

DEVELOPING AND SUSTAINING INFORMATION LITERACY INITIATIVES:
A CASE STUDY IN SAUDI ARABIAN UNIVERSITY LIBRARIES^{*1}Muhammad Kabir Khan, ²Tahira Yasmin, ³Arshad Mahmood^{*1}Effat Library & Cultural Museum, Effat University, Jeddah, KSA²Prince Sultan University, Kingdom of Saudi Arabia³State Bank of Pakistan^{*1}mkabir@effatuniversity.edu.sa, ²tyasmin@psu.edu.sa, ³arshad.mahmood3@sbp.org.pkDOI: <https://doi.org/10.5281/zenodo.20283402>**Keywords**

Information Literacy, IL workshops, Information Literacy Program, IL Curriculum, IL Framework, Case study, Academic Libraries, Saudi Universities, KSA University Libraries

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Copyright @Author**Corresponding Author:** *
Muhammad Kabir Khan**Abstract**

In the constantly changing digital world, with information at their fingertips, it becomes more important than ever to equip students with critical thinking and necessary information literacy skills to meet their information needs effectively. This study reports the planning, process, and successful outcome of a workshop called "Information Literacy Program at Saudi Arab universities. The study has also discussed elements such as needs assessment, stakeholder identification and involvement, curriculum mapping, and analog and digital tools for this project in the University Library of Saudi Arab. This research relies on case studies, closely reading papers about Information Literacy in Saudi University Libraries, a literature review, and website reviews and interviews with the university librarians. Data analysis through summarizing the results with Excel tables, figures, and graphs. The results of this research are the state of Information Literacy (IL) in university libraries of Saudi Arabia, and specifically its application and planning. This article also seeks to shed light on the development and persistence of IL initiatives, using Saudi University's Information Literacy (IL) Program as a case study. Adoption of the IL program was full in only 4 university libraries. Nevertheless, 8 university libraries were partially implemented, and other universities have not implemented any IL program. The program serves as a point of reference for adopting IL into undergraduate and postgraduate programs that combine the best practices of international frameworks, such as the ACRL Framework, with those of local frameworks, such as the Saudi National Qualification Framework (NQF). This study examines new developments in IL education, discusses the obstacles to institutionalizing these programs, and offers some practical approaches for building sustainable IL within academia.

Introduction

Information Literacy(IL) is the skill to discover, use, and produce information. In institutions of higher learning, IL is one of the core competencies expected of students, professors, and researchers that help them to think critically and work effectively in their academic endeavors. University libraries are essential in promoting information literacy, as they provide programs and services designed to develop the research ability of students. As higher education transitions to online, the urgency of effective IL programs has also increased. As Saudi Arabian universities have continued to invest in technological infrastructure, they are now paying closer attention to IL as part of the academic program (Alharbi, 2020).

The changes in the higher education sector in Saudi Arabia over the last few decades have been dramatic, but their focus has been rather on enhancing the academic process and incorporating technology into it (Alrashid, 2019). In this bid to transform, university libraries have made efforts to embrace digital tools, databases, and e-learning environments, which have resulted in more opportunities of accessing a plethora of academic resources among students and the faculty. The tools are, however, only useful if students and the faculty involved have the required proficiency to operate and make good use of the tools. Herein, the IL initiatives take place. Studies have revealed that academic performance is greater as universities which have well-established IL programs, which are characterized by increased research skills, higher levels of critical thinking, and, according to the researchers, academic success (Bruce, 2017).

University libraries in Saudi Arabia are still at the forefront and rear in formalizing IL initiatives, with some institutions leading in the creation of custom IL initiatives. Nonetheless, there are still certain obstacles to developing an integrated system-wide IL response (Alharthi & Alsewari, 2021). Although libraries have already devoted funds to training workshops and digital literacy tools, it is a matter of concern whether such programs could be continued in the long term without any formal policies and university-wide integration. A lot of libraries are having issues with the integration of IL into the curriculum, and the involvement of students in the program of IL is uneven between institutions (Al-Jaafreh, 2020).

Besides, the disparity between resource availability and its utilization by students is still one of the serious problems. Failure to have a unified, universal solution to IL in the Saudi university system has created scattered and even isolated projects. The achievement of IL programs depends not only on resource availability but also on institutional support and willingness to implement these programs in academic programs (Bawazir, 2018). This should be noted, especially considering the Vision 2030 of Saudi Arabia, which aims to modernize and diversify the economy of Saudi Arabia, with education and digital transformation being the two main pillars. Information literacy can therefore be employed in this initiative to equip students with economic skills.

Although the significance of IL has been established in both scholarly and professional achievements of learners, the implementation of IL programs is associated with a number of challenges in Saudi universities. They include deficient faculty involvement, inadequate training of library staff, and the absence of official policies to guide the introduction of IL into curricula (Almazyad, 2020). It has also been found that awareness of IL resources among students is in most cases low, which means that library services available are not used fully (Al-Madi & Al-Saud, 2019). Accordingly, this research investigates the process and sustainability of IL programs in Saudi undergraduate university libraries and their leading initiatives, challenges, and success factors or Saudi University libraries in this case, this paper intends to share evidence-based knowledge about how these libraries could develop and sustain significantly effective IL Programs for students, researchers, and academic resources.

