

**UNIVERSITI TEKNOLOGI MARA**

**CONSTRUCTING  
A COMPETENCE INDEX  
FOR  
TEACHING LIBRARIANS  
IN ACADEMIC LIBRARIES  
IN  
MALAYSIAN HIGHER EDUCATION**

**MOHD RAZIF BIN DZULKIPLI**

**PhD**

**March 2026**

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Thesis submitted in fulfilment  
of the requirements for the degree of  
**Doctor of Philosophy**  
**(Information Management)**

**Faculty of Information Science**

**March 2026**

## **CONFIRMATION BY PANEL OF EXAMINERS**

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## ABSTRACT

Teaching librarians have played a central role in delivering instructional information literacy since the early development of academic libraries, however, the transition from desk-oriented services to formal classroom teaching has raised ongoing concerns regarding professional credibility, role clarity, and competency development. This study addresses existing gaps and inconsistencies in the delivery of instructional information literacy by teaching librarians in Malaysian academic libraries by identifying essential instructional competencies and developing a structured, contextually competence index. Guided by a constructivist research paradigm, this qualitative study employed a two-round modified Delphi method. The conceptual framework integrated internationally recognised information literacy frameworks for higher education with Knowledge, Skills, and Abilities (KSA) attributes to capture both professional competencies and human attributes required for effective instruction. The research methodology was organised into three sequential phases: the identification of predetermined competency themes, Delphi rounds, and expert validation. Data were analysed using thematic analysis to identify recurring patterns and core constructs underlying instructional competence. The findings revealed three key constructs forming the proposed competence index: five overarching competency themes, fourteen human attributes, and six instructional information literacy modules comprising 108 competency items. In the final phase, content validity was established using the Content Validity Index (CVI), in which eight experts evaluated the items, resulting in the acceptance of 105 items. The study offers a novel, empirically competence index that integrates global information literacy standards with the local context of Malaysian higher education while explicitly incorporating human attributes into instructional competency frameworks. Theoretically, the study refines existing competency models by bridging instructional, professional, and human dimensions. Practically, it provides a standardised guideline for instructional module design, competency assessment, and professional development for teaching librarians. Empirically, it contributes data-driven insights from experienced practitioners, strengthening the alignment between scholarship, practice, and policy in library and information science. Ultimately, the proposed competence index serves as a strategic roadmap for enhancing instructional information literacy and positioning teaching librarians as integral partners in higher education teaching and learning.

## ACKNOWLEDGEMENT

First and foremost, I would like to express my deepest gratitude to Allah SWT for granting me the opportunity, strength, and rezeki to embark on and complete my doctoral studies within the allocated timeframe. I am sincerely thankful to Universiti Teknikal Malaysia Melaka (UTeM), my employer, and to the Ministry of Higher Education (MOHE) for providing the scholarship support that enabled me to undertake this challenging yet rewarding academic journey. I would like to extend my sincere appreciation and gratitude to my supervisors, Associate Professor Ts. Dr Roziya Abu and Associate Professor Dr Norshila Shaifuddin, for their invaluable guidance, scholarly insights, and unwavering support throughout the course of my research. Their intellectual mentorship, constructive feedback, and encouragement were instrumental in shaping the direction, rigour, and completion of this study.

I am also profoundly grateful to my family for their patience, understanding, and emotional support during this challenging time. Their tolerance of the pressures, fluctuations in mood, and periods of solitude required for completing this doctoral work has been a constant source of strength and motivation. A sincere appreciation to my colleagues and friends who shared similar doctoral journeys, their advice, encouragement, and companionship provided reassurance and resilience during challenging moments. Lastly, this thesis is dedicated to me, a professional librarian who has overcome challenges that exceeded my initial expectations. Through this journey, I have emerged stronger, more resilient, and better equipped to make meaningful contributions to the advancement of knowledge in the field of librarianship and information science in Malaysia. This work represents both a professional responsibility and a personal commitment to advancing scholarly practice and improving professional standards within the library and information science discipline.

*Alhamdulillah.*

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## LIST OF ABBREVIATIONS

### Abbreviations

ALA	American Library Association
ACRL	Association of College Research and Libraries
AI	Artificial Intelligence
FGI	Focus Group Interview
IL	Information Literacy
KSA	Knowledge, Skill and Abilities

# CHAPTER 1

## INTRODUCTION

### 1.1 Chapter Introduction

This chapter provides an introduction to the research, encompassing the research background, problem statements, research questions, research objectives, significance of the study, scope and limitations of the study, and definitions of terms related to the competence index for teaching librarians in public academic libraries. The advent of the digital age has profoundly transformed the landscape of higher education, necessitating a re-evaluation of the roles and responsibilities of academic librarians. As the custodians of knowledge and facilitators of learning, teaching librarians in academic libraries have emerged as key players in fostering information literacy, critical thinking, and research skills among students and faculty. This evolution underscores the importance of a robust competence index to assess and enhance the effectiveness of teaching librarians in fulfilling their multifaceted roles.

This chapter sets the stage for an in-depth exploration of librarians' career development, which then evolves into a discussion of teaching librarians in academic libraries within higher education. It begins by outlining the history of librarianship, libraries, and how librarians started to teach, as well as the role of learning librarians and the growing demands placed upon them in an era characterised by rapid technological advancements and an ever-increasing reliance on digital resources. The integration of information literacy into the curriculum, the need for adeptness in utilising emerging technologies, and the capacity to engage and inspire a diverse student body underscore the necessity for a well-defined competence framework. The rationale for developing a competence index stems from the recognition that the quality of teaching and support provided by librarians has a significant impact on students' academic success and lifelong learning skills. By systematically evaluating the competencies required for teaching librarians, institutions can ensure that their librarians are well-equipped to meet contemporary educational challenges and make meaningful contributions to the academic community.

This chapter will also provide an overview of the research objectives and outline the key questions guiding this study. This review will examine relevant literature,

highlighting existing models of competence assessment in academic libraries and identifying gaps that this research aims to address. Additionally, the chapter will discuss the significance of this study in informing policy and practice, offering a pathway to continuous professional development and excellence in library instruction. In conclusion, Chapter 1 sets the foundation for a comprehensive investigation into the competencies of teaching librarians in higher education. Establishing the context and significance of this study paves the way for a detailed examination of the findings and their implications for the future of academic librarianship.

## **1.2 Research Background**

This section outlines the chronological development of the research's key concepts, with a specific focus on academic librarians, the constructs of competence and competency, instructional information literacy, and the evolving role of teaching librarians. The discussion situates these concepts within the broader context of higher education, where academic libraries have undergone significant transformation in response to changes in technology, pedagogy, and institutional priorities.

