A Broader Examination of Information Literacy: Key to Solving the 'Fake News' Epidemic?

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Introduction

What does it mean to be critical of information? The answers to this question has changed over time. As conceptualizations of information shift, and the technologies humans use to communicate change, so too does the teaching of information literacy (IL). Problems associated with information overload have been raised since the invention of the printing press, and remain to be a societal problem. To participate in society is to learn how to critically engage within societal discourse, that is to be able to evaluate societal discourse despite the overwhelming abundance of information. Although recent societal events have marked the importance of citizens being information literate in a democracy, the best methodology for teaching individuals to be critical of information remains in question. Despite the transformations of what it means to be information literate, training citizens' to be information literate is as crucial today, as it was in the past.

The shift in approach to IL education derived from Association of College and Research Libraries (ACRL) *Framework for Information Literacy for Higher Education* (framework) gives academia a chance to assess the current teaching methodologies employed in information literacy education (Burgess, 2015). However, the shift in approach to IL education also presents researchers with the opportunity to assess IL in a broader societal context. Scholars should be asking not just how those instructing IL educations perceive the change, but explore perceptions of individuals' integral to IL integration. Exploration of the value of IL in a broader societal context presents researchers the opportunity to explore why IL curriculum is necessary in modern society which finds itself inundated with 'fake news'.

Conceptualizations of what is considered news has been altered by the existence of social media platforms. As Frederiksen (2017) notes "most of what we think of as news is now delivered to and received by us in video clips and sound bites, often forwarded without filter or review through social networks from one screen to another in a matter of minutes". Through social media platforms individuals are presented with a decontextualization of the 'news' source, where information is often striped of details about its production. Reliance on social media as a news vector has disrupted traditional methods of information acquisition. As Walsh (2010) notes, individuals who were once reliant on librarians to provided epistemological protected procured information are now "using the internet to acquire information and making important decisions with it. […] acquiring knowledge from a media where anyone can write anything they want, true or false, anonymously and without consequences". This reliance on social media as a source of verifiable information is not restricted to one group of individuals, and is not without consequences. Decontextualization of news stories has left individuals who lack information literacy skills susceptible to being deceived by 'fake news'.

Since not all circulated or published work is reliable in relaying accuracy of events, reliance on social media as a news vector can have tangible consequences that effect individuals' judgements and actions. Edgar Welch's shooting of a pizzeria in Washington D.C. to stop an alleged Clinton operated child pedophile ring, is an example of the real consequences of 'fake news'. The need for critical information literacy is as important as it has ever been, for "individuals need to be proficient in critical literacy in order to reconcile the messages contained within the plethora of text forms, text types and constantly evolving communication technologies that surround them" (Mulhern & Gunding, 2011). 'Fake news' has become a prominent part of social consciousness within the last couple years. As Chen, Conroy and Rubin (2015) note the blending of traditional news outlets and user generated content procured through social media has influenced how individuals inform themselves. Citizen's lack of information literacy has

resulted in susceptibility to be deceived by "problematic" information that is "inaccurate, misleading, inappropriately attributed or altogether fabricated" (Jack, 2017). Past scholars have propagated the idea of IL as a potential cure or remedy that could protect individuals against this disinformation, however few studies have assessed IL in relation to 'fake news'. It remains unanswered as to who should take the burden of equipping individuals to be critical evaluators of information.

Actions by Google and Facebook demonstrate social media platforms willingness to engage in stopping dissemination of 'fake news' through a censorship approach. Google has pledged to provide $300 million to aid publishers to fight 'fake news', and Facebook has recently decided to cut news organization from its newsfeed, as fall-out from its Cambridge Analytical data scandal continues to grow. Google's and Facebook's recent approach to the 'fake news' epidemic are attempts to control disinformation through a censorship or removal of access to this information. However, as past scholarship has pointed out this approach of trying to remove access to disinformation by removing it from the web "is a less than effective solution for inaccurate information in general, and again it assumed censorship would work in controlling disinformation" (Walsh, 2010). The burden of addressing this epidemic should not be fully on social media platforms that disseminate 'fake news' widely to users, but in a combined effort between these social media platforms, educators, institutions and societies. As El Rayess, (2018) notes "social media websites may not be encouraging people to believe the information disseminated, but it is the people's tendency to believe any information they find on the Web without any dose of skepticism". Ultimately, it should be societies and its institutions who safeguard the teaching of citizens' to be skeptical of information, to be able to critical evaluate information needs to be a priority of education. Despite researchers' acknowledgement of the importance of educating citizens in being able to detect 'fake news', and the promotion of librarians as leaders in IL education, few studies have sought to examine academic perceptions of 'fake news' in relation to IL curriculum in higher education. The aim of this research was to examine IL education and perceptions about 'fake news' in a broader context, and to derived perceptions about the value of IL instruction, perceived willingness to integrate segments of 'fake news' into IL curriculum, and to explore perceived obstacles that prevented IL education.

The best means for incorporating education of 'fake news' to citizens remains an open question, despite Cooke (2017) claim that "knowledge of information behaviour and critical information evaluation skills can aid in combating the effects of fake news and promote more savvy information conception". IL curriculum within universities has already begun, and it would seem ideal incorporate segments on 'fake news' within the established IL instruction. However, it remains unanswered if IL educators are willing to incorporate segments on 'fake news'. Digital and media literacies fall within the broader category of information literacy but present significant defining features. Lanham (1995) defined digital literacy as being "deeply literate in the digital world […] being skilled at deciphering complex images and sounds as well as the syntactical subtleties of words"; while as Cooke (2017) points out "media literacy narrows in focus somewhat by focusing on mass media such as television and radio and what is found in popular culture". Although a "cursory understanding of political economy and the underlying business structures of the news media" (Cooke, 2017) can aid in stopping the proliferation of 'fake news', first IL educators' perceptions and knowledge of 'fake news' should be assessed.

Literature Review – Examination of IL
Spark of Creativity: A Theoretical Background

The problems associated with information overload and citizen's limited critical reasoning ability, have been raised since the invention of the printing press. William Wordsworth's *Preface to Lyrical Ballads* (1802) notes, "a multitude of causes, unknown to former times, are now acting with a combined force to blunt the discriminating powers of the mind, and unfitting it for all voluntary exertion to reduce it to a state of almost savage torpor". Wordsworth's 19th century critique rested on the perceived abundance of information through advertisement. In Wordsworth's view, this information overload not only dulled the senses and produced a lethargy of the mind, but resulted in a mental inactivity devoid of critical reasoning capacity for the masses. Wordsworth's critique points to early problems associated with abundance of advertisement and media, but its solution of a return to nature failed to be widely implemented. Citizens cannot disengage with society and revert to an isolated environment reminiscent of a more simplistic time.

Examining Information in a Larger Context. The work of Andersen (2006) attempted to place information seeking skills within a broader context. For Andersen (2006), to be adept at "information seeking competence is a sociopolitical skill, like reading and writing skills, connected to human activity". It is essential for citizens to be able to not only locate required information but to be able to critically assess information as a production of the society which produced it. No matter how obtuse a chosen presentation of information may be, citizens must be able to critically assess how and why said information was created. Critical analysis of information enables citizens to effectively communicate within society. Habermas's *Structural Transformation of the Public Sphere* presents the construct of the public sphere, as the space in which the private sphere and the sphere of public authority selectively decide upon what is important enough to warrant public awareness and discussion. In the past, "information that becomes public was constituted of residual elements of what was actually available […] for the traffic in news developed not only in connection with the need of commerce; the news itself became a commodity". The ability to critically assess information became paramount once commodification of information became a driving force in economic development and prosperity for society. To be able to communicate within society is dependent upon an individual's ability to comprehend past discourse, and to be able to critically evaluate information in a broader context. As Andersen (2006) claims "becoming or being an information literate person is not a matter of following a standard or to be evaluated by one but to be able to discursively act upon a society configured and mediated by discourse". Andersen (2006) conceptualization IL as a sociopolitical skill was not reflected in initial conceptualized of IL teaching methodologies.