By using Saudi University libraries as a case, this paper intends to share evidence-based knowledge about how these libraries could develop and sustain significantly effective IL Programs for students, researchers, and the academic community. It is hoped that this knowledge could be used to influence policymaking and the next planning for the IL program, and to further develop library services in Saudi universities.

Objectives of the study

The objectives of this study were to;

- To identify the status of the Information literacy program in university libraries in KSA.

- To suggest strategies for ensuring a sustainable information literacy program.
- To highlight the recent advancements in IL pedagogy and practices.
- To identify challenges for IL initiatives in academic libraries.

Research question

- What is the status of the Information literacy program in university libraries in KSA?
- What strategies for ensuring a sustainable information literacy program?
- What are the recent advancements in IL pedagogy and practices?
- What are the challenges for IL initiatives in academic libraries?

Literature Review

Information Literacy (IL) has been widely discussed as a competence that contributes to university education. The importance of IE has increased with the development of online information resources, and because students need to search multiple repositories of knowledge effectively in the academic setting. This section describes the programs developed for IL and their impact on the library world following implementation in Saudi university libraries. The review also explores key themes, including the place of academic libraries; development of IL programs; issues to consider; and how to successfully implement them.

The Role of Academic Libraries in Information Literacy Initiatives

Academic libraries are instrumental in enhancing information literacy, not only as providers of resources but also through teaching and training students. Research has revealed that libraries are not merely repositories of information but also lively learning venues that provide students with knowledge of how to search, analyse, and use information (Hepworth and Pritchard, 2019). The academic staff of the library, in turn, refers students to special training programs, workshops, and tutorials, as a result of which they will learn to manage information, which is a crucial skill in achieving academic success (Kuhlthau, 2019; Khan, 2024). Gonzalez et al. (2020) state that academic libraries of developing countries and Saudi Arabia are in a situation that is different, yet at the same time, these libraries persist in their innovation by

utilizing digital resources to supplement the regular face-to-face learning. AI literacy competencies are essential for librarians in providing library services (Khan et al., 2026). Professional competencies for librarians, especially in academic settings, include information literacy and digital literacy, which are very important (Khan et al., 2024).

University libraries have become vital actors in achieving the educational objectives of higher education institutions in Saudi Arabia by incorporating IL into service delivery (Alshahrani, 2020). IL programs initiated by libraries in the country have targeted both students and faculty to ensure everyone is engaged, but their success will depend primarily on the level of institutional support, resource availability, and the dedication of library personnel (Abdullah et al., 2021). Nonetheless, the integration of IL into the academic program remains a developing concept in Saudi universities, and more work is needed to implement sustainability (Alkhabiri, 2020).

Development of Information Literacy Programs

The development of information literacy programs has been associated with different purposes, such as the capacity of students to create their research skills, develop their critical thinking and problem-solving skills (Sundqvist, 2021). The most common designs of IL programs of university libraries focus on educating students about credible sources (where to find them, which information types are present, etc.), the ways to comprehend various information formats, and how to ethically use and reference information. The programs normally involve the usage of library resource education along with general education on digital literacy (Sundqvist, 2021). The National Center of e-Learning has been a key force in supporting IL adoption of academic libraries in Saudi Arabia, advocating a greater level of digital literacy and the integration of technology in classrooms (Al-Samarraie, 2021).

According to a study conducted by Abualrob and Ahmed (2020), libraries of Saudi universities are starting to implement easier and more economically friendly e-learning platforms to more and more of their IL undertakings, enabling students to obtain training resources and exams remotely. The tactic aligns with the broader digitalization of higher education, in which institutions strive to establish

blended learning environments that combine traditional and online learning (Sharma et al., 2021). The effectiveness of such programs, however, does heavily rely on the extent to which faculty are involved and engaged, which has not been consistent across universities (Jain et al., 2020).

Strategies for Sustaining Information Literacy Programs

To maintain the IL programs in academic libraries, a great deal of planning, constant evaluation, and long-term commitment by all concerned parties is necessary. Successful IL programs most frequently become part of the overall organizational objectives and are upheld by the top management (Alshahrani, 2020). In a study by Al-Jabri (2020), the university faculty and management are shown that institutional buy-in is a key indicator of successful IL programs in the long term. In Saudi Arabia, there is a need to demonstrate to the university's faculty and management the value of IL so that the programs' relevance and support can be maintained.

IL can become a core part of the university experience by incorporating it across multiple disciplinary domains and treating it as an independent variable similar to other learning outcomes (Cooke & Simmonds, 2021). Several Saudi universities have already started the integration of IL in general education classes; however, more work is required to integrate it into specific classes (Al-Khathlan, 2021).

The training and skills of the library staff also influence the effectiveness and longevity of IL programs. It would also be important to ensure that library staff themselves are trained and possess knowledge about IL so that good quality programs can continue (Casey & Smith, 2020). In addition, IL resources and training materials in a library should be updated regularly to keep pace with the most recent changes in IT and research landscape (King & McDonald, 2020).