Historically, academic librarians were primarily regarded as custodians of information resources, responsible for collection development, cataloguing, and facilitating access to scholarly materials. However, as the higher education landscape shifted towards more student-centred and research-driven learning environments, the role of librarians expanded to encompass responsibilities associated with instruction and pedagogy. This transition marked the emergence of the academic librarian as an educator, with a growing emphasis on equipping students with the skills to navigate, evaluate, and ethically use information in educational and professional contexts.

Within this evolving role, the concepts of competence have become critical in defining the professional attributes required of librarians. Competence reflects the broader framework of knowledge, skills, and abilities expected of teaching librarians, while competency refers to the demonstrable application of these attributes in practice. Together, these constructs provide a foundation for understanding the professional expectations placed upon librarians as they engage in instructional roles. The delivery of instructional information literacy has emerged as a central function of teaching librarians in higher education, yet this transition has not been without challenges. Many academic librarians have had to adapt to teaching responsibilities without formal

training in pedagogy, leading to tensions between their traditional professional identity and their new instructional role. Issues such as the lack of recognition of librarians as educators, limited institutional support for teaching functions, and the need for continuous professional development have further shaped the discourse around librarianship and instructional roles.

Framing the study within this background provides a historical trajectory of academic librarianship and highlights the practical challenges and opportunities underpinning the development of a competence index for teaching librarians in Malaysian higher education. By tracing how academic librarians assumed teaching responsibilities and the issues accompanying this transition, this research positions itself within ongoing debates about professional identity, pedagogical competence, and the future of instructional information literacy in academic libraries.

### **1.2.1 The Evolution of the Profession**

The profession has evolved to signify the need for information professionals in an institution. The narrative of the profession's transition needs to be highlighted by examining the history of a librarian, including how a librarian became an educator, the origins of information literacy in academic libraries, and the implementation of instructional information literacy at that time. The evolution is crucial to give a clear view of how the profession transformed into one of the pillars of academic libraries and became one of the most critical tasks in higher education.

The beginning evolution of a librarian is when a person organising and managing manuscript collection started in an ancient world, when the Assyrian King, Ashurbanipal who lived in between 631 to 668 b.c. established 20,000 clay tablets in his library and someone in charge to collect and copied the classic literature, scientific wisdom, foolishness of the age, law and decree and then catalogue them and organised them in logical order in the storeroom (Winger, 1961). Later, between 1475 and 1780 where librarian is divided in three parallel parts, [1] is the practical which involve practical work as cataloguing, classification, care of book, shelving and guarding documents, [2] the visionary part where librarian formulate their thought of libraries and librarianship, defines roles of libraries in education and research and [3] the personal, which involve librarian own attitudes on how to behave, interact with users (Jansson, 2010). This is the starting point where librarians see themselves as visionary

regarding roles in education and research, as it changes their function in higher education.

During the 1900s, librarians and libraries began to expand their work by exploring and introducing library instruction into their profession, which involved organising, managing, and cataloguing physical collections. Since then, library instruction has been considered an important part of the academic librarian's description, and it has been almost a century since Heller (1928) wrote about techniques for educating students on the use of the library. Then, library instruction progressed as a serious focus for academic libraries, starting in the 1950s (T. Wang et al., 2021). The concept of reference work is broader than answering straightforward or closed-ended reference questions, particularly since the emergence of the internet in the 1900s, driven by researchers, and instruction was no longer confined to the classroom alone (Renirie, 2020). Back in 2001 and 2002, the beginning of teachable moments was at the reference desk, where responding to student inquiries for information provided an opportunity to teach them how to conduct research (Beck & Turner, 2001; Elmborg, 2002; Renirie, 2020). Following the hype and attention drawn to the literature, it became crucial for the library's services that librarians possess a specific range of competencies to function as educators in delivering instructional information literacy.

Information literacy was first introduced in 1974 by Zurkowski, who suggested that instructively skilled individuals learn how to use data resources in their work (Badke, 2010; Moin Ud Din et al., 2022). Library instruction has been published by the *Journal of Reference Services Review* since 1973, under the editorship of Rader (1974). Before 1996, it was known as library orientation and instruction. Still, before the name change to library instruction and information literacy, it marked a shift in the profession to a broader perspective (Caffrey et al., 2022). Information literacy is the ability to search, evaluate and use information ethically when needed, which is widely practised in higher education institutions. Information in higher education is used to complete tasks and assignments among undergraduate and postgraduate students, as well as to support academic research activities. This is where the information literacy session took place to assist higher education stakeholders, including students, academic faculty members, and sometimes the community surrounding higher education, through instructional information literacy, which academic librarians taught.

Educating these stakeholders in higher education is not the role of any academic librarian in information literacy sessions without formal education and training as an

educator and teacher (Cooke, 2020). Although academic librarians may not have formal training as teachers, which qualifies them to teach, the task is still on their shoulders, as information literacy classes are the focus of academic libraries. This evolution of the profession led to several issues that prompted the research, providing academic librarians with the necessary credentials to perform the task effectively. Later in the next section, the key concepts of this research were explained, and the issues arising from delivering instructional information literacy were highlighted.

### **1.2.2 The Key Concepts in Constructing a Competence Index for Teaching Librarians in Academic Libraries in Malaysian Higher Education**

This section presents a discussion of the key concepts that underpin this research, providing both a review of the current state of the profession and an examination of the issues surrounding these concepts. The purpose is to provide readers with a clearer understanding of why this study is necessary and how it contributes to ongoing debates within librarianship and higher education. The study establishes a strong conceptual foundation that connects theory, practice, and the evolving demands of academic environments by situating these concepts within their broader contexts.

The first concept explored is the role of academic libraries as central institutions that support teaching, learning, and research in higher education. Academic libraries have traditionally been recognised as repositories of knowledge, yet their function has evolved significantly in response to technological advancement and shifting pedagogical practices. They now serve as hubs for digital access, scholarly communication, and skill development, positioning them as integral to the academic experience. Closely linked to this is the role of academic librarians, who are no longer confined to managing collections and providing reference services but are increasingly engaged in shaping how students and faculty interact with information. Their responsibilities have expanded to include teaching, research support, and integrating digital literacy skills, reflecting the multifaceted nature of their professional identity.

From this expansion of roles emerges the identity of the teaching librarian, a professional who takes on explicit instructional responsibilities. Teaching librarians play a vital role in delivering information literacy, guiding students in locating and retrieving information, critically evaluating sources, and applying information ethically. However, this transition has also raised issues related to recognition, professional

preparation, and institutional support, as many librarians assume teaching roles without formal pedagogical training. The competence index provides a systematic framework for evaluating and strengthening the attributes required of teaching librarians. Such an index identifies key competencies, including knowledge, skills, and abilities essential for effective instructional practice. It also serves as a tool for professional development, performance assessment, and institutional benchmarking, ensuring that teaching librarians are well-prepared to meet evolving academic demands.

