

Partnership

Canadian journal of library and information practice and research

Revue canadienne de la pratique et de la recherche en bibliothéconomie et sciences de l'information

PARTNERSHIP

The Canadian Journal of Library and Information Practice and Research
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Your Information Literacy Practices (YILP): A New Measure of Information Literacy

Your Information Literacy Practices (YILP) : une nouvelle mesure pour la maîtrise de l'information

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Volume 17, numéro 2, 2022

URI : <https://id.erudit.org/iderudit/1095268ar>

DOI : <https://doi.org/10.21083/partnership.v17i2.6680>

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Éditeur(s)

The Partnership: The Provincial and Territorial Library Associations of Canada

ISSN

1911-9593 (numérique)

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Citer cet article

Kennette, L. & McIntosh, E. (2022). Your Information Literacy Practices (YILP): A New Measure of Information Literacy. *Partnership*, 17(2), 1–22.
<https://doi.org/10.21083/partnership.v17i2.6680>

Résumé de l'article

Les étudiants postsecondaires apportent avec eux des connaissances et des habiletés uniques qui peuvent influencer leur apprentissage. La maîtrise de l'information représente un ensemble de compétences nécessaires pour découvrir de l'information et l'utiliser de façon à créer de nouvelles connaissances (Association of College and Research Libraries, 2016). Quoique développer ces compétences soit important, il est difficile de trouver une façon simple de mesurer la maîtrise de l'information, surtout depuis sa récente conceptualisation sous forme de cadre (Association of College and Research Libraries, 2016). Ici, nous proposons une nouvelle façon en ligne pour mesurer la maîtrise de l'information - Your Information Literacy Practices (YILP) - qui s'aligne au nouveau cadre. Nous comparons cet outil à un autre déjà publié et examinons sa relation avec la débrouillardise. Les implications et les recommandations pour son utilisation sont discutées.

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PARTNERSHIP

The Canadian Journal of Library and Information Practice and Research
Revue canadienne de la pratique et de la recherche en bibliothéconomie et sciences de l'information

vol. 17, no. 2 (2022)
Theory and Research (peer reviewed)
DOI: <https://doi.org/10.21083/partnership.v17i2.6680>
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Your Information Literacy Practices (YILP): A New Measure of Information Literacy

Your Information Literacy Practices (YILP) : Une nouvelle mesure pour la maîtrise de l'information

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Abstract / Résumé

Post-secondary students bring with them unique skills and knowledge which may affect their learning. Information literacy (IL) is a set of abilities which permits the discovery of information as well as using this information to create new knowledge (Association of College and Research Libraries, 2016). While IL abilities are heralded as important, it is difficult to find a simple measure of information literacy, especially since its conceptualization as a framework (Association of College and Research Libraries, 2016). In this paper, we propose a new online measure of information literacy—Your Information Literacy Practices (YILP)—which aligns with the new framework. We compare it to another published measure of IL and student resourcefulness. Implications and recommendations for its use are discussed.

Les étudiants postsecondaires apportent avec eux des connaissances et des habiletés uniques qui peuvent influencer leur apprentissage. La maîtrise de l'information représente un ensemble de compétences nécessaires pour découvrir de l'information et l'utiliser de façon à créer de nouvelles connaissances (Association of College and Research Libraries, 2016). Quoique développer ces compétences soit important, il est difficile de trouver une façon simple de mesurer la maîtrise de l'information, surtout

depuis sa récente conceptualisation sous forme de cadre (Association of College and Research Libraries, 2016). Ici, nous proposons une nouvelle façon en ligne pour mesurer la maîtrise de l'information - Your Information Literacy Practices (YILP) - qui s'aligne au nouveau cadre. Nous comparons cet outil à un autre déjà publié et examinons sa relation avec la débrouillardise. Les implications et les recommandations pour son utilisation sont discutées.

Keywords / Mots-clés

information literacy, measure, resourcefulness, college, practices

maîtrise de l'information, évaluation, débrouillardise, postsecondaire, pratiques

Introduction

Information literacy (IL) is a set of abilities allowing one to discover information and use this information to create new knowledge (Association of College and Research Libraries, 2016). All post-secondary students will benefit from IL skill development regardless of the field they pursue (Mark & Borruf-Jones, 2003; Middleton & Hall, 2002; Reddy et al., 2021). IL is the focus of at least one of the Ontario Essential Employability Skills, the so-called “soft skills” students should have upon graduation from higher education: Analyze, evaluate, and apply relevant information from a variety of sources (Ontario Ministry of Training, Colleges and Universities, 2011). The other Essential Employability Skills relate to communication, numeracy, critical thinking and problem solving, and personal and interpersonal skills.

