

الثقافة المعلوماتية لدى طلاب المرحلة الجامعية الأولى في جامعة الكويت: تطبيق مقياس إدراك الثقافة المعلوماتية PILS

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ملخص

هدف الدراسة: تهدف هذه الدراسة إلى تقييم مستوى الثقافة المعلوماتية لدى طلاب جامعة الكويت باستخدام مقياس إدراك الثقافة المعلوماتية (PILS)، والذي يتم تطبيقه لأول مرة باللغة العربية، وتكمن أهمية الدراسة في أن مهارات الثقافة المعلوماتية (IL) في العصر الرقمي الحالي تُعد ضرورية للنجاح الأكاديمي والتعلم مدى الحياة. **المنهجية:** من خلال مسح شمل 445 طالباً من مختلف التخصصات، تم قياس مدى إدراك الطلاب لمهاراتهم في البحث عن المعلومات واستخدامها. **النتائج:** أظهرت النتائج أن الطلاب يتمتعون بكفاءة جيدة في المهام الأساسية للثقافة المعلوماتية، ولكنهم يواجهون تحديات في تنفيذ المهام البحثية المعقدة. كما كشفت الدراسة عن فروقات ملحوظة بين الطلاب في البرامج الدراسية التي تُدرس باللغة الإنجليزية مقارنة بالبرامج التي تُدرس باللغة العربية، حيث أظهر طلاب البرامج الإنجليزية مستويات أعلى من الكفاءة المعلوماتية، مما يعكس تفاوتاً في توفر الموارد الأكاديمية. تؤكد النتائج على تأثير اللغة والبنية التحتية التعليمية في تطوير الثقافة المعلوماتية، مما يستدعي تنفيذ تدخلات مستهدفة لتحسينها. **الخلاصة:** توصي الدراسة بدمج مهارات الثقافة المعلوماتية في المناهج الدراسية، وإغناء الموارد باللغة العربية، وتوفير بيئة تعليمية تركز على البحث، وذلك لضمان اكتساب الطلبة للمهارات اللازمة للنجاح الأكاديمي والمهني في اقتصاد عالمي قائم على المعرفة.

المصطلحات المفتاحية: الثقافة المعلوماتية، جامعة الكويت، مقياس إدراك الثقافة المعلوماتية، التعليم العالي، المهارات الرقمية.



Information Literacy of Undergraduate Students at Kuwait University: Applying PILS

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Abstract

Objective: In today's digital landscape, information literacy (IL) is a fundamental skill for academic success and lifelong learning. This study examines the IL competencies of undergraduate students at Kuwait University using the Perception of Information Literacy Scale (PILS), marking its first known adaptation in Arabic. **Methods:** Through a survey of 445 students across multiple disciplines, the study assessed self-perceived IL skills and explored contextual factors influencing competency levels. **Results:** Outcomes indicate that students demonstrate proficiency in basic IL tasks but face challenges in complex research-related activities. Notably, students in English-language programs exhibit higher IL competency than those in Arabic-language programs, highlighting disparities in access to academic resources. Findings underscore the impact of language and educational infrastructure on IL development, emphasizing the need for targeted interventions. **Conclusion:** The study recommends integrating IL instruction into curricula, enriching Arabic-language resources, and fostering a research-oriented learning environment. By addressing these gaps, universities can better equip students with critical IL skills necessary for academic and professional success in a globalized knowledge economy.

Keywords: Information Literacy, Kuwait University, Perception of Information Literacy Scale (PILS), Higher Education, Digital Skill.

Introduction

Today's digital world demands the capacity to navigate, assess, and use information effectively for academic, professional, and personal development. Also referred to as information literacy (IL), these skills enable individuals to distinguish between sound sources from misinformation and to seamlessly integrate their understanding, allowing active participation in the larger information ecosystem. The growing need for skills across disciplines in higher education has increased focus on nurturing IL as students are required to engage in more sophisticated tasks that require critical thinking and ethical use of information, as well as advanced research skills. The current study aims to investigate the IL competencies of undergraduate students at Kuwait University, specifically focusing on their self-perceptions, and employing the Perception of Information Literacy Scale (PILS).

Developed by Doyle et al. (2019), PILS represents a seven-item measure of perceived IL that utilizes constructs such as "authority is constructed", "information has value", "search as strategic exploration", ...etc. It is the first known adaptation and use of PILS in Arabic, and it provides a unique opportunity to explore IL perceptions in a cultural and linguistic context different from the one in which the scale was originally developed. Such contextualization and translation are critical for understanding how factors such as language, pedagogy and resource availability shape students' perceptions of their IL capabilities.

This study was conducted on the undergraduate students enrolled in various faculties at Kuwait University, one of the largest institutions of higher education in the region, an enabling environment for the study with varied disciplines and student backgrounds. This study aims to shed light on the overall profile of students' IL competencies, highlighting strengths and weaknesses from important IL components perspective. This study seeks to identify areas of targeted intervention and resource development, providing actionable recommendations for educators, librarians and policymakers. In addition, the study adds to the existing literature on IL, by showing how tools, such as PILS, can be generalized across language and culture.

Given that information is a key commodity in education, business, and social collaboration, exploring how students perceive their own

competencies to function in the information environment is instrumental in comparing the gulf between confidence and action. This research also reveals a larger difficulty for some Arabic-speaking students when seeking academic resources in their native tongue. Such insights are critical to enacting equitable and inclusive educational practices that position students for success in a globalized knowledge economy.

This study examines the IL levels of undergraduate students at Kuwait University through the framework of PILS, as well as the contextual variables that inform the research findings, contributing to a greater understanding of how culture, language, and education inform the varying perceptions of what comprises IL. The research seeks to improve and support IL instruction through these dimensions, ensuring that students are prepared for success in their studies and careers.

LITERATURE REVIEW

In the emerging digital society, information has become a powerful element that adds intellectual, cognitive, and scientific knowledge to students worldwide. Nowadays, students can access a diverse range of information regardless of time and location. This information-rich environment places a higher degree of importance on the information literacy of individuals in general, and students in particular. However, the fact that there are large amounts of information in many forms and disciplines has created new challenges for individuals including finding, evaluating, and using information efficiently. Numerous studies attempted to analyze, understand, and refine IL levels of different groups, including students. Studies focused on several areas including the individual's ability to find information, analyze it, retrieve it, and use it effectively.