Finally, instructional information literacy is positioned as the central pedagogical concern of this research. As higher education becomes increasingly shaped by digital resources and information abundance, the ability of students to navigate complex information environments is critical. Instructional information literacy ensures that learners are informed consumers, critical thinkers, and ethical users of knowledge, making it a cornerstone of academic success and lifelong learning. Taken together, these interrelated concepts of academic libraries, academic librarians, teaching librarians, competence, and instructional information literacy frame the intellectual landscape of this study. They highlight the shifting professional expectations placed upon librarians, the challenges of integrating teaching into library practice, and the need for a structured competence index to guide professional growth and support the future of information literacy instruction in higher education.

#### ***1.2.2.1 Academic Libraries***

The international association, such as the American Library Association (ALA), similarly defines an academic library as one that serves colleges and universities, their students, staff, and faculty (American Library Association, 2016b). Malaysia acknowledges five types of libraries (International Federation of Library Association and Institution, 2018): the National Library of Malaysia, state libraries, academic libraries, special libraries, community libraries, and school libraries. The (American Library Association, 2016b) stated that librarians are classified based on the type of library in which they work: a college or university library (academic library), public library, school library, media centre, or special library. Although several types of libraries exist now, the basic functions of all libraries, such as selecting, indexing, preserving, and providing information to users, remain unchanged.

Academic libraries have evolved, regardless of the types of collections they hold, such as medieval manuscripts, papyrus scrolls, printed books, or even digital books. The library has always collected and stored them correctly and in accordance with standards (Müller, 2020). Each library serves different target users with the same purpose: to provide information to them. Establishing academic libraries plays a crucial role in achieving the goals and objectives of educational institutions. The two main functions of the academic library are to support research and teaching, which are facilitated through various activities, including the acquisition of printed and online materials, instruction in information literacy, locating materials and references, and providing access to electronic resources (Shoham & Klain-Gabbay, 2019). This is also agreed by (Otike et al., 2021), one of the key functions of an academic library is to support teaching and learning in the institution by providing up-to-date resources and facilitating teaching, learning and research with the target users. The role that academic libraries play in tertiary education is significant in contributing to the success of achieving institutional goals and objectives.

These new roles have made the libraries as crucial as other higher education departments, rather than just an information storage centre. Academic libraries must be prepared to accept these new roles and offer services such as information literacy sessions for their stakeholders.

#### ***1.2.2.2 Academic Librarians***

The second key concept is that academic librarians are responsible for catering to the information needs of higher education stakeholders. The stakeholders include undergraduates, postgraduates, academicians, and administrative staff working in academic libraries. Traditionally, a librarian is a person who works in the library in various departments such as acquisition, cataloguing, reference, circulation, and information technology (IT). Academic librarians now play an essential role as gatekeepers or sources of knowledge which go beyond traditional information providers to empower users (Nakitare et al., 2020). The goals and objectives of an academic library reflect the roles and responsibilities of academic librarians, aligning with the dynamic changes in higher education, where research and teaching are increasingly embedded in the work of academic librarians. This is when information professionals, particularly librarians, have been in debate about access, where they play vital roles in

helping users select the correct information from various sources as needed (Lee et al., 2020). Information is required by all, from faculty staff, students, and even in a working environment, to make decisions or as a tool for teaching and research. Librarians and information professionals are experts in conducting and managing research literature. This is an opportunity for academic librarians to demonstrate their ability to educate users in searching, evaluating, and disseminating information. Again, as information professionals, academic librarians are valuable collaborators in evidence-based practice, supporting research method design and reporting (Stellrecht et al., 2022).

Today's academic librarian plays challenging roles and activities in academic libraries; these include consulting individuals (analysing, identifying and fulfilling their information needs), creating and delivering instructional information literacy, managing the acquisition of library material and other activities (American Library Association, 2016a). Over the years, academic librarians' job descriptions have undergone significant evolution to meet the industry's needs, particularly in the educational environment, where the use of technology is increasingly crucial. A person who regularly works in a library with a qualification in library science is called a librarian. Still, libraries are free to use any designation that refers to a librarian, as the profession has been transformed to align with current needs. As Stellrecht et al. (2022) mentioned, a librarian is not always necessarily called a librarian. In contrast, a librarian has been referred to as an information professional who possesses the same education, expertise, or job description as a librarian. Collaboration with faculty will not be avoided when working in an academic environment, as it is part of library functions.

Therefore, the next key concept is to introduce the term 'teaching librarians' to academic librarians who educate users in information literacy within the Malaysian higher education environment. The teaching librarian has been widely used overseas, especially in the USA, as introduced by the associations to signify the broader goals and more educational functions in academic libraries.

### ***1.2.2.3 Teaching Librarians***

The third key concept is teaching librarians, a specific term used to describe academic librarians who deliver instructional information literacy services in academic libraries. An academic librarian works in various departments, each contributing to the organisation's objectives, and one of their functions is to teach. Academic librarians

working in the educational field are often identified by various terms in research, based on the environment, the organisation's custom practice, or the literature review. The term may be used interchangeably with terms such as teaching, instruction, academic, or reference librarians. Instruction librarians are one of them, and they refer to librarians who work with tertiary education classes to develop information literacy (Rath, 2022). However, many articles, research or formal institutions and librarian associations use the term "teaching librarian" to refer to librarians who teach in classes. A teaching librarian is a librarian who teaches in several forms of settings and is wholly or partially involved in their responsibilities or daily tasks (Association of College and & Research Libraries, 2017).

The association then revised the term used in their framework from "instruction librarian" to "teaching librarian," which led to a broader and more in-depth framework that highlighted the significance of teaching and the depth of educational goals held by librarians. Instruction librarians are a 'one-shot' work with students, with limited class interaction. Still, a teaching librarian plays a central role in aiding the development of critical literacy skills through instructional sessions and community outreach events (Bynoe & Katz, 2018). In the Malaysian context, teaching librarians are chosen to work in the information literacy department in academic libraries. They must develop instructional and learning materials for the institution's students and faculty (Mohd Hanafi & Ismail, 2020). Therefore, from this point forward, the term "teaching librarian" will be used throughout this research due to its functionality, the latest trend in librarianship, and to provide a proper designation for librarians who deliver instructional information literacy in the Malaysian academic library environment. People often get confused by these two terms, teaching librarian and teacher librarian, although they are both positioned in libraries; however, they serve different audiences and types of libraries.

In the Malaysian context, a teacher librarian is a schoolteacher who manages the school library, assisting the school administration in ratifying the roles of the school library (Abdullah, 1999). In another article, targeting the same client as the earlier article, teacher librarians are identified as the front-line advocates for the success of information literacy in schools (Aisah et al., 2018). This is a clear distinction between teacher librarians and teaching librarians, with the former serving the school environment and the latter serving higher education environments. Teacher librarians are qualified and professionally trained educators in the discipline of education,

required to plan, manage, and develop school libraries for teachers and students with full-time teaching responsibilities (Tan & Shahidan, 2020). In contrast, a teaching librarian is a qualified librarian who has graduated from the discipline of librarianship and works in academic libraries in higher education settings, with limited responsibility for teaching instructional information literacy.

