SCHOOL LIBRARY RESEARCH
Research Journal of the American Association of School Librarians

Volume 17, 2014
ISSN: 2165-1019

Approved December 17, 2013
www.ala.org/aasl/slr

Factors Affecting Students' Information Literacy as They Transition from High School to College

Jana Varlejs, Professor Emerita, Rutgers, 612 S. First Avenue, Highland Park, NJ 08904, 732-846-6850

Eileen Stec, Instruction & Outreach Librarian, Douglass Library, Rutgers, New Brunswick, NJ 08901, 848-932-5009

Hannah Kwon, PhD Student, Rutgers SC&I, New Brunswick, NJ 08901

Abstract

Despite the considerable attention paid to the need to increase the information literacy of high school students in preparation for the transition to college, poor research skills still seem to be the norm. To gain insight into the problem, library instruction environments of nineteen high schools were explored. The schools were selected based on whether their graduates did well or poorly on information-skills assignments integrated in a required first-year college course. The librarians in the nineteen schools were asked to characterize their working relationships with teachers, estimate their students' information-literacy achievement, and provide data on their staffing and budgets. Findings suggest that school librarians are seldom in a position to adequately collaborate with teachers and that their opportunities to help students achieve information literacy are limited.

Introduction

The study reported in this paper was inspired by observations made by students in the Master's in Library and Information Science (MLIS) program at Rutgers-The State University of New Jersey in the United States. For many years, MLIS students in both the *Information Literacy: Learning and Teaching* and the *Field Experience* courses commented that undergraduates whom they encountered as part of their assignments were poor users of academic library resources. This was true at Princeton as well as Rutgers and New Jersey state colleges. This state of affairs suggested that information literacy either was not acquired during precollege education or did not transfer to the college environment; these observations raised the question, why not?

For the Rutgers MLIS program, this was an especially awkward question. As Rutgers is the state university, most of the enrollment is from New Jersey, and many MLIS graduates remain in the state. Given that the Rutgers Master's program in school librarianship has been judged to be excellent for years (for example, the program ranked highly in the 2013 *U.S. News and World Report* assessment) and that many school libraries in the state are headed by Rutgers alumni, it is reasonable to expect that New Jersey high schools produce mostly information-literate graduates. As shown by data reported in this paper, however, that expectation is not well met. The study described here is an attempt to contribute to understanding factors affecting students' information literacy as they transition from high school to college. Most baldly stated, the research question asks: Why are first-year college students information illiterate?

Background

The problem is not limited to New Jersey. A great deal of evidence has been, and continues to be, gathered that first-year college students across North America arrive poorly prepared to make good use of the resources that their institution's library provides (e.g., Foster 2006; Kolowich 2011; Mittermeyer 2005; Purcell et al. 2012; Taylor 2012). One has to wonder why that situation is the case, especially in an era in which information literacy has been a desired learning outcome at the high school as well as college level. College and university instruction librarians have not only noted the lack of information skills of entering students but have taken steps to understand the source of the problem and to work with high school librarians to find solutions (Burhanna 2007; Oakleaf and Owen 2010).

Conference programs as well as publications attest to efforts of high school and academic librarians to work together to improve the information literacy of college-bound students. "Yours, Mine and Ours: Moving Students through the Information Literacy Ladder from High School through Community College to the College/University," presented by the Association of College and Research Libraries (ACRL) June 26, 2010, at an annual American Library Association (ALA) conference was only one of a number of national programs over a decade testifying to the shared commitment. A similar effort has occurred in New Jersey. Within ALA, a joint committee exists, the American Association of School Librarians (AASL)/ACRL Interdivisional Committee on Information Literacy. The committee's focus is described below.

> The AASL/ACRL Information Literacy Task Force was established by the ACRL Board at the ALA Midwinter meeting in 2002. In 2003, the task force was given permanent status as a standing committee at the 2003 ALA Annual Conference….The AASL/ACRL interdivisional committee on information literacy will focus on how to prepare K–20 students to be information literate and will provide a channel of communication to the respective divisions. In general, this interdivisional committee will be a forum for sharing ideas on information literacy in K–20 environments and a source of professional development opportunities in this area. (ALA/ACRL 2013)

In 2005 the committee established an electronic discussion list for high school, public, and college librarians, infolit@ala.org (AASL/ALA 2005). It focuses on "the importance of information literacy as students transition from high school to college" (AASL 2013) and has addressed questions regarding state standards for information literacy and integration in the curriculum and what research skills academic librarians want college freshmen to have (Percy 2010).

A notable example of academic librarians' efforts to work with high schools to raise students' information literacy is the Kent State University Libraries' range of projects, from the TRAILS assessment tool (see <www.trails-9.org>) to their Transitioning to College website (see <http://libguides.library.kent.edu/t2c>). The Kent librarians have reached out to secondary school students and teachers, and, to a much lesser extent, to administrators (Burhanna 2007, 2013; Burhanna and Jensen 2006; Institute for Library & Information Literacy Education n.d.). Another example is a project at a Canadian college; the project culminated in a film featuring college faculty discussing what they expect of entering students (Okanagan College 2010).

AASL also promulgated information-literacy standards and guidelines (2007). Jo Ann Carr and Ilene F. Rockman have compared AASL and ACRL statements, emphasizing their similarity (2003). *Knowledge Quest*, the AASL journal, devoted the March/April 2002 and 2004 issues to information literacy K–20; the April 2010 *Teacher Librarian* is another example of a journal with a theme issue on the topic of high school to college transition. Efforts such as these are ongoing, suggesting that high school librarians are likely to be aware of what level of information literacy academic librarians expect entering students to have. Yet while the complaints about lack of readiness for college continue, explanations have been limited. Typically, research focuses on students' use of information technology and their search behavior. For example, the Pew Research Center's study *How Teens Do Research in the Digital World* (Purcell et al. 2012) found that students used library resources to complete assignments less than 20 percent of the time, relying instead on Google and other electronic sources. In his study of undergraduates' search behavior, Arthur Taylor (2012) concluded that students' proceeded erratically and did little to evaluate information.

Methodology

The Opportunity to Seek Explanations

Several circumstances allowed us to pursue answers to the question of why students arrived at Rutgers with poor information skills. The first circumstance was the existence of a required first-year course at the University's Douglass College which mandated the use of library resources. This course enrolled over 400 undergraduates in more than twenty sections, which meant that the librarian responsible for preparing them to use the library welcomed the help of MLIS students who were taking the course on teaching information literacy. The involvement of the MLIS students and their professor allowed for data collection, including information about where the undergraduates attended high school. Case studies could therefore be developed by selecting high school librarians based on whether their graduates did well or poorly on the information skills taught and tested in the Douglass course.

Data Collection

The MLIS students were trained by the Douglass instruction librarian to teach the undergraduates the basics of finding books and articles for a paper they had to write for the required course Shaping a Life (SAL). The Douglass students attended two library-instruction sessions and were asked to complete a number of library-resource-based assignments that were graded by the MLIS students; students were also required to submit (to the librarian who coordinated instruction for Douglass Library) the bibliographies for their SAL final papers.

