

Teaching Information Skills in the Information Age: An Examination of Trends in the Middle Grades

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This study examined the extent of information literacy instruction in grades 6 and 7 and the degree to which a variety of supportive factors are in place in classrooms and school library programs in one western Canadian province. Based on responses to questionnaires from teachers and teacher-librarians, four trends emerged: (a) the existence of broad-level support in schools including a constructivist teaching and learning environment, principals' support of information literacy, and teachers' knowledge of information literacy; (b) the need for school- and district-level frameworks of information literacy; (c) the need for increased attention to teaching ethical and critical thinking aspects of information literacy; and (d) challenges to increasing the potential role of the school library program. Implications for teacher-librarians as school leaders of the "new literacies" required to participate in the Information Age are presented.

Introduction

In Canada, as in most countries, educational policy identifies the goals of schooling in the Information Age as those of the development of lifelong learners, a learning society, and a knowledge-based economy (Council of Ministers of Education, Canada, 1999). Literacy researchers argue that to attain these outcomes "it becomes essential to prepare students for ... the literacies [of the Internet and ICT] because they are central to the use of information and the acquisition of knowledge" (Leu, Kinzer, Coiro, & Cammack, 2004, p. 1571). These "new literacies" that are tied to the Internet and information and communication technologies (ICT) are a rapidly growing focus of research in the literacy literature and overlap with what the library community calls information literacy. Although the library and literacy fields are largely unfamiliar with each other's work, they share a common focus in the literacies of the Information Age (Asselin & Dreher, 2005). Research in this area is increasing since Reinking, McKenna, Labbo, and Kiefer (1998) noted, "Although studies of (new literacies) are gradually beginning to emerge in research journals of literacy, the paucity of hard data in this area remains all too obvious." What is needed now is knowledge about if and how information literacy is being taught to students. This study examines the extent of information literacy instruction in grades 6 and 7 (ages 11-12) and the degree to which supportive factors of this instruction are in place in classrooms and library programs in one western Canadian province.

Toward Mainstreaming Information Literacy: Situating

Information Literacy in New Literacies, the Internet, and ICT

Over the past two decades, there has been considerable debate about the nature of literacy. In contrast to those who see literacy as a single general ability to read and write, a growing number of literacy researchers have begun to examine the many ways of reading and writing in cultures and groups (e.g., youth, boys/girls) other than those of white, western, middle-class, and in contexts other than those of school (the workplace, homes, communities). Researchers are also recognizing the multiple forms and modes of literacy beyond those bound by the printed page. In other words, literacy is now viewed as the ability to gain and represent meaning from a variety of symbol systems (e.g., drawing, speaking, photography, video, hypertext). Together, these perspectives form the foundation of the "New and Multi-Literacy Studies" (Barton, 1994; Gee, 1996; New London Group, 1996; Street, 1995).

Thus literacy is now conceived as both more expansive and more complex than ever before. It is being reconceptualized to encompass the multiple forms of literacy that students will need to develop in order to participate fully in the 21st century. These new literacies are changing in ever more rapid ways. For the current generation of students, consider how literacies have expanded since they began school.

Many graduates started their school career with the literacies of paper, pencil, and book technologies but will finish having encountered the literacies demanded by a wide variety of information and communication technologies (ICT): Web logs (blogs), word processors, video editors, World Wide Web browsers, Web editors, e-mail, spreadsheets, presentation software, instant messaging, plug-ins for Web resources, listservs, bulletin boards, avatars, virtual worlds, and many others. These students experienced new literacies at the end of their schooling unimagined at the beginning. (Leu et al., 2004, p. 1571)

In the literacy literature, a significant focus of new literacies concerns the unique ways of reading and writing with the new technologies of information, communication, and multimedia. These literacies assume and require unique and complex processes, the use of multiple sign systems, and the ability to mediate multiple text environments as summed up in this definition: "The ability to read, analyze, interpret, evaluate, and produce communication in a variety of textual environments and multiple sign systems" (Semali & Fueyo, 2001, n.p.). Competence in these types of new literacies is central to being able to participate in global, networked societies and economies because "new literacies allow us to use the Internet and other ICT to identify important questions, locate information, critically evaluate the usefulness of that information, synthesize information to answer those questions, and then communicate the answers to others" (Leu et al., 2004, p. 1572). Although not labeled as information literacy, these descriptions of new literacies mirror conceptions of information-processing and information literacy in the library literature (American Association of

School Librarians and the Association for Educational Communications and Technology, 1998; Herring, 2004; Kuhlthau, 1995; McKenzie, 2000).

Emerging from these expanding conceptions of literacy is the inclusion of learning outcomes that represent aspects of the new and information literacies. For example, national standards in the United States include the ability "to use a variety of technological and informational resources ... to gather and synthesize information to create and communicate knowledge" (International Reading Association and National Council of Teachers of English, 1996, p. 3). In Canada, information literacy outcomes are embedded in provincial language arts and English curricula (British Columbia Ministry of Education, 1996), as well as other core curriculum. For example, in grades 2 and 3, students are expected to be able to "collect specific information from a variety of sources, including print, oral discussions, electronic media, and computer technology" (p. 165); in grade 6, students should be able to "use text and electronic media features and key word searches to locate information" (p. 164); and in grade 7, students should be able to "identify viewpoints, opinions, stereotypes, and propaganda in literary, informational, and mass media communications" (p. 162). Although most teacher education programs do not yet systematically include pedagogy about teaching these information processes (Asselin & Doiron, 2003), a few programs have developed strands that support new teachers' ability in this new area of literacy (Asselin, 2005).