Evolution of Information Literacy: What does it mean to be information literate?

In 1989, the American Library Association (ALA) defined information literacy as an essential set of life skills that enables individuals "to find, evaluate, and use information effectively to solve a particular problem or make a decision – whether the information they select comes from […] any number of possible resources". This definition regarded IL as a set of static skills that could be acquired, and led to the development and use of the Association of College and Research Libraries (ACRL) 2000 *Standards for Higher Education Information Literacy Competency (standards)*. The ACRL's publication included six standards skills, which it claimed any information literate individual could perform:

1. "Determine the extent of information needed
2. Access the needed information effectively and efficiently

3. Evaluate the information and its sources critically
4. Incorporate selected information into one's knowledge base
5. Use information effectively to accomplish a specific purpose
6. Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally."

The *standards* conceptualized IL as an entity that could be measured with specific goal outcomes, and this had significant implications for how IL was taught.

Resistance from academia. The *standards* were met with numerous critiques from the field of information and media studies; criticism for the standards centered around the ACRL's conceptualization of what it meant to be information literate. Swanson (2004) proclaimed that "these standards present a prescribed view of information literacy that emphasize the economic need but undervalues the social nature of information and the experiences students possess as information users". While, Jacobs (2014) claimed that these *standards* "position students as information consumers: they select, access, evaluate, incorporate, use and understand information". For Jacobs (2014), the *standards* places information users as passive rather than active creators of information. This conceptualization of passivity of the information user, led to IL being taught in ineffective rote-style tutorials focused on guiding students through the best resources within the discipline. The *standards* disregarded the complex relationship individuals have with information, as both user and consumer. The *standards* presented a vague outline on what an analysis of information ought to be, without an explicit execution plan of how these standards could be successfully achieved. Academia demanded an approach to IL that reflected both the complex dynamic of using information in the modern age, and an approach that would equip students to not only create information but to be able to participate in societal and academic discourse.

Inclusion of Critical Reasoning/Thinking

A major criticism of the *standards* for IL was the neutral stance it took on teaching students to question how and why information is produced. Kapitzke (2003) noted that "almost without exception, information literacy is conceptualized as a neutral method with generic, universal outcomes". The ultimately goal of these *standards* should not be to enable information users to "discover a unified truth" (Simmions, 2005). These critiques by Kapitzke (2000) and Simmions (2005), center around the ACRL's (2000) standards acceptance and perpetration of "an objective view of authority" (Bauder & Rod, 2016). Criticism of the *standards* represented a demand for a conceptualization of IL that incorporated critical literacy. Defined by Warnick (2002) as "…the ability to stand back from texts and view them critically as circulating within a larger social and textual context… it includes the capacity to look beneath the surface of discourse to understand implicit ideologies and agendas", critical literacy enables a broader societal construction of what it means to evaluate information. Information is embedded within economic prosperity, power, and societal constructs, and thus individuals need to critically assess information's "ideologies and agendas" (Warnick, 2002) to be able to make educated decisions and actively participate in society. The implementation of critical literacy to information literacy would "extends information literacy by suggesting that in addition to looking at information in situ, information consumers should consider the underlying power structures that shape information and consider the acquisition of agency that comes with acquisition of quality information" (Cooke, 2017). This approach views critical information literacy as "a frame of reference for consuming information or a type of critical thinking" (Cooke, 2017) and draws from the work of Paulo Freire.

Academia's push for a conceptualization of IL that incorporates critical literacy is influence by the work of Paulo Freire, which argues for a fluid and constant process of education involving both thought and action. Freire places the student at the center of his/her education; it gives back agency and power to individual learners to understand the world in terms of societal ideologies of race, gender and class. Utilization of Freire's (1972) critical pedagogy within IL enables information to be viewed as "a social construct that is created by a human being for a particular use". Critical information literacy has the following three underlying assumptions: "that the teaching of literacy is never neutral but always embraces a particular ideology or perspective; critical literacy supports a strong democratic system grounded in equity and shared decision-making; critical literacy instruction can empower and lead to transformative action" (Powell, Cantrell, & Adams, 2001). Freire's work enables a reconceptualization of information literacy that does not prioritize learning set of prescribed outcomes but places emphasis on "guiding students to internalize the world, apply their own life experiences to their education, and finally, act to change the world in which they live" (Swanson, 2004).

Information Literacy as a Framework

In what can be seen as a delayed response to criticism, the ACRL (2015) released a publication titled *Framework for Information Literacy for Higher Education (framework)*. The *framework* includes six frames to becoming information literate:

- "Authority is constructed and contextual
- Information creation as a process
- Information has value
- Research as inquiry
- Scholarship as conversation
- Searching as strategic exploration

These six principles are not a suggested order of sequence for learning but rather should be viewed as frames, that is, "the framework offered here is called a framework intentionally because it is based on a cluster of interconnected core concepts, with flexible options for implementation, rather than on a set of standards or learning outcomes, or any prescriptive enumeration of skills" (ACRL, 2015). This framework is meant to provide "conceptual understandings that organize many other concepts and ideas about information, research, and scholarship into a coherent whole". The *framework* demonstrates an approach to IL that attempts to examine information at a broader contextual level. These frames were generated based on the ideals of threshold concepts by Wiggins and McTighe, which conceived frames as portals which once learned transport the individual perspective, and transform how the individual interacts with sources of information within a discipline. Once one of these frames is learned, it cannot be unlearned. The changes to the self are permanent and echo through the individual's future actions. The *framework* has attempted to address the subjective nature of authority, and to place information in terms of economic relation.

Effect of Change. IL education remains in flux because of the adoption of the *framework*. As Burgess (2015) suggests the implementation of the *framework* into academia presents the unique "opportunity to ask if our current approach to instruction can meet the higher goals of information literacy education"; to ask "how might teaching evolve in order to facilitate a space in which the desired student knowledge practices and dispositions can flourish?" This change in conceptualization of IL gives academia a change to assess the current teaching methodologies employed in IL education. It presents the opportunity to understand how IL is perceived by instructors, and individuals with the power to incorporate IL curriculum within

higher education. Research has yet to explore how this change in conceptualization is reflected within IL education. It remains unanswered if these changes in conceptualization universally excepted by IL instructors.

Whose Responsibility is it anyway?

A barrier to the implementation of IL is determining whose responsibility it is to educate students to become critical of information. Both librarians and professors have taken on the role of teaching IL, but what remains unanswered is whether either set of instructors are equipped to do so. The first question that needs to be answered is an assessment of who is the ideal teacher for IL. To assess who the ideal educator is entails an assessment of effective, and standardized teaching methodologies currently being used in IL education A meta-analysis by Derakhshan and Singh (2011) found that the "in-spite of the importance of information literacy instruction in higher education, it is still not an integral component of many higher education programs and the students who are going to be graduated from universities are "ill-equipped" with information skills". Furthermore, Derakhshan and Singh (2011) findings indicate that not only is it not sufficient to only "embed information literacy into curriculum" but "there is a lack of information literacy concepts among academics and many of them do not have enough knowledge to strengthen the structural practices of their students". Despite Derakhshan and Singh (2011) finding that academics may not be particularly knowledgeable in IL or its ideal instructor, little research to date has examine academic administrative perspectives on the ideal educator of IL or explored these individuals' perspectives of IL.