With the approval of the Rutgers Institutional Review Board, MLIS students and others who were presenting library instruction to the SAL students were asked to help distribute and collect

a consent form, which, in addition to seeking the undergraduates' informed participation in the project, asked for two items of information: where they went to high school and whether they wrote a paper requiring the use of library resources while they were in high school. Over the course of the semester, scores that students earned on the following five assignments were collected:

- Rutgers online catalog handbook exercise (0–3 points)
- "What makes a journal scholarly" quizzes (0–4 points)
- Worksheet on selecting indexes and databases (0–5 points)
- Concept map, including a definition of topic and a statement of the research question (0–4 points)
- Bibliography from the final SAL paper (0–9 points)

The results were aggregated, so that each student had a summative score. The highest score possible was 25. The data were sorted by high school, so that the schools sending the higher scorers to Douglass could be separated from those sending lower scorers. Students who went to out-of-state schools were excluded. In addition, other students who were omitted included those under age eighteen and not eligible to sign consent, those who failed to list their high school, and those who did not submit the bibliography, which we deemed to be the most important measure.

Once the usable scores were sorted by high school, librarians from the top and bottom tier schools were invited to participate in telephone interviews. They were contacted in the order of the highest and lowest scores until nineteen consents were obtained.

Limitations of the Methodology

A major methodological issue is the absence of a pre-test. Presumably, a pre-test would have measured the skills that students had brought with them from high school. They were all at the start of their second semester and were very unlikely to have had any library instruction during their first semester at college. Ideally, we would have tested students' knowledge of the basics before they received instruction in the context of the SAL course and then eliminated those cases where students substantially improved their scores after the library sessions. In the cases of those students with significant improvement, higher post-test scores would have suggested that it was the library instruction provided as part of the SAL course and not residual knowledge from high school that was responsible for the improvement.

However, as it was not possible to administer a pre-test at the time, the assumption was made that the great majority of these students, just as those in an earlier study by the Douglass instruction librarian (Stec 2006), would not show a significant improvement overall as a result of the two library classes connected to the SAL course. It was expected that the conclusions from the 2006 study would hold, i.e., that many students arrived with poor skills and that two sessions were not enough to remedy the weaknesses. At the same time, students who left high school with good skills would be at an advantage, with the library instruction in the SAL course providing reinforcement. Thus, the scores could be used to approximate the level of library research abilities carried forward from high school.

Another issue concerns the selection of cases. To look for factors that might differentiate the school library programs, the plan was to interview the librarians from ten top-scoring and ten low-scoring schools. Preference was given to schools with more than one student in the data

pool. This selection preference was possible for schools on the high end, but did not work on the low end, where schools were usually represented in the SAL data by only one graduate. An additional problem arose when librarians in the selected schools declined to participate, citing lack of time and other reasons. When school librarians were contacted and asked to participate in the study, they were not told about the high/low grouping. The purpose was described as "to explore how prepared college students are to conduct library research required for one of their courses, and to relate their library skills level to their high school library program." While the final list of schools does not constitute a random sample nor does it show symmetry in scores or student numbers, the list does include the different geographical regions of the state; urban, rural, and suburban communities are represented.

School Librarian Interview Process

The nineteen school librarians who agreed to take part in the study were reached by telephone, and the conversations were recorded and transcribed. The questions posed to participants included a few each about their background, their library resources, students' information-literacy levels, and the librarians' interactions with teachers. The key question that was used to characterize the libraries' information-literacy program within the framework of librarian-teacher interaction used concepts from a survey conducted by the Rutgers Center for International Scholarship in School Libraries for Delaware:

> The following categories were used in this study to identify the level of interaction with the school community to characterize how school librarians impart their information-learning expertise:
>
> Cooperation: The teacher and the school librarian may communicate informally about a short term project, but work independently.
>
> Coordination: The teacher and the school librarian may meet together to discuss a lesson/unit of study. However, the individual goal setting, learning experience design, teaching, and evaluation are done independently.
>
> Instructional Collaboration: The teacher and school librarian jointly set goals, design learning experiences, teach, and evaluate a comprehensive unit of study. (Governor's Task Force on School Libraries 2004, 17)

Patricia Montiel-Overall (2005, 2008) traced the evolution of these categories and saw collaboration as critical to student learning. If it is true that school librarians' working collaboratively with teachers results in learning, developing information literacy can be assumed to be an important part of that learning. School librarians' descriptions of their work in terms of the three levels of interaction and other comments that they made were analyzed for the purpose of creating categories and deriving themes that might shed light on the high school library experience of Douglass students.

The interview questions included specific aspects of information literacy that were covered in the Douglass library instruction classes and assignments, as well as selected items that were derived from the aforementioned Delaware study (Governor's Task Force on School Libraries 2004, 33).

Findings

Schools, Libraries, and Scores

Table 1 presents an overview of the total students, schools, and scores from which the cases in this study were drawn. Table 2 summarizes data about the nineteen schools studied and their libraries. Except for school enrollment numbers, which were taken from the New Jersey Report Card (<http://www.state.nj.us/education/reportcard/index.html>) data on schools, the school information is from the telephone interviews. In cases where high schools had more than one graduate taking the SAL course, the average of the students' scores was used as the school score.

Table1. Shaping a Life (SAL) course enrollment and library instruction.

Characteristics of Pool from Which Cases Were Drawn	Number
Total number of students enrolled in Shaping a Life course	408
Number of students who signed consent and named a New Jersey high school	257
Of the 257 students, number who wrote a paper in high school requiring library resources	214
Of the 257, number who completed all 5 Douglass library assignments	191
Number of high schools attended by the 191 students	143
Of the 257, number whose total score was 12 (out of 25 available points) or above	148
Of the 257, number whose total score was below 12 points	109
Mean score for all 5 assignments, 191 students	18.8
Mean score for bibliography only, 191 students (out of 9 available points)	4.9

If we separate the rows in table 2 between case 16 and case 11 and seek relationships between the higher/lower scores and other variables, it is difficult to find any pattern for the data on MLS, years of service, and staff numbers. More of the librarians in the eleven schools with higher scores were better able to answer a question about the number of classes visiting the school library than those in the lower tier. The average number of students per librarian in the top eleven is 1204, while it is 1152 for the lower scorers (excluding case 18, a private school). The average per-student expenditure for library materials is $17.84 for the top, $15.26 for the bottom cases (again excluding case 18).

Table 2. Characteristics of high schools and their libraries sorted in descending order of their graduates' scores on the Douglass library instruction/information literacy (IL) assessments in the SAL course.