In 2000, the *Information Literacy Competency Standards for Higher Education* (American Library Association, 2000) were published through the substantial collaborative efforts of the American Library Association (ALA) and the Association of College and Research Libraries (ACRL). This initial document emphasized the connections between IL, lifelong learning, and shifting information-seeking practices. It contains five standards as well as twenty-two performance indicators (American Library Association, 2000). These standards provided “a framework for assessing the information literate individual” (American Library Association, 2000, p. 5). As an assessment-based tool, it fulfilled its function; however, after lengthy and detailed consultations in 2015-2016, the standards were revised to include a wider range and interpretation of IL skills and practices to reflect a changing information ecosystem, which was necessary due to the introduction of new information technologies.

Now called the *Framework for Information Literacy for Higher Education* (Association of College and Research Libraries, 2016), the vision for new guiding concepts on IL aim to:

Reflect the current thinking on such things as the creation and dissemination of knowledge, the changing global higher education and learning environment, the

shift from information literacy to information fluency, and the expanding definition of information literacy to include multiple literacies, for example, transliteracy, media literacy, digital literacy, etc. (p. 29)

The *Framework* is anchored by six concepts: Authority is Constructed and Contextual; Information Creation as a Process; Information Has Value; Research as Inquiry; Scholarship as Conversation; and Searching as Strategic Exploration. While taking on a more flexible, student-centered approach because the *Framework* organizes its content as concepts, knowledge practices, and dispositions, these criteria are more difficult to assess compared to the previous *Standards*. The *Framework* emphasizes collaboration, metaliteracy, and metacognition as vital skills that inform the overall practice of IL. Since it is no longer designed around outcome-based learning indicators, the *Framework* aims to “[focus] attention on the vital role of collaboration and its potential for increasing student understanding of the processes of knowledge creation and scholarship” and “[emphasize] student participation and creativity, highlighting the importance of these contributions” (Association of College and Research Libraries, 2016, p. 26). The main distinction between these two documents is that the 2000 *Standards* was designed for observable, measurable assessment, whereas the 2016 *Framework* was designed for interpretations that allow for various assessments defined by individual organizations to fit their specific context, preferred practices, and student needs.

The *Framework* is an updated version of the *Standards*, and we suspect that most libraries have shifted to using the *Framework* (or are in the process of doing so). It would make sense, then, to update the measurement tool used to assess IL in the context of this shifting definition. This is precisely the focus of the present research: to develop a new measure of IL based on the *Framework*. To our knowledge, there are currently no published measures of IL based on this new *Framework*. We also sought to describe IL skills in a two-year community college student population, as this is an under-studied group which is underrepresented in the literature (Nelson, 2017). Describing college learners is important as they are a significant portion of post-secondary students who do not attend a four-year degree-granting institution, though some will transfer from community college to university (Nelson, 2017).

Literature Review

Information literacy is especially important today because of the vast amount of information available and the rate at which it is created and available to be consumed (Salleh et al., 2011). It would not be possible to teach students everything they might need to know in order to be successful in their careers; instead, teaching them IL skills will enable graduates to seek out appropriate information and act on the information accordingly. In this way, IL allows them to be independent lifelong learners (Salleh et al., 2011). Although most studies (e.g., Ault & Ferguson, 2019; Gaha et al., 2018; Lanning & Mallek, 2017) have shown that IL is related to academic performance whereby those

with high IL abilities also tended to have high GPAs, some studies have not demonstrated this relationship (Salleh et al., 2011). Nonetheless, IL skills provide the foundational ways of thinking which are required for the development of higher levels of thinking about information (Nelson, 2017).

Researchers have identified a gap between incoming high school students' IL skills and those that are required to be successful in higher education (Lanning & Mallek, 2017; Smith et al., 2013). In assessing IL skills in high school students, Smith et al. (2013) showed that less than 20% of the grade 12 students surveyed scored at a level indicating IL proficiency. IL skills are reportedly being taught in high schools (mostly in language courses), but do not appear to transfer to college or university (Saunders et al., 2017). Many university-to-high school outreach programs attempt to bridge the gap in students' research skills between high school and university with varying levels of success (Buchansky, 2021). In higher education, IL skills are typically taught in a formalized library-led initiative (e.g., outreach, program, or workshop) or in the context of a specific course or groups of courses such as communication, English, or general education (Buchansky, 2021; Lanning & Mallek, 2017).

Unfortunately, students cannot always accurately report their own levels of IL (Gross, 2004) and studies report that students' IL skills are below acceptable levels (Ellis & Salisbury, 2004; Flashpolier, 2003; Hepworth, 1999; Lombardo & Miree, 2003; Seamans, 2002). Others (e.g., Breivik, 2005; Ontario Confederation of University Faculty Associations, 2009; Smith et al., 2013) have posited that today's students are less prepared to conduct research and assess the relevance of the information they find than previous generations. This remains one of the greatest challenges for educators in the classroom (Breivik, 2005). However, before one can attempt to develop students' IL skills, these skills must first be accurately measured. There are few available measures of information literacy, and those available do not appear to be based on the most current conceptualization of this skillset (Association of College and Research Libraries, 2016).

