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Article

Should we flip the script?: A literature review of deficit-based perspectives on first-year undergraduate students' information literacy

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Abstract

This mixed method systematic review considers recent literature on the information literacy (IL) skills of first-year undergraduate students. The review uncovers the following themes: faculty and librarians perceive first-year students as lacking IL skills; students have varying perceptions of their IL skills; assessment studies yield conflicting findings on first-year students' IL; communication between high school and college librarians is challenging; and some IL researchers emphasise and leverage first-year students' prior knowledge and experience in IL instruction. These themes emerge from extensive searches in four research databases for scholarly and professional articles written in English within the past ten years. With the exception of a few articles, studies reviewed consistently express their findings in terms of students' gaps or deficits. We question whether this is the most productive basis for developing effective IL programs. Instead, we call for further investigation of students' existing knowledge and skills as a basis for implementing constructivist and strengths-based pedagogies.

Keywords

constructivist theory; first-year students; information literacy; strengths-based approach, United States

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1. Introduction

How do librarians and faculty in higher education characterise students' transition from high school to college, particularly when it comes to first-year undergraduates' competency in information literacy (IL)? This question is important because it provides the basis for how colleges and universities make plans to support students as they enter higher education. As this review will make clear, much of the literature of IL emphasises new students' lack of readiness

to pursue research at the college level. This disposition to view students' preparedness in terms of gaps or deficiencies pervades research into the IL of first-year students, including studies of high school to college transitions, IL skills assessment, and attitudes toward IL among students, faculty, and staff. These assessments and surveys almost universally suggest that high school students do not have a grasp of basic research fundamentals when entering college. To make matters worse, influential studies conclude that students think their skills are much higher than assessments show (Gross & Latham, 2007, 2011, 2012, 2013). Many teaching librarians quite reasonably use the conclusions of these studies as the basis for a gap-analysis approach to planning the IL curriculum: students lack the know-how to succeed at college-level research, so we will provide the skills and tools that they need to do academic research.

But what if we turn the tables and ask: What CAN students do as they arrive on campus and in our libraries? This unorthodox approach to IL readiness is not well represented in the literature on first-year students, but it has the potential to make a positive contribution. After all, by the time students begin college, they have been using information to learn for a long time, both for their academic work and for questions that come up in their personal lives. Also, one need only look to influential learning theories, particularly Lev Vygotsky's (1980) Social Constructivist Theory, to find a basis for using students' existing knowledge as the starting point for designing and implementing meaningful learning experiences. Constructivist theory is guided by four principles:

> learners construct their own meaning; new learning builds on prior knowledge; learning is enhanced by social interaction; and learning develops through "authentic" tasks – constructivist learning moves from experience to knowledge and not the other way around. In a constructivist classroom, the activities lead to the concepts; the students construct the meanings (Cooperstein & Kocevar-Weidinger, 2004 p.141).

This review examines the recent literature on the IL of incoming students in order to provide a deeper analysis of deficit-based conceptions and weigh the possibilities for strengths-based approaches. In a companion study, we interview first-year college students from four different institutions to learn more about the information strategies they use in everyday life, with a view to uncovering starting points for strengths-based IL instruction (Kocevar-Weidinger, Cox, Lenker, Pashkova-Balkenhol, & Kinman, 2019).

2. Defining strengths-based education

A brief overview of strengths-based education will provide the reader with a basis for the authors' analysis and recommendations. The frequently intertwined fields of psychology and education have grown out of a 'deficit based understanding of human behavior' or fixing pathologies of what is broken, missing, or wrong (Graybeal, 2001, p.233; Anderson, 2005; Hodges & Clifton, 2004). As a result, the role of education has largely been to assess and then remediate for student areas of need, weaknesses, deficits, etc. (Baum, Schader, & Hébert, 2014; Menchaca, 2012; Anderson, 2005; Krutkowski, 2017a).

In the early nineteenth century, psychologists and educators began to research strengths-based approaches to education (Lopez & Louis, 2009). What if, instead of developing pedagogies based on students' deficits, educators devised teaching methods based on students' strengths or what they do know, instead of what they do not know? In the latter twentieth century, Peterson and Seligman's (2004) pioneering research in the field of positive psychology and strengths-based learning, as well as subsequent studies, demonstrate that a positive, strengths-based approach results in increased success and cognitive and emotional growth for students (Peterson & Seligman, 2004; Seligman, 2014).

A strengths-based approach is a 'specific method that includes an emphasis on a person's strengths and resources, internal and external, in the process of change,' transforming the 'story of the problem as it creates positive expectations that things can be different and opens the way for the development of competencies' (Hammond & Zimmerman, 2017, p.4). Baum, Schader, and Hebert's (2014) case study of a middle to high school student cohort concludes that a strengths-based, talent-focused approach benefits students socially, emotionally, and academically. Their work builds on and supports Seligman's (2014) findings that the past 50 years of developments in mental health prevention and treatment in the field of psychology have been based on systematically building competency, not correcting weaknesses. Likewise, pedagogy should not be about fixing deficits, but about nurturing students' strengths.