This study focuses on academic librarians and academic libraries that serve users in tertiary education. One job description of teaching librarians is teaching information literacy in a classroom setting. Information literacy, as defined by Saunders (2017), is a set of skills and competencies that enable individuals to evaluate their information needs, determine how and where to search for information effectively and efficiently, and use it correctly to fulfil their needs. This term of use refers to the proper use of resources through proper citation and referencing, both legally and ethically. In practice, researchers or scholars use bibliographic information from academic papers to identify bibliometric works, which are essential for backing up statements made (Y. Wang & Zhang, 2019).

Librarians must teach information literacy classes based on their location within the department overseeing the information literacy program. This is supported by Houtman (2021), who notes that as an academic librarian, teaching is a primary task in their daily work. The department in charge of the information literacy classes commonly references the research support department. However, these departments are likely to take charge of the class, the function of the department, and the department names, which differ from one academic library to another, as they are based on management. A librarian, as defined by Bowles-Terry & Sobel (2022), is a faculty developer who works in academics. It has been a full-time job to be a faculty developer who develops instructors to transform their approach to teaching in information literacy.

The next section of this research introduces the fourth key concept, competence index. A Competence Index is required for an individual to perform effectively and serves as a guideline to measure the employee's performance and the tasks performed.

#### ***1.2.2.4 Competence Index***

As the profession evolves in terms of roles and responsibilities, library management must adapt to the teaching librarian's performance and strive to achieve a standard in delivering instructional information literacy. The duties of a teaching

librarians has become multi perspective and the employers nowadays want a variety of skills and competencies in information professionals (Awan & Ameen, 2020; Kloppenborg & Lodge, 2010; Mbofung, 2015; Wilkins Jordan, 2015), therefore it has been crucial in developing competencies for information professionals in terms of need-based curricula design, to create proper training programs, evaluate current educational program and a well human resource plan so that they will be sufficient to prepare them for specific work (Hayati, 2005; Naveed et al., 2022; Naylor, 2000; Ullah & Anwar, 2013; ur Rehman et al., 1997). The development of competence is crucial to addressing the issues and meeting the demands of stakeholders regarding the key concept of performing instructional information literacy effectively, as mentioned in earlier key concepts, and ultimately impacting students' learning outcomes. To build knowledgeable students or users, teaching librarians need to empower themselves by developing new knowledge, expertise in faculty subjects or skills in information searching that will be useful to lecturers and students.

A career in librarianship requires an information professional not just in a status quo position, but must also enhance their information skills to build their career, as information literacy is a lifelong learning process (Yousuf Ali & Richardson, 2018). Several sides or parties must develop information and knowledge power among librarians before educating users. Rather than just giving attention to what individual must have or must acquire to perform effectively, this research is focusing on constructing competence index for teaching librarians in academic libraries in higher education which has broader concepts where also covers standard to the performance output as well as behavioural involvements and may relate to set a minimum standard needed to perform effectively (The Chartered Institute of Personnel and Development, 2022)

The Chartered Institute of Personnel and Development (2022) defines a competency framework as a structured system that outlines and categorises the specific competencies required by individuals within an organisation. These competencies include problem-solving, decision-making, interpersonal communication, and people management. Such a framework aims to ensure that individual competencies are aligned with organisational goals and can be effectively utilised across various functions, including training, performance evaluation, recruitment, and professional development. These competencies must be systematically organised within a coherent and transparent

structure to function effectively, forming a competence index (Kubatova & Krocil, 2022).

In contrast, a competency model refers to a more detailed and job-specific guideline, often developed by the human resource department, which identifies the precise skills, knowledge areas, and behavioural attributes necessary for successful performance in a particular role (Valamis, 2021). While both terms are closely related and sometimes interchangeable, the competency model is typically more focused on role-specific requirements. In contrast, the competence index provides a broader, organisation-wide structure.

This research focuses on constructing a competence index tailored for teaching librarians in academic libraries. A competence index is a structured and topical collection of statements or assertions representing the essential knowledge, skills, and cognitive behaviours required for effective professional practice within a specific domain (*DCMI: Competency Index*, n.d.). Unlike generic frameworks or models, a competence index offers a more detailed and domain-specific representation of professional requirements, serving as both a developmental guide and an evaluative tool.

Developing a competence index is especially relevant for the evolving role of teaching librarians, whose responsibilities increasingly extend beyond traditional library services to include instructional design, information literacy teaching, and student learning support. As such, this study aims to identify and structure the competencies essential for teaching librarians, thereby contributing to both professional practice and the strategic development of academic library services in higher education.

#### ***1.2.2.5 Instructional Information Literacy***

Building upon the concept of professional competencies for information literacy represents a critical competency within higher education, particularly for teaching librarians. Various professional associations across countries have provided definitions that underscore the importance of information literacy in academic, personal, and societal contexts.

In the United States, the American Library Association (2000) defines information literacy as a set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the

use of information in creating new knowledge and participating ethically in communities of learning. This definition emphasises critical thinking, ethical use, and knowledge-construction aspects.

In the United Kingdom, The Library and Information Association (2018) or Chartered Institute of Library and Information Professionals (CILIP) initially defined information literacy in 2004 as knowing when and why you need information, where to find it, and how to evaluate, use, and communicate it ethically. This was later refined in 2018 to emphasise the importance of thinking critically and making balanced judgments about any information we encounter and use, thereby empowering citizens to form informed opinions and actively engage with society.

A similar understanding is reflected in Australia, where the Australian Library and Information Association (2006) defines information literacy as the ability of individuals to seek, evaluate, use, and create information effectively to achieve personal, social, work, and educational goals. Despite geographical and contextual differences, these definitions revolve around a standard set of actions finding, evaluating, using, and communicating information ethically and effectively. These widely recognised definitions indicate a shared global understanding of information literacy as a lifelong, transferable competency. In essence, information literacy equips individuals with the skills to navigate complex information environments, make informed decisions, and engage meaningfully with knowledge in various forms.

Within the academic library, instructional information literacy refers to the structured delivery of information literacy education, typically provided by teaching librarians. These instructional efforts are crucial for supporting students' learning and research capabilities. However, many teaching librarians face significant challenges in delivering this instruction effectively, particularly due to the lack of formal pedagogical training or preparation for teaching roles during their academic or professional development (Cooke, 2020). This gap often hinders their ability to engage confidently and competently in teaching practices.

