provide best practices in teaching and learning of new literacies.
- Develop and offer literacy and other content area courses that either embed the new literacies or focus primarily on the instruction of the new literacies as they relate to the foundational literacies and the other content areas (i.e., social studies and technology education).
- Develop and offer graduate level courses that explicitly and extensively embed the new literacies.
- Develop and offer graduate level courses that focus on the theoretical underpinnings and the teaching of the new literacies.

Limitations of the Study

The results of this study are based on the analysis of self-reported data. As in any survey research, self-reported data results may be skewed by social desirability. For example, teachers may be more likely to rate themselves higher on levels of proficiency than they actually are. Moreover, response to the open-ended items may be limited by those who chose to respond and those who did not. That is, there may be a selection process at play that distinguishes responders from non-responders.

This study provides a broad picture as to how the selected Connecticut high school teachers who teach in the areas of English, language arts, remedial reading, social studies, and technology education, as well as librarians and media specialists, understand and apply the new literacies, based on self-reported (1) proficiencies in using and implementing the new literacies, (2) supports and challenges in teaching and learning the new literacies, and (3) offerings of professional development supporting the integration of the new literacies in the classroom. A more robust picture would be provided through studies that employ direct observation and assessment of teacher proficiencies in using and teaching new literacies.

Finally, these results do not apply to math or science (or some other content area) teachers, since the sample did not include teachers from the fields of math and science. Further study could involve a broader sample that will take into consideration the needs and proficiencies of teachers in other content areas, beyond the ones that were analyzed in this study.

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Appendix

New Literacies Survey

Connecticut Association For Reading Research
New Literacies Survey
(Questions marked with a * are required)
Available to complete online at
http://www.reading.ccsu.edu/Kurkjian/CARR/carr.htm

SURVEY ID #*

SCHOOL:

SECTION I: IN QUESTIONS 1-24 PLEASE RATE YOUR PROFICIENCY IN THE DESCRIBED PRACTICES.

1.Rate YOUR PROFICIENCY to use a search engine, such as Google, to efficiently find information on the Internet.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

2.Rate your PROFICIENCY in TEACHING students to use a search engine, such as Google, to efficiently find information on the Internet.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

3.Rate YOUR PROFICIENCY to critically evaluate the source and the accuracy of information on the Internet.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

4.Rate your PROFICIENCY in TEACHING students to critically evaluate the source and the accuracy of information on the Internet.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

5. Rate YOUR PROFICIENCY to navigate websites to find specific information pertaining to your purpose.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

6.Rate your PROFICIENCY in TEACHING students to navigate websites to find specific information pertaining to their purpose.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

7.Rate YOUR PROFICIENCY to use text with multimedia and visual information (charts, graphs, video) on the Internet to construct meaning.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

8.Rate your PROFICIENCY in TEACHING students to use text with multimedia and visual information (charts, graphs, video) on the Internet to construct meaning.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

9.Rate YOUR PROFICIENCY to paraphrase and cite resources from the Internet.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

10.Rate your PROFICIENCY in TEACHING students to paraphrase and cite resources from the Internet.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

11.Rate YOUR PROFICIENCY to synthesize multiple sources of information from the Internet in order to complete a research project.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

12.Rate your PROFICIENCY in TEACHING students to synthesize multiple sources of information from the Internet in order to complete a research project.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

13.Rate YOUR PROFICIENCY to produce electronic information that makes use of visuals such as graphs and charts, to clarify and extend ideas presented.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

14.Rate your PROFICIENCY in TEACHING students to produce electronic information that makes use of visuals, such as graphs and charts, to clarify and extend ideas presented.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

15.Rate YOUR PROFICIENCY to publish writing products (poems, stories, projects) on the Internet.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

16.Rate YOUR PROFICIENCY in TEACHING students to publish writing products (poems, stories, projects) on the Internet.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

17.Rate YOUR PROFICIENCY to communicate via email with others (i.e. authors, experts, peers) that can support learning.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

18.Rate your PROFICIENCY in TEACHING students to communicate via email with others (i.e. authors, experts, peers) that can support learning.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

19.Rate YOUR PROFICIENCY to use the Internet responsibly (copyright laws etc.).

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

20. Rate your PROFICIENCY in TEACHING students to use the Internet responsibly (copyright laws etc,)

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

21. Rate your PROFICIENCY to use the Internet safely.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

22. Rate your PROFICIENCY in TEACHING students to use the Internet safely.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

23.Rate YOUR overall PROFICIENCY to read and write on the Internet.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

24.Rate your overall PROFICIENCY in TEACHING students to read and write on the Internet.

☐ High ☐ Moderate ☐ Low ☐ Not at all proficient

SECTION II: IN QUESTIONS 1-8 PLEASE INDICATE THE DEGREE TO WHICH YOU AGREE WITH THE FOLLOWING QUESTIONS.

1.Teaching reading and writing in an informational age should be one of the responsibilities of the instructional technology teacher.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

2.Teaching reading and writing in an informational age should be one of the responsibilities of the English Language Arts Teacher.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

3.Teaching reading and writing in an informational age should be one of the responsibilities of the elementary school classroom teacher.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

4.Teaching reading and writing in an informational age should be one of the responsibilities of the content area teacher.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

5.Teaching reading and writing in an informational age should be one of my responsibilities.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

6.Students will learn how to read and write in an informational age without explicit instruction (direct or indirect instruction).