Researchers have found that shifting the pedagogical focus from overcoming weaknesses to building on strengths and abilities increases student confidence and self-efficacy, and therefore, their ability to comprehend and retain new knowledge (Lopez & Louis, 2009; Clifton & Harter, 2003; Soria & Stubblefield, 2015). A 1994-1997 Gallup Poll research study and subsequent research provides salient examples of the disparity between the attitudes toward learning that students bring with them into higher education and the promise of strengths-based approaches as found in the research literature (Harter, Schmidt & Keyes, 2003). One Gallup Poll question asked students: 'which would help you be more successful in your life - knowing what your weaknesses are and attempting to improve them or knowing what your strengths are and attempting to build on your strengths?' (Clifton & Hodges, 2004). In this worldwide study, most participants chose to focus on their weaknesses. However, a follow-up research study of 807 high school students showed that a strengths-based intervention increased class attendance and grade point averages (Harter, 1998). So if scholars are finding that a strengths-based approach works, should we rethink the role that student deficits play in our own pedagogical practice? Even though we may not consciously focus on our students' IL deficits, perhaps it is time to intentionally switch our focus and build our instruction practices 'not on remediated weaknesses but on developed strengths' (Hallowell, 2005, p.34).

3. Literature review methodology

Our research question about how librarians, faculty, and students characterise students' IL skills as students transition from high school to college puts us in the middle of several overlapping professional discussions. The literature on IL pedagogy, IL assessment, high school to college transitions, and strengths-based pedagogy all touch on this question. To lend rigor and transparency to what could potentially be a subjective, meandering survey of the literature, we chose to model our review procedure on the mixed-method systematic review method outlined by Hemingway and Brereton (2009).

Phelps and Campbell (2012) recommend the systematic literature review as a method for conducting a broad survey of the LIS literature on a question and identifying opportunities for further research. The mixed-method model as described in Hemingway and Brereton (2009) provides the flexibility to incorporate a range of research and professional commentary as opposed to, say focusing exclusively on test-based assessments of first-year students' IL. This method also requires us to be explicit about how we conducted our search and our criteria for including or excluding retrieved results. Hemingway and Brereton (2009) focus on the systematic review as a resource to inform decision-making in medical contexts, where broad, rigorous surveys are needed to determine what aspects of a clinical question are reliably certain and what requires further research. In contrast, while we hope that this review stimulates reflection on practice, our primary purpose for adopting a precise, transparent method for our review is to make it easier for future researchers to expand upon and improve our work.

We identified four core databases to search: Library, Information Science & Technology Abstracts, Library Literature and Information Science Full-Text, ERIC, and Google Scholar. In

order to capture significant non peer-reviewed sources, we did not limit our searches to exclusively peer-reviewed literature. We then determined official subject headings and keywords for each search engine or database and conducted thorough searches.

We used a wide variety of search terms in multiple keyword combinations to find studies that would be relevant to our work (Table 1).

Table 1: Literature search limitation and keyword combinations

We limited our search to articles published in the past 10 years, 2008- 2018	"information literacy" OR "research skills" OR "library instruction" OR "bibliographic instruction"
	college OR university OR "postsecondary education" OR undergraduate
	"first year" OR first-year OR freshmen OR freshman
	faculty OR librarians OR instructors OR professors
	attitudes OR beliefs OR perceptions OR opinion
	strengths-based OR "strengths based" OR asset-based OR "asset based"

All of terms were official subjects or descriptors in the databases with the exception of *strengths based, deficit based, and asset based*.

Next, we limited our search to include recent papers published in the past 10 years (2008-2018). However, several authors cited a few highly relevant articles published prior to 2008, thus we included those as well because of their importance to our research.

Because of the recent interest in this topic at conferences and in professional conversations, we also included selected relevant grey literature. We did not do a comprehensive search of grey literature, nor was it the focus of our study.
We did not limit the search to a specific geographic area, but we did only review articles in English. All of the members of our research team have pursued their library education and careers in the United States; while we did not limit our search to United States publications, our experience at American institutions informs our understanding of IL and higher education.

We read each article for passages from either faculty or librarians that identified student strengths or deficits. If such passages played a minor role, then we excluded it from the review, but if they were prominently featured along with other student groups (that is, Honors students) then the study was included. Some studies were too far out of scope for our review, such as an assessment of outreach to first-year students. Finally, we reviewed the studies collectively to see what themes emerged from the literature. In total, we included 28 studies for review.

Additionally, searches using the same keywords were performed outside of the traditional literature to capture other reflections on the topic, for example presentations and blog posts. Six major themes emerged from the review of the literature on first-year students and their IL skills.