In summary, information literacy is becoming viewed less as a separate responsibility of the school library program and more as an integral part of students' comprehensive literacy development as the number of learning outcomes pertaining to the new literacies of the Information Age increase in core curriculum. However, there is little research that examines how information skills in a school's literacy programs are being considered and implemented. Because information literacy is a schoolwide responsibility, this study focuses on two contexts of information literacy instruction: the classroom and the school library. Further, in this study, information literacy is regarded as an essential dimension of literacy education, and there is a particular interest in aspects of information literacy that intersect with "new literacies of the Internet and ICT."

Methodology

The study was conducted in a western province in Canada with teacher-librarians and teachers of grades 6 and 7 who work in public (non-private) schools with an enrollment of over 300 students. Grades 6 and 7 were selected as target groups because this is the time when students have shifted from *learning to read* to *reading to learn*. In other words, students who are 11 and 12 years old spend increasing amounts of time in school engaged in research activities and reading and writing to learn while being expected to use a variety of types of print and digital resources.

Questionnaires were developed for each group of respondents (teachers and teacher-librarians) with common and unique items. Instruments were piloted in five schools representing the various possible structural arrangements of grades. School structures vary throughout the province so that grades 6 and 7 can be either in schools covering kindergarten through grade 8, grades 6 through 8, or grades 7 through 9. Based on pilot responses, questions were revised for clarity and comprehensiveness.

The teacher questionnaire contained 16 questions, and the teacher-librarian questionnaire contained 14 questions. The two major types of questions concerned actual instruction of information literacy skills and pedagogical factors. Selected information literacy outcomes taken from core curriculum and information literacy models were rated by respondents according to the extent of instructional emphasis they placed on each skill. Pedagogical factors were those identified in the literature that influence the effectiveness of literacy instruction generally, including teacher knowledge (Darling-Hammond, 1997) and instruction-assessment relationships (Wixson & Pearson, 1998), as well as information literacy instruction specifically including a collaborative teaching culture, constructivist pedagogy, and principal's support (Kuhlthau, 1999; Oberg, 1999; Zweizig & Hopkins, 1999). Common factors underlying both questionnaires were (a) the quality of the school learning and teaching environment, (b) the level of preparation to teach information literacy, and (c) the emphasis of instruction on aspects and levels of information literacy (*basic* and *critical*). *Basic* level was defined as skills needed for accessing, locating, and selecting information, and *critical* level as skills involving critical thinking and using information ethically. The teacher questionnaire also addressed uses of the school library and perceived responsibility for teaching information literacy. The teacher-librarian questionnaire included items about the importance of information literacy in the school and inclusion of information literacy in the evaluation of students' learning.

Most items were structured as closed-response (Likert and yes/no). Two open-ended items were designed to extend the teacher quantitative data: (a) What factors or conditions enable and/or constrain your ability to teach (information literacy) outcomes? and (b) Is there anything you would like to add about the issue of teaching information literacy in the middle grades? A definition of information literacy from a Canadian information literacy document was included as a note at the top of the questionnaire: "proficiency in information retrieval, analysis, and communication in conjunction with highly developed technological skills" (Ontario School Library Association, 1998, n.p.)

In April 2003, school superintendents in 50 of the province's 59 districts (9 districts did not have schools that qualified, i.e., schools had fewer than 300 students) were contacted by e-mail requesting their permission to allow schools in their district with a total of 300 or more students in grades 6 and 7 to participate in this study. In a few cases when district permission was

granted, some schools in a district were excluded from participation by request of the district and/or principal. All districts specified that principals, who were to receive and distribute the research instruments, could elect or not for their schools to participate.

Of the 50 school districts contacted, 17 (34%) agreed to participate. In October 2003, letters, questionnaires, and self-addressed and stamped return envelopes were sent to the principals of qualifying schools in each district for a total of 262 schools. The cover letter to the principals requested their cooperation in passing on the questionnaires to the teacher-librarians and to grade 6 and 7 teachers (one teacher questionnaire was sent for every 25 students enrolled under the assumption that this would be sufficient to cover most situations).

Forty-seven of 262 (17.9%) teacher-librarian questionnaires and 97 of 1,376 (3.4%) teacher questionnaires were returned. Because it is not known how many principals actually passed on questionnaires to the teacher-librarians and to grade 6 and 7 teachers, a return rate based on persons who received questionnaires cannot be calculated. Response by district ranged from a maximum in one district of 15 teachers and six teacher-librarians, to a minimum in other districts of one teacher and one teacher-librarian, and one teacher and no teacher-librarian. District size was a factor in this response rate to some degree, but there was no regular pattern in the response. Several teacher-librarians who had heard about the study later reported to me that the survey materials were not distributed to them.

Descriptive methods were used to analyze the quantitative questionnaire data (frequencies). Responses to the two open-ended questions to teachers were analyzed by reading for common themes, sorting, and then regrouping statements until all representative categories were identified.

Results

Results of the quantitative analysis are reported first in this section. Findings from items that were common between the two versions of the questionnaire are reported together (school cultural conditions and instructional emphases on various aspects of information literacy). Findings from items that were unique to the teacher and teacher-librarian questionnaires are presented by respondent group. Following results of descriptive statistics, findings from the open-ended questions are included to extend the quantitative findings. Both types of findings are used to present trends rather than results of rigorous, advanced statistical analyses.