In parallel, the academic literature further reinforces the importance of information literacy as a core competency. Edzan et al. (2005) describe an information-literate individual as someone with lifelong learning skills that enable them to locate and use information effectively in any context. Similarly, Saunders (2017) defines information literacy as skills and competencies required to identify information needs,

locate and access relevant resources, evaluate their quality, and use them legally and ethically for personal, academic, or professional purposes.

Moreover, the implementation of instructional information literacy can vary considerably across institutions depending on curricular structures, target audiences, institutional priorities, and teaching strategies. These variations signal the need for a structured approach in identifying the specific competencies required by teaching librarians. Therefore, this study aims to address this gap by developing a competence index designed explicitly for teaching librarians in academic libraries. By defining and organising the necessary competencies for delivering instructional information literacy, the index aims to serve as both a practical guide and a professional development tool for librarians involved in teaching roles in Malaysian higher education.

### **1.2.3 Overview of Theoretical and Conceptual Foundation**

The evolving instructional role of academic librarians has led to the development of several frameworks and models that define the competencies necessary for effective information literacy instruction. Among the most influential is the Association of College and Research Libraries (ACRL) Framework for Information Literacy for Higher Education. The instructional role of academic librarians has become more prominent with the introduction of key frameworks, such as the Framework for Information Literacy for Higher Education. This framework redefined information literacy in the context of higher education. It provided conceptual anchors, such as the understanding that authority is constructed and contextual, and information creation as a process (Association of College and Research Libraries, 2015). The ACRL Framework is underpinned by Threshold Concepts Theory (Meyer & Land, 2003), which posits that specific key ideas in a discipline are transformative and essential for achieving a deeper understanding of the discipline. The framework also draws on constructivist learning theory, which emphasises the active role of learners in building knowledge, and on meta literacy, which highlights learners' dual roles as both users and creators of information. Together, these theories support the shift from procedural information literacy skills to conceptual, reflective, and contextual information practices, a critical development for teaching librarians in higher education. However, such frameworks, developed primarily in Western academic settings, may not fully

reflect the pedagogical realities, institutional expectations, and cultural norms of Malaysian academic librarianship.

While the framework offers valuable insights, there remains a need to extend this model further to suit the expectations and realities of Malaysian teaching librarians and to complement this framework, this study draws on the KSA model, which categorises competencies into knowledge, skills, and abilities as a foundational structure for analysing and organising the components of the teaching librarian competence index. Effective performance is reflected by human attributes related to knowledge, skill, ability, or personality (Nguyen, 2022). The KSA model, widely used in human resource and competency-based research, clearly delineates what teaching librarians must know, what they must be able to perform, and the abilities they must demonstrate to succeed in instructional roles. This study draws on the competency model proposed by Spencer & Spencer (1993a), which defines competency as an underlying characteristic that leads to superior performance. The framework categorises competencies into five dimensions: motives, traits, self-concept, knowledge, and skills. This study emphasises observable and developable elements, particularly knowledge, skills, and abilities, as these are most relevant to instructional roles in academic libraries. This theoretical foundation strengthens the rationale for constructing a structured and measurable competence index for teaching librarians. By integrating the conceptual underpinnings of libraries, information science-specific frameworks, and the KSA model, this research aims to develop a contextually relevant competence index tailored for Malaysian academic librarians involved in teaching and learning.

### **1.3 Problem Statements**

The highlighted issues in the research background and from the theoretical and conceptual foundation form the basis of the problem statement for this research. Despite the growing recognition of the teaching role of librarians in academic institutions, librarians often face challenges related to role clarity, pedagogical skills, and institutional support, which hinder their effectiveness in supporting teaching and learning. There remain evident gaps in their current practices and preparedness to deliver instructional information literacy. These remain challenges, suggesting a need for deeper exploration and understanding, particularly in the context of Malaysian higher education, thus justifying the need for this research.

### **1.3.1 Current Program Did Not Align with Evolving Academic and Industry Demands**

Teaching librarians are stepping into an exciting role where they are challenged to meet evolving standards that showcase their skills in pedagogy, information retrieval, and digital literacy. As educators in the digital age, they are not just bookkeepers, but vital guides who empower students to navigate the vast ocean of information available today. However, many current professional training programs do not align with the evolving demands of higher education, particularly in crucial areas such as instructional design, student engagement, and the integration of digital learning tools. The most pressing challenge academic librarians face is the rapid transformation of the higher education landscape, which exists within a dynamic and uncertain knowledge ecosystem (Väljataga et al., 2020). These changes necessitate renewed attention to the fundamental competencies required of librarians in their instructional roles.

A critical issue is the lack of formal pedagogical training during library and information science (LIS) education. Many librarians enter the profession unprepared to teach information literacy, especially in the early stages of their careers (Moser & Abramovich, 2023). This situation raises essential questions about who is responsible for delivering instruction and how librarians can acquire the necessary pedagogical skills. The absence of structured training in teaching has been repeatedly highlighted in the literature (Caffrey et al., 2022; Cooke, 2020; Peacock, 2022). Despite decades of criticism regarding insufficient pedagogical preparation, librarians have continued to take on roles as teachers, facilitators, and mediators, especially in online learning environments, demonstrating professional resilience even without formal training (Saib et al., 2022).

In Malaysia, the minimum qualification for entry-level librarianship is a bachelor's degree. Most academic programs prioritise information organisation, information-seeking behaviour, and service design over pedagogy. The American Library Association's Core Competencies of Librarianship emphasise the importance of lifelong learning, including understanding educational theories, instructional techniques, and assessments of learning outcomes (American Library Association, 2021). However, this competency is insufficiently integrated into current LIS curricula, leading to implications for the quality of instruction delivered by future academic librarians (Houtman, 2021; Stoffle, 2020). This issue is not limited to Malaysia, similar

challenges are observed globally. For example, research conducted in the Caribbean has found that ineffective teaching methods in information literacy instruction can lead to student demotivation, information overload, and poor academic performance (Harrison & Deans, 2021).

Preliminary findings in the Malaysian context further illustrate the systemic nature of the issue. A recent study found that more than 55% of teaching librarians were assigned to deliver instruction on a rotating basis, 25% were appointed through management decisions or organisational structures, and only 20% actively sought instructional roles (Dzulkipli et al., 2025). This indicates that teaching responsibilities are often imposed rather than systematically developed. While librarians can be trained, they are not inherently equipped with teaching skills, and existing professional development programs remain misaligned with the changing pedagogical and technological demands of higher education.

As a result, teaching librarians frequently lack the necessary competencies to adapt to emerging instructional approaches, digital learning environments, and the evolving expectations of academic stakeholders. This misalignment between professional preparation and institutional demands underscores the need to identify and develop a comprehensive competence index for teaching librarians that bridges existing gaps and equips them to meet the challenges of contemporary higher education.