High school ID (case no.)	**IL score (based on number of SAL students)**	**High school enroll-ment**	**Does responding librarian hold ALA MLS?***	**No. of years librn at this school**	**No. of NJ certified librarians & number of assistants**	**No. of students per librarian**	**Library resources budget**	**Re-sources budget/ student**	**Classes in library in fall semester**
7	22.5 (2)	1990	Y	6	1 / 0	1990	$16,000	$8.04	213
2	21.5 (2)	1363	N	18	2 / 1	681.5	$37,000	$27.14	209
9	21.3 (6)	2892	N	24	3 / 3+	964	$44,500	$15.38	1153
3	21 (3)	2151	N	4 (15 total)	2 / 1	1075.5	$28,000	$13.01	803**
6	20.3 (3)	1079	N	15	2 / 1	539.5	$27,000	$25.02	?

10	20 (2)	2643	N (Villanova MLS)	2	1.5 / 4	1762	$55,000	$20.80	301
4	20 (2)	1622	Y	11	2 /0.5	811	$32,500	$20.03	?
8	20 (2)	1600	Y	10	2 / 1	800	$36,000	$22.50	425
5	19 (2)	1274	Y*	3	1* / 1.5	1247	$28,800	$22.60	117
1	18 (4)	2259	Y	16	2 / 3	1129.5	$30,000	$13.28	547
16	17 (1)	2241	N	6	1 / 1	2241	$19,000	$8.47	365**
11	14 (1)	2553	N	4	2 / 2	1276.5	$40,000	$15.66	631
15	14 (1)	705	N	14	1 / 1	705	$16,205	$22.98	?
18	14 (1)	247	Y	7	3* / 0.5	247	$17,197	$69.62	19+
19	14 (1)	1410	Y	3	1 / 1	1410	$35,500	$25.17	?
12	13 (1)	1774	Y	12	1 / 1	1774	$30,000	$16.91	?
14	13 (1)	2713	N	13	2 / 0	1356.5	$22,000	$ 8.10	650
13	10 (1)	3397	Y	20	4 / 1	849.25	$50,000	$14.71	1168**
17	6 (1)	694	N	5***	1 / 0	694	$3,000	$ 4.32	?

* at least one librarian is not certified by the state
** estimated on the basis of 73 school days September through December
***27 years in district, previously in elementary school
? information not provided

Demographics

A number of school librarians in this study indicated that there were considerable distinctions between college-bound and other students in regard to their information literacy. On the other hand, several librarians made remarks that suggested that planning for college was the rule rather than the exception. A few mentioned special education needs and limited English language skills as deterrents to effective use of information resources. Consequently, as shown in table 3, additional data were compiled from the New Jersey Report Card to explore whether socioeconomic factors might play a role. Table 3 shows that, in most cases, the higher information-literacy scores coincide with higher SAT scores and with plans to attend a four-year college. The relationship between language and scores is not quite as clear-cut, but for schools 7, 16, and 14, strong negative relationships between languages other than English as the students' first language and plans to attend college can be seen.

Table 3. Characteristics of student bodies in the nineteen high schools (same sort order as table 2).

School ID [SAL IL score]	% limited English	Mean SAT scores	% drop outs	% planning 4-yr college
7 [22.5]	2.0	502	1.1	48.5
2 [21.5]	0.4	550	0.2	74.5
9 [21.3]	1.1	544	0.6	73.9
3 [21.0]	0.0	530	0.0	72.0
6 [20.3]	0.5	541	0.6	66.8
10 [20.0]	0.3	517	0.7	72.0
4 [20.0]	0.2	509	1.8	59.8
8 [20.0]	0.4	512	0.5	61.5
5 [19.0]	3.7	507	0.7	64.6

1 [18]	1.0	537	0.5	72.7
16 [17]	2.6	477	1.9	36.9
11 [14]	1.7	444	0.4	52.8
15 [14]	1.1	486	1.3	32.7
18* [14]	*	*	*	*
19[14]	1.0	513	0.4	71.3
12 [13]	2.2	495	2.5	63.3
14 [13]	9.7	369	4.8	18.6
13 [10]	4.9	460	5.1	51.4
17 [6]	2.0	498	2.0	70.3

*Private school, excluded from state data

Again splitting the schools between the case 16 and case 11 (excluding case 18, a private school), differences between the two groups in table 3 appear to be greater than in table 2. The average percent planning to attend a four-year college is 63.92 for the top, 51.48 for the lower group.

Common Elements

In addition to the descriptive data displayed in the above tables, the telephone interviews gathered data from a number of questions that elicited such consistent answers that the responses are not tabulated here. With only an occasional exception, the school librarians reported that they opened the library to students outside of scheduled class visits, had access to technology and support, provided a range of authoritative electronic resources, and were members of their regional library cooperative. The New Jersey state library's collection of digital resources, <http://www.JerseyClicks.org>, is available for free to all students from home as well as school, although it is not clear whether all school librarians gave instruction on how to access JerseyClicks. Through the New Jersey library cooperative, <http://librarylinknj.org>, participating schools can borrow materials on behalf of students.

Responses to Open-Ended Questions

Introduction

The telephone interviews included open-ended questions about working with teachers, required papers, and student proficiency in information literacy. The taped conversations were transcribed and were analyzed through repeated extraction and grouping of terms and phrases; categories and themes were identified and named.

Work with Teachers

The first open-ended question was posed to librarians after reading to them the following characterizations of how they might typically work with teachers:

Cooperation: The teacher and the librarian may communicate informally about a short-term project but work independently.

Coordination: The teacher and librarian may meet together to discuss a lesson/unit of study. However, the individual goal setting, learning-experience design, teaching, and evaluation are done independently.

Collaboration: The teacher and the librarian jointly set goals, design learning experiences, teach, and evaluate a comprehensive unit of study.

The question was, "Using these definitions, estimate the number of instances of collaboration, coordination, and cooperation with teachers that occurred during the fall semester."

The main categories that emerged from the comments included: estimated instances of the three types of interaction (generally expressed as proportions), communication mode, librarian tasks, and the nature of the librarian-teacher relationship. In characterizing the school librarian's attitude, tone as well as wording was taken into account. It should be noted that "teachers' stance in regard to librarian" is based on librarian perceptions as filtered by the researchers. Had the teachers also been interviewed, impressions might differ. The results are detailed in table 4. The most common modes of interaction were cooperation and coordination; very little collaboration was reported.

Table 4. Characteristics of librarian-teacher relationships (same sort order as table 2).