Information Literacy Concepts

Information literacy (IL) is a fundamental skill needed in the twenty-first century. The American Library Association (ALA) and the Association of College and Research Libraries (ACRL) stressed the importance of IL skills for society in general, and for higher education students in particular (Aharony& Gazit, 2019).

According to the American Library Association, information literacy is defined as a set of skills that enables individuals to recognize when information is needed and to locate, evaluate and use information

effectively; to be information literate, a person must be able to recognize when information is needed and how to locate, access, evaluate, and effectively use the needed information.

Since the inception of the Information Literacy Competency Standards for Higher Education by the Association of College and Research Libraries (ACRL), academic librarians have refined learning outcomes, tools, and resources to infuse information literacy (IL) concepts and skills into educational programs. After all, with the dynamic changes in the higher educational environment, there was a necessity for new foundational ideas about that ecosystem. Students have a powerful responsibility of creating new knowledge, including finding, and using, information ethically. Also, faculty have a higher authority in designing syllabi and assignments that value engagement with the core ideas about information. Also, librarians, in collaboration with academic faculty members, have a responsibility to create curricula for information literacy (Framework for Information Literacy for Higher Education, 2015).

Over time, it has become crucial to assess IL instruction for librarians, faculty, and administrators using questionnaires, quizzes, tests, portfolios, observation, and analysis of essays. Also, self-assessment has been an approved and acceptable method for assessing IL skills.

The study by Mahmood (2017) examined the reliability and validity of self-efficacy scales. Self-efficacy is the judgment of someone's ability to strongly perform a specific behavior or task. The best scale was found to be the Information Literacy Self-Efficacy Scale (ILSES). The scale was well-tested and covered the main categories of IL such as defining information needs, accessing and evaluating information, and using information effectively. It was found that the scale could be used in educational and research settings to measure self-efficacy levels among students or other individuals, helping to tailor instruction and provide support for developing stronger information literacy skills (Kurbanoglu et al., 2006).

Another frequently used scale is the IL-HUMASS (Information Literacy for Humanities and Social Sciences), a tool designed to assess information literacy skills of student in the fields of humanities and social sciences (Catts, 2008). The IL-HUMASS examines searching skills that include searching for and locating information; evaluation skills that include critical evaluation of quality, credibility, and relevance of sources;

and processing skills that include synthesizing, organizing and using information ethically (Marco et al., 2015).

Other scales used to evaluate IL included Beile Test of Information Literacy for Education (B-TILED) that focuses on the field of education (Beile, 2005); SAILS (Standardized Assessment of Information Literacy Skills) that measures IL competencies among college students according to ACRL's Information Literacy Competency Standards (SAILS, 2004); iSkills (Information and Communication Technology Literacy Assessment) that tests a range of IL and ICT (information and communication technology) skills, targeting digital literacy within information processing (ETS, 2006); and TRAILS (Tool for Real-time Assessment of Information Literacy Skills) that evaluates IL levels of K-12 students (TRAILS, 2006).

Things That Affect Information Literacy

Studies show that various factors, such as digital access, sociocultural habits and pedagogical practices can facilitate or hinder the learning of IL. The identified studies were classified into the following categories:

Digital access and divide: The digital divide where communities differ in their ability to access information and communication technology was found to significantly impact IL. Further examination of skills for internet use (Van Deursen & Van Dijk, 2011) revealed that unequal access to internet resources continues to reinforce the digital divide through differences in IL (Van Deursen & Van Dijk, 2011). This division not only limited access to information but also hindered the subsequent development of IL skills (Hargittai, 2005). In addition, systematic challenges like limited resources and training of educators were identified as factors that hinder the enactment of vigorous IL programs (Boumarafi & Jabbar 2017; Hamad & Boumarafi 2020).

The educational and sociocultural contexts: The conceptual understanding of IL as a social technical practice establishes that information environments, libraries, and educational institutions in particular, are essential for creating these IL competencies within our societies (Tuominen et al., 2005). Webber and Johnston (2000) support this assertion by arguing that educational environments are among the most relevant contexts for acquiring IL skills based on predetermined models aligned with different levels of IL capability.

Media and digital literacy: Koltay (2011) emphasized the conjunctive nature of media and digital and information literacies, arguing that IL in digital contexts require an array of media literacy competencies. Digital technologies are developing rapidly, and IL is becoming increasingly important for people to interpret and navigate media, suggesting an interconnection between media and digital competencies and traditional IL (Koltay, 2011).

Pedagogical content knowledge: Koehler and Mishra (2013) developed the TPACK model, which integrates technology with pedagogical content knowledge to promote IL (technological pedagogical content knowledge) in teaching and learning environments. Such a way emphasized that teachers, with the help of technology, can play a vital role in students IL development by providing both the instruments as well as the guidance essential for critical information evaluation (Koehler, Mishra, & Cain, 2013). Gaps in students' IL competencies especially in critical evaluation and effective use of digital resources were emphasized by Al-Qallaf & Al-Mutairi (2016) and Al-Da-hani & Al-Qallaf (2018).

Digital competence frameworks: The Digital Competence Framework 2.0 and the Digital Competence Framework for Citizens (DigComp) developed by Vuorikari et al. (2016) describe the digital skills necessary for IL in today's world. The IL framework places emphasis on competencies for evaluating and managing digital information, and it is consistent with broader IL goals, specifically that citizens should be able to access, evaluate and manage the online information they encounter in a responsible and judicious manner (Vuorikari, Punie, & Gomez, 2016). Al-Suqri & Al-Aufi (2015) emphasized the role of institutional frameworks indicating that some universities in the Arab world like King Saudi University has already integrated IL programs into their institution.

Parental influence and risks of the internet: Leung and Lee (2012) studied how parenting styles shape adolescents' IL and use of the internet. These authors demonstrated that internet literate parents could reduce the dangers of internet use, by helping adolescents critically examine online content (Leung & Lee, 2012).

Age and use of information technology: Charness and Boot (2009) highlight the reluctance of older adults toward information technologies and identify barriers such as lack of experience with digital tools and concerns

about privacy breaches. These age-related differences in technology adoption also suggest a generational impact on IL - especially over the engagement of older adults with online information (Charness & Boot, 2009).