### **1.3.2 The Absence of a Standardised Competence Index for Teaching Librarians in Delivering Instructional Information Literacy**

Significant gaps remain in the delivery of instructional IL by teaching librarians in Malaysia, a persistent inconsistency that has been highlighted in the literature for over a decade. A major contributing factor is the absence of a national framework with standardised performance indicators and learning outcomes. As early as 2005, Edzan et al. (2005) identified the lack of such a framework, and this foundational gap continues to shape practice in academic libraries. Husaini (2010) further revealed that teaching librarians face multiple challenges in delivering instructional information literacy, particularly due to inadequate pedagogical preparation and institutional support. More recently, a comparative study involving librarians from five Malaysian universities reported significant inconsistencies in information literacy teaching approaches, levels of confidence, and overall understanding, underscoring the fragmented nature of

instructional practices across higher education institutions (Abang Mohtar & Mohamad, 2023). These disparities raise serious concerns regarding the effectiveness, coherence, and quality of information literacy instruction in Malaysia's academic library context.

Information literacy requires individuals to identify, access, evaluate, and synthesise information to generate and apply new knowledge effectively (Ikenwe & Anaehobi, 2020). The Association of College and Research Libraries (ACRL) Framework, introduced in 2015, established six conceptual frames with associated knowledge practices and dispositions. While this framework emphasises higher-order competencies, critics have argued that professional standards in higher education remain limited in addressing practical instructional needs (Addy, 2020). Furthermore, although libraries strive to build excellence in services and operations, these practices are often replicable and lack sustainability, leading to short-lived competency development (Jadhav & Shenoy, 2022).

Academic libraries widely recognise information literacy as a central and highly valued service (Fernández-Ramos, 2019; Moin Ud Din et al., 2022). To remain relevant, information professionals must continually refine their information literacy skills, align their practices with technological advancements, and adapt their services to meet user needs (Moin Ud Din et al., 2022). However, many librarians heavily rely on self-taught knowledge or ad hoc instructional design when teaching in both online and face-to-face settings. This reliance on informal preparation contributes to inconsistent instructional quality and mixed perceptions among students and faculty (Peacock, 2022).

Globally, the American Library Association (ALA) has introduced updated guidelines emphasising that librarians across academic, school, public, special, and government settings should acquire specialised knowledge beyond the core competencies of librarianship. Competence index development is therefore critical not only for designing relevant curricula and training programmes but also for strengthening workforce planning and ensuring that librarians remain distinct from support staff (James Michalko et al., 2010; Naveed et al., 2022; Neal, 2006; Samah et al., 2021).

Within Malaysia, teaching librarians are central to students' academic success, particularly through IL instruction. Nevertheless, the lack of a national framework defining the competencies required for effective instruction has resulted in uneven practices and varied instructional quality across institutions. Addressing this gap requires constructing a competence index tailored to the roles and responsibilities of

teaching librarians in Malaysian academic libraries, ensuring alignment with international standards and local educational needs.

### **1.3.3 Need for a Competence Index for Teaching Librarians to Enhance Instructional Capabilities and Student Learning**

Although teaching librarians in Malaysian academic libraries are expected to play a central role in delivering information literacy (IL) instruction, their competencies often remain inconsistent and underdeveloped. Current approaches to evaluating instructional effectiveness typically focus on what students learn, while neglecting how learning occurs. This oversight is due primarily to unsystematic pedagogical preparation and the lack of a structured framework for teaching practice (Diao, 2021). Consequently, the quality of instructional leadership (IL) is directly affected, as students' learning outcomes rely not only on the content but also on the teaching methods and competencies of the instructors.

Several challenges exacerbate this issue, firstly, both librarians and students might lack sufficient skills to navigate the information retrieval process, resulting in information overload and exposure to unreliable resources (Agosto, 2018; Ameen & Naeem, 2021; Connaway et al., 2017). The rise of social media and widespread online information consumption during the COVID-19 pandemic has intensified these challenges, raising concerns about fake news, misinformation, and the rapid growth of unstructured data (Abu et al., 2020; Ahmad et al., 2019). When users struggle to evaluate or organise information critically, poor decision-making and diminished learning quality are inevitable (S. V. Bernard, 2023; Kashada et al., 2020).

Secondly, teaching librarians face difficulties in adapting to technological changes. The pandemic highlighted this limitation, as librarians were abruptly required to transition to online platforms without adequate training, resulting in varied levels of readiness and instructional quality (Paliwal & Singh, 2021; Peacock, 2022; Ramos Eclevia, 2022). In an era where technology integration is essential for teaching, a lack of technological competency undermines librarians' ability to provide effective IL instruction.

Finally, structural issues within higher education further complicate the role of librarians. Research indicates that while faculty increasingly recognise the value of IL, collaboration remains uneven, and librarians often struggle to systematically integrate

IL instruction into curricula (Albert et al., 2020; Lacy & Hamlett, 2021). This outcome occurs in an inconsistent instructional environment that does not adequately equip students with the skills necessary to evaluate and use information ethically.

Given these challenges, there is a pressing need to establish a structured competence index for teaching librarians. Such an index would systematically assess and develop their pedagogical, technological, and evaluative skills. More importantly, it would align instructional practice with evolving information environments, enhance collaboration with faculty, and ultimately improve students' learning outcomes in information literacy.

#### **1.4 Research Objective**

This study addresses the gaps and inconsistencies in delivering instructional information literacy by teaching librarians in Malaysian academic libraries. The focus is on exploring the competencies required for effective instruction, ultimately leading to the development of a structured competence index. The research objectives are as follows:

RO 1: To investigate gaps in practising teaching librarians in delivering instructional information literacy in academic libraries

RO 2: To explore the needed core competence for teaching librarians in academic libraries for higher education.

SRO 2.1: To identify the knowledge attribute required to evaluate and use information, emphasising information value and research enquiry.

SRO 2.2: To examine the skills used in searching for information and implementing searching strategies for information retrieval.

SRO 2.3: To explore the required abilities in the current context and scholarly discourse through context authority and scholarship conversation.

RO 3: To develop a competence index for teaching librarians in academic libraries.

## **1.5 Research Questions**

To achieve the objectives of this study, which aim to develop a structured competence index, the following research questions have been formulated.

RQ 1: What are the challenges faced by teaching librarians in delivering instructional information literacy in academic libraries?

RQ 2: How can these competency attributes and the information literacy framework contribute to teaching librarian competency in higher education?

SRQ 2.1: What are the knowledge attributes required in valuing information and making research enquiries?

SRQ 2.2: What knowledge attributes are required in valuing information and making research enquiries?

SRQ 2.3: What abilities impacted the context authority and scholarship conversation?

RQ 3: What are the core competence index domains strengthen the role of teaching librarians in academic libraries?

## **1.6 Significance of the Study**

This study is essential for teaching librarians who serve in academic libraries within the context of Malaysian higher education. As the role of librarians continues to evolve beyond traditional information services, there is a growing need to define and strengthen their instructional capacity, particularly in delivering information literacy education. Despite this shift, the lack of a standardised framework or documented

competence index has led to inconsistencies in how librarians approach instructional responsibilities across institutions.

