The "Real World" Relevance of Information Literacy

Karen F. Kaufmann[1,2(✉)]

[1] Information Systems School, Queensland University of Technology (QUT), Brisbane, QLD, Australia
Karen.f.kaufmann@gmail.com
[2] San Jose State University Gateway PhD, San Jose, CA, USA

Abstract. This doctoral study aims to learn undergraduate student perceptions of the relevance of information literacy competencies applied to academic work. The study also intends to learn what students identify as factors that make information literacy relevant. This paper presents preliminary findings providing new insights for improving pedagogical work, supporting academia goals such as retention and completion, and improving how to communicate the value of information literacy competencies as transferable competencies to the "Real World". Using a pragmatic epistemological and methodological approach, the research design includes a cross-sectional mixed-methods two-stage sequential study.

Keywords: Information literacy · Framework · Socio-cognitive relevance
User relevance · Higher education · Academic work · Threshold concepts
Real world

1 Introduction

Research has documented that "the most prominent and consistent determinant of information literacy is student perception" [1 p. 132]. Using Relevance Theory as the theoretical underpinning for this study, Socio-Cognitive Relevance (SCR) is being investigated using the cognitive and communicative principles of Relevance Theory [2]. The cognitive principle of Relevance Theory is utilized in this study examining the "cognitive" principle of relevance of Information Literacy Competencies (ILC) identified to be measured as "meaningful" [3–6]. The communicative principle of Relevance Theory examines the "socio (social)" principle of relevance of ILC identified to be measured as "usefulness" [3, 7–10]. For this study, information literacy competencies specific to higher education will be as described by the newly adopted 2016 Association of College and Research Libraries (ACRL) Framework and Threshold Concepts in combination with the 2000 ACRL Standards [14].

The primary research question for this mixed methods sequential study asks:

- How is information literacy relevant to undergraduate student academic work, from a socio-cognitive user view?
- The secondary research questions ask:

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- What are undergraduate student perceptions of the socio-cognitive relevance of IL competencies to their academic work?
- What are factors impacting the socio-cognitive relevance of IL competencies to academic work?

2 Literature Review

The information literacy competencies in this study are mapped to the Association of College and Research Libraries Information Literacy Framework [9] and Standards [10]. When considering the user-view, relevance is identified when information has meaning or is meaningful in relation to context - such as academic work [4, 6, 9, 10]. Socio-cognitive relevance is the perception of something being useful and meaningful [11]. Using the theory of relevance as a framework, this study aims to contribute to the growing literature in information literacy and the nascent space in information science literature on socio-cognitive relevance [2, 12, 13].

The information literacy (IL) Framework is intended, as per the ACRL [14] filing and adoption, to broaden the scope of learning, research, scholarship and pedagogy, as well as embrace the notion of threshold concepts, metacognition and self-directed learning that our technology and information climate now encourages and even demands. Edwards [15] found that a student's ability to discern a change in their awareness of new knowledge (threshold concept) may cause changes in learning outcomes. IL education and research has been shifting to recognize the rich information ecology of the 21st century. The notions of threshold concepts and meta-literacy are core concepts of the revised Framework for Information Literacy for Higher Education recognizing behavioral, affective, cognitive, and metacognitive engagement [14].

Threshold Concepts are discipline specific spaces that provide for new understanding for thinking, practicing, and building associations within that discipline. The new Framework for Information Literacy for Higher Education is informed by threshold concepts including the work of Wiggins and McTighe [16] based on the seminal research of Meyer and Land [17]. The Framework adopts six frames that anchor information literacy concepts with a set of knowledge practices and dispositions components identified for each.

The concept of IL as the core meta-literacy for users in academia, business and as lifelong learners is a topical thread that fills current literature [18]. Meta-literacy is part of the rich paradigm of relevance inquiry and information ecology of interdependent factors where people, information, and technology interact. The literature that supports further inquiry of student perceptions of ILC and learning indicate the complex interplay of ILC, learning, and their relevance to academic work [18–22]. This speaks to the information ecology influences that may be contextual, situational, social, topical, relational, inferential, cognitive, behavioral, or motivational. These influences may affect how students may perceive ILC as relevant as they employ ILC in their academic work.

Van der Henst et al. suggest that "Everything else being equal, the greater the cognitive effects achieved by processing an input, the greater its relevance" [23, p. 4].