4. Findings

4.1 Theme 1: In general, librarians and faculty perceive that first-year students lack IL skills

The research literature suggests that, when asked about the IL of first-year undergraduates, librarians and faculty almost universally characterise students' competency as *lacking, deficient*, or *unsophisticated*. A notable exception is the research team of Salisbury and Karismanis (2011), as illustrated below in their study of the IL skills of first-year health sciences students:

> While it is not surprising, nor should it be expected, that commencing students are ready and equipped for discovering and using scholarly information, it should also not be assumed that this lack of awareness and readiness means that students are information illiterate. . . . Existing skills represent a milestone along the lifelong IL learning continuum and provide a starting point for building and refining existing skills to suit the university environment. (p. 44)

Salisbury and Karismanis (2011) acknowledge that entering students have much to learn before they are ready to engage in scholarly research, but they do so in a manner that explicitly respects students' existing skills and their capacity to build their competency. Why is this approach the exception rather than the norm?

Part of the explanation, yielded by our search, lies in the specialist perspectives that pervade ways that IL is understood in higher education. We found that faculty and librarians tend to have distinctive ideas about what it means to conduct academic research, and new students will need time to adapt to these ways of thinking. As library ethnographer Nancy Fried Foster (2010) points out, faculty tend to view research as extended engagement with networks of other scholars, and librarians are inclined to place emphasis on the sophisticated use of specialised research tools. If new students do not arrive ready to engage in those aspects of expert research immediately, is it accurate to consider their skill levels deficient?

A significant portion of the literature reports on faculty perceptions of undergraduates' IL levels. According to Bury's (2011) survey study of full-time faculty at the University of York in Canada, faculty members perceived that students are generally lacking in information skill, particularly in their first and second years. The findings of Dubicki's (2013) survey study of eight two-year and four-year institutions in New Jersey are similarly discouraging: only 53% of faculty respondents felt that undergraduates generally are information literate by the time they graduate (though Dubicki cautions that the response rate for survey was "fairly low: 9.45%" (p.101). In Kim and Shumaker's (2015) survey study of first-year students, librarians, and faculty at Catholic University of America, librarians and faculty generally gave lower appraisals of IL skill levels than the students gave themselves; the disparity was statistically significant for ratings on critical evaluation of information and using information legally and ethically. In Perry's (2017) interview study of science faculty at seven Boston-area colleges and universities, respondents express similar concerns regarding students' evaluation of sources, claiming that students often cite articles that are either not rigorous enough or too technical for the students to understand. The above studies suggest that it is not just IL researchers who tend to exhibit a negative perspective on incoming students' abilities; that impression is also prevalent among their librarian and faculty colleagues.

4.2 Theme 2: First-year students vary in their perceptions of their IL skills.

Other research focuses on students themselves, and a couple of important themes emerge from these studies. One is the idea that students have too inflated a view of their own IL

competency. Another is the notion that students have a shallow understanding of the research process.

The research team of Gross and Latham has published a number of influential studies in this vein (2007, 2009, 2011, 2012, 2013). Their approach is to ask students to predict how they will perform on an objective test of IL skill (in this case, James Madison University's IL Test), have them take the test, then ask students how well they think they performed. Gross and Latham find, that both before and after taking the test, students tend to overestimate their performance. This is especially true among students who do not score at a proficient level on the test (Gross & Latham, 2007, 2011, 2012). Furthermore, students exhibit difficulty re-calibrating their estimation of their IL skill, even after a one-hour workshop on research skills (Gross & Latham, 2012).

In interviews with students, Gross and Latham (2009, 2011, 2012, 2013) note a students' tendency to view information needs as subjective, contributing to the perception that research is not a skill that admits of distinctions between better or worse in an objective way; either the information you find meets your needs or it does not. This tendency also contributes to the idea that research is not really a skill is students' emphasis on the end results of research. Rather than viewing research as a process, Gross and Latham's (2009, 2011) interviewees tend to view research as a matter of typing your question in a search box and looking at the answers a database or a search engine gives you. Gross and Latham's frequently cited studies are important because they suggest that below-proficient students may not seek assistance in addressing their information needs because (a) they are overconfident and (b) they do not consider research a skill-based activity that one can get better at, thus adding to the grim picture of first-year students as researchers.

Gross and Latham's work has prompted other LIS researchers to look into student overconfidence in their own investigations of first-year students' IL skills. Angell and Kose (2015) surveyed 34 undergraduate students enrolled in psychology courses at a large urban university in the United States. Students were asked to estimate their performance on an objective test that included questions about both IL and general knowledge. They found that students exhibit difficulty in estimating their performance on both types of questions, implying that IL is not a uniquely deceptive measure in this regard.

Other studies that ask students to rate their confidence in their IL skills show markedly different results. Gustavson and Nall (2011) administered a demographic survey and library research skills test to 377 first-year students at East Carolina University in their first-semester English composition classes. They found no significant relationship between students' predictions of their research skills performance and their performance on an objective test of library skills. They also observe a relatively even distribution of ratings for students' assessment of their skills, that is there is not a disproportionate cluster who rated themselves 'above average'.