Librarians, the ideal educators? Burgess (2015) stresses the teaching of students not standards, and argues that librarians have a vital role to play in moving away from past educational methods of "sage-on-the-stage" as perpetrated by the *standards*. Librarians could provide a more engaging and contextual approach to IL education, but research exploring librarians' perspectives on IL remains underwhelming. Burgess (2015) argues that "academic librarians have an opportunity to take greater and more active role in shaping our (often questioned) identity as leaders in IL education". Past methods of instruction for information literacy presented pre-structured presentations which led students through the correct means of finding a reliable source in that specific discipline of study. Although the ACRL's (2015) *framework* has made a shift in the conceptualization of IL, it remains unclear if IL education has adopted these changes. It has been a decade since Albitiz's (2007) work concluded a significant barrier to the implementation of IL is the "subordinate role [of librarians] within the institution", and yet recent research has assessed if this claim still holds true. Clearly many questions remain unanswered within current teaching methodologies of higher education's IL education. One of the most important of these unanswered questions should be why sufficient time/resources need to be allocated to understanding the best means of educating students to be literate in information. Does it matter if a citizen is information literate if he or she does not wish to participate in academic or public discourse?

Research Questions

1. What is the current state of IL education within Canadian universities; what, where and how is IL taught?
    a. What perceptions do librarians, professors and academic administrates have about IL?
2. Is 'fake news' being introduced into IL education at Canadian universities?
    a. If not, how can IL curriculum incorporate segments on 'fake news'?
    b. What skills are perceived as necessary to detect 'fake news'?

Methods

Procedure

The goal of this research is to examine the broader context of IL education and perception about 'fake news'. This is a case study of a large Southern Ontario Canadian higher educational institution. Perceptions about IL education, and 'fake news' were assessed in one-on-one interviews with librarians, academic administrators, and professors. The purpose of utilizing interviews for this study was multi-faceted. Interviews enabled exploration of participants' perceptions of IL education, participants' thoughts about perceived skills required to detect 'fake news', and gaged participants' willingness to incorporate segments dedicated to detecting 'fake news' within IL curriculum. Interviews were also designed to collect participants' perceptions of skills thought to be required to detect 'fake news" among academics who play an important role in IL curriculum. Interviews attempted to explore how IL instruction is initiated, how academics conceptualize IL and 'fake news', and contextualize how these roles integral to successful adoption of IL curriculum perceive the value of IL education.

Interviews were designed to be approximately 30 minutes long, and contain predominately structured questions (Appendix A). All interviews were audio-recorded allowing detailed and accurate transcriptions to be produced.

Participants

Eighteen participants, all of whom speak English, and are currently employed by Western were interviewed for this pilot study. Participants were divided into groups based on his/her role at the institution. Participants were divided into the following three groups: Group A (Librarians), Group B (Professors), and Group C (Academic Administrators). The Group C was meant to be a comprised of department heads, deans, and associate deans, that is individuals in academia who can administratively support programs, and allocate funding to various departments. Participants within Group C were all department chairs that retained teaching privileges and duties. All participants were recruited through email requests. Email addresses were attained through the institutions liaison library list or through its faculty homepages. Participation in this study was neither mandatory or compensated. Emails were sent out to 166 selected participants, 10.8% of which participated within this study. Given the relative small sample size of participants it should be noted that sampling bias could have occurred.

Participants within this study were limited to those who have an integral role in IL education and its curriculum. IL students were not sought as participants because the focus of this study is to produce best practices of methodological approach to IL education, and perceived means of incorporating 'fake news' segments into IL curriculum. Since decisions about IL curriculum and its implementation currently resides with librarians, professors and academic administrators, this research did not include having students as participants.

Data Analysis

Transcriptions of interviews were analyzed using Glaser's and Strauss' (1967) "grounded theory approach". This inductive approach enabled key themes among interviews to be identified. Glaser and Strauss (1967) grounded theory approach enables "systematic discovery of the theory from the data". Because of the relatively novelty of this research objectivises (to create best practices for IL instruction and to gage how to incorporate segments on 'fake news' into IL curriculum) few if any conceptual models exist. As Togia and Malliari (2017), point out "although the survey emerged as the most frequently used research strategy [in Library and Information Science], there is evidence that the number and variety of research methodologies have been increased". To generate emergent themes among academics and similarities among IL

teaching methodology the "grounded theory approach" (Glaser & Strass, 1967) is optimal for this eight-month case study's initial exploration. A grounded theory approach enables themes to be identified in a timely matter, and allows for a general exploration of themes that could be further explored. Glaser's and Strauss' (1967) "grounded theory approach" means that analysis of transcriptions generate "conceptual categories or their properties from evidence". No software was utilized to create these "conceptual categories" (Glaser & Strauss, 1967), rather coding and grouping of similar data was performed by the co-investigator. Concepts maps were developed to aid visual comprehension of findings.

Results

In total, 18 participants were interviewed. Final composition of groups was: six participants in Group A, eight participants in Group B, and four participants in Group C, which were gathered from across academic units (**Appendix C**). Duration of interviews ranged from 10 minutes to 50 minutes, with an average duration time of 24 minutes. One-on-one interviews contained structured question and concluded with an open-ended question. A concept map was created to visual display an aggregation of identified concepts that appeared in at least two of the participants' transcripts (**Appendix D**).

Findings pertaining to Perceptions about IL

      Definition of IL (Appendix E). In general, participants from Groups A through C emphasized the ability to not only find information but the ability to evaluate this information, and synthesize information from a variety of sources. Group A tended to focuses on participants being able to navigate through the "information landscape". Group B stressed awareness of information as a production of society, in addition to an awareness of internal and external biases inherent to information, and situation of information within a larger societal content as integral to being information literate. Group C placed emphasis on IL being in part the ability to discern reliable information, and to be able to distinguish between fact and opinion. Group C perceived IL as being a discernment, an judgement as to the validity of a source.

      Contestation to information literacy as a concept was presented by two participants, both in Group B. Participant B09 was reluctant to provide a definition of IL, noting that

        "*information is often put forward as this kind of object that's separate from all sorts of other systems and struggles, like it's just this pure thing that you can find … which makes no sense to me*".

This resistance to provide a definition for IL reinforces the overall theme mentioned by other participants for the need to be aware

        "*of what information is and can be, and how one comes to it*" (Participant B01)

in a larger societal context.

      Abilities Associated with IL (Appendix F*).* Generally, participants in Group A-C perceived that to be information literate would require the capacity to find information to fulfill the need at hand, and this required critical thinking abilities. Group B participants emphasized that evaluation of information would require "application of journalistic principles" (Participant B02); professors tended to link IL to the capacity to critical read, and the ability to understand language. As one participant mentioned:

        "*we can't parse what language means unless we understand how it works*" (Participant B02).

Group B perceptions about skills associated with IL included the ability to closely read a text to decode its meaning, and an awareness of how language can manipulate readers through various argumentation styles.