This concept continues in their work of reasoning experiments, and they suggest that this comparative linguistic approach can be considered as to what is relevant to the user: the relevance in the context of other premises, such as prior knowledge. "The relevance of a piece of information is relevance to its user" [23, p. 4]. Inherent in this thinking, is the implicitness of relevance, which several authors have noted and called for continued empirical evidence - evidence to consider and possibly discover implicit attributes of relevance [24]. Implicit attributes of relevance might include attitude [25], intuitive understanding [26], emotions [24], and multi-dimensionality or meaning that relevance can be judged by different users having different perceptions [3]. Researching student perceptions of the relevance of ILC to academic work may inform the information science and academic communities of ways to enhance ILC relevance to improve academic success. If the usefulness (socio) and meaningfulness (cognitive) of ILC are identified, and mapped to the Frames and Standards, gaps in relevance that impact student understanding and therefore application to their academic work can be addressed in teaching and integration in curricula development. Identifying factors of relevance identified by students will assist understanding of what makes these competencies useful and meaningful to them as they use information. The possible transferability of these factors to non-academic contexts - the "Real World" - such as workplace, health related information use, employment seeking information use, and everyday information use may be applied.

Information literacy viewed through a theoretical lens of socio-cognitive relevance is an area of study that is open to exploration and is a topic that has emerged in more current literature in the field of information science [4, 6, 7, 13, 19, 27–31].

3 Research Method

The pragmatic approach to this study aligns mixed methods to the research inquiry including the abductive connection of theory and data. The inter-subjective relationship to the research process aligns transferability of inference from data [28].

This is a two stage cross sectional explanatory mixed methods study. The methodology and results from the first quantitative stage informs the methodology used for the second qualitative stage [29]. The mixed methods approach is used with the intent of producing a "superior product" [30, p. 17].

Data collection for stage one of the study uses an online survey divided into four sections. Section one of the survey has an introduction, instructions, and consent to participate. Section two has four questions asking about the student experience and specific tasks associated with completing an academic paper with required sources. Section three defines "usefulness" and "meaningfulness" and has ten ILC identified for students to rank the relevance of the competency. The ILC questions use a four point Likert-type scale for ranking how useful and meaningful the ILC were when used to complete their academic task. The final question in this section asks for students to indicate their perception of improvement of ILC using a sliding scale ranking. Section four of the survey is a Thank You & Follow-Up with five demographic questions and the opportunity for participants to indicate interest in participating in the second stage focus groups.

Data collection for stage two used focus groups. Four focus groups were conducted after the stage one online survey had been completed and data reviewed. A discussion guide was used to conduct each focus group session. The survey data was used to inform the development of the focus group discussion guide. Participants were provided a participant packet that included an instruction page, consent to participate, and a student version of the discussion guide to refer to during the focus group session.

The stage one quantitative data analysis was conducted using SPSS v24 and Excel software. The stage two qualitative data analysis was conducted using thematic analysis. Thematic analysis was used to review, interpret, and identify key themes and then factors from the focus group data. Thematic analysis is described as "a method for identifying, analyzing and reporting patterns (themes) within data" [31, p. 79]. Using thematic analysis provides for coding for specific research questions, providing for a theoretical [31] abductive approach, that supports the methodology of this study.

Using the pragmatic mixed methods sequential approach, the quantitative and qualitative data are integrated and analyzed to provide context and connections of the mixed methods data and to ultimately attempt to answer the sequential and primary research questions.

3.1 Sample Design

The sample for the survey was a non-random purposive participant pool; 392 undergraduate students were given the opportunity to volunteer to participate in the online survey. The online survey had 140 responses resulting in a 35.7% response rate. From this pool of 140 responses, 134 valid student participants emerged. The cross section of the survey participants include representation from fourteen different classes situated across ten academic programs. Age, gender, academic status, and student status were well represented and distributed.

Stage two used purposive non-probability sampling. The stage two qualitative sequence of this study included four focus groups with a total of ten student participants. The first two focus groups had taken the stage one online survey and indicated their interest in participating in the focus groups in the final section of the survey. The second two focus groups had received on-campus information literacy instruction for a class that required a writing assignment. Participants were invited during the on-campus instruction to indicate interest in participating in a focus group for this study.