Challenges in Information Literacy Initiatives

Information literacy programs are usually hampered by a number of challenges. In most instances, these problems are occasioned by institutional barriers, resource scarcity or inadequate faculty involvement. The absence of a unified, countrywide policy on IL is one of the key issues of Saudi Arabian universities harming their structure, as it leads to disorganized

projects within the Some universities have taken steps to develop IL programs; however, other institutions have failed to implement an organized program or integrate the programs in their institutions curricula (Alharthi et al., 2019; Alhamad, 2020).institutions'

In addition, IL is not easy. Information literacy is a broad concept, with related competencies spanning digital resource knowledge to research methods and techniques; as a result, it is hard to create an effective program that prepares all students (Johnson & Summers, 2020). Moreover, due to the heterogeneity of the student population, in terms of both educational level and prior experience in research activities, and language level, providing consistent training on IL turns out to be a challenging task (Al-Mahmoud & Zain, 2020). For example, because Saudi universities have heterogeneous student populations, they are forced to serve both international and local students, as each group has specific learning needs (Chong et al., 2020).

The adequate evaluation of IL programs is another critical issue that has been highlighted in the literature. A number of studies have highlighted the challenge of quantifying the success of IL programs and the effects of such interventions on students' learning outcomes (Bawazir, 2018). It is particularly concerning in the context of Saudi Arabia, where theoretical studies of the long-term impact of IL programs on students' academic achievement are lacking (Sundqvist, 2021).

The Impact of Information Literacy on Student Learning Outcomes

Some studies that concentrated on the correlation and impact of IL on students' performance showed that it facilitated academic performance as well as critical thinking (Abualrob & Ahmed, 2020). Students are also trained to manage the challenging information world, an important factor in their successful completion of research-intensive academic programmes from IL programmes (Bawazir, 2018). Hepworth and Pritchard (2019) also reported in their research that students taking IL programs became more confident that they had the ability to use academic databases and resources.

In Saudi universities, for example, IL instruction has been reported to enhance students't academic accomplishments as it provides them with evaluation and application strategies (Al-Jaafreh and Nasser,

2020). Moreover, IL programmes are also linked to improved information behaviour as students gain more autonomy during their learning and research (Casey & Smith, 2020).

Research Methodology

This study utilizes a multi-dimensional research methodology that integrates a comprehensive literature review, detailed case studies, and primary data collection. Primary data were collected through a systematic audit of the official university library websites in Saudi Arabia and through interviews with professional librarians to verify available programs and their depth as established by their implementation. This research primarily employed qualitative document analysis, where data were systematically collected from relevant websites and online sources. These documents were analyzed to identify themes, patterns, and key insights related to the research focus. To complement and enrich the findings, a limited number of telephonic interviews were conducted with selected informants. These interviews served as a form of data triangulation, providing additional clarification and supporting evidence for the interpretations derived from the

document analysis. The purposive sampling is used for selecting the population for interviews.

In this research, a comprehensive benchmarking of the 36 registered universities, public and private, registered with the Ministry of Education (MOE): 23 public and 13 privates.

Conceptional Framework

They rely on an institutional diagnostic flowchart when dealing with systemic issues and changing pedagogy. The procedural data is then laid out on a “spectrum” in the form of a four-level IL Maturity Model through which libraries can be described from having no formal program to functioning like Effat University and IAU as an example of “Pioneering” institutions that have AI-driven research delivery, and raise themselves into classification as advancing in data management. Combining the implementation flow (the “HOW”) with the maturity model (the “WHAT”), this approach provides a highly structured, relative comparison that easily uncovers the differences between traditional library services and contemporary integrated Information Literacy Ecosystems in Saudi Arabia.

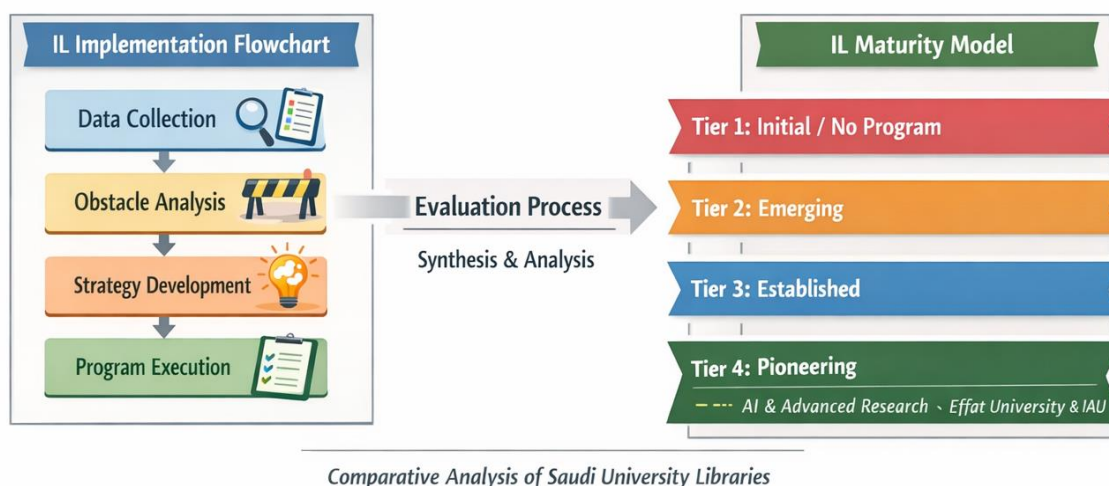


Fig. 1 Maturity model of IL Implementation in KSA Libraries (Source: author self-created)

Results and Finding

Universities Distribution

Figure 2 shows an overview of the distribution of universities across public and private sectors. A total

of 36 universities in Saudi Arabia, 23 public and 13 privates, according to the Ministry of Education records.