Kim and Shumaker conducted a case study based on survey methods to understand student, librarian, and instructor perceptions of IL instruction and students IL skills in a first-year experience program (2015). In regard to students' perspectives and actual skills, they found a positive correlation between students' confidence in their research skills and their successful performance on research assignments that demonstrate their skills. This study is the only one in this review that looks at student confidence in relation to actual research assignments rather than objective tests that are not part of the students' regular course of study. It would be very interesting to explore why the change in context is associated with a different result. Perhaps students form a more realistic idea of their skills in research contexts that involve more of their time, attention, and personal investment.

4.3 Theme 3: Assessment studies yield conflicted findings on first-year students' IL

To better understand the literature's frequently negative characterization of first-year students' IL, it is important to examine the methods used to assess those skills. Spurred by accountability movements and the Association of College and Research Libraries (ACRL) *IL Competency Standards for Higher Education* (ACRL, 2000) at the dawn of the 21st century, librarians and their campus partners have been assessing students' skills and readiness for well over a decade. Walsh's (2009) review nicely summarises the first decade of IL assessment. After examining over 90 articles, he finds a variety of assessment measures that the field has developed: bibliographic analysis, essays, final grades, multiple choice questionnaires, direct observation, portfolios, quizzes/tests, self-assessment, and simulations (p.21). Walsh found that the most used assessment methods were multiple choice questionnaires, bibliographic analysis, and quizzes/tests. Multiple choice questionnaires were the most popular by almost double compared to bibliographic analysis. He suspects that multiple choice assessments were the most popular because of convenience for researchers.

The recent literature on assessment with first-year students is inconsistent in its findings, which makes it difficult to discern guidance for libraries or librarians seeking direction about instruction. Most notably, several studies using the pre- and post-test and bibliographic analysis assessment models found that students' skill levels improve dramatically with library instruction.

Bryan and Karshmer (2013) found that by using innovative instructional techniques like visual and kinesthetic activities in a first-year university experience course, students improved their IL skills in post-testing. Using the Research Readiness Self-Assessment at a university in Hong Kong, Chan (2016) found that only 16% of first-year students received a passing grade on the measure, while second-year scores improved dramatically, soaring to 53%. Chan attributes this jump to library instruction. Favourable results after library instruction can also be seen with bibliographic analysis of first-year students' research papers (Luetkenhaus, Hvizdak, Johnson, & Schiller, 2017). Scored on six learning outcomes, first-year students performed at the 'Emerging' or 'Proficient First Year' level on five of the learning outcomes created by the research team.

In contrast to the above findings, some studies do not indicate improvement after instruction. After conducting a multi-year study of undergraduates at Rider University, Hsieh, Dawson, and Carlin (2013) found that upper-division students were not superior in skills to their fellow lower-division students after library instruction (with the exception of Honors students). Librarians and faculty assume long-term benefits from instruction, but this study is a stark reminder that retention of knowledge gained should not be taken for granted. Hufford (2010) discovered that even in a research-intensive library skills course, students' scores were disappointing on both pre- and post- testing at Texas Tech University. While the average score rose by 13 points on the post-assessment, overall scores were 'quite low' with an average score of 43% on the pre-test and 56% on the post-test.

So what is the cause of the inconsistent findings? Formulating assessments and asking the right questions are of the utmost importance, but also notoriously difficult. The challenges of assessment have been documented by Oakleaf (2008) and cited by many of the authors mentioned in this section.

Oakleaf breaks down varying assessment practices into categories and presents the dangers and opportunities of each one. Fixed-choice testing is the most popular method among studies of first-year IL. Oakleaf makes it easy to see why it is the most popular; it is a great method to measure for 'acquisition of facts' (p.236) and is easy to implement with groups of students. Tests that have already been developed are even easier to implement and save on staff time.

However, there are just as many dangers to fixed-choice tests as there are benefits. Most importantly, they do not measure 'complex behavior or authentic performances' (p.236) and can be oversimplified. If developed in-house, challenges can arise when staff lack the expertise to design a reliable measurement. As we can see in many of the examples in this section, it is difficult to design and implement tools that will best capture our students' abilities.

Based on the literature, we can arrive at one reasonable explanation for the majority of assessment findings over the last decade. We know that fixed choice tests are the most popular assessment measure used with instruction. Combine that with academic library-centric questions, and we end up with results that are not very illuminating in regard to students' everyday research experiences. But instead of recreating tests and questions to assess our students (that still might be problematic), we see a bigger, more pressing question to ask ourselves. What if we are missing a considerable amount of students' prior research knowledge because of assessments that do not uncover that knowledge? In other words, are our current assessment methods only showing us the tip of the iceberg when it comes to their research savvy?

To help answer that question and to get a better sense of how we can start to reframe the discussion around first-year student research competency, Head's (2013) Project IL (PIL) study can shed light on a way forward. Head emphasises students' typical practices as a starting point for further discussion. These studies, from data with 11,000 college students, show that students rely on search engines, friends, Wikipedia, and their personal collections for everyday research. When it comes to research help, students overwhelmingly turn to their instructors, family, and friends -- instead of librarians -- for assistance.

The PIL studies, along with over a decade of assessment data, encourage us to reconsider how we want to approach IL and first-year student assessment. Students' personal learning networks are already in place when they arrive on campus, with seemingly little emphasis on the library and librarians. Can we find a way to become part of that established network instead of asking students to become library-centric researchers as soon as they walk onto campus?