Measuring Information Literacy

Various stakeholders could be interested in measuring IL for a variety of reasons. For example, measuring IL can be done in the context of research projects (e.g., Demirel & Akkoyunlu, 2017; Lanning & Mallek, 2017; Salleh, et al., 2011) or, perhaps most commonly, to identify skills gaps or weaknesses to offer remediation or other opportunities for improvement (e.g., Buchansky, 2021; Lanning & Mallek, 2017; Smith et al., 2013). Other reasons one might wish to measure IL are to describe and/or develop IL-related policies or initiatives (e.g., Hulett et al., 2013) or to demonstrate change over time and therefore support a claim that students are building or improving their skills (e.g., Reed et al., 2007). Test assessments (performance-based measure of IL

behaviours) and self-reported assessments (perceived IL skills) are the two most common ways to assess IL.

Test assessments require students to demonstrate their IL abilities by correctly answering questions assessing their skills. In these tests, there is a correct answer and so performance can be interpreted similar to a classroom assessment in demonstrating content knowledge. Two examples include the Information Literacy Test (*ILT*) by Reed et al. (2007) and the standardized Information Literacy Test developed by James Madison University (Smith et al., 2013).

One of the greatest disadvantages of test measures is that they are content-dependent: when the focus of the content changes (whether through technological advances or the *Standards* being revised into the *Framework*), the content may need to be changed. Furthermore, most of these assessments are aimed at identifying the skills which students possess rather than the level of their more global, current IL skills. Given the new *Framework*, this test-based approach to measuring IL no longer appears adequate.

Self-assessment of one's IL skills using a self-rating measure continues to be the most frequently used approach (Mahmood, 2017), likely for its simplicity in administration and because it provides an appropriate proxy to estimate actual proficiency and skill. Mahmood (2017) identified the Turkish Information Literacy Self-Efficacy Scale (ILSES) created by Kurbanoglu et al. (2006) as the most frequently used in published research. Another popular measure of IL which focusses on students' confidence related to their skills in various IL-related domains is the Information Literacy Self-Efficacy Scale (Demirel & Akkoyunlu, 2017). The advantage of using self-rated measures is that they are relatively easy to administer and are based on more global skills or abilities rather than specific instances demonstrating these abilities. Although popular, these scales are still based on the outdated *Standards* and on specific skills which may no longer be appropriate (e.g., Boolean search). Some advanced searching skills (e.g., Boolean search terms) have been identified by high school and university librarians as the least important skill for students to develop in order to be successful (Saunders et al., 2017).

These two types of measures (test assessments and self-reported) are often correlated but do not always paint the same picture of IL skills (Michalak et al., 2017; Michalak & Rysavy, 2016). For example, students may over-estimate their IL skills in a self-assessment measure, as reported by Michalak et al. (2017). In spite of this limitation, the self-report still appears to be the most accessible approach to measuring IL and provides an adequate estimate of actual IL skills.

The Information Literacy Test (ILT)

The *Information Literacy Test (ILT)* (Reed et al., 2007) contains 23 items and was developed to assess students' IL in areas such as the research process, library database searches, evaluating the resources found, and academic integrity. The

average score of incoming university students (prior to any information literacy instruction) was 46%, with 65% of students scoring below a passing grade (50%) on the test (Reed et al., 2007).

A study by Reed, Kinder, and Farnum (2007) involved faculty and a librarian co-teaching a university preparation course to develop students' IL skills. They observed increases in IL skills in students from the beginning to the end of the semester. In their 23-item measure, they asked students questions on topics such as how to start and end the research process, search techniques, evaluation of found materials, and academic integrity for information use. For our purposes, however, this questionnaire seemed too specific to the learning outcomes of one university course and did not assess IL more broadly. A large proportion focused on library skills (e.g., Boolean searches) and citations, rather than global IL. Although the study effectively measured the progress resulting from the co-teaching strategies delivered in the university preparation course, it is less valuable for assessing college students' IL across various post-secondary programs. Furthermore, this approach requires a high degree of organization to execute co-teaching content delivery, which is not a viable long-term solution for addressing IL at the college level.

Academic Resourcefulness Inventory (ARI)

Learned resourcefulness (Rosenbaum, 2000) refers to a constructivist response to experience, in which self-control, planning, and problem-solving are key. It overlaps with IL in that, in both cases, one is planning, seeking out appropriate resources, and applying problem-solving strategies in a way that is consistent with constructivism. As such, it is important that any measure of IL ensures that it is measuring something above and beyond simply resourcefulness. The *Academic Resourcefulness Inventory (ARI)* (Kennett, 1994) is a 23-item measure which assesses the extent to which students can apply learned resourcefulness in academic settings. Using a 7-point scale of opposing statements from having a high ability (1) to a high inability (7) on a particular element, students rate their ability (or inability) to meet academic demands on a number of dimensions related to their own emotional responses, problem-solving strategies, and ability to meet deadlines. For the first item, for example, students would quantify where they placed themselves on a scale ranging from 1 "*Very successful completing tests/exams in the allotted time*" to 7 "*Very Unsuccessful completing exams/tests in the allotted time*". See Figure 1 for sample items. Higher scores indicate increased resourcefulness. Scores can range from 23 to 161 and have been previously reported in university samples to be normally distributed with a mean around 107 and a standard deviation around 17 (Kennett, 1994).