Participants though Group A-C believed that IL was a process that requires individuals to be critical. Participants across groups mentioned that being information literate requires a skepticism or cynicism, to be able to assess where information comes from and how it came to be. As a participant in Group C stated, the process of acquiring information requires the individual to

> *"be discerning, be critically minded, and not willing to accept things at face value*
> *without verifying on their own what the value of any given piece of information is"*
> (Participant B17)

Participants mentioned that this process of being IL would require grit, or a motivation to do the work associated with making the discernment about the validity of information based on its content and source. This processes of being information literate was perceived as something that an individual must put effort into. Participants across groups emphasized that to be information literate would require the ability to synthesizing and filter through vast amounts of information to make a discernment.

Value and Obstacles for IL education (Appendix G). The clear majority of participants (17 out of 18), believed that it was important for students to be information literate upon graduation. As a participant from Group B stated:

> "*if the goal of the university is to produce well informed critical thinkers, not just people*
> *to get plugged into industries then they need to be, more than ever I think, they need to be*
> *literate about how to evaluate information.*" (B08)

An emergent theme across Groups A-C was that participants perceived IL to be an essential citizens' education, which enables individuals to be able to function and engage in democratic societies. Professors and Department Chairs within biology and chemistry identified IL as an important soft skill that produces well-rounded students.

The most identified obstacle for the implementation of IL education across Groups A-C was time, that is the competition of materials that need to be taught within a short time frame. Group B-C expressed that instructors only have a limited time to teach students core principles and abilities, so priority is given to teaching the literacy of the subject. As one participant in Group C mentioned

> "*literate would be a good start; we can work towards information literate later*" (C07).

Most participants (12 out of 18), identified that instructors' preoccupation tends to be with teaching literacy in the specific discipline rather than teaching IL. Time constraints were the most perceived obstacle to IL education; however, participants did mention other hindrances. There was dissention among participants as to whose responsibility it was to teach IL, what the optimal age is for IL education is, and the best method of incorporating IL education within curriculum (either mandatory elective or integrated in curriculum). Across Groups B-C, 10 out of 12 participants perceived that responsibility for teaching IL education feel on instructors, and/or institutions. However, participant B03 believed that parents should be responsible for IL education, and participant B09 believed that it was "*no one's responsibility*" to teach IL. Participants within Group B stated that they were unaware of the availability of having librarians teach IL, while participants in Group C stated that an obstacle to IL education is faculties members perceived underappreciation for librarians as instructors. The number of librarians available to teach IL instruction and budget cuts were also identified as an obstacle.

Another identified obstacle raised by participants in Group B and C was the need for assessment of IL education. Participants raised concerns about the need for assessing not just if

IL was being repeatedly taught to the same students, but also measures to see if students could transfer these learned skills into other tasks outside of the classroom.

Finding pertaining to perceptions about 'Fake News'

      Defining 'Fake News' (Appendix H). Across Groups A-C participants perceived 'fake news' as deliberately false, and connected it to propaganda. As a participant stated,

> "*I do not see a huge distinction between fake news and propaganda except for the fact that the internet as the medium creates a new kind of message… If the medium is the message, then 'fake news' is propaganda 2.0 because of the speed with which it can be established as fact through sheer popular mass, and it is popular mass of believe*" (B02).

Participants across groups perceived 'fake news' as news that is a lie that has been produced for a means (political, social, and or economic) that often manipulates readers into thinking that it is legitimate or has truth. As one participant in Group C stated about the current 'fake news' epidemic in society, that:

> "*the current urgency around the problem is kind of the symptom rather than the cause or the need for information literacy. That need has always been there, it has changed with the internet, and now 'fake news' is the latest manifestation of the need*" (C15)

In general, participants in group A-C believed that 'fake news' has been around for some time in the form of propaganda, but the catalysis of social media has presented novelty in decontextualizing of news sources and rapid dissemination.

      However, resistance to creating a concrete definition of 'fake news' was presented by one participant in Group B. This participant believed that

> "*I don't think a tight little […] empirically positivist social science definition is very useful. This is what it means, I am going to measure it, or something. I can identify it because I have this little tool… I think it is way more interesting to see it as this site of struggle*" (B09).

This perception of the complexity of 'fake news' was brought up by other participants, who recognized that inherent biases and societal constructs will influence how individuals perceive news sources, and its validly. As stated by a participant in Group B,

> "*The issue that perhaps 'fake news' isn't just something that is out there, it is something in here as well, and you can't just kind of look out, but I think you might also need to look in at your own disposition, your willingness to believe. And I think that we all kind of have a willingness to believe somethings, and a reluctance to believe others*" (B04).

Skills perceived as important to detect 'fake news' (Appendix I): In general, participants across groups A-B identified the following skills as important in the detection of 'fake news': awareness, close reading skills, being critical/questioning, ability to find and triangulate diverse news sources, and understanding how news is produced. Group A participants perceived that the detection of 'fake news' would flow from general literacy skills. As one participant in Group A noted,

> "*it just extends information literacy skills. So, it is just knowing where the information is coming from, knowing how the person has come to those conclusions […]*". (A16)

However, this conclusion was also shared by a participant from Group C stated that

> "*I think it should flow from general information literacy, essentially*" (C07).

There was significant overlap between perceived skills associated with being information literate, and skills perceived imperative to detect 'fake news'.

Discussion

Perceptions about IL among participants in Groups A-C were unsurprising given participants' roles. All participants' perceptions of IL generally started with a paralleling of the ALA's (1989) definition. However, while librarians' perceptions about IL often extensively relied on the *framework* conceptualization of IL, and explicitly mention it, professors and academic administrators' perceptions of IL did not. Professors and academic administrators tended to defined IL in broader societal terms.

Why not make use of pre-existing infrastructure?

One of the key findings from this research study is that substantial overlap exists between perceived skills imperative for 'fake news' detection, and perceived skills possessed by an information literate individual. This finding is not particularly unexpected, especially considering participants' perceptions around what it means to be information literate. Professors emphasize that an individual who is information literate is aware of both information as a production within society, and of the external/internal biases of information, which also would be an individual primed to be critically about decontextualized information. In addition, academic administrators' perceptions of IL being centered around the ability to discern the reliability and validity of information, and the ability to distinguish what information is fact versus opinion, directly relates to scholars' call for individuals to be skeptical of disinformation. Participants perceived that being information literate requires not just the ability to find information, but the ability to critically evaluate this information through use of language skills, a multitude of diverse perspectives, and a critical/skeptical disposition demonstrates the inherent connection between IL and being able to detect 'fake news'. This overlap between perceived skills thought to be associated with being information literate and 'fake news' detection explains why participants in Group A and C perceived that skills required to detect 'fake news' are an extension that should flow from general information literacy skills. Results from this study reinforce those found by Derakhshan and Singh (2011), that "in-spite of the importance of information literacy instruction in higher education, it is still not an integral component of many higher education programs and the students who are going to be graduated from universities are "ill-equipped" with information skills". Although, the clear majority of participants (17 out of 18) believed that it is important for students to be information literate upon graduation, and some of whom agreed that segments about 'fake news' should be included in IL curriculum, librarian's IL instruction remains to be underutilized within this institution, and few curriculums include segments dedicated specifically to 'fake news'.