4 Findings

Preliminary findings and data analysis of the mixed methods study provides information about undergraduate student perceptions of the relevance of information literacy competencies when applied to an academic task. The second stage of the sequential study provides qualitative data indicating what students say are factors that make information literacy competencies relevant to their academic work. Together, these two stages of the study when integrated, intended to answer the primary research question:

How is information literacy relevant to undergraduate student academic work, from a socio-cognitive user view?

4.1 Quantitative - Stage One

Using a Likert-type scale participants ranked the SCR of the ILC as being useful and meaningful for successful completion of their academic paper assignment [3, 4, 6, 8, 12, 25–27, 31, 32]. Responses showed 88.6% of participants did use information literacy competencies to complete their writing assignment. The average ranking of each of the ILC on a four point Likert-type scale was the highest rank possible in the survey described as "very relevant". Participant choices for ranking the SCR of ILC were: (1) not relevant, (2) somewhat relevant, (3) relevant, or (4) very relevant.

Section 3 of the survey asked five demographic questions and included an additional space for participants to indicate if they would like to participate in a focus group.

The demographic data includes age range, gender, academic status, student status, and current program of study of the participant pool. Using SPSS v24, the bivariate analysis indicates there was neither an association of strength to the ordinal variables (Spearman's Rho) nor to the nominal variables (Lambda) and the SCR of ILC. These findings importantly assist in understanding that participant perceptions of ILC were not bound by age, gender, academic status, student status, or academic program. This data complemented Franklin's [32] study findings that demographics were not predictors of or highly correlated to the perception of the importance of information literacy competencies.

4.2 Qualitative - Stage Two

Preliminary thematic analysis of the four focus group transcripts unveil one overarching or "uber" factor and six key factors of SCR to ILC. Related to these key factors of SCR, fourteen dimensional factors of SCR to ILC were identified. The key factors and dimensional factors and the interplay of meanings of these factors, are related, and intertwined. They may be described as nuanced with shades of emphasis implicated by the language, context, and meanings that students shared. These associations or the integration of the SCR to the ILC may indicate the application of these factors of SCR to ILC as possible threshold concepts. The "implicitness" and multi-dimensionality of meaning of relevance as perceived by users was empirically identified in this study [24].

This paper will focus on the key factor of SCR to ILC, described as "Real World Application". These are two-dimensional factors; personal relevance and professional relevance, are associated with this key factor. "Real World Application" was coded when participants expressed their perceptions of the application of ILC as it relates to the real world.

Here are a few examples of how focus group participants expressed their perceptions of how ILC are SCR or useful and or meaningful to a "Real World Application".

> *"I think understanding that past- you know post college- you're still going to use these [ILC] - that's important to understand."*

"I think it's kind of half-and-half for me. [...] *I'm probably not plagiarizing anyone, but just, it's for right now in college that you need to know you're not plagiarizing - and in the real world you need that."*

"Maybe, ahm, if you're going to be telling the students… you could tell them how it's [ILC] not just relevant for here at the college, but later on in life you'll probably need to be able to use IL being able to get good sources."

"Um, in terms of usefulness I found, any of the texts that included case studies that showed how the information that you were reading or learning could be applied to the field, I found that I guess if we're gauging these in terms of usefulness and meaningfulness, I found that useful; and it showed how you can use the information. In terms of meaningfulness the - having high level technical data um- good descriptions of the technology being studied at least in the program that I'm in that was helpful to have the breakdown of how it should work from a technological standpoint and then the case studies that show here's how you apply the technology you're learning to a real world example."

Here are a few examples of how focus group participants expressed their perceptions of how the dimensional factor of "Personal Relevance" related to the "Real World Application" of ILC as a factor of SCR.

"For my sources, when somebody would go on to talk about a real life example to tell how this could affect people- real life examples was a factor."

"I agree, it did add to writing in the paper and our knowledge. Cause that's where looking up these things to write about the paper, we kind of learned them [ILC] as we're going through that."

Lastly here are a few examples of how focus group participants expressed their perceptions of how the dimensional factor of "Professional Relevance" related to the "Real World Application" of ILC was a factor of SCR.

"Yes, useful, added to my knowledge; meaningful [ILC] will help in my actual career."