Figure 1

Sample items for the Academic Resourcefulness Inventory (Kennett, 1994).

Easily confused when taking an exam/test	1 Very	2 Quite	3 Somewhat	4 Neutral	5 Somewhat	6 Quite	7 Very	Self-assured when taking an exam/test
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Uninspired to do my best	1 Very	2 Quite	3 Somewhat	4 Neutral	5 Somewhat	6 Quite	7 Very	Inspired to do my best
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Disorganized with my work	1 Very	2 Quite	3 Somewhat	4 Neutral	5 Somewhat	6 Quite	7 Very	Organized with my work
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Although there are many measures that purport to assess IL, they are all inadequate for our current needs. Tests mentioned thus far may have served a purpose at the time they were created, but need to be updated in order to become more current measures of IL, based on the *Framework*. As a result of the shortcomings identified (e.g., being based on the *Standards*), we needed to develop a satisfactory measure of IL to fill this gap and solve the issue of having no suitable measure of IL currently available.

Method

Survey Development

The *Your Information Literacy Practices (YILP)* questionnaire was developed to measure college and university students' IL behaviours, and can be delivered online and automatically graded.

In developing this measure, we consulted with key experts including a cognitive psychologist, college librarians, a Writing Specialist at the Student Academic Learning Services (SALS), and a local literacy non-profit organization named the Literacy Network of Durham Region (LiNDR). The *YILP* questionnaire was designed to map to the *Framework* and include items which reflect the integrated abilities outlined in the framework. For example, the question "*I continually revised my search strategies when I was looking for information to include in papers that I wrote*" closely taps into "Searching as Strategic Exploration" which points to a non-linear and iterative approach to seeking out appropriate information. The *YILP* contains 16 questions, where students respond to prompts on a scale of 1 (*Never did this*) to 4 (*Almost always did this*). Students who answer every question on the *YILP* will score between 16 and 64 (lower scores,

including a score of 0, are possible if students select “not applicable”). The full list of questions, including demographic items, are provided in Appendix 1.

Participants

Students were recruited from various general education courses at a college in Ontario (which is similar to a two-year college or community college in the United States). Students who elected to participate in the study completed the surveys online outside of class time and were rewarded with a \$5 electronic gift card.

Gender and age were not included as part of the demographic questionnaire to respect participants’ privacy and since they were not directly tied to any hypotheses. The majority of the respondents (88%) were in their first semester of their program.

Materials and Procedure

After receiving approval from the college’s Research Ethics Board, students were presented with the invitation to participate in this study by one of the researchers who visited their general education courses. Participants were first asked demographic questions such as their program of study, which semester they were in, and whether they entered college directly from high school. They were then presented with the newly-developed *YILP* questionnaire and previously used questionnaires designed by Reed et al. (2007) and Kennett (1994) to measure IL and resourcefulness, respectively. Students completed these questionnaires online in a single test session.

Other Measures

In addition to administering our own *Your Information Literacy Practices (YILP)* questionnaire, we also asked students to complete the *Academic Resourcefulness Inventory (ARI)* (Kennett, 1994), and the *Information Literacy Test (ILT)* developed by Reed et al. (2007). These three measures were administered together to examine the correlation between resourcefulness and information-seeking approaches, as well as to assess self-reported learning practices that may support IL skills.

Analyses

In developing this new measure of IL, we expected to be measuring a similar construct to that measured by the *ILT* (based on the *Standards*), which also tends to correlate with resourcefulness (measured by the *ARI*). As such, we checked the correlation between the *YILP* and these other two measures to ensure that they were in fact correlated, but not so strongly that they measured the same thing as the *YILP*. We expected to see positive correlations among these measures, whereby high scores on one would indicate high scores on the others, but allowing for enough difference to

suggest that the *YILP* is measuring a slightly different construct (i.e., IL based on the *Framework*).

Results

Our key findings show that the *YILP* does appear to measure something beyond academic resourcefulness and that the construct measured is still related to IL on a measure based on the *Standards* (though meaningfully distinct).

We collected data from 35 students in various programs at the college. Most (67%) came to college directly from high school. Of the 33% who did not come to college directly from high school, 78% worked full time prior to attending college. Figure 2 shows a summary of the respondents' schools within the college.

Figure 2

Which School is your current program part of?