School Cultural Conditions: Teachers and Teacher-Librarians

Several recent studies have identified aspects of school culture represented in the teaching and learning environment that influence effective implementation of information literacy teaching (Kuhlthau, 1999; Zweig & Hopkins, 1999), and four of these were included on the questionnaire. As seen in Figure 1, the majority of both teachers and teacher-librarians report-

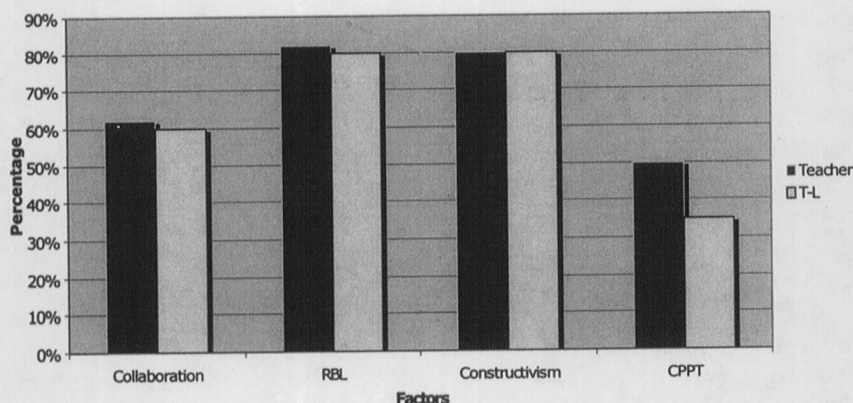


Figure 1. School learning and teaching environment. Findings based on the percentage of teachers and teacher-librarians that responded with either "agree" or "strongly agree" to statements about the place of these conditions in their schools. RBL = Resource-based learning. CPPT = Collaborative program planning and teaching.

ed that three major conditions for effective information literacy programs were in place in their schools: (a) collaboration between teachers (62% teachers, 58% teacher-librarians); (b) the use of resource-based and project-based approaches to teaching and learning (81% teachers, 78% teacher-librarians) and (c) a constructivist perspective on teaching and learning (80% teachers, 78% teacher-librarians).

It is noteworthy that the majority of both groups of educators rated each of these conditions in their schools as high. A fourth condition for information literacy instruction, collaborative planning and teaching with the teacher-librarian, was reported to be part of the school culture by fewer teachers (51%) and by even fewer teacher-librarians (34%).

Perspectives from Teachers

Two groups of findings are reported in this section: one concerning multiple factors under the teachers' jurisdiction of the quality of information literacy instruction, and the other pertaining to teachers' perceptions of responsibility for teaching information literacy.

Teacher support factors. A number of factors can affect the quality of instruction that students receive in information literacy, and some of these are displayed together in Figure 2.

Just over half the teachers (60%) felt they were prepared to teach information literacy, which indicates progress in teacher education. But there is still a long way to go given that the largest teacher education program in the province where the study was conducted now includes a module on information literacy (Asselin & Lee, 2002). Nearly all teachers (90%) report-

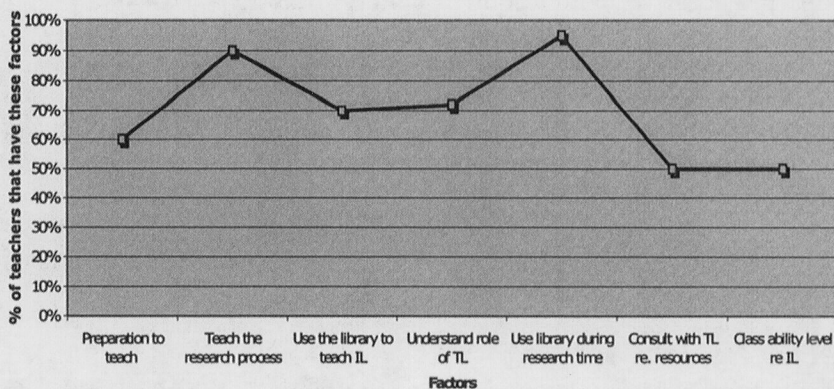


Figure 2. Teacher support factors of information literacy instruction. Findings based on the percentage of teachers that responded with either "agree" or "strongly agree" to statements about each of these factors. IL = information literacy. TL = teacher-librarian.

ed that they taught the research process. This situation probably reflects attention to this topic in preservice and inservice teacher education. It was surprising that 70% of teachers identified one of their uses of the library as a place for teaching information literacy; however, the questionnaire did not ask about the context of this teaching (e.g., in the context of collaborative resource-based learning, or when students are there during teachers' preparation periods). However, 72% of teachers claimed they understood the instructional role of the teacher-librarian. This finding, along with the finding that 95% of teachers used the school library during research project assignments, suggests that information literacy instruction is underway to some extent. Surprisingly, fewer teachers (51%) said they consulted with

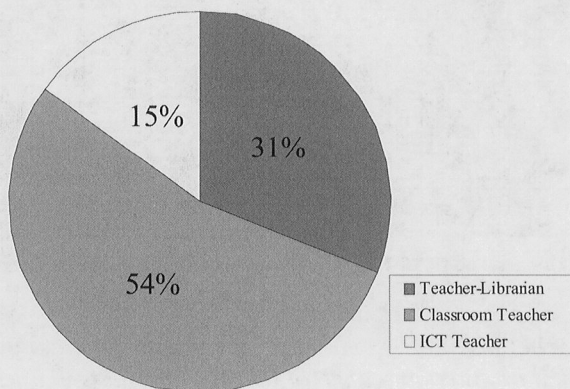


Figure 3. Primary responsibility to teach information literacy

the teacher-librarian about resources, a more “traditional” use of the school library than teaching information literacy (Loertscher, 1998). Finally, just half the teachers (48%) regarded the level of their students’ information literacy as competent.