School ID [SAL IL score]	**Cooperation, coordination, collaboration**	**How do they communicate ?**	**Librarian tasks**	**Librarian's stance in regard to teachers**	**Teachers' stance in regard to librarian**
7 [22.5]	80% coop 20% coord.	Form asks re project, goals, lesson plan, resource needs	Assesses needs; creates pathfinder and shows teacher, who then brings in class	Seems collegial	Those who use library are cooperative and provide what is requested by librarian.
2 [21.5]	33–50% coord; not so much collab	Sit down, plan together	"…we're providing services … collaboration … not the norm"	Would like more coord, but not more collab because already swamped	"Teachers don't want us to plan… evaluate"
9 [21.3]	All three	Meet together?	Collaborates when teacher or project is new	Collegial	Librarian seems to lead
3 [21]	50%+ coord; some collab	Relays most recommendations through department meetings; does not always get lesson plans	Asks for lesson plans; offers classes for seniors on how to search; suggests databases, etc., pulls books	Proactive; offers mini-lessons; feels underutilized	Teachers "open to suggestions" but "they like control;" teachers too busy to collaborate
6 [20.3]	Mostly coop; minimal coord and collab	Receives copy of assignment from teacher; keeps in touch informally	Designs and teaches orientation; "Bibliographic Instruction" for each assignment	Seems rather passive, but does seek feedback	Seem to underutilize librarian
10 [20]	Some coord and collab	Response not clear	Required senior health project gets most attention/collaboration	Health teacher appears to value librarian's help	Only 20% of teachers work with librarian
4 [20]	50% coop 40% coord	Teachers give librarian	Reacts to teachers' wishes	Seems resigned to taking orders	"Goal is books, please, not

	10% collab	assignments, ask librarian to pull books			computers"
8 [20]	50% coop 50% coord	Talk with teachers	Determines needs, makes suggestions, "do our own thing"	Somewhat supercilious?	No time to collaborate; relies on librarian
5 [19]	30%+ coop 50% coord 20% collab	Teachers come to meet with librarian	Asks re needs/goals, plans with teacher; decides how to present: can be "hands-on" together	Working toward collaboration; proactive; teacher-centered	Teachers give advance info re assignment; some allow 5 minutes–to plan together, some give 15
1 [18]	Mostly coop [50%+]	Discuss assignment week before	Asks re topic, checks resources, demos databases specific to topic	Collegial, proactive	Gives advance info
16 [17]	All three	Mentioned helping to create research assignments	Works with teachers when possible, does in-service training; builds IL skills; "sell your library"	Proactive	Varies: some do own thing, some "open" and collaborate
11 [14]	?	Meet with new teachers	Assesses needs; plans for lab, pathfinder, instruction	Seems proactive	Not clear
15 [14]	30% coord? 70% collab	Individual consultation, not formal (not collab as defined)	Responds to expressed needs; encourages teachers to bring students for IL mini-lessons, puts more meat in assignments	Tries to position librarian as resource for teacher	At least some teachers take advantage; some do not give enough time to creating good projects for students
O 18 [14]	50% coop 50% coord	Teacher informs re assignment, instruction design	Working towards collaboration	Striving to work more together	Teachers seem willing to work with librarian
19 [14]	All three, mostly coop and coord	Librarian and teacher sit down, work together	Goes over handouts, discusses timing, etc.	Appears collegial	English, health, social studies, science teachers work with librarian
12 [13]	Mainly coop	Informal	Knows the units; therefore, can plan on her own	Independent; sees curriculum as stagnant	Teachers give course outline, advise of any changes
14 [13]	50%+ coop	Teachers come in to sign up; some discussion	Depends on teachers—what they want; we offer suggestions	Reactive – depends on how open they are	Seems to vary—Because of openness? Age?
13 [10]	Little	"Some discussion about having some standardizatio n of exams"	No mention of specifics	"Difficult to have coordinated activities": 3500 students, 270 teachers	?
17 [6]	100% coop	"Teacher comes in…tells what she wants to do"	"I'll pull resources, set things up ahead of time"	Responds to teacher directive	Teacher in charge; librarian as handmaiden

? indicates responses did not give researchers enough information to form an opinion.

Assignments Requiring IL Skills

Following the cooperation-coordination-collaboration question, librarians were asked: "Are college-bound classes asked to write papers that requires use of library resources? If yes, please describe how you work with the teachers and students." All but four of the librarians answered in the affirmative. One stated that papers were mandated but not the use of library resources, and the other three indicated that paper assignments varied depending on the teacher; see table 5. Librarians' statements tended to build on their answers to the earlier question but focused more directly on the instructional role and on information resources. In fewer than half the cases librarians volunteered comments about incorporating information-literacy concepts when helping teachers and students with research paper assignments, but they were not explicitly asked to mention any IL concepts.

Table 5. Library-resource-based paper requirement and information-literacy instruction (same sort order as table 2).

School ID [SAL IL score]	Must do library-resource-based paper?	At which grade level?	Librarian's comment (quoted from interview transcript)	How librarian expressed or implied her/his role in answer to this question	Types of resources mentioned	Information-literacy concepts articulated in answer to this question
7 [22.5]	No	NA	"No. Depends on the teacher (veteran, yes; non-veteran teachers, no).…The non-veterans grew up with the Internet just like the students; do research the same way."	Offers to train teachers on databases	Databases	Internet not enough
2 [21]	Yes	11	"… very demanding process. We meet with most of the English classes, 1–3 days; show them the resources."	Information-literacy instruction	Online and other resources	Info evaluation; plagiarism; citation; help with thesis statement
9 [21.3]	To a considerable extent, but not uniform	12?	"What does 'college-bound' mean—is there a distinction? Seems weird. Just depends on class."	Instruction when possible; "reinforce-ment" suggests that basics are taught early	No specifics	None
3 [21]	Yes	12	"I usually give at least one full period if not one and a half or two to talk about... using reliable sources … what their college professors will be expecting; I always bring that piece in. Do I get 100% cooperation [from the teachers]? No."	Information-literacy instruction	Quality of sources	Info reliability; peer review
6 [20.3]	Yes	12	"All seniors required" (to do) "formal English research paper, 3–8 pages (length and number of resources varies depending on level). "	Refers to earlier answer re bibliographic instruction role	Resources not described	None
10 [20]	Yes	12	A senior project in health is required of all students; project requires a 2-page paper; must cite some books and databases	Provide resources	Books and databases	None
4 [20]	No	NA	Paper required, but not library resources (only Internet)	Limited	Internet only	None

8 [20]	Yes	9–12?	"…teachers don't really want us to teach the research process. Review citation format and link to citation guide website....I do have a link to a website about research process."	Minimal	Links to websites that can help students with papers	Research process; citation
5 [19]	Yes	?	"Each teacher is pretty free to do what they want.…What they don't have here is a formalized, standardized research paper, where each English teacher works through the process, maybe with me, on how to write a research paper."	Show and demonstrate resources	Databases, reference, other materials	Research process
1	Yes	9–12	"...We also do instruction at the beginning of the period. Some teachers consider e-books an Internet source, so we have to take their lead to understand the criteria that the students have to fulfill."	Instruction; adjusts to teachers' criteria	e-books; Internet	None
16 [17]	Yes	9–12	"Absolutely...[varies] from [my] helping to develop the idea and execution, to they come in and kids tell me the assignment."	Teach tools	Catalog, databases	None
11 [14]	yes	9–12	All English classes, all years. Lower-level project/research-based science classes come in once every few weeks.	Does teach, but no detail	No specifics in this answer	None
15 [14]	Yes	?	"Yes. I do nw student/new staff orientations, student teachers. I go over all our resources...encourage them to require at least two print sources."	Introduce library to new students, staff	Pushes print resources	None
18 [14]	Yes	11	"…we're starting to pay attention to how things progress from grade to grade. Growing shift towards building skills, paying attention to the flow from grade-to-grade for a more cumulative learning"	Build skills and concepts in cumulative way	Balance	More focus on skills than concepts?
19 [14]	No	?	Not a requirement, but most of the English teachers do require a research paper/Opposing Viewpoints assignment that requires citations and bibliographies.	Instruct in basic skills	Encourages use of public library resources as well as own	Citation; bibliography
12 [13]	yes	9–12	English and social studies have to do research papers every year	?	?	None
14 [13]	yes	10, 12	English research papers in soph. (skill-based) and sr. year (more intuitive)…soph. classes cover how to use e-board, databases, MLA citations, NoodleTools. Our % college-bound not high.…They're taught skills in sophomore year; there's no review after that.	Teach basic skills	Electronic mainly	Citation
13 [10]	yes	?	"Up to teacher…how much	Monitor	Technology	None