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

7.Teaching students to read and write in an informational age should become an educational priority for my school (if it is not already so)

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

8.Students require explicit instruction (either direct or indirect) in learning how to read and write in an informational age.

☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree

SECTION III: PLEASE ANSWER QUESTIONS 1-5 REGARDING PROFESSIONAL DEVELOPMENT OPPORTUNITIES.

1.Has your current school or district provided you with any professional development in relation to helping students to learn to read and write in an informational age as related to your content/subject area.

☐ Yes ☐ No

2.If you answered YES in the previous question, then please make comments on the type of professional development offered, your participation and any other pertinent information.

3.Rate the overall quality of your inservice professional development in relation to helping students to learn to read and write in an informational age related to your content/subject area.

☐ Excellent ☐ Good ☐ Fair ☐ Not applicable

4.How might your inservice professional development have better prepared you to teach students to integrate literacy and technology into your content/subject?

5.List a few topics for professional development that you might consider important in helping you integrate literacy and technology into your curriculum.

SECTION IV: IN QUESTIONS 1-7 PLEASE PROVIDE THE FOLLOWING BACKGROUND INFORMATION.

1.How many computers do you have in your classroom?

☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐more ☐ Not applicable

2.If you have computers in your classroom, how many are connected to the Internet?

☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐more

3.I have access to a computer lab WITH Internet in my school.

☐Yes ☐No

4.What factors impact your teaching of reading and writing in an informational age at your school (as related to your content/subject area)?

5.Explain supports that are in place to help you teach your students to read and write in an informational age (related to your content area).

6.Please comment on any factors that are unique to your school or district as they might relate to teaching reading and writing in an informational age and may be of interest to the researchers.

7.Do you agree with the following statement, assuming that access to technology is not a problem: ***"Teachers would have more of an incentive to learn and teach new literacies (reading and writing on the Internet) if students were assessed on their new literacies skills on the state exam."*** **Please explain your answer.**

SECTION V: IN QUESTIONS 1-13 PLEASE PROVIDE BACKGROUND INFORMATION ABOUT YOURSELF.

1.What is your gender? ☐ Male ☐ Female

2.Please check one (or more, if necessary) that most closely describes your current position and/or job title.

☐ English
☐ English Language Arts
☐ Social Sciences
☐ Library Media Specialist
☐ Educational Technology Coordinator
☐ Educational Technology Teacher
☐ Remedial Reading Teacher
☐ Reading/Language Arts Consultant

2a.If Other please write in your Job Title:

3.Which CT certification(s) do you hold?

☐ 102 Remedial Reading and Language Arts 1-12
☐ 097 Reading and Language Arts Consultant K-12
☐ 015 English 7-12
☐ 026 History & Social Studies 7-12
☐ 047 Technology Education preK-12
☐ 062 School Library Media Specialist
☐ No CT certification

3a. If other, please write in your Certification:

4.How long have you been in your CURRENT position? (including current year):

5.How long have you been teaching? (including current school year):

6.Complete Where Applicable:

6a.I have a Bachelors Degree in_____

6b. I have a Bachelors Degree with graduate work in_____

6c. I have a Masters Degree in _____

6d. I have a Masters Degree with graduate work in _____

6e. I have a Sixth Year Certificate in_____

6f. I have a Doctorate in._____

7. What is your educational background in teaching literacy? Check all that apply

☐ No courses in teaching reading and language arts

☐ Undergraduate courses in reading and language arts for teacher certification

☐ Graduate level courses in reading and language arts

8.Indicate which technology and or new literacy skills (reading and writing on the Internet) (if any) your LITERACY courses have prepared you to use in your classroom. If you have not taken any literacy courses please write N/A.

9.What is your educational background in teaching technology? Check all that apply

☐ No classes in Technology Education

☐ Undergraduate courses in technology for teacher certification

☐ Graduate level courses in technology

10.Indicate which technology and or new literacy skills (reading and writing on the Internet) (if any) your TECHNOLOGY courses have prepared you to use in your classroom. If you have not taken any literacy courses please write N/A.

11. What is your educational background in teaching new literacies (reading and writing on the Internet) within your subject/content area? Check where applicable.

☐ No classes that address the instruction of new literacy strategies as related to my subject/ content area

☐ Undergraduate courses that EMBEDDED the instruction of new literacy strategies as related to my subject/ content area

☐ Graduate level courses that EMBEDDED the instruction of new literacy strategies as related to my subject/ content area

☐ Undergraduate level courses that were exclusively devoted to teaching new literacy strategies as related to my subject/ content area

☐ Graduate level courses that were exclusively devoted to teaching new literacy strategies as related to my subject/ content area

12. Indicate which technology and new literacy skills (reading and writing on the Internet), if any, that SUBJECT AREA courses have prepared you to use in your classroom.

Questions and concerns can be directed to Dr. Catherine Kurkjian, Department of Reading and Language Arts at Central Connecticut State University at kurkjian@ccsu.edu
or Dr. Julia Kara-Soteriou, School of Education, University of Bridgeport, at ikarasot@bridgeport.edu

Please send completed survey
(include this permission form) to:
Drs. Catherine Kurkjian & Julia Kara-Soteriou
c/o CARR Research Co-Chairs
Central Connecticut State University
Department of Reading and Language Arts
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New Britain, CT 06050

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