Responsibility to teach. Teachers were asked to identify which educator (teacher, teacher-librarian, computer/technology teacher) was primarily responsible for teaching information literacy. Figure 3 shows that more than half (54%) identified teachers as responsible, approximately one third (31%) identified teacher-librarians, and 15% identified computer/technology (ICT) teachers.

Teacher-Librarian Factors

Three groups of questionnaire items were unique to the teacher-librarian respondents. One group concerned multiple aspects of confidence in teaching information literacy, another the use of research and/or information process models in the school; the other concerned teacher-librarians’ contributions to their schools’ formal evaluation methods.

Teacher-librarian confidence. As seen in Figure 4, nearly 90% of teacher-librarians rated their understanding of information literacy and their own personal competence levels of information literacy as high. Slightly fewer teacher-librarians (85%) reported that they felt able to teach information literacy effectively to students in their school.

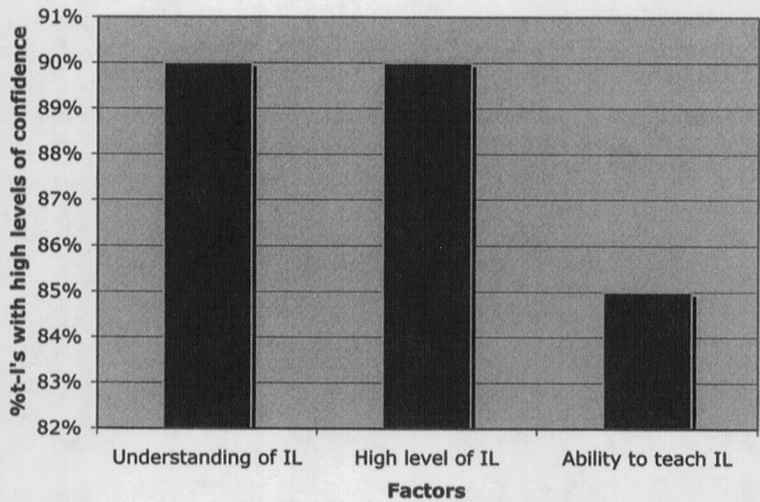


Figure 4. Teacher-librarian confidence in teaching information literacy. Findings based on the percentage of teacher-librarians that responded with either “agree” or “strongly agree” to statements about their development in each of these areas. IL = information literacy.

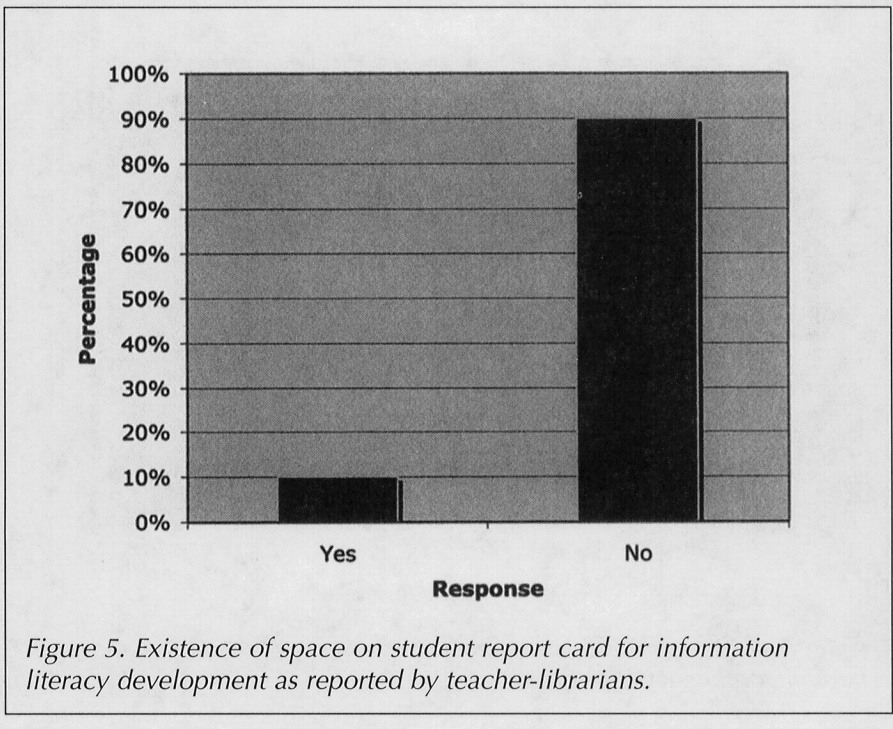
Table 1
Use of Research Process Frameworks in School System Reported
by Teacher-Librarians

Level of Use	% Yes	% No	% Unknown	% No Response
District	28	26	34	12
School	32	45	22	1%
Library	58	14	26	2%

The Place of Information Literacy: Frameworks, Principal Support, and Teacher Role

Table 1 displays the use of research process models at the school, district, and school library levels as reported by teacher-librarians.