Organizational information literacy: Lloyd (2010) found that information literacy in workplace settings extended beyond formal education - in fact, the level of IL skills was mostly influenced by informal learning and sharing of experience. Workplace IL was found to be based on broader industry needs, the use of industry-specific skills to locate and evaluate work-related information (Lloyd, 2010).

Similarly, another study reported low IL self-efficacy with average scores below the midpoint of its survey scale (Seng, et al., 2016). This indicates that there is lack of confidence to perform IL tasks successfully. Notably, differences between students from different universities were also significant, which could be attributed to differences in infrastructure and financial support based on universities, shedding light on how institutional resources significantly influence students' IL self-efficacy. The study also revealed differences across academic faculties, suggesting that certain disciplines may offer more conducive environments for IL skill development than others. Intriguingly, no significant difference in IL self-efficacy was observed between male and female students, which indicates that gender does not influence students' confidence in IL (Seng, et al., 2016). The results highlight the importance of substantial policy intervention to strengthen ICT infrastructure and IL training to equip university students with the necessary academic skills. If students were introduced to a variety of methods, including filtering, queuing, omission, and escaping, they might find themselves less overwhelmed by large amounts of information. In addition, this strategy may bolster students' IL self-efficacy as well as enhance their coping skills (Aharony& Gazit, 2019). In their case study, Mokhtar, Majid & Foo's (2016) offered a model demonstrating that context-based approach tailored to students' needs can result in significant improvements in students' competency levels.

Younger students, who are embedded in a digital learning environment, seem to have higher IL self-efficacy than older students, but, in fact, researchers have found that older graduate students exhibited more IL self-efficacy than younger undergraduate students (Aharony& Gazit, 2019). This finding suggests that IL self-efficacy is not directly correlated with age, but rather with educational level: higher education levels (e.g.

Masters, Ph.D.) reflected higher IL self-efficacy. Therefore, researchers have argued that IL self-efficacy can be developed via students' academic training (Aharony & Gazit, 2019).

Gender was found to be a controversial variable that could influence IL level. Some studies reported that IL levels were influenced by gender, while others found that gender differences had no effect on IL levels. In a study conducted on university students in Cambodia, Seng et al. (2021) discovered that gender did not have a significant influence on IL self-efficacy. Another study by Abed and Tatnall (2022) concluded that gender had no impact on digital literacy skills.

Volman (1997) and Ode (2017) found that gender had a significant effect on IL levels. Punter et al. (2017) reported that gender had a small influence on IL levels. Others like Meyers et al. (2007) and Ivanitskya et al. (2011) found gender to be an influential factor that affected information behaviors and IL. These studies showed a multifaceted relationship between gender and information literacy that involves cognitive, affective, and performative aspects.

Reliability and validity scales in several IL-related studies were reviewed by Mahmood (2017), focusing on studies with surveys for the evaluation of students' self-efficacy of information literacy skills. Results showed that 75 of 135 full text studies used self-rating scales but provided no information about validity and reliability; about 45 studies reported the reliability and validity criteria; while 17 studies reported only reliability data, and 10 studies reported only validity data. Internal consistency was the most reported reliability measure. In contrast, face and content validity was the most reported validity measure. Al-Saleem & Al-Harrasi (2021) revealed that standardized assessment tools and curricula began in Qatar and Saudi Arabia. Ismail & Awad's (2019) highlighted lack of uniformity in how IL is measured across states in the Arab region.

With the help of librarians, Franklin et al. (2021) created an online information literacy tutorial. The theoretical framework for the development of the tutorial was based on backward design and predictable understanding and misunderstanding. Authors concluded that there was a need to consider equity, diversity and inclusion while designing any tutorial. In addition to the opinions of the students who could be affected by the phenomenon of the digital divide, it was also suggested that in usability testing the approach should also take into consideration the opinions of the students with special

needs. Moreover, the research suggests that the online crisis contributed to the development of students' online learning skills.

Al-Aufi et al. (2017) investigated information literacy perceptions regarding social media usage among undergraduate students at Sultan Qaboos University in Oman. The study found that most of the social media sites were used by the students for general purposes rather than academic ones,. Students also increasingly used WhatsApp, Wikipedia and other video-sharing services. Students' perception levels of the evaluation of information and information ethics were determined as moderate. Levels were moderate with respect to legal issues and privacy issues. Students emphasized the need to pay attention to the validity of the resources used. It was the credibility of the information and its use for academia that was the deciding factor as to whether students would use the information or not. While developing IL in the social media environment, training programs could also address the contextual factors mentioned in this study.

Sommer et al. (2021) aimed to find evidence for the validity of the use of the Information Literacy Self-Efficacy Scale (ILSES). The data was collected from a sample of 253 undergraduate students. Results showed that the ILSES could be misused as a measure of self-efficacy in information literacy. The ILSES was found to lack evidence for the construction of validity. It recommended revising ILSES's dimensions to fit the new information environment.

Michalak et al. (2017) combined two existing instruments into a single survey, namely the Information Literacy Assessment (ILA) and the Students' Perceptions of Their Information Literacy Skills Questionnaire (SPIL-Q). The purpose was to examine the confidence gap in information literacy skills between males and females with the focus population being international graduate students. The 102 male participants were found to be only marginally more confident in the IL skills than the 70 female international business students.

In their study, Sommer et al. (2021) proposed a four-factor model of information literacy consisting of : (1) initiating a search strategy, (2) assessing and comprehending information, (3) interpreting, synthesizing and using information, and (4) evaluating the final product and process. The model can serve to evaluate what is essential to measure without assessing the total IL self-efficacy. Brady (2021) examined teachers who were trained to teach information literacy sessions to first year graduate students. Students

had positive perspectives and learnt some general basic information literacy concepts. Through teaching others to teach IL, instructors and reference librarians became more productive in their own classroom teaching and were more available to do follow-up sessions with librarians.

Identification of Information Sources

The 2014th first draft of the Association of College and Research Libraries (ACRL) Information Literacy Framework for Higher Education offered a new, more progressive way of teaching and learning information literacy. This framework was eventually superseded by the ACRL Information Literacy Competency Standards for Higher Education (Fulkerson, Ariew& Jacobson, 2017).