4.4 Theme 4: Communication between high school and college librarians is challenging

Similar to the literature describing first-year students' IL skills as inadequate for college research, recent research focused on graduating high school students and their transition to university does not paint a more positive picture. To predict IL success in college among high school graduates, Lanning and Mallek (2017) and Fabbi (2015) administered IL pre-tests and correlated the test results with incoming first-year students' socio-economic and educational backgrounds. Among multiple items studied, including gender, race, language, and admission type, Lanning and Mallek (2017) found that the ACT (American College Testing) score and current college GPA (Grade Point Average) somewhat correlated with students' IL pre-test scores, even though the prediction rate of those scores was found in only 20% of cases. In a study of potential indicators of IL competency among first-year students, Fabbi (2015) discovered a significant relationship between the number of honours courses taken in high school and higher test results, particularly among students who took between five and twelve honours classes. The results of both studies lead us to question: why is IL instruction in high school not identified as an effective indicator of high school students' IL success in college?

Smith, Given, Juliette, Ouellette and DeLong. (2013) evaluated IL practices in high school by administering the James Madison University IL Test to twelfth-grade students in three Canadian high schools. The study found insufficient IL skills among high school participants as only 19% demonstrated IL proficiency. The researchers particularly expressed concern over the participants' challenges with accessing information and called for greater IL support at the college level.

Even studies about high school and college librarians' perceptions of high school graduates' IL competencies bear a similar resemblance to the study findings of student under-preparedness for college work. In a nation-wide survey of high school and college librarians in the United States, Saunders, Severyn, and Caron (2017) reported that both high school and college librarians gave high school graduates comparably low ratings of IL skills. Furthermore, they discovered some inconsistencies among librarians' expectations and instructional practices. Two-thirds of high school librarians indicated that they spent significant amounts of instruction time on teaching citation skills, whereas only approximately one-third of college librarians believed that high school students were fully trained on how to cite their sources (Saunders et al., 2017). The study's authors provide three potential explanations for this discrepancy: students may not be transferring the skills they learned in high school, students may not be fully learning citation skills, or only one citation style (for example, Modern Language Association [MLA]) may be predominantly taught in high school. Why do such inconsistencies in IL expectations and practices prevail among high school and college librarians? And why does IL instruction in high school have a minimal impact on high school graduates' success in college?

A 2014 study by Varlejs and Stec sheds some light on these questions by offering an insight into high school librarians' instructional experiences. In an interview of 19 librarians in New Jersey high schools, the researchers discovered a number of barriers that prevented librarians from helping students fully develop IL skills in high school. Among such obstacles, the participants reported a lack of time on both teachers' and librarians' sides, teachers' reluctance to treat librarians as an equal collaborator in an educational process, and a lack of administrative support. The researchers concluded with the key insight that school librarians needed strong empowerment from state, national library and educational professional organizations to collaborate extensively with teachers and administrators for successful IL integration in high school curricula (Varlejs & Stec, 2014).

As recently revised, the *2018 National School Library Standards for Learners, School Librarians and School Libraries* may provide a better communication tool for school librarians to build relationships with teachers and administrators (American Association of School Librarians [AASL], 2018). The document offers collaborative opportunities for school librarians to support administrators' and teachers' initiatives in order to prepare all learners for college, career, and life (Hancock, Kozaka & Mackley, 2019). In addition to the American Association of School Librarians support, school librarians may benefit from collaborating with college librarians. Saunders et al. (2017) highlight collaborative programs at the University of Wisconsin-Madison and the University of Alabama Birmingham as examples of close partnerships between high school and college librarians that support successful transition of high school graduates to college. In a study of high school and college librarians in Oregon, Schroeder (2009) recommends treating IL instruction as a continuum that stretches across both high school and college, with both groups of librarians working together to engage students in developing their IL skills.

Oakleaf and Owen (2010) note a lot of similarities between high school and college librarians, which could serve as a basis for productive partnerships. Both groups experience similar challenges in integrating IL into the curriculum at their own institutions, such as the lack of time and administrative support and the teachers' reluctance to view librarians as collaborative partners in a student learning environment. They also share common goals of student-centred learning outcomes and student academic and life-long learning success. As a starting point for establishing a professional community among high school and college librarians, Oakleaf and Owen (2010) suggest a syllabus study. The aim of such a study would be to determine the skills and dispositions that graduating high school students need to demonstrate in their first semester of college. The resulting list of objectives would serve as a focal point for high school

and college librarians to align their expectations for students' IL and would allow for coordinated instruction to support the transition from high school to college.

Evidence-based research conducted by school and college librarians has the potential to inform a number of initiatives to ensure the successful transition of students from high school to college. For instance, a syllabus study can result in a checklist of IL skills for college-bound seniors. According to Owen (2010), such a checklist may serve multiple functions, such as a learning framework for educators, parents, students to prepare for college; as an assessment mechanism to evaluate students' research confidence; and as an audit tool for librarians to revise the IL curriculum at their institutions. Other applications for collaborative research between high school and college librarians are easy to imagine. For instance, college librarians could pursue collaborative, evidence-based research to inform IL workshops offered during a campus summer transition program. Moreover, such research would also provide a basis for college librarians to advocate for further integration of IL into first-year general education courses.