Although just over one quarter (28%) of the teacher-librarians in this study work in a district that has a common research process model, one third (34%) were unsure if the district did have a common model, and the others (26%) said that their district did not have a common model. At the school level, nearly half (45%) reported that they did not have a schoolwide model in place. However, the majority of teacher-librarians (58%) claimed there was a continuum of information literacy skills in place in the school library program, with only 14% reporting not having this continuum in



their libraries and the remainder not knowing. It was encouraging that two thirds (66%) of teacher-librarians rated their administrator’s commitment to the importance of teaching information literacy as high. Finally, 60% agreed that classroom teachers in their school were expected to teach information literacy skills and strategies.

Evaluation of information literacy. Based on the premise that what is assessed is valued (and taught), teacher-librarians were asked about how students’ information literacy was evaluated.

As seen in Figure 5, 90% of teacher-librarians reported that there was no designated place on their school’s report card for evaluation of students’ information literacy development. When asked if teacher-librarians contributed any evaluative information to classroom teachers that was relevant to students’ information literacy development, two thirds claimed they did not. However, one third reported that they passed on written comments on students’ progress and marks from their library-based work to teachers (see Figure 6).

Whether these comments and marks were incorporated into students’ report cards remains unknown.

*Instructional Emphases on Aspects of Information Literacy:
Teacher and Teacher-Librarian Perspectives*

Both teachers and teacher-librarians were asked to determine the extent of instruction over the course of a school year that they provided to a selection

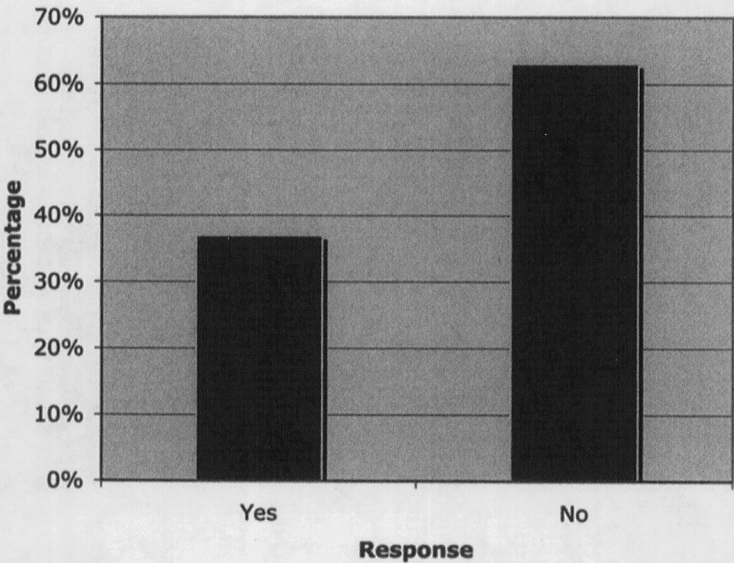
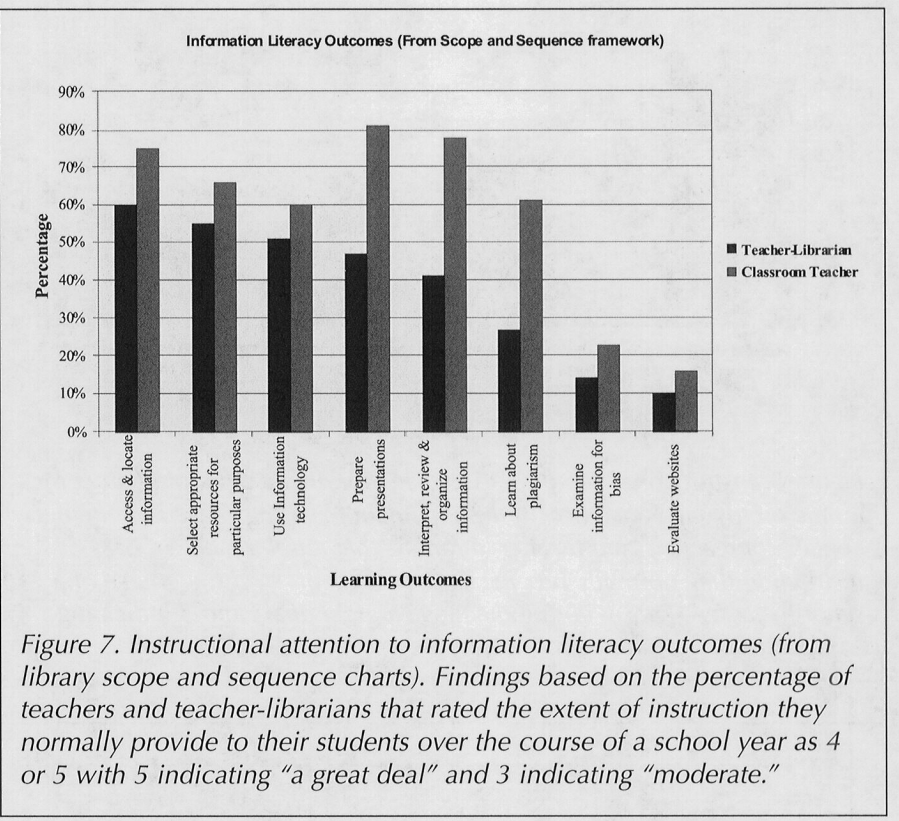


Figure 6. Teacher-librarian contribution to student report card about information literacy development.



of information literacy outcomes representing basic and critical dimensions of information literacy. Outcomes used on the questionnaire were drawn from two sources: (a) information literacy scope and sequence charts, and (b) the provincial language arts curriculum guides.