			time they spend in .Keep "Media Center" Offer backup when problem with printer, etc. Limit computer use to research. Most have computers at home."	classes? Treat as computer lab?	equipment mainly?	
17 [6]	Yes	?	"The teachers come in and tell me what they want, what websites they want to use, what they want the kids to get out of it. I help the teachers find sources, work with the students to find resources, write a bibliography."	Help teachers and students	Focus on resource location	Minimal; bibliography assistance

"NA" not applicable

Estimates of Students' IL Skills

These questions were followed by several that were focused on librarians' judgments of their college-bound students' information-literacy skills. Table 6 summarizes answers to the following questions:

1. In your estimation, how proficient are your college-bound seniors in the use of:
   a. your catalog?
   b. online indexes and databases?
   c. Internet search engines?
2. How would you grade your college-bound students on the following:
   a. Knowing about different sources and formats of information
   b. Knowing how to use the different sources and formats of information
   c. Identifying the main ideas in information sources (analyzing information)
   d. Sorting and organizing ideas (synthesizing information)
   e. Evaluating information for quality
   f. Using information ethically (e.g. Plagiarism, citation, bibliography)

As indicated in table 6, the school librarians said that overall their Advanced Placement (AP) students were proficient in use of finding tools and resources, but less so in higher-order skills such as synthesis and evaluation of information. Going beyond short answers, several participants mentioned the wide disparity among "mainstream" students and conveyed considerable doubt about abilities. Scanning the comments about student proficiency in information skills from the highest scores to the lowest reveals that, in some cases, the better the scores the poorer the students' competency level in the opinion of the librarian.

Table 6. Librarians' judgment of college-bound students' information literacy (same sort order as table 2).

School ID [SAL IL score]	Students' proficiency in using			How well do students know…					
	catalog	**databases and indexes**	**Internet search engines**	**About different sources**	**How to use sources**	**How to analyze info**	**How to synthesize info**	**How to evaluate info**	**How to use info ethically**
7 [22.5]	Not proficient	Not proficient	Proficient, not very good	Poor	Very poor	Once they find it, average	Average; not all know research	Poor	Below poor
2 [21.5]	Not used much	Very proficient	Successful, not advanced	6*	6 or 7*	Very good, 8*	8*	6–7*	8–9*
9 [21.3]	Fairly proficient	Very	Want quick and easy	Guess they do	Very good	Improving	Good	We teach; some do, some don't	Do bibliog-raphies from grade 9
3 [21]	Low	Poor	Find, but not good resources	3**	3**	Some pretty smart	3.5**	They're lazy	?
6 [20.3]	Proficient	Proficient	Proficient	Fairly	Somewhat; need reminder	Somewhat	Somewhat	Somewhat	Do pretty well on citation
10 [20]	Top students proficient	Top OK	?	OK	OK	Up to teachers	Up to teachers	? librarian does teach	? librarian does teach
4 [20]	Not very	Stumble	?	Not proficient	Not proficient	Proficient? not sure	Most can't	Not proficient	Honor code
8 [20]	AP kids fine	AP OK	Not great	AP OK	AP OK	Average	AP students proficient	AP above average	AP kids know how to cheat
5 [19]	Very basic	Familiar	Pretty proficient	B	No more than a B	B	C	B	B
1 [18]	Fair	Good	Don't allow	Excellent	Good	Good	Good	Good	Excellent, I hope
16 [17]	80% can use	80%	80%	Very good	Good	Good	Some get it	Work in progress	By graduation, good
11 [14]	Most are proficient	Many do use from home	Use Google, Ask.com	Pretty proficient	AP know	Trouble taking notes?	Process seems to work	We tell them, teachers too	Unit on plagiarism; use Turnitin.com
15 [14]	Piece of cake	Pretty good	Generally not proficient searchers	Good	Good	Pretty good	Good	Fair	Very good on citation
18 [14]	Decent	Decent	Decent	Good	Satisfactory	Not strong	Defer to teachers	Good	Room for improvement
19 [14]	Moderate	Average	Great	Good	Average	Good	Good	Fair	Fair
12 [13]	Adequate	Adequate	Probably proficient	B or C	B-, C	C ; they don't really think	Very poor: C or C–	Extremely poor	Forced on them
14 [13]	Fair	Proficient (those who use)	Don't refine to what they need	C	C	C	D, poor	D	F, cut and paste
13 [10]	Fine	Fine	Very comfortable	Fine	Know how but problem is how to interpret	Medium; 50–50	Hard for many	Not sure kids critical	Problem
17 [6]	75%	Very	Very	Very good	Seniors very good	Very good- AP classes	Seem to be fine	Don't seem to have a problem	Teachers go over plagiarism

* on a ten-point scale
** on a five-point scale
? indicates information was not provided

Recurring Words and Phrases

In addition to the summaries presented in the preceding tables, all the transcripts were reviewed again to note words and phrases that recur across the interviews. Participants expressed a number of complaints about students' tendencies to "believe everything they read on the Internet" and their cavalier approach to learning from information resources. Frequent references were made to teacher behavior that school librarians saw as preventing them from making the kind of significant contribution to students' education that they knew was important. The complaints centered on the lack of time teachers were willing to give to library instruction, manifested often as asking librarians to "just pull the books." In addition, participants referred to teachers who are biased against electronic information, who make poor assignments, and who themselves lack information literacy. Only a few times did librarians say that they saw bibliographies and papers written by students; more often librarians stated that they were not given the opportunity to evaluate the final result of students' work.

Discussion

No Clear Answer to Research Question

The findings summarized in tables 2 through 6 do not provide a clear answer to the question of why first-year college students are information illiterate. Counter to what one would expect, the school which graduated students who achieved the best scores on the Douglass IL assessments (School 7) does not require students to write a library-resource-based paper, although veteran teachers do, and has a librarian who complained about teachers who are themselves less than information literate. She also stated:

> …no scope or sequence in the curriculum. Only six librarians in district, no supervisor championing our cause. I don't know if you know this about administrators, people in power, but most of them, the principals, are gym teachers. They weren't exactly researching when they were teachers.

Judging from the information in table 3, School 7's community seems not to place as high a priority on education as most of the others in the top group. As shown in table 6, the librarian gives low "grades" to her students' information skills, so that it appears she either sets the bar very high or that the two students who scored so well on the SAL assignments were atypical.