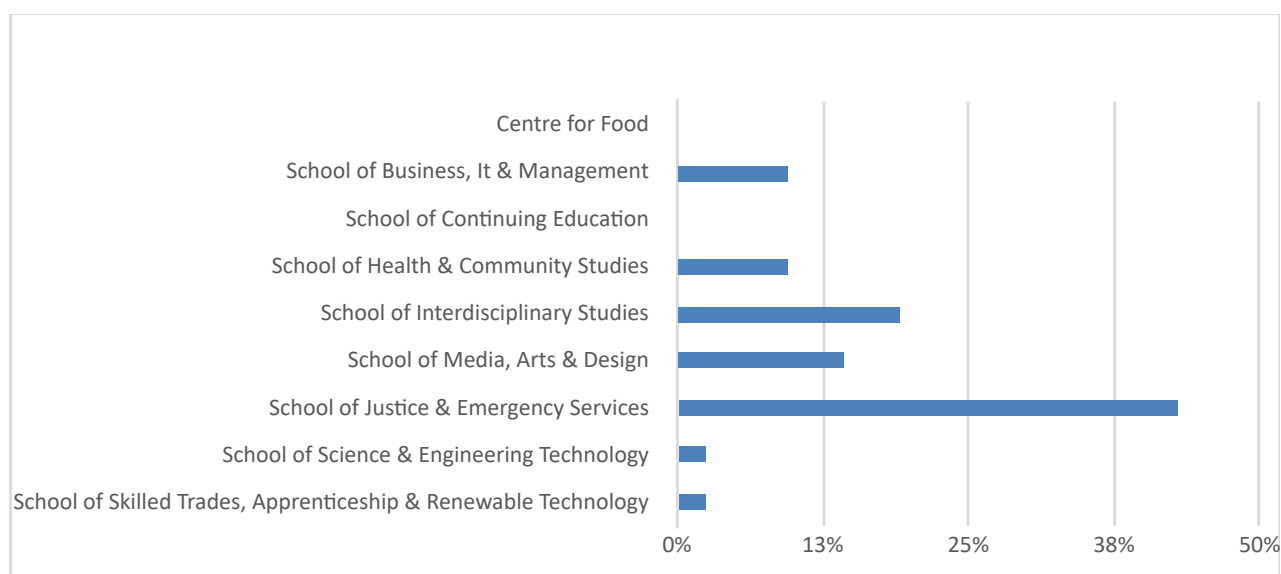


Table 1 shows the descriptive statistics for each of the three measures used in the study: Your Information Literacy Practices (*YILP*), Information Literacy Test (*ILT*), and Academic Resourcefulness Inventory (*ARI*). The raw scores and range of possible scores are different for each measure, so to allow for easier comparison of skill level as assessed by each measure, we also provided a percentage, which is simply the average score earned divided by the highest possible score (i.e., a perfect score); these percentages should not be interpreted as an indication of the percent correct as would be the case with an assessment, but is presented here more as a way to standardize the raw scores across the three measures.

Table 1

Descriptive statistics for the college sample for each of the measures: Your Information Literacy Practices (YILP), Information Literacy Test (ILT), Academic Resourcefulness Inventory (ARI).

		<i>ARI</i>	<i>ILT</i>	<i>YILP</i>
<i>Range of possible scores</i>		23-161	0-23	0-64
<i>Mean</i>	<i>Raw score</i>	108.19	7.20	47.38
	<i>%</i>	67.20	31.29	73.95
<i>SD</i>	<i>Raw score</i>	21.02	4.73	10.89
	<i>%</i>	13.05	20.55	16.98
<i>Median</i>	<i>Raw score</i>	98	5.98	49.28
	<i>%</i>	60.87	26.00	76.56
<i>Minimum</i>	<i>Raw score</i>	78	0	12.80
	<i>%</i>	48.45	0	20.31
<i>Maximum</i>	<i>Raw score</i>	154	17.02	64.00
	<i>%</i>	95.65	74.00	100.00

Compared to the previously published university sample (Reed et al., 2007), our college sample scored slightly lower on the *ILT*, and we found fewer students earning a passing grade (25.71% vs 35%). Our mean score was also lower than found in that study (30.67% vs 46%). For resourcefulness, our mean falls very close (and slightly above) the previously published university sample (differing only by approximately 1 point);

however, our college sample showed more variability with a standard deviation of 21.02 (raw score) compared to 17 as reported by Kennett (1994).

Table 2 shows the Pearson correlation between the three measures. Both measures of IL are adequately correlated to each other ($r = .39$). These results show a strong correlation between the *ILT* and *ARI* ($r = .70$) but a far weaker correlation between the *YILP* and *ARI* ($r = .39$). Given the strong correlation between the Reed et al. (2007) measure and resourcefulness, the *ILT* measure could be better at tapping into resourcefulness than actual IL skills, whereas the *YILP* may measure IL more independently and be less affected by the confound of resourcefulness. However, our sample was much smaller than those reported for the *ARI* and *ILT*, and both the *YILP* and *ARI* are self-reported measures which may be subject to some respondent bias (see Donaldson et al., 2002; Dunning et al., 2005; Stone et al., 2000).