Figure 7 compares instructional emphases on outcomes from information literacy scope and sequence documents between teachers and teacher-librarians.

The majority of both groups of educators reported that students received a significant amount of instruction on how to access and locate information, select appropriate resources for particular purposes, and use information technology to support learning. It is interesting that slightly more teachers reported providing instruction in these areas than teacher-librarians, but this could indicate the greater amount of time teachers spend with their students. Less surprising is that more teachers than teacher-librarians reported that they focused on teaching students how to prepare presentations and how to interpret, review, and organize information. These abilities are also major components of the writing process that intertwines with research projects. In the province where the study was conducted, the writing process has been a focus of professional development over the last two decades.

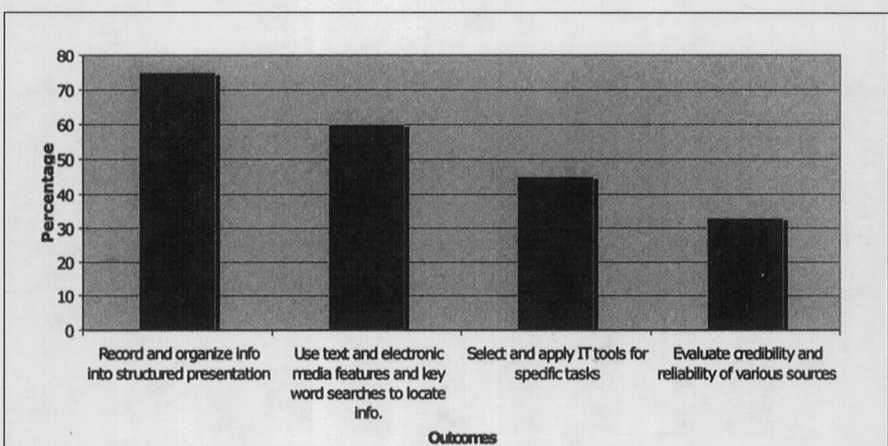


Figure 8. Instructional attention to information literacy learning outcomes (grade 6 language arts curriculum document). Findings based on the percentage of teachers and teacher-librarians that rated the extent of instruction they normally provide to their students over the course of a school year as 4 or 5 with 5 indicating “a great deal” and 3 indicating “moderate.” IT = information technology.

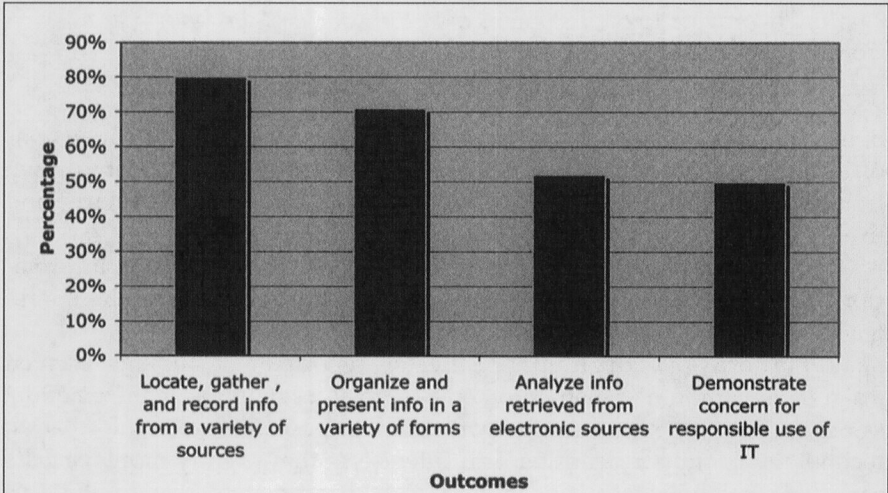


Figure 9. Instructional attention to information literacy learning outcomes (grade 7 language arts curriculum document). Findings based on the percentage of teachers and teacher-librarians that rated the extent of instruction they normally provide to their students over the course of a school year as 4 or 5 with 5 indicating “a great deal” and 3 indicating “moderate.” IT = information technology.

Many fewer teachers and teacher-librarians provided instruction on three critical dimensions of information literacy: plagiarism, examining information for bias, and evaluating Web sites. That twice as many teachers as teacher-librarians claim they teach about plagiarism could be because it arises in the context of writing research reports during stages of the research process that often take place in the classroom. Finally, the two other critical levels of information literacy—examining information for bias and evaluating Web sites—are emphasized by comparatively few teachers and teacher-librarians.

Figures 8 and 9 detail comparative instructional emphases on prescribed language arts learning outcomes that pertain to both basic and critical levels of information literacy as reported by teachers only.

A similar pattern of attention to various aspects of information literacy as found above is apparent in this analysis as well. In both grades 6 and 7, most teachers report that they teach the skills of locating, recording, and organizing information. However, fewer teachers reported providing as much instructional emphasis on the critical evaluative dimensions as represented in the outcomes “evaluate the credibility and reliability of resources” in grade 6, and “analyze information retrieved from electronic resources” in grade 7. Similarly, although approximately half the grade 7 teachers rated the extent of instruction they provided in teaching effective and responsible use of information technology as moderate or more, half reported spending less than moderate amounts of time on these aspects of information literacy.