Participants identified a multitude of reasons for why integration of IL curriculum is not being widely utilized within higher education classrooms. The most common perceived obstacle for IL instruction is the competition of materials that need to be taught within instructors' short time frame with students. Participants in Group B and C reiterated that instructors only have a limited time with students, and this time is usually dedicated to teaching literacy in the subject rather than the general skills of information literacy. A solution for this perceived de-evaluation of the importance of IL in comparison to subject literacy, can be seen in Group B's acknowledgement of the librarian shift from a bottom-down approach to a top-up approach. Western is moving away from approaching individual faculty members as a mean for integrating IL curriculum (bottom-down), instead the new librarian teaching unit is trying to implement policy and gain department staff participation for integrating IL curriculum in suitable courses (top-down approach). An elective mandatory course could alleviate the time constraints of instructors trying to implement IL curriculum into already full course load, but there exists

dissention among librarians, and even faculty/academic administrative about if an elective mandatory course is optimal/preferable for IL integration within his/her department. Ultimately, disagreement about the appropriate methodology for IL curriculum is a barrier that librarians must overcome if IL is to be successful adopted into higher education. The best remedy for this disagreement is perhaps that there should be no universal approach taken to IL curriculum integration that would constrain all departments to adopt a singular methodology approach for IL education. IL instruction should be tailored to each departments preference, but this will require open dialogue between librarians and academics who oversee designing curriculum.

Another barrier to IL integration into curriculum is the lack of assessment evaluating the effectiveness of IL skills. Two participants mention that this assessment should include an evaluation of the transferability of these skills outside of the classroom. There is a need for research to explore students' receptiveness to the inclusion of IL into the curriculum, and if he or she are compartmentalizing IL skills to within school context. It is understandable why instructors would opt to spend more time on teaching other material rather than IL, if these IL skills are not being transferable to information consummation outside of the classroom. Further research needs to address the gap in assessment as a mean to validate the utility of IL instruction.

The need for a champion

Past scholarly research has identified librarians as having a key role in IL instruction, and as potential aids for the 'fake news' epidemic. Burgess (2015) argues that the development of the ACRL's framework and shift in perceptions about IL provides academic librarians with "an opportunity to take greater and more active role in shaping our (often questioned) identity as leaders in IL education". Researchers have even proclaimed that "the role of librarians and information professional is to develop well-educated information consumers" (El Rayess et al., 2018). But the vitality of librarians' role in IL education is a perception lacking among professors or department chairs. When participants in Group B and C where asked to identify who he or she believes should be responsible for IL education, not one participant mentioned librarians. In fact, when librarians were asked about barriers to IL education, one participant mentioned the underappreciation of the role of librarians was a hindrance. This participant in Group A perceived that

> *"[…] it is just the lack of the value of what active librarians can teach students, I meant here are definitely faculty who have come to realize that value, but there are also faculty that think they can do it themselves, or that it is not important, or the students are already equipped with those skills when they come here, which is obviously not the case*" (A16)

and this seems to hold true among participants' perceptions gathered from professors and academic administrators. This underappreciation of librarians' role in IL instruction is evident in participants' lack of recognition of librarians' responsibility to instruct students to be information literate. If librarians are not willing to promote themselves as valuable educators of IL, instructors will continue to be responsible of IL instruction, and IL instruction will continue to be deprioritized. There is the need for greater communication among the three groups involved in university IL education, and it is recommended that librarians promote themselves more proactively as valuable educators of IL. Based on their years of experience in vetting information for credibility, academic libraries could play a greater role in implementation of IL education in university curricula. When critical skills to distinguish disinformation from information are actively taught, universities become more prominent in the societal conversation about potential remedies for the "fake news epidemic" by extension, uphold the value of IL. Although, one participant in Group A noted that:

> "*I don't think the library should own information literacy. [...] I see our future team as being sort of the champion for information literacy*" (A13)

and it is recommended that this championing for IL instruction is set as top propriety for librarians.

Best Practices from Literature - The Importance of Perceptions

IL instructors' perception about what it means to be information literate dedicate teaching methodologies for information literacy education. The failure to implement a set universal standard for IL education (in terms of when the optimal time for IL education is, and who is the ideal educator), demonstrates the need for greater communication among individuals' integral to IL education. The ACRL *standards* confined the student of information literacy as passive in his/her education, and information consummation. Jacobs (2014) claimed that the ACRL's (2000) *Standards* "position students as information consumers: they select, access, evaluate, incorporate, use, and understand information". This conceptualization of passivity of the information user led to IL being taught in ineffective rote-style tutorials. Tutorials developed from the ACRL's *standards* were often focused on guiding students through the best resources of a discipline, and aimed to achieve specific learning outcomes. A decade since the ACRL's (2000) publication of its standards, a meta-analysis by Derakhshan and Singh (2011) revealed that information literacy education "is still not an integral component of many higher education programs, and the students who are going to be graduated from universities are 'ill-equipped' with the information skills". The standards have failed, upon graduation many students from higher education are still not information literate. The perception of students as passive in IL education and consumption, played a significant role in the development of ineffectual information literacy education that ultimately failed to be universally adopted.

What does it mean to be critical of information? The problem with past information literacy education is that it was founded on rote-learning, and set goal-oriented learning outcomes. As Burgess' (2015) claims education derived from the *standards* were "demonstrating an ideal rather than demonstrating some of the key dispositions required of novice (and experienced) researchers: resilience, curiosity, creativity, and persistence". Per Burgess' (2015) instructors should not be instructing as the "sage-on-the-stage" but should be holding dialogue that is "an engaged and interactive information literacy discussion". A shift in perception of what it means to be critical of information has occurred; emphasis has been set on teaching critical literacy skills (Swanson, 2004; Andersen, 2006; Mulhern and Gunding, 2011; Jacobs, 2014; Cooke, 2017), and this is reflective in recent publications of recommendations for information literacy education. To teach the ideal disposition of a critic of information requires a transformation in information literacy education derived from the *standards*; it must evolve from "a point-and-click database demo style" (Burgess, 2015) to an active dialogue that views students as an active agent in his/her education.

Current Approaches for Information Literacy Education in Higher Education
ACRL's (2015) *Framework for Information Literacy for Higher Education*

To contextualize information in the 21st century society, and to address past criticisms, the ACRL (2015) released its *framework*. The ACRL's (2015) *Framework* utilized the concept of metaliteracy to create a new definition of what it means to be information literate. Metaliteracy's scope of information literacy skills in the digital environment, and the impact the digital environment has on creating and sharing information, guided the ACRL (2015) *Framework* to redefine information literacy as "the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and

valued, and the use of information in creating new knowledge and participating ethnically in communities of learning". This new conceptualization of information literacy resulted in the *framework* purposing a new approach to IL education that is founded on six frames. These six frames are not in a suggested order of sequence for learning, but rather should be viewed as frames, that is, "the framework offered here is called a framework intentionally because it is based on a cluster of interconnected core concepts, with flexible options for implementation, rather than on a set of standards or learning outcomes, or any prescriptive enumeration of skills" (ACRL, 2015). Calling the ACRL's (2015) publication a framework indicates the drastic departure the ACRL's has made from its *standard*'s publication.