This study addresses this gap by providing structured and evidence-based documentation of the competence index required for teaching librarians, especially those who deliver instructional information literacy. The study offers a foundation for understanding the knowledge, skills, and abilities necessary for effective instruction in academic libraries by identifying and organising these competencies into a comprehensive competence index.

### **1.6.1 Practical Significance**

This study holds significance from a practical standpoint, as it provides a competence index designed explicitly for teaching librarians in Malaysian higher education institutions. The index offers academic libraries a structured tool to guide teaching librarians in training and the professional development of librarians involved in instructional activities. Additionally, it helps teaching librarians identify their strengths and areas for improvement in delivering information literacy instruction, ensuring that their roles align with the missions of higher education institutions.

### **1.6.2 Theoretical Significance**

From a theoretical standpoint, this study extends the application of Spencer and Spencer's Competency Theory within academic librarianship. It contributes to the broader discourse on competencies by deepening the understanding of how knowledge, skills, and abilities (KSAs) are manifested in the teaching roles of librarians. Furthermore, it advances the discussion on the operationalisation of information literacy frameworks in non-Western higher education contexts, thereby offering valuable insights into the adaptability of such frameworks across diverse cultural and educational settings.

### **1.6.3 Methodological Significance**

This study offers empirical significance by generating original qualitative data on the competencies of teaching librarians in Malaysian higher education. By

implementing a modified Delphi method and expert validation, this study captures the consensus of practitioners and subject experts, thereby grounding the competence index in authentic professional experiences. The empirical findings provide evidence-based insights into the practical realities and challenges teaching librarians face in delivering information literacy instruction. Moreover, the validated competence index serves as a tested model that can be adapted for similar studies in other educational and cultural contexts, extending its empirical value beyond the immediate scope of this research. This design ensures data collection and analysis rigour and addresses the complexity of aligning theoretical constructs with professional practice.

Furthermore, the study contributes methodologically by adapting the Delphi process to the context of academic librarianship in Malaysia, where such an approach has been rarely applied. Using thematic analysis alongside expert validation also highlights the value of combining qualitative inquiry with consensus methods, offering a replicable model for future competency-related studies in education and librarianship.

### **1.7 Scope and Limitation of the Study**

This study aims to study and understand the gaps in teaching librarian competency in 20 public university academic libraries in Malaysia. This means the data is limited to public university academic libraries funded by the Malaysian government through the Ministry of Higher Education, Malaysia. Then, a competence index for teaching librarians is developed based on the targeted population, as mentioned above. In developing the index, a group of experts in the field was convened to discuss the attributes of a competent teaching librarian.

### **1.8 Definition of Terms and Operational Definitions**

This research presents ten definitions and emphasises the connection between key concepts throughout the thesis narrative. The term focuses on developing a competence index for the primary character teaching librarian in an academic library setting within a higher education environment, specifically in delivering instructional information literacy.

### **1.8.1 Academic Libraries**

American Library Associations (n.d.) defines an academic library as a library connected with degree-granting higher institutions that provides an organised collection of printed or related materials, trained staff to provide information to stakeholders and physical facilities. In this study, academic libraries refer to institutions supporting teaching and learning in 20 Malaysian higher education institutions.

### **1.8.2 Academic Librarian**

Academic librarians are defined as those who are constantly intellectually curious and can apply that curiosity to efforts that help increase the institution's knowledge base for research and learning (American Library Association, 2016a). In this study, academic librarians refer to information professionals working in specific departments responsible for instructional information literacy in Malaysian higher education institutions.

### **1.8.3 Teaching Librarian**

As active contributors to the educational mission of their institutions, academic librarians are well-positioned to support student learning and success. Librarians can expand student access to learning, ensure students can persist and attain their goals, and scaffold student experiences to aid the attainment of independent learning capacity. They can teach information literacy as well as disciplinary and general learning outcomes. They can support students as they develop productive self-awareness, metacognition, and self-actualisation in various contexts, including their immediate learning environments, the broader community, and the world around them (McGuinness, 2021). The operational definition of teaching librarians for this study is an academic librarian whose primary responsibility includes designing, delivering, and assessing instructional sessions in information literacy. This role involves planning and facilitating learning experiences that equip students and other library users with the skills to locate, evaluate, and use information ethically. Teaching librarians in this study are also employed in Malaysian public higher education academic libraries.

#### **1.8.4 Instructional Information Literacy**

Information literacy is a set of abilities requiring individuals to recognise when information is needed and have the ability to locate, evaluate, and use the required information effectively (American Library Association, 2000). Academic librarians are responsible for delivering instructional information literacy, a key role of a teaching librarian. The scope of this responsibility should enable users to search, evaluate, and ethically use information, with proper citation and recognition of its original authors. The operational definition for this study is the structured process of teaching users to recognise their information needs, locate and access relevant information, evaluate sources critically, and apply information ethically and effectively. It is operationalised through instructional activities conducted by teaching librarians in academic libraries within the scope of Malaysian higher education.

#### **1.8.5 Competence**

Competence is the ability to blend and apply pertinent knowledge, skills, and behavioural factors, such as beliefs, attitudes, values, and motivations, to consistently perform within a specified domain or construct (Vitello et al., 2021). Operational definition for this study refers to the measurable combination of knowledge, skills, and abilities that enable teaching librarians to effectively deliver instructional information literacy and be assessed within the context of Malaysian academic libraries.

#### **1.8.6 Index**

An index refers to a structured set of defined knowledge, skills, and abilities, often arranged topically, necessary for performing a specific role or task. It serves as a framework or model for assessing and evaluating individual competency levels against established standards (*DCMI: Competency Index*, n.d.; Zadeh et al., 2016). In this study, the index refers to lists of elements in knowledge, skills, and abilities organised in constructs or categories for teaching librarians how to deliver instructional information literacy.

### **1.8.7 Human Attributes**

Effective performance is reflected by human attributes, which could relate to knowledge, skill, ability, or personality (Nguyen, 2022). In this study, human attributes are referred to as the three elements of competence: knowledge, skills, and abilities.

### **1.8.8 Knowledge**

Knowledge is defined as a justified true belief. In essence, it represents a state of mind in which an individual can provide sound justification for the content of their faith, and that belief corresponds to truth. The concept of knowledge, therefore, can be seen as bridging the subjective, intersubjective, and objective dimensions of cognition (Johansson, 2016). In this study, knowledge refers to the theoretical and practical understanding of concepts, principles, standards, and procedures related to instructional information literacy and academic librarianship.

### **1.8.9 Skills**

A skill can be understood as the execution of procedural knowledge or the capacity to do so, with such knowledge generally developed through systematic training and practice (Rikala et al., 2024). In the context of this study, skills include the ability to search, evaluate, and use information; to design and implement instructional strategies; and to utilise relevant technologies to enhance information literacy instruction in academic libraries.