Extending the Findings: Insights from the Teacher Qualitative Data

Responses to the two open-ended questions on the teacher questionnaire were first analyzed separately, but because emergent themes overlapped, results are reported as a combined analysis. Sixty percent of teachers responded to the question “What factors enable or constrain your ability to teach information literacy?” and 21% responded to “Do you have anything else to add about the teaching of information literacy?” The four themes that emerged were access issues, funding shortages, an overwhelming curriculum, and the need for professional development. Teachers appeared to use the opportunity to respond to the open-ended questions to pour their hearts out about the challenges they faced in their information literacy programs. Below, I identify components of these themes and illustrate with selected responses.

Issues with access. Access and its multiple dimensions were the most dominant theme as represented by comments from over half the teachers. Teachers wrote of their frustration with limited access to the library, library resources, and the teacher-librarian. When asked to identify the constraints on their information literacy instruction, many wrote lists similar to this: “amount of resources, availability of resources, time to learn about resources, time to discuss resources.” Others explained the relationship between library access and working with the teacher-librarian: “We don’t

have enough library access and therefore do not maximize our teacher-librarian as an essential resource." They commented, "The library is being used to cover teacher preparation time and therefore is not available." They explained that they "need more library time—I would like to see our librarian and computer teacher filling us in on what they are planning on teaching this year. I am really not sure what happens."

They were also frustrated with the poor quality and maintenance of digital resources, as evident in this explanation of constraints to their information literacy instruction: "Limited access to electronic resources, glitches with electronic resources, poor technical support of electronic resources, a firewall that limits access to many resources. Our lab is outdated and out of order 75% of the time." They saw these access issues as clearly linked to funding cuts rather than to any one person's abilities, as seen in this statement: "The major constraint to teaching information literacy is lack of access to the teacher-librarian and resources due to cutbacks. Literacy is our focus but it is ironic that our funding to purchase resources was cut 15%."

An already crowded curriculum. Approximately one third of the teachers reported that they saw information literacy as just one more responsibility to plan for and teach in an ever-growing curriculum. "I find it difficult due to the overwhelming number of subjects that need to be taught in the higher grades to find enough time to devote to teaching information literacy. Finding time for planning also makes this difficult." A few teachers alluded to the necessity of prioritizing what can be taught given the overcrowded curriculum: "If they are deemed important, I suppose teachers will find the time, but with the size of the curriculum and numerous outcomes to teach coupled with all the activities in a school, it is unlikely to happen."

The need for professional development. Although fewer than one fifth of the teachers wrote of the need for professional development in information literacy, it was possible that the realization occurred as they completed the questionnaire and were prompted to think more about this part of literacy education. Increased awareness of the place of information literacy in the existing curriculum is reflected in this statement: "The government expects a lot in this area but provides few workshops and little or no technology time or training to achieve our potential." Similarly, another teacher alluded to his or her understanding of the role of the teacher-librarian in teaching information literacy in this recommendation: "It would be useful to have more professional development on this and to have the teacher-librarian have more of a role in this."

Home support. Although only five comments related to home support, it is important to include this theme as teachers appear increasingly aware of equity issues embedded in information literacy instruction. Realizing the strong role of the home in any aspect of literacy development, and in information literacy as it pertains to the new tools of ICT especially, one teacher expressed the urgency of first "ensuring all students have equal access to information technology and research resources at home."

Discussion

This study examined the status of information literacy instruction in grades 6 and 7 in one Canadian province through teachers' and teacher-librarians' perspectives. Recognizing the limitations of the data based on number of respondents, the findings revealed situations that are not particularly surprising, but hold implications for a stronger position for teacher-librarians as schools grapple with teaching both old or traditional literacies and new or Internet and ICT literacies. Trends affecting the teaching of information literacy found in this study concern: (a) the existence of several broad-level supports; (b) the need for school- and district-level frameworks of information literacy; (c) the need for more attention to the critical levels of information literacy; and (d) challenges to increasing the potential role of the teacher-librarian and school library program.

Broad-level supports for teaching information literacy. The findings showed that a good number of important supportive structures are in place in schools. School cultures are marked by collaboration among all educators in the school, the use of resource-based approaches to learning, and a shared constructivist perspective on teaching and learning. These philosophical tenets are the cornerstones of curriculum policy in the province where the study was conducted and in provinces across the country. Although the shift to these educational epistemologies began more than 15 years ago, it appears that the change from past isolationist, textbook-based, behaviorist models of teaching is taking root.

The study also revealed that teacher-librarians are strongly confident about their own knowledge of information, their own information skills, and their ability to teach them. In addition, a significant number of teachers feel prepared to teach information literacy, and this number should increase as new teachers from preservice programs that include information literacy enter the field. The knowledge that some teachers are gaining about information literacy in their preservice programs, along with the growing numbers of prescribed learning outcomes representing information skills, may explain why a majority of teachers regard information literacy as part of the classroom curriculum. Further, the finding of principals' support of information literacy may indicate that advocacy efforts directed at the critical role of administrators in school library programs may be having an effect. Finally, that a majority of teacher-librarians believe that their principal, as curriculum leader, holds the teaching of information literacy to be important and that teachers view themselves as responsible for teaching information literacy could signal a shift to a more mainstream location of information literacy in the mandated curriculum.