The ACRL's (2015) *Framework* differs from its *Standards* predecessor in its emphasis on information in a larger societal context, and its removal of dictating set learning outcomes. Each of the six frameworks has a list of knowledge practices, and a list of dispositions. Knowledge practices are behaviour that individuals should be able to perform to indicate understanding and learning of the frames; while dispositions are meant to "describe ways in which to address the affective, attitudinal, or valuing dimension of learning" (ACRL, 2015). These knowledge practices and dispositions are not meant to be exhaustive, nor are they "intended to prescribe what local institutions should do in using the Framework; each library and its partners on campus will need to deploy these frames to best fit their own situation, including designing learning outcomes" (ACRL, 2015). The ACRL's (2015) *Framework* is meant to aid instructors to create information literacy education that involve "discussions about the nature of key concepts in information in general education and disciplinary studies". The ACRL's (2015) Framework is intended to be taught in more than one session, and through various levels of students' academic education (from novice to expert). The implementation of a multi-phase information literacy education will require significant resources, and cooperation among various faculty, librarians and administrative academics.

Setting a multi-phase information literacy education program that begins in undergrad and precedes through graduate programs will require time, and significant efforts of persuasion from IL instructors. Those in charge of implementing curriculum and allocating funding must acknowledge the need for information literacy education, understand its importance, and aid in the determination of the best course of implementation. The *Framework* publication has recommended suggested steps to aid information literacy instructors to implement a multi-phase information literacy education. After reading the ACRL's (2015) publication, the instructor is advised to perform the following actions:
-   "convene or join a group of librarians to discuss the implications of this approach to information literacy for your institution".
-   "Reach out to potential partners in your institution […] to discuss how to implement the *Framework* in your institutional context".
-   "using the *Framework,* pilot the development of information literacy sessions within a particular academic program in your institution, and assess and share the results with your colleagues".
-   "share instructional materials with other information literacy librarians in the online repository developed by ACRL".

Research has not yet asked perceptions about the feasibility of this action plan for implementation. It has been two years since the ACRL's publication, and IL educators have yet to implement or critically assess the effectiveness of this new multi-phase approach to education.

An International Perspective

Information skills in higher education: a SCONUL position paper. The ACRL's was not the only organization to shift its conceptualization of what it means to be literate in information in the 21ˢᵗ century. In 2011, the *SCONUL Working Group on Information Literacy* (SCONUL) released a revision to its 1999 publication title *Information skills in higher education: a SCONUL position paper (Information Skills)*. SCONUL (2011) attempted to reflect the "range of different terminologies and concepts" attributed to information literacy that encompasses "digital, visual, and media literacies, academic literacy, information handling, information skills, data curation and data management". SCONUL (2011) claims that an information literate individual would be able to demonstrate "an awareness of how they gather, use, manage, synthesize and create information and data in an ethical manner". Like the ACRL's (2015) *Framework*, SCONUL (2011) *Information Skills* seven core pillars are meant to provide a "holistic process" to information literacy education, in which students ideally move from novices to experts. SCONUL (2011) claims its model should be viewed as a landscape that is situated within the information world, and as students become more competent in each of the seven pillars he or she will be able to demonstrate more "skills/competencies and attitudes/understandings" listed under each pillar. SCONUL information literacy education approach is meant to be continuous and gradual but not necessarily linear (students could always regress down a pillar).

Efforts to Educate as a Solution to 'Fake News'

Since the concept of introducing segments on 'fake news' within literacy education is relatively new, very little recommendation for higher education programs approaches to educate students about how to be critical of 'fake news' exist. One recommendation would be to incorporate understandings of The CRAAP Test, "developed as the Meriam Library of CSU Chico (2010), [as] a checklist for evaluating sources based on series of criteria: currency, relevance, authority, accuracy, and purpose (C.R.A.A.P)" (Batchelor, 2017). Another means of finding recommendations for how to incorporate 'fake new' into curriculum is by examining the development of new academic courses addressing this topic. A course developed by Professor Bergstrom and Professor West at the University of Washington entitled "Calling Bullshit" that aims to equip students to be able to detect misinformation, and has made available its course syllabus, and course reading requirements

"Calling Bullshit" stresses teaching students to ask the right kinds of question and to have a certain frame of mind when encountering any information source. Bergstrom and West, teach that an individual should ask three important question when examining sources of information: (1) who is telling me this, (2) how do they know it, and (3) what is in it for them? Asking these three question, and possessing a basic level of skepticism, criticism, and mathematic skills (when required) should equipped students to be better at detecting 'bullshit' information circulated through 'fake news'. Bergstrom and West attempt to education students into being bullshit information detectors by making them

1. be aware that "if a claim seems to good (or too bad) to be true, it probably is"
2. be aware of what "confirmation bias" is and how this may affect response to information
3. try to create "multiple working hypothesis" to understand the plausibility of claims and possible contributing factors
4. "think about the order of magnitude"
5. "be aware of unfair comparisons" that are being made in results

Concluding Remarks

This pilot study attempted to assess IL in a broader context both assessing perceptions of individuals' integral to IL curriculums implementation, and by trying to gage participants' perceptions about 'fake news'. Substantial overlap between skills perceived to be associated with IL, and skills perceived by participants as essential for 'fake news' detection, reinforces past scholars' recommendations that IL can have a role in stopping the spread of 'fake news'. However, there appears to be a disconnect between the awareness of the value of IL education and its universal implementation. Further research should need to assess the effectiveness of current IL education in imparting perceived skills of critical evaluation of information, and should evaluate if these skills can be transferred to broader societal concerns. In the time being, it is recommended that institutions facilitate open communication between librarians, academic administrators', and professors to enable the building of curriculum and objective plans to provide IL education to every student, across every discipline.

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Appendix A
Interview Guides for Professors and Department Chairs

Introduction to all interviews

Thank you for agreeing to be a part of this interview. As we have already discussed, I will be recording your answers and I have received your written consent. This interview should last for approximately 30 minutes. It may run longer depending on the breath of your answers. You can refuse to answer any question, and you may withdrawal from the interview at any point. Transcription of this interview will be made but your anonymity will be keep. Recordings and transcriptions will be destroyed after seven years.

As already disclosed, my research is attempting to examine not just how and where information literacy (IL) it taught at Western but perceptions around IL education and 'fake news'. I am assessing methodological approaches and curriculum of Western's in-class customized IL session, in addition to examining perceptions on how education about 'fake news' might be incorporated into current IL curriculum. I plan on submitting this work to journals, and would be more than willing to send you a copy when it is done.

1) Can you tell me about your role at Western?
   a. Can you specify the courses that you teach and the department you belong to?
2) How would you define information literacy?
3) How would you define a person who is information literate?
   a. What skills would he or she possess?
   b. Do you believe that it is important for students to be information literate upon graduation?
4) Do you believe education on 'fake news' should be included in IL curriculum? Why or why not?
   a. How would you define 'fake news'?
   b. What value do you see to incorporating segments on 'fake news' in IL education?
5) What skills do you perceive as imperative for an individual to determine 'fake news'?
6) Are you aware of any attempts to standardize education about 'fake news'?
      Probe: Have you heard about the C.R.A.A.P test? Do you think it is an effective checklist for evaluating 'fake news'?
7) Where you aware that in-class IL sessions can be incorporated into lectures?
   a. If you were to incorporate IL sessions into curriculum do you know how to initiate the process?
   b. Have you been approached by Western Librarians to initiate information literacy into the curriculum or have you approached them?
8) Have you attempted to incorporate or teach information literacy in any of your lectures? If so how?
9) How important do you feel it is to incorporate IL education into classes?
   a. Whose responsibility do you think it is to teach information literacy?
   b. Do you believe that IL education should be placed into curriculum or do you think that it should be an elective course that is mandatory for students to take?