The Information Literacy Framework for Higher Education was made up of a set of core concepts, and the implementation could be tailored to the various contexts being explored. The framework outlined six constructs or frames: authority is constructed and contextual, information creation as a process, information having value, research as inquiry, scholarship as conversation, and searching as strategic exploration. Each frame links to a concept central to information literacy. It is also tied to knowledge practices and dispositions. The framework was conceptual and flexible, student-centered and integrative through transformation that the framework was a useful form that could be adapted and applied worldwide (Framework for Information Literacy for Higher Education, 2015).

The recognition of the importance of IL gave rise to the need to measure it, particularly for educational and research purposes. This created a need to develop IL test scales of a structured and logical basis (Nierenberg et al.,2021). Research by Fulkerson et al. (2017) demonstrated that, as part of pedagogical strategies described by the ACRL Framework for Information Literacy, metacognition and meta literacy should be used.

Graves et al. (2021) emphasized the need to strengthen information literacy within academic librarianship. The study demonstrated the importance of considering students' cultural backgrounds when conducting librarianship activities and evaluated the benefits of a novel instructional model for learning IL skills. In the new model, some librarians were embedded within a composition or integrated course designed for first-generation and provisionally admitted college students. The results showed that students were found to perform better by the model that utilized unified

information literacy. In contrast, those who were only taught the partial instructions were no better than those who learned according to the model.

Development of PILS

The ACRL Framework for Information Literacy for Higher Education provided academic librarians with a guiding framework for improving students' information literacy skills. Despite the widespread adoption of the ACRL Framework in academic libraries, an insufficiency of valid and dependable framework-based scales for evaluating students' knowledge implementation and dispositions hindered further understanding of students' IL levels. To rectify the situation, a study (Doyle et al., 2019) described the creation and testing of the Perception of Information Literacy Scale (PILS) as: An instrument designed to assess individuals' self-perceptions of their IL competencies. The instrument was made up of 36 items which estimated seven unique constructs of information literacy.

Creating such tools as PILS had been a hard task for several reasons including the recency of the publishing and adoption of the ACRL Framework. Additionally, the Framework provided distinctive challenges for the evaluation of IL in a clear and efficient way. PILS was designed out of the necessity to understand where students consider themselves to be in key IL thresholds and to address institutional needs for IL instruction. Besides presenting a potential process for developing an evaluation instrument based on the ACRL Framework, the researchers found that PILS could be useful for libraries and institutions that need to evaluate perceptions of IL development.

Doyle et al. (2019) stated that ACRL's Framework helped librarians facilitate the development of students' information literacy skills. Further, Doyle et al. (2019) showed that PILS, the Perception of Information Literacy Skills, would help students in monitoring their information literacy knowledge practices. Testing results showed that the subscales of PILS estimated the internal consistency correctly and included convergent and discriminant validity. The same study confirmed that PILS can be used to measure the self-perceptions of students when using information related to several dimensions of information literacy. These dimensions were authority is constructed and contextual, information creation as a process, information having value, research as inquiry, scholarship as conversation, and searching as strategic exploration, both as a set of skills and as a mindset.

PILS as an assessment tool

PILS was chosen as the study instrument due to several factors in comparison to other scales and tools, including its emphasis on perceptions and self-efficacy. Unlike other scales that focus solely on objective skill assessments, PILS measures individuals' self-perceptions of their IL competencies. This approach provides insight into how users view their ability to search for information, evaluate sources critically, and use information ethically and effectively. This self-assessment perspective aligns with educational theories emphasizing the role of self-efficacy in learning and behavioral change, offering a nuanced understanding of learners' confidence in their IL abilities.

Choosing PILS was deemed an efficient decision as it is designed with reference to modern IL frameworks, such as the Association of College and Research Libraries (ACRL) Framework for Information Literacy for Higher Education. This ensures that the scale reflects current IL competencies such as the contextual nature of authority, the process-oriented nature of information creation, and the iterative and inquiry-driven nature of research, which older scales may not adequately address.

Also, the PILS study (Doyle et al., 2019) demonstrated robust psychometric properties, including construct validity and reliability which ensures that the tool reliably measures IL perceptions. In comparison, some alternative scales may lack comprehensive validation or fail to measure specific IL domains comprehensively. In addition, PILS provides a flexible structure that can be adapted to various academic and professional contexts. Educators and researchers can modify or extend the subscales of PILS to focus on specific IL dimensions relevant to their audience, such as ethical use of information or critical evaluation skills. This adaptability is a significant advantage over more rigid, one-size-fits-all scales.

Further, one important reason for choosing PILS was that objective skill-based assessments, while important, often fail to capture how individuals feel about their abilities. PILS complements these assessments by exploring users' attitudes and confidence, which are critical to identifying barriers to IL development, such as anxiety in conducting research, overconfidence leading to shallow evaluation of sources, and lack of awareness of ethical issues in information use. By integrating perception data with skill tests, researchers and educators can form a more holistic picture of IL competency.

Another benefit of using PILS is that it reflects students' own views of their IL capabilities, enabling personalized interventions by identifying specific areas in which students lack confidence and facilitating the design of targeted support programs. Also, PILS encourages students to recognize their strengths and actively address perceived weaknesses in their IL skills. This student-centered approach resonates with modern educational paradigms focused on active and reflective learning.

Further, PILS can be effectively used in a variety of settings, including: Assessing and tracking IL development of undergraduate or graduate students; Workplace training to evaluate the IL skills of employees in fields where information literacy is critical such as healthcare, education, and media; Library programs to measure the impact of library instruction and workshops on users' IL perceptions. The scale's adaptability to diverse contexts makes it a versatile tool for both research and practice.

The PILS scale offers a comprehensive, flexible, and user-centered approach for measuring information literacy. Its emphasis on perceptions, alignment with contemporary frameworks, and psychometric rigor make it an ideal choice for understanding and improving IL skills in various populations. By choosing PILS, educators and researchers gain a tool that not only assesses competencies but also fosters reflective learning and empowerment among users.