"Yes, and you don't have to be in the field of technology to use that [ILC]. You're going to use these[ILC] again in any professional field, and at some point in your life. Understanding that maybe will make it more relevant to someone who is just now learning them."

"Learning about copyright, licensing, and plagiarism stuff like that it's useful for me because the profession I want to go into I don't want to code a game and then have somebody steal that code for the game if I make it open source and use it to make money off of the code that I wrote. And it's meaningful because at the same time you don't want other people to have to go through that where you're stealing their work and profiting off of it."

Participants indicated that "Real World Application" of ILC increased the relevance of ILC to their academic work. Personal and professional relevance were impactful dimensions of relevance that mattered to the application of ILC to their academic work, connecting new possible information spaces to their current information ecology. A shade of emphasis related to this factor mentioned by students was the importance of clearly identifying and articulating the Real World Application of ILC. This is important to avoid a possible barrier to this factor of relevance and increase the understanding and perception of the value of ILC to their Real World.

As noted in the introduction, student perceptions of information literacy is a strong determinant to information literacy [1]. Therefore, providing the knowledge base of how ILC are relevant beyond their academic tasks provides opportunity for perception to be impacted.

5 Implications and Conclusion

Relevance… "The perception that something is interesting and worth knowing" [33, p. 1]. Exploring the socio-cognitive relevance of ILC through expressly including both the newly adopted 2016 ACRL Framework and the 2000 ACRL Standards as competencies has not yet been studied. This "niche" study of socio-cognitive relevance and the newly identified enmeshed ILC within the "community" of IS, provides for new data and understandings of the impact of these related and intertwined constructs in the information ecology of college students. The "niche" markets for this study include: academia, education, communication, psychology, social science, information science information professionals, lifelong learning partners, and foundations. The study may provide insights into how students perceive the value of ILC for the "Real World"-recognizing ILC as transferable skills for workplace environments, social, and everyday information needs. The more meaningful ILC are to the student academic experience, the greater the opportunity for student success, lifelong learning and career success [34].

Identifying the factors of SCR that students have identified will assist understanding what makes these competencies useful and meaningful to them as they use information. The implementation of these factors to non-academic contexts, such as the workplace – "The Real World" - has potential to increase the relevance of ILC to users. Revising the survey tool used in this study to accommodate a workplace task ethos may be a possible instrument for workplace task ILC relevance assessment.

The "Real World" application of ILC expressed by focus group students as a factor of SCR - the crossing of a threshold of understanding if you will - expressed as a perception in either personal or professional dimensions, unveiled some new data. A possibly new understanding was that students were connecting the "Real World" application of ILC to information uses beyond their current academic work and, in fact when they did, ILC became more SCR - useful and meaningful - to the students. Goldstein and Whitworth [35] in their work with information literacy in work environments, drew an association of workplace IL competence to efficiency, competitive advantage, and employee satisfaction. They also acknowledged this related to the often questioned impact of IL instruction in academia. This study provides empirical data reflecting and connecting ILC impact and possible implicitness of relevance from the academic information ecology to the "Real World".

In the book titled *Managing the Millennials* [36], Espinoza and Ukleja identified that a key to motivating the millennial workforce is helping them find meaning in what they do. They are kept motivated by seeing how what they do matters. In contrast, de-motivation occurs when millennials are not allowed to bring their creativity and passion to their work. Millennial learners and workers are looking for the useful and meaningful (SCR) information spaces to apply ILC. This may add credibility to the integrated, dimensional factors of the "Real World" socio-cognitive relevance of information literacy competencies as millennials cross these thresholds of new understandings.

In a recent case study, Conley and Gill [37] developed a survey to learn business professionals' views and gain insight as to the relevance of IL in the workplace and

student IL competencies as potential hires in their businesses. They sought to validate the relevancy of IL for business professionals. Given the research they cited and lack of agreement on terminology, they found it paramount to define and explain IL for the business professionals taking the survey. Their findings resonated with the findings of this study that affirmed the need to specifically articulate what IL is and how it connects to the "Real World" and to students' immediate academic task.

This study's preliminary findings showed the majority of undergraduate students found ILC to be "very" useful and meaningful (SCR) to their academic work. The study also indicated that the "Real World" application of ILC - beyond academic work - in personal and professional dimensions including the workplace, increased the socio-cognitive relevance of ILC when articulated to students.

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