10) Are you aware of introduction of critical pedagogy into IL? Do you believe a contextualized critical IL education has merit? Why or Why not?[1]
11) What obstacles do you feel prevent IL education from being incorporated into the classroom?
12) What benefits do you think IL education has on students?
13) How informed about information literacy do you believe you are?
    a. Are you aware of any attempts to standardize information literacy?

Thank you for your time. Before we leave I thought I ask you if you have any questions for me or if there are any questions that you think I should have asked you?

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[1] This question was eliminated from interviews after the first two participants.

Appendix B
Interview Guide for Librarians

Introduction to all interviews

Thank you for agreeing to be a part of this interview. As we have already discussed, I will be recording your answers. Do I have you consent to do so? This interview should last for approximately 30 minutes. It may run longer depending on the breath of your answers. You can refuse to answer any question, and you may withdrawal from the interview at any point. Transcription of this interview will be made but your anonymity will be keep. Recordings and transcriptions will be destroyed after seven years.

As already disclosed, my research is attempting to examine not just how and where information literacy (IL) it taught at Western but perceptions around IL education and 'fake news'. I am assessing methodological approaches and curriculum of Western's in-class customized IL session, in addition to examining perceptions on how education about 'fake news' might be incorporated into current IL curriculum. I plan on submitting this work to journals, and would be more than willing to send you a copy when it is done.
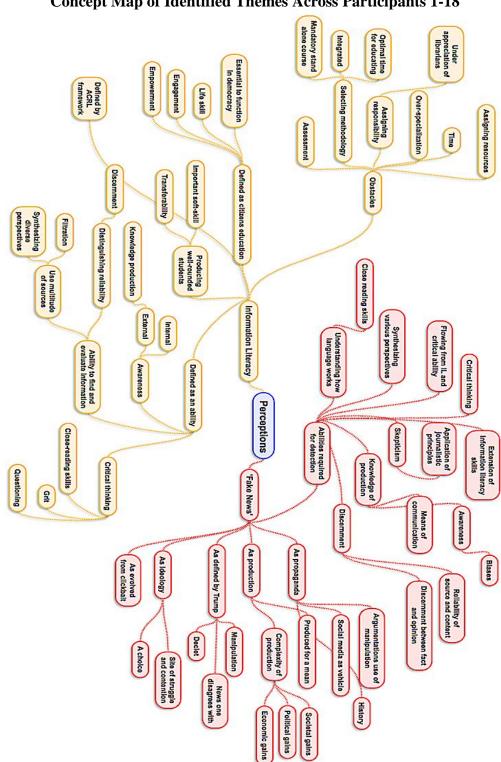
1) Can you tell me about your role at Western?
   a. Do you teach any information literacy (IL) classes?
   b. Do you implement or make IL curriculum?
   c. How are in-class information literacy sessions initiated?
2) How would you define information literacy?
3) How would you define a person who is information literate?
   a. What skills would he or she possess?
   b. Do you believe that it is important for students to be information literate upon graduation?
4) Do you have any background education about IL?
   a. Have you attended any workshops on say what IL is or how to teach it?
   b. Do you feel that librarians are adequately trained to teach IL? If not what would you do to change this?
5) What approach do you take to Information literacy?
   a. Probe: Do you view information literacy in terms of a metaliteracy that is interconnected to other types of literacy? I.e., digital literacy, media literacy, etc.
   b. How do you feel about the introduction of critical pedagogy into IL? Do you believe a contextualized critical IL education has merit? Why or Why not?
6) Do you believe education on 'fake news' should be included in IL curriculum? Why or why not?
   a. Have you attempted to include segments on 'fake news' in IL curriculum?
   b. How would you define 'fake news'?
   c. Would you feel confident in incorporating segments on 'fake news'?
7) What skills do you perceive as imperative for an individual to determine 'fake news'?
8) Are you aware of any attempts to standardize education about 'fake news'?
         Probe: Have you heard about the C.R.A.A.P test? Do you think it is an effective checklist for evaluating 'fake news'?
9) Do you believe that IL education should be placed into curriculum or do you think that it should be an elective course that is mandatory for students to take? Why or Why not?

       a. What obstacles do you feel prevent IL education from being incorporated into the classroom?

10) if you make IL curriculum or teach IL are there any standards you follow?

       a. Probe: Perhaps you adhere to the ACRL's framework for information literacy for higher education or the Big6 Skills developed by Eisenberg and Berkowitz?

11) Do you feel there is merit in trying to standardize how IL is taught?

Thank you for your time. Before we leave I thought I ask you if you have any questions for me or if there are any questions that you think I should have asked you?

Appendix C
Breakdown of Participants and Roles

Breakdown of Participants by Academic Unit	Number of Participant
Librarians	6
Information and Media Studies	3
English and Writing Studies	3
Biology	2
Chemistry	1
History	1
Philosophy	1
Physics and Astronomy	1

Appendix D
Concept Map of Identified Themes Across Participants 1-18

Appendix E
Aggregated Key Words/Concepts per Question
How would you define information literacy?

	Professors (Group B)		Librarians (Group A)		Academic Administration (Group C)
B01	Awareness; Information as Production	A05	ACRL framework; critical mind; searching and discover; grit	C06	Ability to find information; Discernment between what is factual and what is opinion
B02	Application of Journalistic Principles; Assessment of information	A12	Assessing information; awareness of external ideas and biases	C07	Retrieval of information; evaluation of information
B03	N/A (No answer produced)	A13	ACRL Framework; Changing nature of IL; civic engagement; information as production; synthesizing multiple sources; thinking critically	C15	Ability to find information; distinguish validity of information; making judgements about information
B04	Capacity to read; reading closely to uncover; analyzing	A14	Old reference question; identification of reliable resources	C17	Ability to determine reliability despite abundance
B08	'good v. bad information'; confirming reliability;	A16	Emotions; navigating information landscape		
B09	Information as part of system of struggles; information as production; narrative framework of meaning; Trump	A18	Ethical requirements of using information; management and effective use of information; selection of information for need		
B10	Ability to navigate and understand reliable sources				
B11	Acquisition of information; assessment and evaluation of quality of content and source; understanding the type of information required for the need				

Appendix F
Aggregated Key Words/Concepts per Question
How would you define a person who is information literate? And what skills would he or she possess?

	Professors (Group B)		Librarians (Group A)		Academic Administration (Group C)
B01	Awareness; Information literacy requiring basic literacy; close-reading analysis	A05	Ecosystem of information; global citizen; transferability of learning IL through course work	C06	Ability to distinguish reliable sources; information as production; validity to peer-review and publication
B02	Application of journalistic principles; information as power; risks association with openness; value of experts; skepticism; means of communication; general curiosity	A12	Acquisition/synthetization of sources; awareness of external ideas and biases; communication and civic engagement; critical thinking; discovery and critical evaluation of information; enduring research skills; responsible creation, and use of information; stress reduction due to overload	C07	Acquisition of information from a variety of sources; evaluation of trustworthiness;
B03	Trump; subjectivity of perspectives	A13	Motivation to dig for the truth / information; thinking critically; versions of reality and different perspectives	C15	Ability to find information' distinguishing validity of information; making judgements about information; reading critically; willingness to out in effort
B04	Bearing critical intelligence; capacity to read; reading closely to uncover	A14	Filtrating information; knowing where to look for information; understanding where to look for information.	C17	Critically minded; cynicism; self-verification
B08	Acquisition of information from variety of sources; awareness of how information can be manipulated; being widely read; critical thinking; good v. bad information; pressure to produce; rapid publication in science;	A16	CRAAP test; evaluation of information's biases;		