Reviewing the research on the transition from high school to college brings up a number of obstacles preventing school librarians from integrating effective IL practices into high school curricula, thus resulting in low IL proficiency and under-preparedness of high school graduates for college work. Recent studies and revised AASL standards, however, call for increased dialogue and extensive collaboration among school and college librarians and their stakeholders. To support a successful transition experience for first-year college students through partnerships between high school and college librarians, this study's authors propose considering the existing research strengths students bring to higher education. Many students coming out of high school programs already have some exposure to IL concepts in terms of skills, resources, and tools employed by 21st-century students (Henderson, Nunez-Rodriguez, & Casari, 2011). Prior to higher education, students have potentially developed a repertoire of knowledge and skills through their research experiences for school and for everyday life. In adopting a strengths-based approach, high school and college librarians can build collaborations that appreciate and leverage students' untapped skills. They can create positive learning environments that focus on identifying students' strengths and build confidence in their abilities to acquire additional IL in both learning environments (University of Memphis, 2018).

4.5 Theme 5: Some IL researchers consider first-year students' prior knowledge and experience as a strength

In fairness, the IL literature is not devoid of an appreciation and acknowledgement of the strengths and prior knowledge students bring to higher education. Notably, the Australian and New Zealand IL Framework's fifth of six core principles states that 'the information literate person applies prior and new information to construct new concepts or create new understandings' (Bundy, 2004, p.11). The Framework's standard reflects the constructivist learning theory's second tenet that new learning builds on prior knowledge (Brophy, 2008; Piaget, 1954; Cooperstein & Kocevar-Weidinger, 2004). In constructivist learning, students build a cognitive bridge between their existing or prior knowledge to new knowledge, often comparing, questioning, and synthesizing old and new concepts for greater understanding (Bundy, 2004). A constructivist approach appreciates that learners bring varying degrees of prior and relevant knowledge with them to the classroom that influences how they digest new knowledge and affects their 'ability to remember, reason, solve problems, and acquire new knowledge' (National Research Council, 2000, p.10).

Addressing the Australian and New Zealand IL Framework, Australian librarians Ellis and Salisbury (2004) discovered that librarians' knowledge and understanding of students' prior information seeking experiences outside academia are quite limited. As a result, they conducted research to find that students do bring relevant and meaningful IL skills with them to the

university research experience. Over the course of studying 400 first-year students at the University of Melbourne, Ellis and Salisbury (2004) found that students knew that the catalogue and journal databases were more reliable than the internet, demonstrating their ability to evaluate different information sources. Salisbury and Karasmanis (2011) updated Ellis and Salisbury's work, collecting 1,029 surveys from first year students and finding that students bring many information seeking skills that are commensurate with their educational level and applicable to higher education, including the ability to formulate keywords and conduct basic search strategies. Their work suggests that, with a more constructivist pedagogical structure, first-year students can create new academic research knowledge from prior information-seeking experiences. The question then becomes, how can librarians plan instruction to leverage these strengths in order to help students develop their IL skills?

Like Ellis and Salisbury (2004), Nierenberg and Fjeldbu (2015) surveyed 507 first-year students to determine what they know about the research process. They concluded that although students have different levels of proficiency, they are consistently able to evaluate information, a hot-topic concern in the IL community, especially following the 2016 United States presidential election. They also found that new students bring considerable information seeking experience with them to higher education, even though they acknowledge that students still have much to learn about IL in the context of higher education. Norgaard (2003) agrees with research on strengths-based pedagogy, positing that student learners possess relevant and valuable competencies and have developed 'fairly complex ways of accessing and using information that we librarians may fail to recognize' (p.126).

Green's (2010) *Information illiteracy: Examining our assumptions* is an exemplary discussion of strengths-based or prior knowledge pedagogy for IL. Unlike the other articles examined here, Green's work focuses on first-year graduate students, conducting 42 in-depth interviews. Her work has important implications for this study about undergraduate students. After citing several researchers' findings, Green agrees with Norgaard that students 'exhibit information competencies in their own ways, even though the attributes may be individualized, tacit, unrecognized, or differently named' (as cited in Green, 2010, p.315).

Green (2010) concludes that:

> [I]f, among all our other charges and duties, we take up a critical examination of IL from the viewpoint of learners' authentic experiences, we may gain a deeper understanding of how learners experience the IL continuum. And we will deliberately expose ourselves to challenging–yet potentially rich– areas of practice, theory, and research wherein we may reconsider our notions of information illiteracy. (p.318)

In conclusion, perhaps Salisbury and Karasmanis (2011) make the best case for a strengths-based approach for librarians, stating that it is the 'lack of understanding of prior knowledge by university libraries that is a barrier to engaging students in the research process in their first year, as it may result in programs that do not inspire students, or do not give relevant feedback or encouragement to build on what students already know' (p.53). Perhaps the knowledge 'gap' belongs to us, not our students.