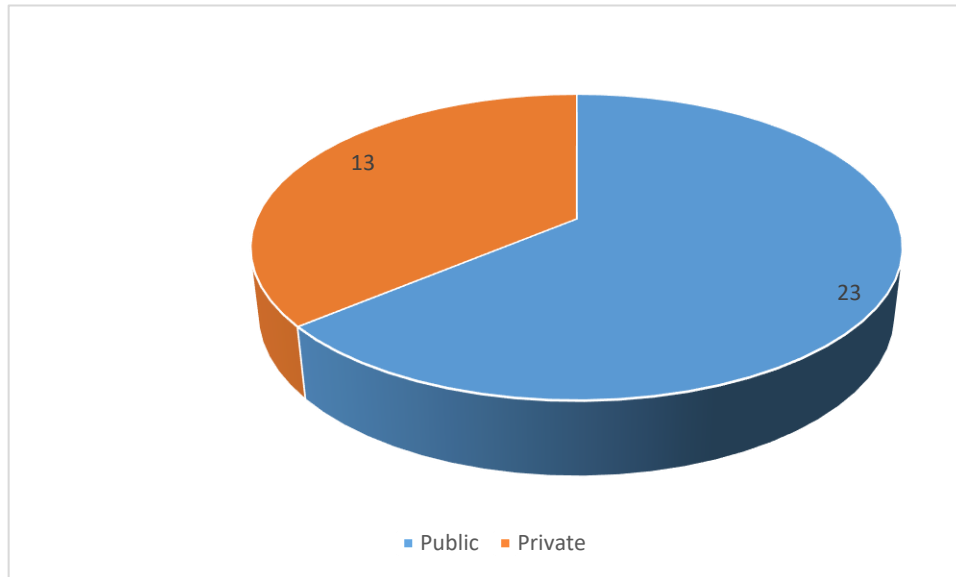


Fig.2 Overview of the distribution

Current Status of Information Literacy Programs (Saudi University Libraries)

Figure 3 shows that Information literacy is fully implemented in 4 of the university libraries and

partially implemented in 8. It is also planned to apply for Implementation at 2 universities, and 22 universities have not yet implemented the IL program in their university libraries.

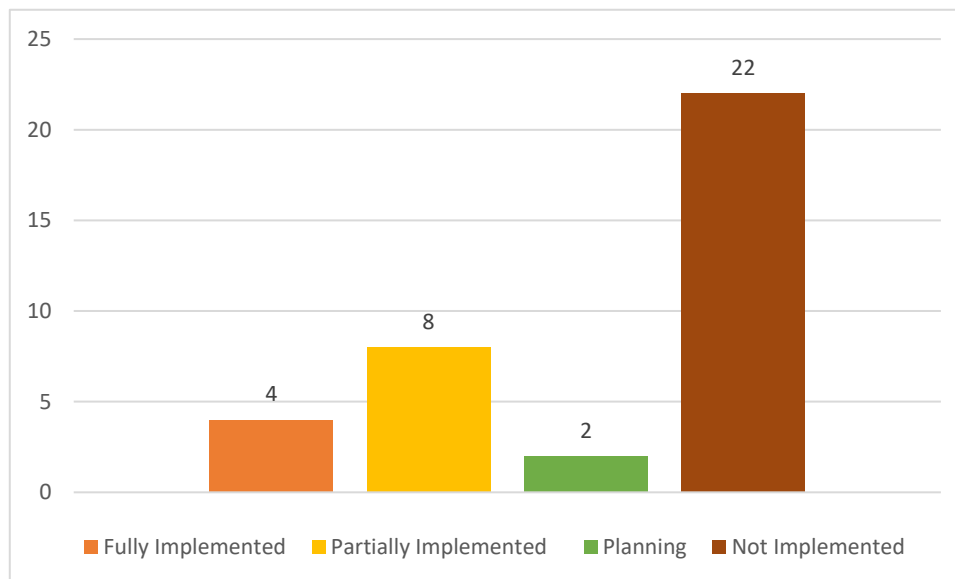


Fig.3 Information Literacy status

Information Literacy Programs in Saudi University Libraries

Table 1 shows that the Price Imam Abdulrahman, Majmaah, Alfaisal, and Effat universities have successfully implemented the IL Program in their

libraries. Other King Abdul Aziz, Prince Mohammad, UBT, King Saud, and Dar Al-Hekma universities have partial Information Literacy (IL) programs in their libraries.