Table 2

Correlations among three measures: Your Information Literacy Practices (YILP), Information Literacy Test (ILT), Academic Resourcefulness Inventory (ARI).

	YILP	ILT	ARI
YILP	-		
ILT	.39	-	
ARI	.39	.70	-

Interestingly, the data support life experience (i.e., age) as having a positive effect on outcomes, as participants who did not enter directly from high school scored slightly better on all three measures (*YILP* = 74% vs 77%; *ILT* 28% vs 39%; *ARI* = 102 vs 121), though only the difference in the resourcefulness scores reached significance ($t(19) = 2.60, p < .01$).

Validity and Reliability

The maximum score that a participant could earn on the *YILP* was 64 points if they endorsed that they “*Almost always*” engaged in each of the behaviours. A visual inspection of the distribution of responses for each question did not show any serious deviations from normality and skewness ranged from -.90 to 0.00. Total scores (%) on the *YILP* ranged from 20.13% to 100%, with a median of 76.56% ($M = 73.95, SD = 16.98$). The distribution of scores is shown in Figure 3.

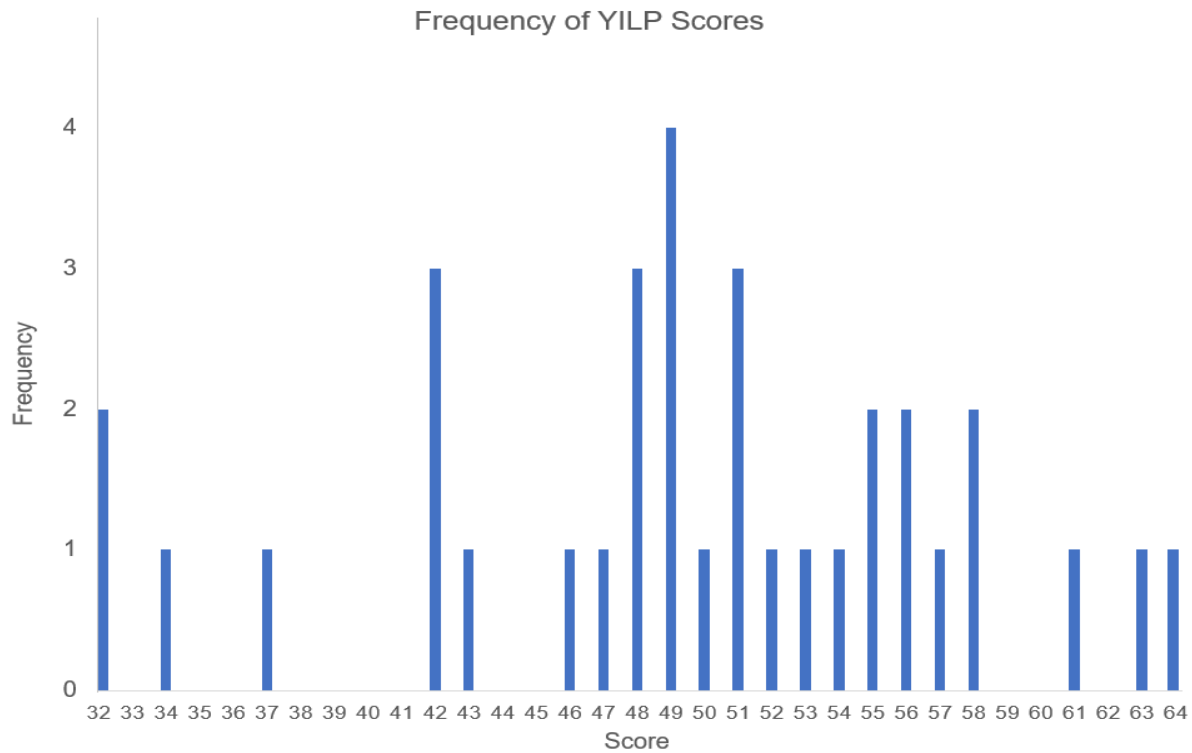
Figure 3*Distribution of scores obtained on the YILP.*

Table 3 shows the correlation matrix among items as well as with the overall *YILP* score. These need to be interpreted with caution because we had a small number of participants, so low correlations among items or with the overall score should not necessarily be taken to mean that the measure is not a valid assessment of self-reported IL. Reliability was assessed by calculating Chronbach Alpha ($\alpha = 0.91$) which showed that the *YILP* demonstrates excellent internal consistency (Nunnally, 1978; Streiner, 2003; Tavakol & Dennick, 2011). Therefore, this is a homogeneous test where the questions measure the same thing (Chronbach, 1951; Streiner, 2003), which we believe to be the construct of IL.

The community experts consulted in the development of the *YILP* provided informal confirmation that the measure had adequate face-validity to measure IL.