This study aims to provide insights to the perceptions of IL levels by successfully applying the PILS scale in a mostly Arabic-language institution, Kuwait University. This is the first known study that attempted to execute an Arabic-version of PILS in an Arab country. The aim is to provide insightful data reflecting the IL levels of students, highlighting areas of strength and weakness, and making recommendations for improvement.

METHODOLOGY

This study utilized an electronic questionnaire to investigate the IL levels of undergraduate students at Kuwait University using PILS. Both English and Arabic versions of the questionnaire were created and pre-tested. The questionnaire was designed using a structured format according to the IL dimensions identified by PILS to ensure clarity and consistency, with questions focused on:

- Information creation as a process,
- Authority is constructed and contextual,

- Searching as strategic exploration – tools and tasks,
- Research as inquiry,
- Scholarship as conversation.

Characteristics of Population at Kuwait University

Kuwait University is a governmentally funded university that consists of 17 unique colleges offering 76 undergraduate degrees and 71 graduate degrees. According to the university's website, there are 42,697 students enrolled in the current academic year 2024-2025, with the number of graduating students for the last academic year estimated at 4,200 students (around 10% of the population). The colleges include Arts, Business Administration, Engineering, Science, Social Sciences, and others spread across several campuses.

Data Gathering

The electronic questionnaire, in English and Arabic, was distributed through various social media platforms commonly used by university students, such as Instagram, WhatsApp, and X (formerly Twitter). Social media platforms are increasingly recognized as effective tools for reaching diverse populations in academic research due to their widespread usage and convenience for participants (Gupta et al., 2020; Whitaker et al., 2017). Using these platforms allowed researchers to engage a broader sample of the target population efficiently and within a short timeframe. Data collection took about one month between October and November, 2022.

Participation in the study was voluntary, with anonymity and confidentiality ensured to align with ethical research standards. Online questionnaires are advantageous for collecting data, as they are cost-effective, facilitate rapid data collection, and provide flexibility for participants to respond at their convenience (Evans & Mathur, 2018). Furthermore, the study targeted undergraduate students, the largest student category at the university, as they represent a critical demographic for understanding IL levels at Kuwait University.

The questionnaire design and dissemination process adhered to best practices to maximize response rates and minimize bias. Questions were pre-tested with a small sample of students to refine their clarity and ensure they were culturally and contextually appropriate. The final survey was live for four weeks, during which reminders were periodically sent through

social media posts to encourage participation. A total of 445 responses were received, representing around one percent of the total student body of the university.

LIMITATIONS

One notable limitation of this study is the use of a self-selected sample of undergraduate students from Kuwait University. While social media platforms provided an efficient means of disseminating the electronic questionnaire, the self-selection nature of participation introduces potential bias. Participants who chose to respond may differ in significant ways from those who did not, such as their interest in the topic or general attitudes towards IL.

Data gathering was limited to Kuwait University, which limits the ability to generalize findings to the entire student population in Kuwait. Without detailed demographic data about the broader population, it is challenging to assess how representative the sample is of all undergraduate students in Kuwait, including students of private universities.

Kuwait University is the oldest in Kuwait, established in 1966. Recently, a new university was founded that is governmentally funded as well, but the number of enrolled students is much lower than Kuwait University. Also, there are eight privately funded colleges and universities with varying numbers of students, which are less than the number of students at Kuwait University.

Relying on self-reported data may introduce response biases, including social desirability bias, where participants provide responses that they perceive as favorable rather than accurate reflections of their behaviors or skills. Despite these limitations, the findings provide valuable insights into the IL levels of the sample studied, which could serve as a foundation for future research employing broader and more representative sampling strategies.

RESULTS

Statistical Analysis

This study aimed to identify and investigate the spectrum factors of Perception of Information Literacy Scale. Up to 445 students responded to Perception of Information Literacy Scale survey. Data was entered and analyzed using the Statistical Package for the Social Sciences (SPSS, version 25; IBM, USA),

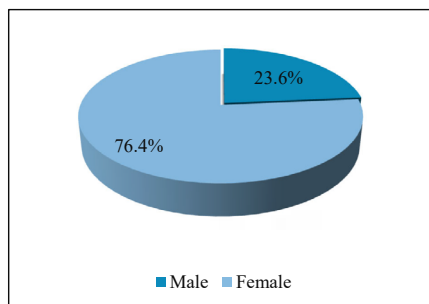
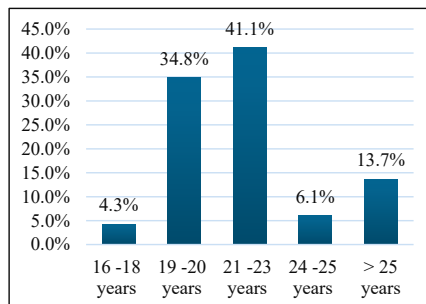
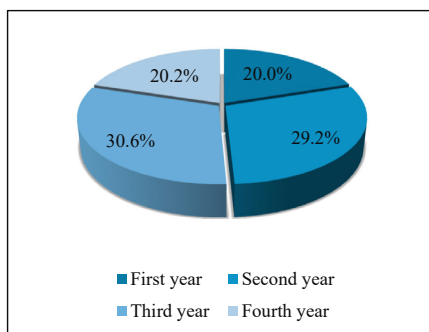
Demographics profile of the respondents

More than three quarters of the total participants were females (76.4%, n=340). Majority of the participants were between 21 to 23 years of age at the time of the survey (41.1%, n=183), followed by 155 (34.8%) were between 19 to 20 years of age. Regarding university year, up to 136 students were in their third year of education (30.6%), followed by 130 (29.2%) were in their second year. Slightly less than half of the students (49%, n = 218) belonged to the College of Social Sciences, followed by 64 students (14.4%) from the College of Arts and 62 students (13.9%) from the College of Education.