4.6 Theme 6: Some colleges leverage students' strengths and prior experience in IL instruction

Putting theory into action, Krutkowski (2017a, 2017b) developed a strengths-based IL delivery plan at Greenwich School of Management, London. He proposes measuring IL strengths and implementing a pedagogy that includes students identifying signature themes and strengths for

their research, participating in group discussions about their strengths, and writing minute papers describing how they used their strengths in the context of their work. Krutkowski modelled his work after several other strengths-based programs in higher education, including those at Azusa Pacific, the University of Arkansas, Sarasota University, and most importantly, the University of Minnesota, one of the largest and most acclaimed strengths-based programs in the United States. Krutkowski found that even in 50-minute, one-shot library instruction sessions, it is possible to interject strengths-based approaches that capitalise on students' prior knowledge and promote greater learning.

In addition to Krutkowski's work, University of Minnesota Librarians undertook a project to direct students to library resources and services that best complemented their strengths (Riegelman & Peterson, 2015). The university's annual assessment of 5000+ incoming students includes the *Clifton StrengthsFinder* test, an inventory that measures students' strengths across 34 themes. To enable students to easily find resources that match their strengths and proclivities, the librarians mapped the 34 themes to the library's databases, online tools, and research tips.

The librarians shared their customised research tips for each strength with incoming students, orientation student leaders and academic advisers and received overwhelmingly positive feedback from all of the audiences. As a result of this initiative, first-year students were able to connect the top five talents they were bringing to college with academic research skills they needed to apply to succeed in college.

Similarly to the University of Minnesota librarians, Tewell (2018) argues for identifying the strengths students bring to the classroom and building IL activities upon students' prior knowledge. In his LOEX conference presentation, he calls for recognising deficit models of IL programs, which focus primarily on textual information and ignore students' prior information-seeking behaviours and experiences. As Lloyd (2005) states, academic IL practices emphasise textual information and undervalue other sources of information obtained through observations, experiences, and communication. This text-centred model narrows down the scope of IL and limits students' ability to transfer skills and practices between different contexts they engage in, for example, everyday life, workplaces, and communities. Thus, Lloyd (2012) introduces a broader definition of IL as a socially enacted practice. Lloyd substantiates this revised understanding of IL by referring to her empirical studies on the IL practices of nurses, firefighters, and refugees, who undergo the learning process of engaging with institutional information, communicating with professionals, and practising newly developed expertise in a specific setting. As a result, Lloyd (2012) reframes IL as 'an ongoing situated practice that reflects the arrangements of the site, through the saying, doings, and, relatings…' (p780).

Echoing Lloyd's situated and social aspects of IL, Bruce, Hughes & Somerville (2012) call for informed learning that draws attention to people and their effective ways of using information to learn in various contexts. These researchers argue that IL instruction needs to focus on how different professions, disciplines, and discourse communities use and experience information to learn. By broadening IL as a transformational, situated, social, and evolving learning practice, Lloyd's (2005; 2012) and Bruce et al.'s (2012) studies encourage IL educators to guide students in making explicit connections across various information landscapes, for example, academia, workplaces, and communities. The *CILIP Definition of IL 2018* (Chartered Institute of Library and Information Professionals [CILIP], 2018) also draws the attention of information professionals to the diversity of contexts in which IL makes a difference: everyday life, citizenship, education, workplace, and health. We unfairly diminish IL when we consider it in exclusively academic terms.

Furthermore, we need to build on foundational research experiences, whether it is everyday or workplace-related research that students are familiar with in order to prepare them for the academic research context. This body of research finds that deficit thinking may come from

academia's view of IL as an academic competency. However, we need to consider academic IL as a part of a life-long IL continuum that our students are developing throughout their lives. We need to embrace and incorporate the breadth of our students' contextualised information literacies, including their everyday, workplace, academic, and active citizenship experiences.

5. Recommendations for future research

The ACRL Instruction Section's recent report "5 Things You Should Know about Asset-Based Teaching" will likely stoke an already growing interest in instructional strategies that capitalise on incoming students' existing strengths (ACRL Instruction Section Research and Scholarship Committee, 2018). But what do we need to learn more about in order to develop such strategies?

This review suggests that there are two broad areas that require further research.

5.1 Question 1: What is the state of first-year students' existing everyday information seeking skills?

The research reviewed here confirms that, typically, librarians believe that most students do not show up to college ready to excel at academic research. Considering that first-year students have not conducted college-level academic research, perhaps instead the question should be what transferable skills do they bring? Objective tests of library skills may not be the best way to gauge their existing prowess. Instead, future research can provide a clearer picture by pursuing the following avenues:

- Increased communication and collaboration between high school librarians and faculty and college librarians. Working together to develop bridge programs for new college students provides an especially promising basis for learning from one another and improving student outcomes.
- More authentic assessment of first-year students' everyday life research rather than academic research skills. This is especially important for understanding the relationship between students' confidence in their information seeking skills and their ability to perform on research-intensive assignments.
- More conversations with students themselves. Their perspective and existing skills are crucial, especially if we want to uncover promising points of departure for strengths-based instruction. A clearer sense of their research practices, for both academic and everyday research purposes, will help instructors find solid ground on which to build.