Table I. IL Program status in University Libraries

University (Library)	Type	Status of IL Program
Price Imam Abulrahman Bin Faisal University	Private	Fully Implemented
Alfaisal University Information Literacy Program	Private	Fully Implemented
Majmaah University	Public	Fully Implemented
Effat University	Private	Fully Implemented
King Abdulaziz University	Public	Partial Implementation
King Saud University	Public	Partial Implementation

University of Jeddah	Public	Partial Implementation
King Fahd University of Petroleum & Minerals	Public	Partial Implementation
Prince Mohammad Bin Fahd University	Private	Partial Implementation
University of Prince Mugrin	Private	Partial Implementation
University of Business & Technology (UBT)	Private	Partial Implementation
Dar Al-Hekma University	Private	Partial Implementation

Current Information Literacy (IL) Implementation Lifecycle in Saudi University Libraries

This study explores the landscape of Information Literacy (IL) initiatives in university libraries in Saudi Arabia by developing an IL curriculum model that transitions from traditional methods to innovative educational practices. Figure 4 shows that these efforts currently involve minimal formal interventions and rely on traditional approaches. This highlights the need for sustainability strategies that integrate institutional policies, engage faculty, and conduct ongoing assessments. These strategies can lead to advancements in pedagogy, such as the

incorporation of e-learning resources and curriculum support, which aim to address challenges like funding shortages, gaps in staff expertise, and a lack of standardization. Ultimately, this transformation signifies a shift away from traditional, analog methods such as library tours and print resources toward digital-first strategies that include interactive webinars, embedded librarianship, and research data management training.

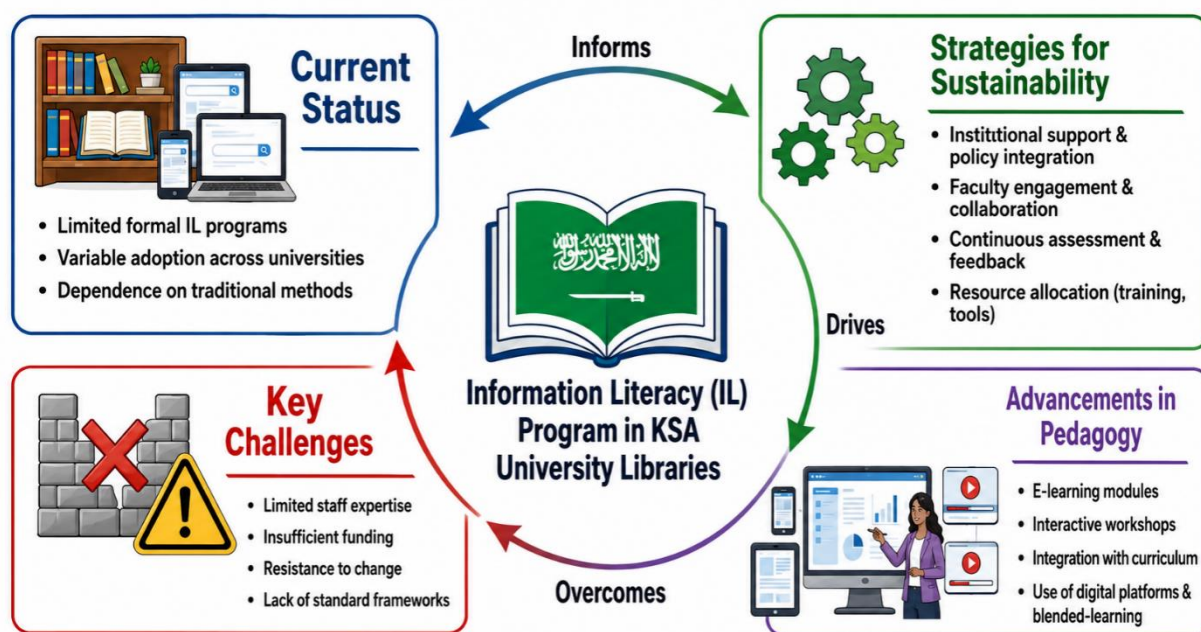


Fig. 4. Current (IL) Implementation Lifecycle (source: author self-created)

Information Literacy Program Implementation Flow Chart

Figure 5 illustrates the evolution of information literacy (IL) programs in university libraries across Saudi Arabia, transitioning from traditional models to technology-driven research support systems. Although some progress is hindered by outdated methods, collaborations between faculty and librarians have resulted in a variety of workshops.

Institutions such as King Saud University and KFUPM focus on basic database searching, while Effat University emphasizes advanced skills such as AI in research and information ethics. The introduction of e-learning modules and interactive webinars addresses funding and staff knowledge challenges, fostering a unified approach that aligns library resources with academic curricula and research needs in a digital context.