Table 1

Demographics profile of the respondents (N=445)

Characteristics	Category	n	%
Gender	Male	105	23.6%
	Female	340	76.4%
Age	16 -18 years	19	4.3%
	19 -20 years	155	34.8%
	21 -23 years	183	41.1%
	24 -25 years	27	6.1%
	> 25 years	61	13.7%
	First year	89	20.0%
University year	Second year	130	29.2%
	Third year	136	30.6%
	Fourth year	90	20.2%
	Engineering & Architecture	25	5.6%
College	Education	62	13.9%
	Arts	64	14.4%
	Social Sciences	218	49.0%
	Health Sciences	19	4.3%
	Sciences	41	9.2%
	Business Administration	16	3.6%

Figure 1: Gender**Figure 2: Age****Figure 3: University year**

Factor Analysis

Factor analysis for Perception of Information Literacy Scale revealed that the Kaiser –Meyer-Olkin Measure of sampling adequacy was 0.964 (Table 2.1); as a result, this value is considered statistically excellent according to Kaiser’s classifications, and Bartlett’s test was significant . Exploratory factor Analysis, together with Principal Component Analysis, was used to identify and extract the spectrum factors characterized Perception of Information Literacy Scale for the students. The results revealed that there were five factors with an Eigen value > 1. These factors explained 57.8% of variance of Perception of Information Literacy Scale of the surveyed respondents.

Table 2.1*KMO and Bartlett's Test*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.964
Approx. Chi-Square		9001.551
Bartlett's Test of Sphericity	Df	630
	Sig.	0.000

Table 2.2*Total Variance Explained*

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	15.73	43.7	43.7	15.73	43.7	43.7	4.9	13.7	13.7
2	1.62	4.5	48.2	1.62	4.5	48.2	4.8	13.2	26.9
3	1.36	3.8	51.9	1.36	3.8	52.0	4.6	12.9	39.8
4	1.04	2.9	54.8	1.04	2.9	54.9	3.8	10.5	50.4
5	1.01	2.8	57.6	1.01	2.8	57.7	2.6	7.3	57.8

Extraction Method: Principal Component Analysis.

The Eigen value of the first factor was 15.73 and it explained 43.8% of the variance, while the second factor was 1.62 and it explained 4.5% of the variance. Eigen value of the third factor was 1.36 and it explained 3.8% of the variance, while the Eigen values and the percentages of variance explained by the fourth and the fifth factors were 1.04 and 2.9%, and 1.01 and 2.8%, respectively (Table 2.2).

It must be noted that the resulting 5-factor structure using Varimax rotation revealed that item 15 (I understand that my personal information has value online, and make informed choices to manage my preferences for how this information is used) has been dropped, as it does not correlate well with any of the factors or items.

The loadings of the items below are shown in Table 2.3; loadings ranged between 0.408 and 0.802. After investigating items under each factor, the researcher named the factor extracted as follows: Information creation as a process, Authority is constructed and contextual, Searching as strategic exploration – tools and tasks, Research as inquiry, and Scholarship as Conversation (Table 2.3).

Table 2.3

Extracted factors and Results of the principal component analysis of Perception of Information Literacy Scale

Item	Factor Loading
Factor 1: Information creation as a process	
I can define and use fair use and open access resources	0.647
I critically evaluate the perspectives that I use to develop an understanding of my topic	0.611
I can define and know how to use intellectual property laws and copyright.	0.602
I know how to use the work of others to support my ideas by using proper citation techniques	0.580
I recognize the ways in which search tools organize information	0.568
I can refine the results of a search by using different search terms	0.563
I recognize my work is a contribution to the body of research surrounding my topic	0.562
I understand why I am responsible for citing information I use	0.511
I seek out multiple perspectives when developing an understanding of a topic	0.408
Factor 2: Authority is constructed and contextual	
I understand that different information tools (like a research paper, a poster, or a presentation) have their own benefits and limitations	0.642
I value diversity of worldviews and opinions within my discipline	0.639
I recognize that there are many ways to define authority on a topic or in a discipline	0.604
I know how to use different types of information formats to communicate the same message in different ways	0.587
I understand how to choose an appropriate format (like a graph, image, text, or video) for communicating information	0.578

Cont. Table 2.3

Extracted factors and Results of the principal component analysis of Perception of Information Literacy Scale

Item	Factor Loading
I understand that different types of information have different values or uses, depending on the situation.	0.558
I feel comfortable calling myself an undergraduate researcher and am confident as an authority on my topic.	0.531
I feel comfortable with conflicting opinions in research and evaluating the evidence that supports differing perspectives	0.497
I enjoy discovering and using new tools for communicating and creating information.	0.494
Factor 3: Searching as strategic exploration – tools and tasks	
I recognize that not all information sources are going to be relevant	0.802
I understand that at times I may need to seek assistance when searching for information	0.727
I understand that the first search may not always produce the desired result	0.637
I keep an open mind when searching for resources	0.551
I can define the scope of an assignment	0.542
I remain persistent when faced with a challenging search	0.534
I can create search strategies to locate and collect the information I need	0.501
I can identify potential kinds of sources (newspaper, article, laws, policies, statistical data) when searching for information	0.459
I can identify the appropriate search tool (search engine, library catalogue, database) to use when searching for information	0.412
Factor 4: Research as inquiry	
I can develop simple research questions	0.681
I can develop critical research questions	0.630
I can determine the appropriate extent of assigned research projects	0.620

Cont. Table 2.3

Extracted factors and Results of the principal component analysis of Perception of Information Literacy Scale

Item	Factor Loading
I can organize and combine the information I locate into a coherent conclusion	0.553
I am persistent when seeking information	0.494
Factor 5: Scholarship as Conversation	
I evaluate research ideas and practices to identify potential biases	0.652
I feel comfortable as an active creator in the information economy, rather than as a passive consumer	0.536
I understand how to select and evaluate authoritative sources to develop credibility for their arguments	0.430

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 9 iterations.

Reliability Analysis

Reliability testing refers to the extent to which a measurement instrument produces consistent results across repeated data collection for the variables of interest. Higher reliability is associated with lower measurement error, as reliability and error are inversely related (George & Mallery, 2016). While this approach has been used widely in the literature, its effect on how things are separated is minimal. The Alpha of Cronbach was used to meet those challenges in this study and to assess the efficiency of survey. A widely accepted rule of thumb was introduced to interpret Lee Cronbach's alpha as a measure of internal consistency reliability. The internal consistency rule in Cronbach is presented in Table 3.1 below.