Unlike the librarian at School 7, the librarian at the school with the lowest score (School 17) gives high grades to her students. Her many years at an elementary school may have kept her from developing a strong information-literacy agenda and may have led her to have low expectations of students. In answering the questions about working with teachers, the responses indicate that she merely reacts to teachers' requests and does not emphasize her instructional role: "The teachers come in and tell me what they want, what websites they want to use"; "I'll pull resources, set things up ahead of time."

Librarian/Teacher Roles and Interaction

The librarian's role described by many participants is the opposite of the classroom/library integration that Ross J. Todd and Carol C. Kuhlthau see as vital to student learning:

> Central to this work is the role of the school librarian as an information-learning specialist, working with classroom teachers to foster opportunities for students to learn well. This shared dimension of pedagogy clearly plays a key role in maximizing learning outcomes in terms of intellectual quality: the development of higher-order thinking, depth of knowledge, and depth of understanding. (Todd and Kuhlthau 2005, 86)

The degree to which librarians and teachers collaborate was used as an indicator of this integration in our study, and lowest ranked School 17 is a good case in point, with a passive, subservient librarian. In most of the other cases, however, the results are not as clear. The telephone interviews were rather permissive, letting librarians choose how they framed their answers to the question of cooperation/coordination/collaboration. Nevertheless, the replies and comments throughout the conversations proved that collaboration was the exception rather than the rule. It tended to be the teachers who controlled the interaction, from how much time was spent on planning to what the librarian would be able to contribute. In the case of School 7, when asked how she would grade her college-bound students on using information ethically, the librarian said: "Below poor….To be honest, I blame the teachers. When I was an English teacher, I made assignments that couldn't be done on the Internet."

This comment and others she made indicate a certain degree of cynicism about the teachers and administrators in her district and imply that fostering information literacy in this school is a struggle. Nevertheless, as some of her other comments show, this attitude does not prevent her from taking advantage of opportunities, and at least two of the students graduating from her high school did very well on the SAL assessments. Yet this school is in a district with a large immigrant population and modest college aspirations, a district that provides limited resources to its school libraries. This case proves to be the exception among those included in this study and can lend support for the argument that a good librarian—and perhaps a teacher—can make a difference, at least for some students who could be characterized as strivers.

Expectations and Demographic Factors

When considering the high school to college transition, the ideal study would factor in student and family aspirations as well as community economics. With some exceptions, the data in table 3 suggest that schools with greater percentages of college-bound students are more likely to produce graduates who are at least somewhat prepared to use library resources. Some of the librarians' comments show that they are aware of the importance of information literacy for college success. Other comments imply that not very much is expected of students in the participants' high schools. School environment and culture were not studied directly, but it is worth looking again at what the librarians said in order to single out those comments that reflect their perception of their school's academic climate.

School 2, for example, has a very different profile from that of School 7, one that is consistent with the results its graduates achieved in the SAL assessment. In answer to how the school librarian would grade college-bound students on sorting and organizing ideas (synthesizing information) the answer was:

> Generally, an 8 [out of 10]. We have some very smart kids; we're in a fairly affluent area here …. Students are coming in with a high level of educational value in their homes.

Here the librarian is making a connection between what parents expect of the school and what the library provides. The School 2 budget is much higher than that for School 7, the size of the School 2 student body is smaller, and the library staff larger. A fair amount of coordination with

teachers seems to be the norm, and all students are required to write a paper using library resources. The librarian is not entirely satisfied, however, as shown by the answer to the question about ability to evaluate information:

> They are probably in the 6–7 range. They understand, but they don't fully understand. They still are in the "it's on the Internet; it's true" [stage]— not completely clueless, after they've met with us, they're aware, but some kids aren't on top of that.

On the question about ethical use of information, this librarian mentioned that "We've had some very high-level incidents with plagiarism…student identified as a valedictorian, went to Harvard, but was found out." One might conclude that in a community that puts a high value on education and has a good high school library program, pressures to achieve might trump a genuine commitment to learning on the part of students.

Similarly, the librarian in School 9, one of the schools with the highest percentage of students planning to attend a four-year college, reported that when it comes to using the Internet, students "can find their way, but they want the quick and easy." She was explicit, however, about how her role is related to college preparation: "By senior year, they have been introduced to practically every database… My goal is that when they leave here, they can apply what they've learned to college." Since School 9's graduates scored well, she seems to have succeeded.

Looking at the schools with a low percentage of students planning on college, do the librarians show different concerns or expectations? For example, in answer to the question about ability to use search engines, the librarian at School 14 said:

> They can use the search engine wonderfully, but they just print out anything; whether it's appropriate for their research...They don't refine the search to what they need.

The implication here is that the librarian does not have the will or, perhaps, the power to change the students' ways. This is the same individual who reported that students are taught skills in tenth grade, but not formally in their senior year:

> Seniors, we don't really do presentations. Our percentage of college-bound kids isn't high. It's basically the honors students—one teacher, with about five classes. They're taught skills in sophomore year, there's no review after that. On an informal basis, we'll do it.

Schools 13 and 14 are large, with diverse student bodies, and what appear to be reasonable budgets for their school libraries. School 13 has more staff and a broader range of electronic resources. Librarians from both schools used words such as "it's dependent on the teacher" and "up to teacher" and had little to say about what their teaching role is. Unlike the librarian in School 9, the librarians in Schools 13 and 14 did not speak about their goals for student achievement.

Whether or not the majority of their students are college bound, most of the librarians seem to have low expectations of students' commitment to the kind of deep independent learning that requires information literacy. This situation is reflected in comments such as "they want the quick and easy," "they are stumblers—even the smart ones find sources just by luck," "they don't really evaluate it and use it for their learning; they just do it to get an A." Even though dated, a 1998 study of library experiences of students entering college still sounds valid: "They found high school library instruction 'somewhat' but not 'very' helpful, explaining in part, perhaps, our sense that new students are 'somewhat' if not always 'very' open to instruction efforts" (Geffert and Christensen 1998, 285).

Obstacles to Collaboration

Turning once again to the crucial question of how librarians and teachers work together to develop students' information literacy, the failure to collaborate looms large. Several obstacles to the optimal relationship were repeatedly cited during the interviews.

The first cluster is primarily centered on teachers' unwillingness to allow adequate time for students to develop and exercise information-literacy skills, with teachers' making requests to "just pull the books" and "to bookmark the websites," thus short-circuiting students' opportunities to develop searching skills and to experience learning through discovery. Another time-related factor is the lack of time for busy teachers and school librarians to plan together; this lack has been identified elsewhere as an important barrier in discussions of collaboration (Montiel-Overall 2008), even in largely supportive environments.

The second major obstacle is teachers' desire to be in control, and their reluctance to treat librarians as partners in the teaching-learning enterprise. Perhaps underlying both sets of obstacles is a general failure of schools to promote information-literacy integration with the curriculum and to give students real and sufficient opportunities to learn from information.