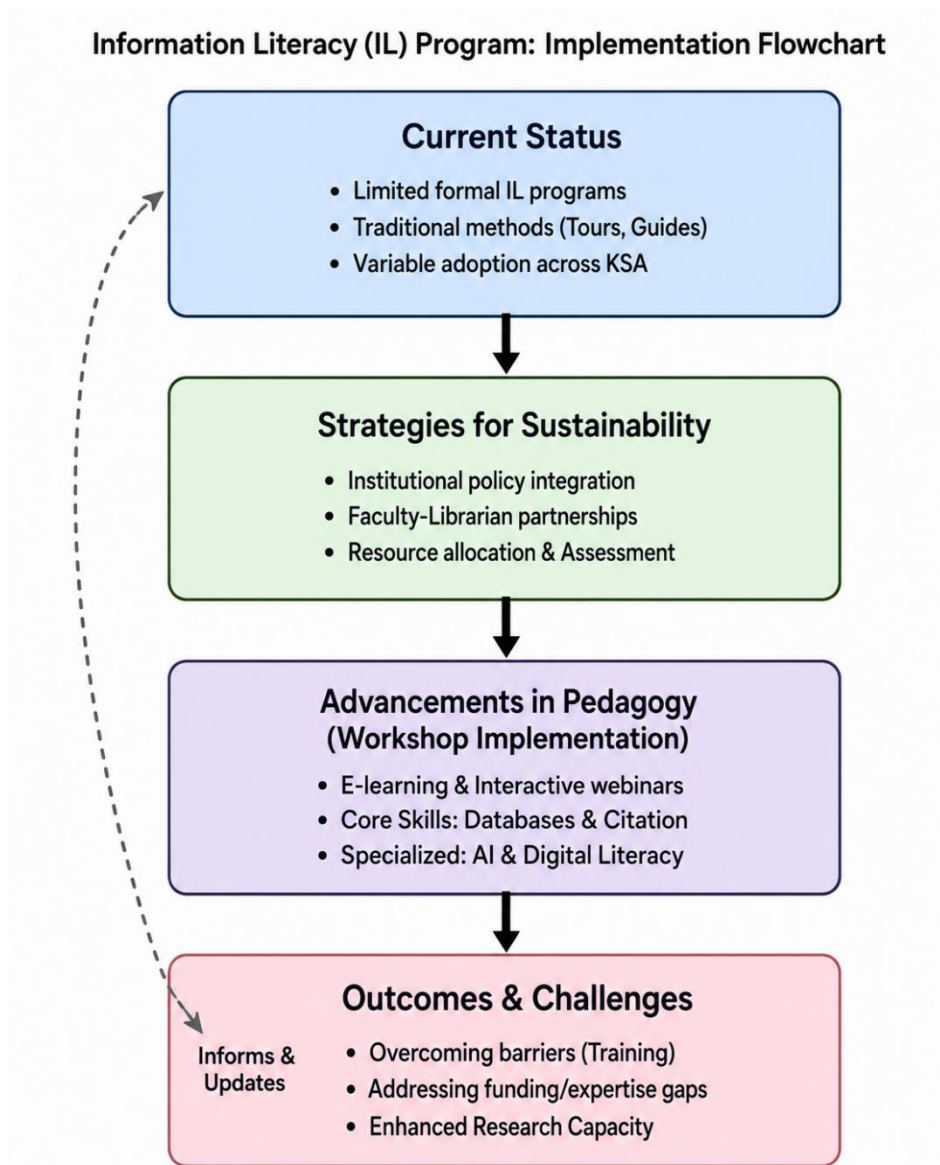


Fig.5. Information Literacy (IL) Program implementation flowchart (Source: Author created)

Maturity Model of IL Programs in KSA Universities

Table II illustrates a shift in Saudi Arabian university libraries from traditional services to a modern approach with the Information Literacy (IL) Program. Many libraries still rely on outdated methods such as fixed programs, tours, and printed guides. The IL Program adopts a cyclical model that emphasizes institutional support and staff teamwork to enhance

teaching, including online modules and workshops, while addressing funding and expertise challenges. Some libraries, like King Saud University and KFUPM, focus on basic skills, while others, such as Effat University and Prince Imam Abdulrahman Bin Faisal University, offer more advanced training. These newer programs teach skills like AI-driven research and data management, transforming libraries into dynamic spaces for collaboration.

Table II. Maturity Model of Information Literacy (IL) Programs in KSA Universities

Level	Description	Key Features	Example Universities
Foundational	The basic level where IL programs focus on introductory library services and awareness	Library orientation sessions, Basic database searching, Library tours, and limited digital integration.	KSU, KFUPM, UoJ, Dar Al-Hekma

Intermediate	A developing stage where structured IL concepts are introduced to students	Digital literacy skills, Information ethics, Basic research skills, Partial integration into courses.	Majmaah University, King Abdulaziz University
Advanced / Integrated	IL is fully embedded into academic programs and curriculum	Research skills development, Citation and referencing training, Literature review writing, and strong faculty collaboration.	IAU, Alfaisal University
Pioneering / Innovative	The highest level with advanced technologies and innovative IL practices	AI-powered research tools, Advanced search strategies, Data-driven learning support Smart/agentive library services.	Effat University

Critical Challenges and Structural Barriers to IL Implementation in Saudi University Libraries

Table 3 shows that Implementing information literacy (IL) programs in university libraries in Saudi Arabia faces several challenges. The biggest issue is the absence of a national policy, leading to uncoordinated initiatives that are not part of school curricula. Libraries also struggle with limited resources and a lack of involvement from faculty, which slows down progress. Instead of adapting to modern needs, libraries still rely on traditional methods. The IL concept is complex because it requires various skills from different fields. A one-

size-fits-all approach does not cater to the unique needs of the diverse student population. Additionally, libraries cannot measure how well these programs help students succeed because there are no long-term studies specific to Saudi Arabia. This lack of data makes it hard for libraries to adapt and innovate in today's digital environment. The previous study evidence some universities have taken steps to develop IL programs; however, other institutions have failed to implement an organized program or integrate the programs in their institutions curricula (Alharthi et al., 2019; Alhamad, 2020).