Table 3.1*Cronbach's Alpha for Internal Consistency Range*

Internal Consistency	Cronbach's Alpha
Excellent	$\alpha \geq 0.90$
Very Good	$0.80 \leq \alpha < 0.90$
Good	$0.70 \leq \alpha < 0.80$
Acceptable	$0.60 \leq \alpha < 0.70$
Poor	$0.50 \leq \alpha < 0.60$
Unacceptable	$\alpha < 0.50$

Source: George & Mallery, 2016.

Table 3.2*Cronbach's alpha coefficients for the survey Domains*

Scale	N of Items	Cronbach's Alpha
Information creation as a process	9	0.89
Authority is constructed and contextual	9	0.88
Searching as strategic exploration – tools and tasks	9	0.90
Research as inquiry	5	0.85
Scholarship as Conversation	3	0.70
Overall	35	0.96

As presented in the above table, the Cronbach's Alpha for first factor (Information creation as a process) with nine items was 0.89; for second factor (Authority is constructed and contextual) with nine items it was 0.88; for third factor (Searching as strategic exploration – tools and tasks) with nine items it was 0.90; for fourth factor (Research as inquiry) with five items it was 0.85; and finally, for fifth factor (Scholarship as Conversation) with three items it was 0.70.

According to (George & Mallery, 2016), Information creation as a process, Authority is constructed and contextual, and Research as inquiry has a very good internal consistency, while Searching as strategic

exploration – tools and tasks have excellent internal consistency. However, Scholarship as Conversation has a good internal consistency. The internal consistency coefficient (Cronbach's Alpha) of the entire scale was 0.96, which is considered a high internal consistency.

DISCUSSION

Analyzing the results of the Information Literacy Scale as applied to Kuwait University undergraduate students, it was found that students performed adequately in four out of the five spectrums identified, with Scholarship as Conversation ranked lowest with a mean of 3.60 out of 7. Further, no significant differences were found between students according to gender, age, and college year standing. However, significant differences were identified when analyzed according to students' college affiliation, with those affiliated to the College of Science scoring the highest mean on the scale (4.44), and those affiliated to the College of Social Sciences scoring the lowest mean (3.84 out of 7). This section will provide a discussion of the general results observed for the five spectrums, including a break-down of items in each factor, followed by a discussion of the significant differences observed by college affiliation.

As reflected by Table 4, the factor receiving the highest mean was Searching as Strategic Exploration, with a mean of 4.20 out of 7, followed closely by Authority is Constructed and Contextual (4.14), with the lowest factor being Scholarship as Conversation with a mean of 3.60. To provide a clearer picture, it is vital to break down these factors to identify the top five items overall, and the bottom five.

Table 3.3

Top five items vs bottom five

Rank	Item	Factor loading	Factor
1	I recognize that not all information sources are going to be relevant	0.802	Searching as Strategic Exploration
2	I understand that at times I may need to seek assistance when searching for information	0.727	Searching as Strategic Exploration
3	I can develop simple research questions	0.681	Research as Inquiry

Cont. Table 3.3*Top five items vs bottom five*

Rank	Item	Factor loading	Factor
4	I evaluate research ideas and practices to identify potential biases	0.652	Scholarship as Conversation
5	I can define and use fair use and open access resources	0.647	Information Creation as a Process
31	I enjoy discovering and using new tools for communicating and creating information	0.494	Authority is Constructed and Contextual
=	I am persistent when seeking information	0.494	Research as Inquiry
32	I can identify potential kinds of sources ... when searching for information	0.459	Searching as Strategic Exploration
33	I understand how to select and evaluate authoritative sources to develop credibility for their arguments	0.430	Scholarship as Conversation
34	I can identify the appropriate search tool ... to use when searching for information	0.412	Searching as Strategic Exploration
35	I seek out multiple perspectives when forming an understanding of a topic	0.408	Information Creation as a Process

Examining the top-ranked items, students show a good understanding of simple tasks such as relevancy of information, seeking assistance, and developing simple research questions. However, the lowest-ranked items show that students have a deficiency when it comes to complex tasks such as understanding how to select authoritative sources, identifying potential sources, identifying search tools, and seeking multiple perspectives on a certain topic. Comparing top-ranked and bottom-ranked items, it is shown that top-ranked items are simpler and easier to perform and master. This could be attributed to the college standing or experience of students participating in the study. However, the data shows that only 20 percent of participants are in their first year of college, while more than 50 percent are in their third or fourth year of college. This may imply that the deficiencies displayed could be attributed to the curricula and lack of focus on research and complex tasks related to information. Clearly, the data reflects an

adequate level of skill and knowledge in dealing with information in its most basic form. However, as the information tasks become more complex, the mean scores of participants decreased.

In terms of significant differences amongst participants, the data showed a significant difference existing according to college affiliation. The difference was mainly between participants affiliated with the College of Social Science (lowest mean on the scale) and those affiliated with the College of Sciences and the College of Engineering and Architecture (highest mean). In addition to the level of focus of curricula on research and information skills, language of instruction is another major difference. For the College of Social Sciences, the main language of instruction is Arabic compared to English for the other two colleges. Arabic-based Colleges, such as Social Sciences, Arts, and Education, ranked lowest on the scale compared to English-based colleges such as Sciences, Engineering, Health Sciences, and Business Administration. This can be attributed to many factors including: 1. The amount of physical resources such as books and periodicals provided in each language by the university library which heavily favors English-language resources; 2. The availability of free access to online resources in each language through the university library, with English resources again outnumbering Arabic resources; 3. The amount of resources readily available on the Internet; 4. The number of information support mechanisms available in each language, with scarce support for Arabi; and 5. The size of the English-language community online compared to Arabic allowing English-speaking students to have a larger pool of assistance that is free, fast, and easily accessible.

Overall, participants displayed adequate information skills for simple tasks, becoming less efficient as the tasks became more complex. Also, language was found to be an important factor in information literacy skills, as it can limit the amount of resources available, making the task of retrieving information a hassle that some students might not feel motivated to pursue. Looking at As shown in Table 3.3, participants displayed a lack of interest in discovering and creating information and also lacked the necessary persistence. There is clearly a lack of motivation which needs to be further examined to identify its causes. Lack of resources in Arabic could be a major factor for that lack of motivation.