In addition to time and control issues, school librarians also spoke of teachers' own poor information literacy, their reluctance to learn about digital resources, and their failure to "put more meat into the assignments." Teacher education has been faulted for its failure to include information literacy in the curriculum, and academic librarians find it difficult to compensate for that failure through their outreach to academic education departments (Earp 2009). Less often specifically mentioned was the failure of administrators to lend support. The one positive comment by the librarian in School 16 stands out precisely because it is singular—a reference to an assistant superintendent who is "a lover of libraries."

Other Researchers' Perspectives

These observations are neither new nor unique, as other studies have reported similar findings, with blame generally ascribed to educators. It must be remembered, however, that the litany of complaints in the library literature comes from the school librarians' side, and that blaming others is always easy. In fact, there is some anecdotal evidence that academic faculty see school librarians as blameworthy (Badke 2012).

> Nevertheless, in a national survey of high school librarians, Ramona Islam and Lisa Anne Murno found that school librarians':
>
> > … overwhelming number of comments expressed frustration regarding a perceived lack of support for information literacy instruction…frequently cited hindrances, including administrative oversight, pedagogy that is not rooted in inquiry-based learning, lack of information literacy skills among content area teachers, lack of collaboration, and staffing or budget shortages. (2006, 502)

Islam and Murno have also noted that teachers make assignments that do not allow students to experience learning based on real inquiry. Carol Gordon has referred to students "trapped in a reporting mode" (2002, 19), which is a phenomenon familiar to a writing and rhetoric professor who has decried the research paper that "places its focus on format and final product, on sources and citations instead of intellectual process" (Norgaard 2004, 222).

Eric M. Meyers, Lisa P. Nathan, and Matthew L. Saxton (2007) found that teachers' control over students' use of libraries and lack of collaboration between librarians and teachers constrained the development of information literacy. Karen Lindsay (2005) concluded that information-literacy integration with curriculum requires leadership from principals and buy-in from most teachers. Thomas S. Duke and Jennifer D. Ward (2009) analyzed publications dealing with the inclusion of information literacy in teacher education and found that it was far from adequate. Cindy L. Kovalik et al. found that most teacher educators do not use American Library Association information-literacy concepts and standards, and that there was "little concrete evidence that teacher education graduates are teaching information literacy to their PK–12 students" (2010, 164).

The most thorough critiques of the frequently dysfunctional relationship between educators and school librarians come from Gary Hartzell, a professor of educational administration. He sees principals as just as important as librarians in shaping the school library program and sees principals as responsible for "creating a school environment where student library use and faculty/librarian interaction are valued and promoted" (2002a, 2002 b).

Conclusions and Recommendations

The findings do not add much that is new to our understanding of the low level of information literacy that first-year students bring to college. The findings do, however, confirm and reinforce results of studies such as those cited in the background section of this paper.

It seems that many New Jersey high school students either do not receive adequate information literacy instruction, or do not fully absorb what school librarians try to teach them. As shown by the Douglass IL assessment (see table 1), many students seem to demonstrate that they do not make connections between information-literacy principles they might have learned and how those can be applied in the higher-education environment. Neither is it a new finding that there are barriers to collaboration with teachers and consequent roadblocks to curriculum-integrated information-literacy teaching (e.g., Islam and Murno 2006).

The New Jersey study's value lies in evaluation of first-year students' information-literacy combined with commentary from their high school librarians and data about the schools. This holistic look is useful because the problems that have been identified must be understood as systemic and interconnected if remedies are to be found.

The librarians in this study saw themselves as trying to help their students become intelligent information users and understood that library research skills were part of preparation for college, or they would not have agreed to participate. Assuming that the nineteen who were interviewed fare not atypical, one can say that it is not the school librarians who are the sole culprits in the information illiteracy story, given the substantial barriers they face. Students are sometimes blamed for laziness and a failure to use library/information resources for learning, but are their attitudes and actions entirely their fault? Teachers are also not the chief villains, despite the criticism leveled at them by some of the school librarians. While teachers are the ones who most directly influence the success or failure of the librarians' information-literacy programs, teachers' behavior can be attributed to their professional education and to the policies and culture of their schools, as determined by the administration. Even though the nineteen librarians in this study made few explicit comments about these factors, the implications are there. Table 7 lists some of the factors that obstruct successful information literacy programs and that emerged in the interviews.

Table 7. Examples of factors affecting IL achievement in New Jersey high schools

Factor affecting high school students' information literacy	**Where found: Table number and school number**
Student laziness	Table 6: 9, 3
Teachers underutilize librarian	Table 4: 3, 6, 10, 17
Teacher resistance to collaboration	Table 4: 2, 14
Teachers like to control	Table 4: 3, 4, 17 Table 5: 8, 5, 1, 13
Teachers lack time	Table 4: 3, 5, 8, 15
Poor assignments	Table 4: 15,
Teachers have limited conception of IL	Table 5: 7, 4, 1,
Librarian resistance to Collaboration	Table 4: 2
Librarian lacks time	Table 4: 2
Librarian has limited conception of IL	Table 4: 6, 4 Table 5: 6, 13, 17
Librarian cannot influence curriculum	Table 4: 12

The key insight gained from this study is that school librarians are relatively powerless to effect change from within or on their own. Although Table 7 identifies many of the barriers to successful IL programs, including librarians' own limited concept of their role, there is barely any mention of the part that should be played by school administration. Even those librarians who come across as strong promoters of IL in their schools do not talk about how they try to advocate with their principals or with curriculum committees. Reading the transcripts leaves one with an impression of the librarian as isolated and dependent on the cooperation of individual teachers. Broad collaboration with teachers and information literacy integration with curricula are not held up as priorities. A sense of acceptance of the status quo is pervasive.

While the joint efforts of school and academic librarians to improve the quality of college-bound students' information literacy are salutary, they are not enough. School librarians' own professional education may need to be reformed, with much more attention given to negotiating the power relationships in school environments. Library/information science educators have to join with school librarians and academic librarians in efforts to influence teacher and school administrator education. Outreach to communities and stakeholders who are concerned about and can influence the course of Pre-K–20 education could become part of the mission of state and national library and education professional organizations.

Recommendations for Future Research

Future research should focus on how best to reach the educational establishment with the message that information literacy is fundamental to learning, that improvements in IL require the

understanding and commitment of school leaders, and school librarians must be empowered to bring their IL expertise to the teaching and learning enterprise.

Works Cited

American Association of School Librarians. 2007. "Standards for the 21st-Century Learner." <www.ala.org/aasl/sites/ala.org.aasl/files/content/guidelinesandstandards/learningstandards/AASL_Learning_Standards_2007.pdf> (accessed January 14, 2014).

———. 2013. INFOLIT. <www.ala.org/aasl/about/community/lists/infolit> (accessed January 14, 2014).

American Library Association. 2005. "AASL, ACRL Launch INFOLIT List." *American Libraries* 36 (9): 10.