Correlation matrix among test questions (see Appendix 1) and with the total YILP score

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	TOTAL
Q1	1																
Q2	0.3781	1															
Q3	0.2273	0.2244	1														
Q4	0.6156	0.1176	0.1232	1													
Q5	0.4298	0.3669	0.4557	0.5834	1												
Q6	0.2071	0.1931	0.2038	0.5333	0.6005	1											
Q7	0.6142	0.2624	0.3598	0.5447	0.4390	0.4396	1										
Q8	-0.0038	0.0149	0.1093	0.1884	-0.0065	0.2129	0.3052	1									
Q9	0.5247	0.3489	0.3331	0.4147	0.3634	0.3139	0.7457	0.2792	1								
Q10	0.3999	0.1945	0.1543	0.6050	0.3667	0.4860	0.5743	0.3720	0.4309	1							
Q11	0.5936	0.2861	0.1865	0.6673	0.5792	0.2549	0.6880	0.1914	0.6657	0.5125	1						
Q12	-0.0417	-0.1230	0.0000	0.4221	0.3205	0.5341	0.3628	0.3594	0.1401	0.3315	0.3550	1					
Q13	0.4099	0.1659	0.0315	0.4608	0.4009	0.2801	0.6022	0.1271	0.3146	0.3936	0.5823	0.5401	1				
Q14	0.4746	0.2724	0.3366	0.5845	0.5970	0.4813	0.6426	0.1575	0.5550	0.5014	0.7196	0.5433	0.5461	1			
Q15	0.3472	0.2043	0.4847	0.3919	0.4847	0.3252	0.7238	0.3859	0.6244	0.3504	0.6503	0.4862	0.3843	0.6469	1		
Q16	0.4072	0.3074	0.3834	0.3155	0.4067	0.1367	0.6262	0.3576	0.5808	0.3486	0.5494	0.3036	0.5083	0.5110	0.6321	1	
Total	0.6360	0.4086	0.4626	0.7105	0.6933	0.5712	0.8614	0.3827	0.7290	0.6744	0.8031	0.5239	0.6511	0.8210	0.7707	0.7114	1

Discussion

We created an updated measure of IL, Your Information Literacy Practices (*YILP*), which is based on the six frames outlined in the *Framework* and is quick and easy to administer online. Additionally, because there are no reverse-coded items, scoring is easy (simple addition), so it can be used by anyone without difficulty, including students for self-assessment and reflection. This new measure appears to be an appropriate tool for assessment of IL in college students.

The flexibility of the *Framework* (rather than the prescriptive *Standards*) lends itself well to the broad items included to measure IL in the *YILP*. Previous measures resembled assessments of the *Standards* rather than a global and flexible evaluation of IL abilities. Additionally, the intention of the frames in the *Framework* is to allow the demonstration of increasing expertise and eventual mastery of these skills; the *YILP* should allow us to assess this by providing a range of possible values for each question rather than a right/wrong approach of previous measures of IL (e.g., Reed et al., 2007). It is important to acknowledge, however, that the *Framework* includes some high-level concepts which may be beyond the college curriculum and/or student needs (Leeder, 2015), and that the necessary IL skills may also differ based on the industry in which they will eventually find employment (Nelson, 2017).

One factor that makes this study unique is that the participants are (two-year) college students, whereas the focus of most academic literature appears to be four-year schools. The results should be replicated to assess the *YILP*'s applicability to other populations of interest such as high school students, four-year universities, individuals who are employed full time, etc. This will ensure that our local and specific context (see Felten, 2013) is not unique in reporting these patterns of IL, nor their relationship to resourcefulness.

The fact that our college student sample scored lower than the university sample in Reed et al. (2007) is interesting. These differences may stem, at least in part, from college students possessing less developed metacognitive skills compared to university students (Weber & Kennette, 2018; also see Lang, 2012 for a discussion). That is, students may not have quite as high a level of awareness of their current abilities and/or practices, though they likely still possess enough awareness to provide meaningful data. The *YILP* was fairly highly correlated with an objective assessment of IL skills (*ILT*), so we can be somewhat confident that the self-reported score on the *YILP* would be comparable to their actual skill level, at least on the areas assessed on the *ILT*. The *ILT* is an objective, overt measure of students' knowledge related to IL whereas both the *ARI* and our *YILP* are self-reported measures. Self-report measures are used in a lot of research and to assess many different skills, so the level of metacognition is likely adequate to provide an accurate representation, but future research might include a measure of metacognition to assess whether this explanation is plausible.

Older students score higher on the *YILP*, indicating more developed IL skills. This may be due to cognitive maturity or the additional life experiences they have amassed, including situations that required IL skills. Alternatively, lifelong learning and confidence in their skills may result in greater IL skills (Demirel & Akkoyunlu, 2017).