The need for common information/research process models. Although results show that most teachers teach their students the research process, common frameworks at the school or district level are not widely in place. In many places, the school library appears to be the sole "owner" of an information literacy process model. When there is a high degree of administrator sup-

port of teaching information literacy and recognition by both teachers and teacher-librarians that classroom teachers must teach information literacy, it seems opportune for teacher-librarians to take a leadership role in building a schoolwide initiative. One recommendation is to reconfigure learning outcomes from core curriculum (Prince Edward Island Department of Education, 2001) rather than present new learning outcomes that are typically contained in more detailed scope and sequence documents of information literacy. This does not necessarily mean that the school library replaces its own more detailed information literacy scope and sequence document with such a curriculum-based model, but rather that this alternative model could be used to work collaboratively with teachers as a common framework. A shared and somewhat simplified model of research/information processes drawn from core curriculum in the school and even at other levels (such as the district) would facilitate a common lens for understanding the information process and for developing instruction throughout the information process.

The need for teaching critical levels of information literacy. Learning that the concept of the research process is familiar to teachers can serve as a reference point for mentoring them about the information processes that students need in order to carry out research tasks successfully. Probably because of teachers' knowledge of the research process in their preservice and inservice education programs, some aspects of information that are part of the core language arts curriculum and some areas of information literacy are reasonably emphasized by a majority of teachers. These tend to be in the basic domains of information literacy, specifically accessing, locating, and selecting information. In this study, more teachers than teacher-librarians also emphasized teaching recording and organizing information, probably as part of the research and writing process frameworks with which they are familiar. Knowing what teachers are already doing is a fruitful starting point for productive collaboration with them. In this case, given that teachers are working with some research process framework and teaching some parts of information literacy, it seems advisable to design collaboration around the teaching of the lesser taught areas, that is, higher-level information processes related to critical thinking and ethical uses of information.

Results revealed a serious gap in the information literacy, that is, those skills and strategies that are at the critical level. Current research in both the literacy and library literature show that it is with these types of literacies that students particularly need assistance. Growing up in the Information Age, many students are well practiced in the technical new literacy skills such as word-processing, downloading from the Internet, managing software, blogging, and using chatrooms and instant messaging (Lankshear & Knoebel, 2003; Tapscott, 1998). However, a growing literature identifies areas where they need help: searching and locating information on the Internet, comprehending hypermediated text, and critically evaluating

online information (Branch, 2003; Brown, 2001; Coiro, 2003; Kinzer & Leander, 2003; Leu, 2002b; Schmar-Dobler, 2003; Todd, 2004; Topping, Valtin, Roller, Brozo, & Dionisio, 2003). That the ability to evaluate resources critically, especially digital and Internet information resources, is neglected to the degree found in this study is a serious educational matter. Although teachers understandably react to the idea of yet another set of learning outcomes to teach, as important as they recognize them to be, they also realize that without adequate and well-maintained resources and inservice education on information literacy, they just will not get to information literacy in their instructional day. This is particularly the case for the critical information literacy skills as these do not have an anchor in other parts of the curriculum as do other information skills in the writing and research processes. Leadership in these higher-level critical and ethical literacies of the Information Age is sorely needed, and teacher-librarians are well positioned to take this role.

Challenges to increasing the potential role of the school library program. Other findings from the study reveal that the teacher-librarian and school library program are not being used to their potential. Although many teachers use the library program to teach information literacy, the fact that few collaborate with teacher-librarians makes it unlikely that much of this information literacy instruction is part of collaborative planning and teaching. It is also disconcerting that only half of the teachers consulted with the teacher-librarian about resources. Both of these less than maximal uses of the school library program are probably reflections of the challenges teachers face in accessing the library facility, the teacher-librarian, and the library resources, which they see as primarily caused by funding cuts. That they explained these conditions as obstacles to their teaching the information literacy outcomes indicates their awareness of the potential role of the teacher-librarian and school library program in teaching information literacy. Given the explosion of both print and digital resources, and the prescribed learning outcomes around the use of information to produce knowledge, teacher-librarians could be taking a stronger role in helping teachers select and strategically use these resources in their units of study.

Teacher-Librarians as Leaders in the New Literacies of the Information Age

This study revealed trends that indicate how teacher-librarians can uniquely support expanding literacy programs in schools as they tackle the task of ensuring that students are prepared to participate in a global, networked information society. Teacher-librarians need to reposition themselves as leaders in the new literacies required for learning and solving problems with the Internet and ICT. There is a clear need for instructional leadership in existing critical-level new literacy learning outcomes and in assessment and evaluation of all aspects of the new literacies of the Information Age. Arguments for the place of information literacy in today's schooling are

beginning to resonate with those beyond the library community, because information literacy is linked to the new literacies that are central to current educational agendas. Much has been written by those in the library community explaining the importance of information literacy education in the light of current government and educational policies (National Forum on Information Literacy, 2004). For whatever reasons, those outside the library field are largely unaware of the growing body of knowledge that would guide the instruction of information literacy. Studies that are grounded in perspectives with maximum currency, as literacy is, will be more effective in moving forward the role of the school library in information literacy instruction. Those working in the school library field need to review their perspectives and reposition their work in more politically powerful frameworks, as this study has done with its grounding in new literacies. Although literacy will continually change, it is certain that in the coming decades, it "will include the new forms of strategic knowledge necessary to locate, evaluate, and effectively use the extensive resources available within the Internet" (Leu et al., 2004, p. 1596), a state of affairs indicative of great promise for teacher-librarians.

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