Table III. Multi-dimensional Challenges in Saudi IL Program Development

Category	Description	Key Issues / Factors	Impact on IL Programs
Institutional Barriers	Structural and organizational challenges within universities	No unified national policy, disorganized initiatives/projects, Limited resources, Inadequate faculty involvement.	Weak coordination and lack of standardization across institutions
Concept Complexity	The broad and evolving nature of Information Literacy (IL)	Wide range of competencies (digital, research, etc.), Difficulty designing holistic programs, Hard to define success metrics.	Makes IL programs difficult to design, implement, and scale effectively
Student Diversity	Variation in student backgrounds and abilities	Different educational levels, Varied research experience, Language barriers, International vs. local students.	Challenges in delivering uniform IL instruction for all learners
Evaluation Gap	Lack of proper assessment and measurement systems	Difficulty measuring learning outcomes, Lack of long-term evaluation, and limited KSA-specific studies.	Limits understanding of program effectiveness and improvement areas

Discussions

RQ1: What is the status of the Information literacy program in university libraries in KSA?

The benchmarking of information literacy programmes in Saudi academic libraries reveals different levels of development and maturity. The

results imply that IL programs in the Kingdom are not uniformly implemented across universities. Some institutions have fully developed and structured IL programs, while others are at the partial implementation, planning, or no formal implementation stage. This uneven development is

consistent with previous studies which showed continued challenges in the integration of IL within Saudi higher education institutions (Alkhabiri, 2020; Alshahrani, 2020). The classification of IL status into fully implemented, partially implemented, not implemented, and planning stage provides a useful framework for understanding the current progress of IL initiatives in Saudi higher education. The results show that only a limited number of universities, including Imam Abdulrahman Bin Faisal University, Prince Sultan University, Alfaisal University, Majmaah University, and Effat University, have adopted more structured and formal IL programs. These universities demonstrate that IL can be successfully integrated into library services through clear goals, instructional planning, curriculum support, and outreach activities. This aligns with Hepworth and Pritchard (2019) and Kuhlthau (2019), who argued that academic libraries are no longer limited to information access but have become active learning spaces where students develop skills to find, evaluate, use, and create information.

However, the benchmarking also reveals that several Saudi universities, particularly public universities, are still at the stage of partial implementation or planning. In many cases, IL activities are limited to orientation sessions, database training, library tours, or occasional workshops. These initiatives are useful but are often not formally embedded into the institutional curriculum. This finding supports previous studies which indicate that IL integration in Saudi universities remains challenging due to limited institutional support, lack of formal policy, insufficient resources, and the absence of dedicated IL personnel (Alkhabiri, 2020; Alshahrani, 2020; Abdullah et al., 2021).

Overall, the status of IL programs in Saudi university libraries can be described as developing but uneven. While some universities have made significant progress, many institutions still need a formal structure, sustainable planning, and stronger academic integration. This confirms the argument of Alharthi et al. (2019), who identified the absence of a coherent national IL policy as one of the main reasons for fragmented and inconsistent IL implementation across institutions.

RQ2: What strategies can ensure a sustainable Information Literacy Program?

The findings suggest that the sustainability of IL programs depends on institutional commitment, curriculum integration, faculty collaboration, assessment, and continuous professional development of librarians. A sustainable IL program cannot depend only on occasional workshops or faculty requests; rather, it should be embedded into the academic structure of the university. This supports Abdullah et al. (2021), who emphasized that the success of an IL program depends on institutional support, sufficient resources, and dedicated library personnel.

One important strategy is the development of a formal IL framework or institutional policy. The absence of a coherent national or institutional IL policy has resulted in fragmented and inconsistent implementation across Saudi universities. Therefore, universities should develop clear IL learning outcomes, instructional models, and assessment mechanisms aligned with national and international IL standards. This is consistent with Alharthi et al. (2019), who argued that the lack of a unified IL policy leads to piecemeal implementation and uneven program structures across academic institutions. Another important strategy is strong collaboration between librarians and faculty members. IL programs become more effective when they are integrated into courses, assignments, research projects, and graduate training. Faculty involvement helps librarians design subject-specific IL sessions that are relevant to students' academic needs. Jain et al. (2020) also highlighted that faculty participation is an important factor in the quality and effectiveness of higher education initiatives, including technology-supported learning and IL practices.

Sustainability also requires sufficient resources, trained librarians, administrative support, and regular evaluation. Academic libraries should collect evidence of IL impact through student feedback, learning outcomes, research performance, and usage statistics. Such evidence can help justify funding, staffing, and long-term institutional support. This aligns with Bawazir (2018) and Sundqvist (2021), who emphasized the need for sound assessment tools to evaluate the effectiveness and long-term impact of IL programs.

Therefore, a sustainable IL program in Saudi academic libraries should include formal policy

support, curriculum integration, faculty partnership, continuous assessment, skilled librarians, and the use of digital learning platforms. These strategies are supported by previous studies that stress institutional commitment, assessment, collaboration, and policy development as key requirements for sustainable IL implementation (Alharthi et al., 2019; Abdullah et al., 2021; Bawazir, 2018; Sundqvist, 2021).

RQ3: What are the recent advancements in IL pedagogy and practices?

Recent advancements in IL pedagogy show that academic libraries are moving beyond traditional one-time library instruction. Globally and in Saudi Arabia, IL is increasingly being delivered through active learning, digital platforms, blended learning, online tutorials, learning management systems, and subject-specific research support. This development reflects the changing role of academic libraries as learning spaces that support students in interacting with, analyzing, and using information effectively (Hepworth & Pritchard, 2019; Kuhlthau, 2019).