It is noteworthy that the *SCONUL 7 Pillars of IL* (Society of College, National and University Libraries [SCONUL] Working Group on IL, 2011), with its emphasis on increasing awareness and skill within individual IL landscapes, provides the beginnings of a conceptual foundation for future research in this area. But how should we use the landscape metaphor to characterise the transition from high school to higher education? Is it a shift from one landscape to another? Is it a rapid annexation of new territory that requires exploration? However one develops the landscape metaphor, the idea of strengths-based pedagogy suggests an emphasis on deliberate bridge-building from locales familiar to our students into uncharted regions.

This review uncovers a tendency among librarians and faculty to view first-year students' IL skills as deficient on the grounds that the students are not familiar with the resources and conventions that inform the research of academic specialists. But students do bring considerable information experience with them into higher education, and it falls on faculty and librarians to take responsibility for learning more about this background, as starting from common ground makes both our teaching and their learning more coherent and meaningful.

5.2 Question 2: How does one develop effective strengths-based pedagogy for IL?

In addition to gauging what students already know, library instructors also need to develop strategies to build on students' existing capabilities following the tenets of constructivist learning theory. Current planning techniques build instruction around learning outcomes that students need to master or what they do not know. Imagine what our planning would look like if, in addition to clearly stated outcomes, we started with clearly defined descriptions of the skills and dispositions that students bring into the instructional encounter or what they do know. Or perhaps classroom interactions themselves can be structured to uncover students' existing assets, as in Morrison's (2017) auto-ethnographic approach to teaching IL. In either case, research instruction would then become a matter of challenging and supporting students as they extend and remodel existing capacities in order to bring the desired skills and understandings within their grasp.

With respect to planning IL programming, it should be noted that developing strengths-based instruction is a negotiation between IL standards (whether international, national, or local) and the strengths that your library users bring with them to the educational encounter. The authors' work is largely informed by the United States' *Framework for IL for Higher Education* (ACRL, 2015). In a companion study, we discuss points of connection between first-year student research experiences and the various frames of the *Framework* (Kocevar-Weidinger, et al., 2019). But other standards documents provide important points of departure for strengths-based planning. The *Australian and New Zealand IL framework principles, standards and practice* makes the application of existing knowledge to new contexts an explicit goal: 'the information literate person applies prior and new information to construct new concepts or create new understandings' (Bundy, 2004, p.11). Both the *SCONUL 7 Pillars of IL* (SCONUL Working Group on Information Literacy, 2011) and the *CILIP Definition of IL* (CILIP, 2018) acknowledge that IL looks significantly different across a range of contexts, thus inviting reflection on how instruction can leverage students' experience in one context to enhance learning in another.

It is easy to talk about this shift in the abstract, but what would it look like in actual practice? Krutkowski's (2017a, 2017b) work is the most substantive study in this review that provides examples of assignments and activities from a proposed strengths-based IL curriculum. His provocative ideas emerge from a particular context: he is working at an institution that has made the Gallup Organization's *StrengthsFinder* assessment a cornerstone of its educational enterprise. The IL community needs to build on his work in order to provide a range of strengths-oriented options for practitioners to select for their unique institutional contexts. The following questions are especially pertinent:

- What are the practical methods for uncovering students' existing skills and dispositions with respect to IL and research?
- What are the best strategies for tailoring instruction to individual strengths?
- What are the best strategies for working with groups of students who exhibit a range of skill levels and attitudes toward research?
- What are the differences between outcomes-based assessment and strengths-based assessment, and how can the two be most meaningfully combined?

6. Conclusion

In conclusion, we have reviewed recent literature on the IL skills of first-year undergraduate students and found that the research is predominantly negative in its characterization of these students' research skills. This negativity is understandable given the field's extensive reliance on assessments that focus on conventions of academic research and ignore learning strategies

that students have developed in other contexts. We have also considered possibilities for understanding first-year students' IL in a more positive light. In this vein, two avenues stand out as requiring further exploration. These include (1) increased collaboration among college librarians, high school librarians, and faculty, and (2) further research into strengths-based or asset-based educational strategies in order to capitalise on students' existing knowledge. Both of these directions will require librarians in higher education to pursue a more appreciative partnership with our students. Specifically, we need to guard against the temptation to view first-year students' IL in exclusively library-centred terms, as this fails to acknowledge the learning strategies they bring with them from prior schooling and other life experiences. Following constructivist and strengths-based learning theories and positive psychology, we will be better equipped to create positive, more productive learning opportunities for our students. But first, we must achieve a clearer, more respectful understanding of where our students come from and the situation-appropriate information seeking experiences they bring with them. That knowledge should be the foundation for our new curriculum.

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