B09	Awareness; ability to detect argument; complex nature of interpretation/production of info; critical skills	A18	Appreciation of different sources of information; evaluation of information; information as production; reading; selection of information for need; understanding how to search for information		
B10	Capability to find reliable sources				
B11	Acquisition of information; assessment and evaluation of quality of content and source; understanding the type of information required for the need				

Appendix G
Aggregated Key Words/Concepts per Question 9, 11, 12
Perceptions on value of IL, whether IL should be integrated into the curriculum or
mandatory, and on identified obstacles to IL education

	Professors (Group B)		**Librarians (Group A)**		**Academic Administration (Group C)**
B01	Citizens education; empowerment; finding the right teachers; instructors shared responsibility; integration into curriculum; obstacle of time	A05	Doubt everything-indicator of success; global citizen, integration of IL into curriculum; need for assessment; top-down approach to implementing IL; value of IL	C06	Discernment between what is factual and what is opinion; IL as a useful soft-skill; instructor's responsibility; need for experts to teach IL (and this may not be instructors); production of well-rounded students; separate course for IL instruction; tailoring IL into the right courses
B02	Citizens education; integration into curriculum; need for awareness of available resources; obstacle of time; relating to discipline; shared global responsibility	A12	ILLO's; finding the appropriate course that IL education fits in; modularity of programs; number of librarians; open question as to integration into curriculum or course; tailoring IL education to fit the discipline and course; transferability of skills?	C07	Citizens' education; instructors' responsibility; literacy overshadowing IL; need for IL to be over-arching; Obstacle of time; transferability of IL outside of the classroom?
B03	Should be taught at younger age; integrated into curriculum; preoccupied by teaching the literacy of the subject not IL; parents responsibility	A13	Impossibility of mandatory course; librarians not owning IL education; no merit in standardization of IL; obstacle of time; unaware of value of librarians	C15	Competition of too much to teach; departments responsibility to oversee IL; distinguish validity of information; integration of IL; instructors' responsibility to teach IL;
B04	Awareness; citizens' education; counterproductive to have a mandatory IL; IL essential for functioning democracy; instructors	A14	Mandatory course; finding experts to teach;	C17	Citizens' education; IL cornerstone of education; IL as life skill; mandatory education of IL, too much to teach

	shared responsibility; obstacle of time; skepticism				
B08	Citizens' education; collaboration between instructors and faculties; competition for material being taught; narrowness of student skills; policy mandates; vaccination and autism	A16	Building librarians' skills and pedagogy; BOPPS Lesson plan; integrated into curriculum; lack of awareness for librarians' value; need for assessment; students' negative perceptions of IL		
B09	Budget cute; nobody's responsibility;	A18	Assumption that students are information literate coming in; competition of materials to teach; IL not applicable to discipline; librarians not adequately trained to teach; required IL education		
B10	Brining IL already to the classroom; citizens' education; community and institutions responsibility; critical thinking; integration in curriculum; over-specialization; right expertise to teach; teaching IL at all levels				
B11	IL adding smart consumerism; obstacle of time; news as a production; teachers' responsibility				

Appendix H
Aggregated Key Words/Concepts
Definitions of 'Fake News' and value of including segments dedicated to 'Fake News'

	Professors (Group B)		Librarians (Group A)		Academic Administration (Group C)
B01	Awareness; climate shift; 'FN' as Propaganda; 'FN' as lie; 'FN' production to serve a means; learning the basic of argumentation and manipulation; Trump	A05	Anti-vaccine; critical mind; 'FN' production to serve a mean; 'FN' as false information; tailoring IL education to the discipline; Trump	C06	'FN' as propaganda; 'FN' as deliberately false; 'FN' created to serve an end
B02	Citizens' education; distinguishing b/w fact and belief; 'FN' as propaganda; Trump; Understanding means of communication	A12	Constant questioning and being aware of alerts; evaluation of sources; 'FN' as lie presented as truth; levels of 'FN'; 'FN' as satire; 'FN' as intentional manipulation; process of determining 'FN'	C07	Ability to detect 'FN' flow from IL; Confrontation of illusion; 'FN' deliberately mis-information info; 'FN' implication of authority; need to empower undergrads to retrieve info; transferability of IL outside of classroom?
B03	'FN' determined by perspective of individual	A13	Critical thinking; 'FN' as a trendy transient term; 'FN' the intend to mislead	C15	'FN' manifestation of need for IL; 'FN' pseudo info presenting as legitimate news source; 'FN' as a topical Segway
B04	Discerning b/w true and false essential to English; 'FN' designed to be deceptive; Trump; Value of 'FN' ed., for the sciences	A14	'FN; as good and bad; 'FN' as rumor propaganda; driven by social media; 'FN' as statistics; ramification on public opinions; understanding the power of 'FN'	C17	All news is not equal; evaluation of information; 'FN' produced for a means; 'FN' as propaganda; inherent biases of information; making own decisions; past presences of 'FN'
B08	'FN' as propaganda; 'FN' as not factual; 'FN' as manipulation; FN' as a production; power of misinformation; skeptics; weaponized news; what	A16	'FN' as clickbait; 'FN' as falsities; perceptions of what students need dictating IL education		

	makes something newsworthy				
B09	'FN' as a classic ideology; 'FN' as empty signifier; 'FN' as a political struggle; 'FN' as noise; Noise to signal ratio; Trump	A18	Deliberately inaccurate; 'FN' produced for a means; 'FN' as manipulation; history of teaching 'FN' before it was coined; wide dissemination		
B10	Ability to navigate and understand reliable sources; citizens' education; 'FN' as evolution of clickbait; 'FN' as subspecies of propaganda; ignorance and indifference; Trump				
B11	'FN' as what you disagree with; 'FN' as propaganda; Filtration of information; IL should be taught in lower levels; information as ideology; media using propaganda to deceive; Trump				

Appendix I
Aggregated Key Words/Concepts
Skills perceived imperative to detect 'Fake News'

	Professors (Group B)		**Librarians (Group A)**		**Academic Administration (Group C)**
B01	Access to facts; awareness	A05	Critical mind	C06	Awareness; need to know what is real
B02	Application of Journalistic Principles; understanding how language works	A12	Ability to read and read vast amounts; information biases; time management	C07	Google deeply; synthesize variety of sources
B03	Open-mindedness	A13	Ability to find refuting information; critical thinking; criticism; questioning; taking action when appropriate; Trump	C15	Ability to do historical work; capacity to do bibliographic work; close-reading skills; reading critically; visual literacy
B04	Reading closely to uncover	A14	Common sense; 'FN' as good and bad	C17	Critical spirt; willingness to put effort in
B08	Acquisition of information from variety of sources; critical thinking; general literacy; understanding how news is produced	A16	Detection relies on extension of IL skills		
B09	Anti-vaccination; climate change; complexity of believing 'FN'; framing of facts to create meaning; knowledge of news production; narrative framework of meaning; proxy of authorized knowers; Trump; Verifiable facts not being believed; who are you teaching?	A18	Awareness; evaluation of information; understanding why it was produced		
B10	Ability to triangulate among diverse resources; recognition of importance of diversity of sources; self-critical				
B11	News as a production; understanding the news train				