The benchmarking results indicate a growing trend among Saudi academic libraries to use e-learning platforms and digital tools for IL instruction. These tools allow libraries to extend IL learning beyond physical classrooms and reach students through online modules, videos, LibGuides, database tutorials, and virtual workshops. This reflects the broader transformation of higher education toward digital learning and flexible instruction. Similar findings were reported by Abualrob and Ahmed (2020) and Sharma et al. (2021), who noted the increasing use of e-learning platforms and digital tools to deliver IL instruction beyond conventional classroom settings. Another advancement is the shift from basic library orientation to research-focused IL training. Modern IL programs now include topics such as advanced searching, database selection, citation management, plagiarism awareness, research ethics, AI literacy, scholarly publishing, and systematic literature review support. These areas show that IL is becoming more closely connected with academic success, research productivity, and lifelong learning. This aligns with Kuhlthau (2019), who emphasized the importance of inquiry-based learning and the role of libraries in supporting students throughout the research process.

However, the effectiveness of these advancements depends on faculty participation and institutional support. In many Saudi universities, the use of digital IL tools is still inconsistent because IL is not always formally embedded into the curriculum. Therefore, while IL pedagogy is advancing, its implementation remains uneven across institutions. This is consistent with Jain et al. (2020), who found that faculty engagement and institutional quality practices play an important role in the successful implementation of digital and learning-based initiatives in higher education.

RQ4: What are the challenges for IL initiatives in academic libraries?

The findings reveal several challenges affecting IL initiatives in Saudi academic libraries. One of the major challenges is the lack of a unified national or institutional IL policy. Without a clear framework, IL programs remain fragmented, inconsistent, and dependent on individual library efforts or faculty requests. This supports Alharthi et al. (2019), who identified the absence of a coherent national IL policy as a key barrier to consistent IL implementation across institutions. Another challenge is limited curriculum integration. In many universities, IL is offered as an additional support service rather than a required component of academic programs. As a result, students may attend IL sessions only when faculty request them, which limits the reach and long-term impact of the program. This finding is consistent with Alkhabiri (2020) and Alshahrani (2020), who indicated that IL integration in Saudi higher education remains challenging and is often not fully embedded within academic curricula.

The diversity of student populations is also a significant challenge. Saudi universities serve students with different academic backgrounds, language abilities, digital skills, and research experience. This makes it difficult to design one IL model that meets the needs of all learners. Libraries must therefore provide flexible, accessible, and discipline-specific IL instruction. This challenge is supported by Al-Mahmoud and Zain (2020) and Chong et al. (2020), who highlighted the need to consider students' diverse backgrounds, language proficiency, and research experience when designing IL instruction. A further challenge is the limited use of systematic

assessment tools. Many academic libraries do not have formal mechanisms to evaluate the long-term impact of IL programs on students' learning outcomes, research skills, academic behavior, or research performance. Without strong assessment evidence, it becomes difficult to demonstrate the value of IL programs to university leadership and secure sustainable funding. This confirms the arguments of Bawazir (2018) and Sundqvist (2021), who emphasized that the absence of proper IL assessment tools weakens the ability of libraries to measure program effectiveness and justify continued institutional support. Other challenges include limited staffing, lack of specialized IL librarians, insufficient faculty collaboration, limited financial resources, and inconsistent use of digital platforms. These issues show that IL initiatives need stronger administrative support, strategic planning, and continuous evaluation. Abdullah et al. (2021) also noted that the success of IL programs depends on institutional commitment, resources, and dedicated library personnel, while Abualrob and Ahmed (2020) and Sharma et al. (2021) emphasized the growing but still uneven use of digital tools in IL delivery.

Future of Information Literacy in Saudi Arabia

The future of Information Literacy (IL) in Saudi Arabia involves further integrating IL into university curricula and establishing a national plan to coordinate, align, and enhance the role of universities in supporting IL activities. Future research should explore the long-term effects of IL programs on student learning and faculty involvement. Additionally, digital IL resources need to be tested and empirically studied to assess their effectiveness and potential suitability for various student populations (Sharma et al., 2021).

Another important direction for the future may involve developing a comprehensive standard measurement instrument for IL programs at Saudi universities. Institutions can use these common assessment tools to monitor the impact of their IL programs and implement evidence-based changes (Sundqvist, 2021). Ultimately, our goal is to create an IL ecosystem that is sustainable, inclusive, and adaptable to the evolving needs of students, educators, and the academic community.

Conclusion

The benchmarking of Information Literacy (IL) programs in the university libraries of Saudi Arabia has revealed an evolving set of best practices, though there is still much development needed. Aligning these programs with national educational goals, such as Saudi Vision 2030, and implementing quality assurance benchmarks could enhance the integration of IL and help students perform better academically in an increasingly information-rich environment. These findings are consistent with existing literature and highlight the necessity for IL programs that are sustainable and based on evidence-based practices, moving beyond isolated library initiatives to become institutional priorities. Saudi Arabia's Vision 2030 emphasizes excellence in education, creativity, and lifelong learning, equipping students to thrive as informed citizens in a knowledge-driven society and laying the groundwork for national competitiveness.

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