American Library Association, and Association of College and Research Libraries. 2013. "AASL/ACRL Interdivisional Committee on Information Literacy." <www.ala.org/acrl/aboutacrl/directoryofleadership/committees/aas-ilc> (accessed July 28, 2013).

Badke, W. 2012. "What Students Should Know." *Online* 36 (2) 47–49.

Burhanna, K. J. 2007. "Instructional Outreach to High Schools: Should You Be Doing It?" *Communications in Information Literacy* 1 (2): 74–88.

Burhanna, K. J., ed. 2013. *Informed Transitions: Libraries Supporting the Student Transition to College*. Santa Barbara, CA: Libraries Unlimited.

Burhanna, K. J., and M. L. Jensen. 2006. "Collaborations for Success." *Reference Services Review* 34 (4): 509–29.

Carr, J. A., and I. F. Rockman. 2003. "Information-Literacy Collaboration: A Shared Responsibility." *American Libraries* 34 (8): 52–54.

Duke, T. S., and J. D. Ward. 2009. "Preparing Information Literate Teachers: A Metasynthesis." *Library & Information Science Research* 31 (4): 247–56.

Earp, V. 2009. "Integrating Information Literacy into Teacher Education: A Successful Grant Project." *Behavioral & Social Sciences Librarian* 28 (4): 166–78.

Foster, A. L. 2006. "Students Fall Short on 'Information Literacy' Educational Testing Service's Study Finds." *Chronicle of Higher Education* 53 (October 27): A36.

Geffert, B., and B. Christensen. 1998. "Things They Carry: Attitudes toward, Opinions about, and Knowledge of Libraries and Research among Incoming College Students." *Reference & User Services Quarterly* 37 (3): 279–89.

Gordon, Carol. 2002. "A Room with a View: Looking at School Library Instruction from a Higher Education Perspective." *Knowledge Quest*, 30 (4): 16-21.

Governor's Task Force on School Libraries. 2004. [background, findings, and recommendations of the Delaware School Library Survey] <www2.lib.udel.edu/taskforce/study/data.pdf> (accessed January 14, 2014).

Hartzell, G. 2002a. "The Principal's Perceptions of School Libraries and Teacher-Librarians." *School Libraries Worldwide* 8 (1): 92–110.

———. 2002b. "Why Should Principals Support School Libraries?" <www.ericdigests.org/2003-3/libraries.htm> (accessed January 17, 2014).

Institute for Library & Information Literacy Education. n.d. "Principal's Project." <www.ilile.org/initiatives/Principal_Project/index.html> (accessed January 17, 2014).

Islam, Ramona L., and Lisa Anne Murno. 2006. "From Perceptions to Connections: Informing Information Literacy_Program Planning in Academic Libraries Through Experimentation of High School Library Media Center Curricula" *College & Research Libraries* 67 (6):492-514.

Kolowich, S. 2011. "What Students Don't Know." *Inside Higher Ed* (August 11). <www.insidehighered.com/news/2011/08/22/erial_study_of_student_research_habits_at_illinois_university_libraries_reveals_alarmingly_poor_information_literacy_and_skills> (accessed January 18, 2014).

Kovalik, Cindy L., et al. 2010. "Information Literacy, Collaboration, and Teacher Education." *Communications in Information Literacy* 4 (2): 145–69. <www.comminfolit.org/index.php?journal=cil&page=article&op=view&path%5B%5D=Vol4-2010AR6&path%5B%5D=121> (accessed January 17, 2014).

Lindsay, Karen. 2005. "Teacher/Teacher-Librarian Collaboration—A Review of the Literature." *School Libraries in Canada* 25 (2): 8–21.

Meyers, Eric M., Lisa P. Nathan, and Matthew L. Saxton. 2007. "Barriers to Information Seeking in School Libraries: Conflicts in Perception and Practice." *Information Research* 12 (2). <http://informationr.net/ir/12-2/paper295.html> (accessed January 18, 2014).

Mittermeyer, D. 2005. "Incoming First Year Undergraduate Students: How Information Literate Are They?" *Education for Information* 23 (4): 203–32.

Montiel-Overall, P. 2005. "Toward a Theory of Collaboration for Teachers and Librarians." School Library Media Research 8. <www.ala.org/aasl/aaslpubsandjournals/slmrb/slmrcontents/volume82005/theory> (accessed January 17, 2014).

———. 2008. "Teacher and Librarian Collaboration: A Qualitative Study." *Library & Information Science Research* 30 (2): 145–55.

Norgaard, R. (2004). Writing Information Literacy in the Classroom. *Reference & User Services Quarterly* 43 (3): 220–26.

Oakleaf, M., and P. L. Owen. 2010. "Closing the 12–13 Gap Together: School and College Librarians Supporting 21st Century Learners." *Teacher Librarian* 37 (4): 52–58.

Okanagan College. 2010. "Research Skills: Bridging the Gap Between High School & Post-Secondary: Film Project." <http://libguides.okanagan.bc.ca/content.php?pid=109335&sid=2508383> (accessed January 17, 2014).

Percy, Liz. 2010. "Summary of Responses: What Research Skills Should College Freshmen Have?" <https://docs.google.com/document/d/11vC9GtHaeuZrr7wSKk-y7-_uW3bMo0L7YoXVCGq8LWI/edit?pli=1> (accessed January 18, 2014).

Purcell, K., et al. 2012. "How Teens Do Research in the Digital World: Summary of Findings." <www.pewinternetorg/Reports/2012/Student-Research/Summary-of-Findings.aspx> (accessed January 17, 2014).

Taylor, A. 2012. "A Study of the Information Search Behaviour of the Millennial Generation." *Information Research* 17 (1). <www.informationr.net/ir/17-1/paper508.html> (accessed January 17, 2014).

Todd, R. J., and C. C. Kuhlthau. 2005. "Student Learning through Ohio School Libraries, Part 1: How Effective School Libraries Help Students**."** *School Libraries Worldwide* 11 (1): 63–88.

U.S. News and World Report. 2013. <http://grad-schools.usnews.rankingsandreviews.com/best-graduate-schools/top-library-information-science-programs/library-media-rankings> (accessed January 17, 2014).

Cite This Article

Varlejs, Jana, Eileen Stec, and Hannah Kwon. 2014. "Factors Affecting Students' Information Literacy as They Transition from High School to College." American Association of School Librarians. <**http://www.ala.org/aasl/slr/volume17/varlejs-stec-kwon**>

School Library Research (ISSN: *2165-1019*) *is an official journal of the American Association of School Librarians*. It is the successor to *School Library Media Quarterly Online and School Library Media Research. The purpose of School Library Research is to promote and publish high quality original research concerning the management, implementation, and evaluation of school library media programs. The journal will also emphasize research on instructional theory, teaching methods, and critical issues relevant to school library media. Visit the* ***SLR website*** *for more information.*

AMERICAN ASSOCIATION OF SCHOOL LIBRARIANS
a division of the American Library Association

The mission of the American Association of School Librarians is to advocate excellence, facilitate change, and develop leaders in the school library field. Visit the ***AASL website*** *for more information.*