In addition to being valuable to gather evidence for formal research projects, the *YILP* scale may also provide a window into students' thinking and could shed some light on various classroom issues such as student confusion with assignments. Further, it may be used in a more practical application such as indicating to instructors how much support a particular student group is likely to require for their assignments (e.g., whether it might be beneficial to invite a librarian into the classroom to discuss how to use the library). Finally, students may wish to use the *YILP* to self-assess and reflect on their own abilities. This could help to improve their research skills and develop their metacognitive abilities.

Given the ease of administration of this online measure, the *YILP* could be used by instructors to measure change over time in students' IL practices as they progress through their program or course (e.g., pre-post in a Communications/English class). While the *YILP* is a self-report measure and these surveys pose some limitations (Gross, 2004), a standardized survey also has many benefits as it can be used across multiple institutions and for diverse purposes. Therefore, potential users of the *YILP* would have to determine whether the benefits of using the *YILP* outweigh the limitations for their particular use (see Chan, 2009, for a full discussion).

Future Directions

Future research should investigate whether the *YILP* is able to capture changes in students' IL over time, whether during the course of their studies (i.e., have students actually learned these skills during their program?) or in the workplace. This will give researchers and instructors an additional tool to use in their quest to better understand student IL learning. The *YILP* can aid scholar-researchers in their efforts to gather evidence in support of various teaching and learning research questions. Future research should continue to establish the psychometric properties of this new measure to ensure its quality, especially as it relates to population-level norms and test-retest reliability (Mahmood, 2017).

Since most of our non-direct entry respondents reported that they were working full-time prior to attending college, it is possible that working before attending college has allowed respondents the opportunity to develop their resourcefulness skills, which they then transferred to an academic setting once they began their post-secondary program. Once again, future research should assess this claim.

As expressed by Dougherty (2012), among others, the current and future job markets will require not only specific educational credentials, but other so-called "soft skills" such as IL. Therefore, IL skills in the workforce should also be examined using the *YILP* and

compared over time (both during employment and from graduation to employment). These comparisons may help to answer questions about whether these skills transfer from academia and/or can develop as a result of on-the-job experience.

Eventually, investigations should focus on whether IL skills are improved in particular courses or programs, how instructors can best help students improve their IL skills, and whether improvements lead to specific advantages, such as improved school or work performance. The *YILP* could be a tool used to answer these questions. These “what works” questions (Hutchings, 2000) would serve to further expand our understanding of IL in college students.

We developed the Your Information Literacy Practices (*YILP*) to assist in the measurement of IL skills at our college. This is a new self-report measure, first administered to a two-year college population. This simple measure of IL will also permit scholars to consistently assess this construct and include it in teaching and learning research. Additional uses include supporting instructors’ classroom decisions or students’ own skill development.

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Appendix 1

Your Information Literacy Practices Strategies You Use to Write Papers, Reports, and Essays

Demographics:

Which School is your current program part of? (dropdown menu)

Provide the name of your current program: _____

Which semester are you currently enrolled in your program?:

- ☐ 1st semester
- ☐ 2nd semester
- ☐ 3rd semester
- ☐ 4th semester
- ☐ 5th semester
- ☐ 6th semester

Did you enter your current program directly from high school?

- ☐ YES
- ☐ NO

If no, list what you did prior to attending the college (check all that applies)

- ☐ Worked full-time or part-time
- ☐ Attended a different program at the college
- ☐ Attended another college
- ☐ Attended university
- ☐ Did not or attend school

Your Information Literacy Practices (YILP) Questionnaire:

Instructions: Think about the assignments, reports, and essays you have written for school in the past year. Using the scale below, determine to what extent each of the following statements apply to your writing practices.

Scale:

- 1 – Never did this
- 2 – Rarely did this
- 3 – Usually did this

4 –Almost always did this
NA – Not applicable

1. I used information and/or resource materials beyond what my professor provided me with.
2. I included ideas from formal academic journal articles that were accessed through either Google Scholar or the library databases.
3. I included ideas from non-academic sources such as news articles, television, online blogs, websites, and videos.
4. I was good at determining when information I located provided strong evidence for a point of view versus those that made flawed or questionable arguments.
5. When writing, I typically paid attention to the level of expertise that the author(s) had in relation to the topic that I was writing about.
6. I typically included information written by people who were considered experts in the topics that I was writing about.
7. I was good at assessing whether the information that I came across applied to the topic that I was writing about.
8. I included arguments from different points of view in my written work.
9. I could tell when I had written an assignment, report or essay with well thought out positions based on appropriate evidence.
10. I made a point to properly cite information that I used in my written work.
11. I was confident that I knew what information I needed to cite when writing my essays, reports, or assignments.
12. I found it useful to include research studies reported from academic journals when writing my essays, reports, or assignments.
13. I found it easy to read and understand research studies reported in academic journals.
14. I searched for and reported on multiple sources that reached similar conclusions to help back up my point of view.
15. I was good at summarizing points of view from the sources that I cited.
16. I continually revised my search strategies when I was looking for information to include in papers that I wrote.