Findings of the current study are crucial since they shed light on the information literacy (IL) proficiency of undergraduate students at Kuwait

University, not only reporting on strengths but also identifying significant IL gaps. These findings are imperative to guide targeted efforts to better support IL education and development in academia and similar settings.

Broad Performance on the IL Dimensions

The analysis showed that students demonstrated satisfactory performance across basic IL tasks, including identifying relevant information and formulating basic research questions. This is consistent with earlier studies that demonstrated students' ability to perform fundamental research skills (Doyle et al., 2019). However, the results revealed substantial weaknesses in higher-level IL skills, like assessing authoritative sources, integrating diverse viewpoints and employing information to build layered arguments. The findings indicate how well-prepared students are for basic information tasks but not for more challenging, higher-order cognitive tasks that they would encounter in their academic endeavors.

Differences by College Affiliation

Interestingly, the most striking finding was the highly variable IL performance based on college affiliation. In English-language colleges (e.g., College of Sciences or College of Engineering and Architecture) students were found to be more proficient in IL than those studying in Arabic-language colleges (e.g., College of Social Sciences or College of Education). This gap can be influenced by the differences in the language of instruction, accessibility of material and the focus of the curriculum on research skills.

Highest and Lowest-Rated IL Skills

In terms of basic IL tasks such as determining the relevance of information and asking for help when unsure, students did well. Nevertheless, gaps were found in more subtle skills like choosing authoritative sources and incorporating diverse viewpoints. They are heavily dependent on simple information tasks and have little exposure to, or practice with, more complex research activities. They show that challenging information literacy tasks do not promote persistence, despite the interest in advanced IL tasks, indicating shortcomings in the curriculum and motivation support.

Language and Motivation

Further, results demonstrate the crucial impact of language on IL proficiency. Around 90% of the difficulties faced by students in Arabic-language programs are focused on the lack of access to Arabic-language academic tools and materials. The dearth of such a commodity is probably the factor that prevents them from performing higher-order IL tasks (e.g., memorization, inferences) that naturally lead to lower performance scores. Additionally, a lack of motivation emerged as a challenge for students utilizing this category of resources — possibly because of the funding to access them, the difficulty of the research task, or the curriculum insufficient focus on active inquiry.

IL Education: Equity and Inclusivity

These differences demonstrate larger inequities present within the university's educational ecosystem. Compared to peers in English-language programs, students in Arabic-language programs face systemic barriers that limit their ability to perform at par. To overcome these shortcomings, it is recommended to offer IL instruction through simple, bilingual instructions and design curricula relevant to the cultural background of the student population.

This study's results bring forward the strengths and challenges of IL education in Kuwait University. While students can perform basic IL tasks well, there are some skill gaps when it comes to higher-order research activities. Such gaps will demand systemic change in curricula, allocation of resources, and instructional methods. Promoting an inclusive and equitable IL environment at Kuwait University can enable its students to thrive in academic and professional environments while also furthering the growth of a knowledge-based society.

RECOMMENEDATIONS

Drawing on the findings of this study, several recommendations on improving the information literacy (IL) competencies of undergraduate students in Kuwait University are suggested. These recommendations aim to fill the gaps identified by the data, leverage the existing strengths the organization already possesses, and embrace best practices in information literacy education.

- Integrating IL in Curriculum: Incorporate IL-centered modules in undergraduate curricula for every discipline to guarantee that students will gain the essential abilities to assess authority, design strategies for

research, and utilize data ethically. This can be achieved efficiently by partnering with faculty to incorporate IL goals into course assignments

- **Expanding Arabic-Language Resources:** It is vital for the improvement of IL that Arabic-language resources, including databases, journals, and instructional resources, are made available to students in an efficient, and easily accessible way.
- **Develop library liaisons** for individual colleges or disciplines that provide specialized support and resources means to meet unique scholarly requirements. This support can make use of popular platforms, such as Zoom, to create an interactive, gamified, mobile-friendly IL tutorial to better engage students, especially in digital environments. In addition, data can be gathered to monitor students' acquisition of IL skills and adjust instructional methods accordingly by using performance data.
- **Promote multilingual IL instruction**, enabling students to switch between Arabic and English resources, and creating an inclusive educational climate. This can be done efficiently by conducting training on how to translate research queries and interpret resources that are not in the student's native language. Further, an emphasis on how IL skills can be applied within the real-world scenarios of professional environments will ensure students are equipped for the future work-life challenges regarding information access and use.
- **Continuous monitoring** using validated instruments such as the Perception of Information Literacy Scale (PILS) to track and measure IL competencies over time to get a real-time picture allowing for the reshaping of emerging needs regularly. This can include engaging student feedback in designing and delivering IL programs, keeping interventions updated and relevant.

Adhering to the recommendations would improve IL skills of students at Kuwait University and help them function effectively within the array of the intricacies of the digital and academic landscape.

FUTURE RESEARCH

This research provides an important baseline for the information literacy (IL) levels of undergraduate students at Kuwait University, and possibly similar universities in the region, and identifies areas for future research. Recommendations for future research are as follows:

- Multi-institutional studies: Include more universities for later comparison of IL levels across contexts and institutions, such as exploring IL competencies' variance between students in state and private institutions and identifying major factors affecting any differences if existing,
- Longitudinal Studies to examine how IL levels change over time relevant to affective factors like IL instruction such as workshops or curricula design, language barriers, etc.
- Explore the impact of digital tools, platforms, and online resources on IL competencies and implications on academic teaching and learning, and how social media and other informal digital resources shape students' habits of conducting research and evaluating information,
- Investigating the Impact of Language-Based Interventions by exploring effects of IL instruction and resources being provided in students' native languages especially for Arabic speaking population
- Identify IL skills, competencies and educational practices at different countries and regional levels to create a multi-disciplinary approach to IL instruction to all stakeholders.

Future researchers are encouraged to extend the scope of IL and to draw from broader, more diverse frameworks, and to creatively employ methodologies that capture the dynamic and heterogeneous facets of this complex construct. Research that focuses on these recommendations could contribute towards a coherent and equitable framework of information literacy relevant to different contexts.

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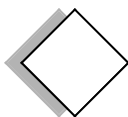
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Research interests: Information-Seeking Behaviour, Information Literacy, Information Literacy Instruction, Applied Information Research, Management of Libraries and Information Centres.

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