### **1.8.10 Ability**

An ability refers to the capacity or potential to perform tasks or act in a particular manner. While closely related to the concept of skill, ability also encompasses the capacity to perform tasks that are not necessarily the result of formal training or instruction (Rikala et al., 2024). This study's abilities include critical thinking, problem-solving, adaptability, and the capacity to work collaboratively to deliver instructional information literacy within higher education environments.

## **1.9 Chapter Summary**

This chapter introduces the research by outlining the background and context of academic librarians, with a particular emphasis on the instructional role of teaching librarians in delivering information literacy within Malaysian higher education. The problem statement highlighted three core issues: the absence of a standardised competence index for teaching librarians, the current training programmes did not align with evolving academic and industry demands, and the need for a competence index to enhance instructional capabilities and students' learning outcomes.

Overall, Chapter 1 established the research's rationale, direction, and foundation, providing a logical bridge to the next chapter, which reviews the literature on competencies, instructional information literacy, and relevant theoretical frameworks to inform the study's conceptual foundation. The next chapter discusses the literature underpinning these problems and situates this study within existing theories and frameworks.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Chapter Introduction

This chapter presents a review of literature from previous studies on teaching librarian competency, an overview of librarian competency, past theories related to the research, and a framework for information literacy implemented in a few developed countries. The role of teaching librarians in academic libraries has undergone significant evolution, reflecting broader transformations within higher education and the information landscape. Chapter 2 delves into the theoretical foundations and existing literature that underpin the competence index for teaching librarians. This exploration is crucial for understanding the multifaceted nature of librarians' roles and the competencies they require to support teaching and learning in higher education effectively. This chapter begins by situating the study within the broader context of academic librarianship, highlighting the historical evolution of librarians' teaching roles. It examines the shift from traditional, transactional library services to more dynamic, instructional roles where librarians actively engage with students and faculty to enhance information literacy and research skills.

The literature review in this chapter synthesises key theories and models related to professional competencies in librarianship. It draws upon various sources, including academic journals and professional standards, to provide a comprehensive overview of essential competencies for teaching librarians. These present competencies typically encompass pedagogical skills, technological proficiency, subject expertise, and interpersonal abilities. Moreover, this chapter explores various frameworks and assessment tools developed to evaluate librarian competencies. It critically examines their strengths and limitations, identifying gaps that the current study aims to address. By comparing different models and approaches, this literature review lays the groundwork for developing a more nuanced and contextually relevant competence index for teaching librarians in higher education.

In addition to theoretical perspectives, Chapter 2 also considers practical implications and real-world examples of competency development and assessment in academic libraries. It highlights best practices and innovative approaches adopted by

leading institutions, offering insights into how librarians can effectively cultivate and demonstrate the competencies required for their instructional roles. By the end of this chapter, readers will have a thorough understanding of the existing knowledge base and the conceptual framework that informs this study. This foundation is essential for appreciating the subsequent analysis and discussion of findings, as it contextualises the competencies within the broader discourse on academic librarianship and educational excellence. In summary, Chapter 2 critically examines the theoretical and empirical literature on teaching librarian competencies, setting the stage for a rigorous investigation into the competence index and its application in higher education. Chapter 2 begins with the process of information searching to fulfil the objectives of this study, outlining a documented flow of information search, as explained in the section.

## **2.2 Searching Strategies**

This research began with information seeking within the research area, including the use of online databases for literature studies, effective search strategies, and filtering facilities to limit and keep resources up to date within the time frame and search process, thereby supporting this research.

Strategies include using Boolean operators, AND, NOT, OR, wildcard and truncation using asterisk \*, phrase searching “ ”, and parentheses ( ). Research has shown that many users agreed to utilise the OPAC, Boolean operators, etc. (Selvi et al., 2022). This research is related to teaching librarian and their competency. Terms used in the search for literature review are ‘Teaching Librarian’, ‘Instructional Librarian’, ‘Librarian’, ‘Competency’, ‘Competencies’, ‘Competence’, ‘Index’, ‘Competence Index’, ‘Academic Library’, ‘Academic Librarian’, ‘Information Literacy’, and ‘Library Instruction’. Searching for articles, theses, and dissertations involves a series of keywords constructed through various strategies to ensure relevant and accurate findings for this research purpose. This process aims to control vocabulary usage and eliminate unrelated keywords (Johnson-Barlow & Lehnen, 2021). The searching terms with the help of Boolean operators as below:-

- I. Teaching Librarian AND Competence
- II. Teaching Librarian Competency AND Malaysia
- III. “Teaching Librarian”

- IV. Librarian\*
- V. Teaching Librarian OR Instructional Librarian
- VI. Knowledge
- VII. Skills
- VIII. Ability
- IX. Framework for Information Literacy for Higher Education
- X. ACRL
- XI. Index

Furthermore, most researchers agree that to retrieve information from multiple sources, it is necessary to use several search techniques and be capable of searching online databases related to the research (Emmanuel Baro et al., 2019; Rafi et al., 2022; Selvi et al., 2022). As this research is fundamentally social science research, all articles, previous theses or dissertations were retrieved from subscribed databases of Universities. Articles were retrieved from Emerald, Science Direct, Scopus, ACM Digital, Bernama Library and Infolink Service Library, while the previous thesis and dissertation were from Proquest: Dissertation and Thesis. Resources were also expended through physical collection, which included local theses, dissertations, and reference books relevant to the Malaysian context.

This research journey began in 2022 and concluded in 2025; all resources in the literature review are within five years of the 2025 date, except when quoted from the original author. The need for information is fundamental, as individuals require well-timed and detailed information (F. Campbell, 1997; Haider et al., 2022). Furthermore, through studies, it is essential to have quality information, separation, excessive reliability and availability when needed (Haider et al., 2022). Resources were filtered based on years from 2020 to 2025 and subscribed to by the universities.

### **2.3 Academic Libraries in Higher Education**

Academic libraries are integral to higher education institutions, serving as repositories of knowledge and facilitators of learning. Traditionally, their primary function has been to provide organised collections of resources to support teaching, learning, and research (Association of College and Research Libraries, 2018). However, with the evolving landscape of higher education and the increasing integration of digital

technologies, the role of academic libraries has expanded significantly. Libraries are no longer confined to the stewardship of print collections; they have become dynamic centres for knowledge creation, scholarly communication, and information literacy instruction.

In higher education, academic libraries play a direct role in supporting institutional missions by promoting student success, facilitating faculty research, and enhancing institutional visibility through scholarly communication (Oakleaf, 2010). Their services extend beyond access to information resources, including learning support, digital literacy development, and academic skills training. Increasingly, academic libraries are also positioned as partners in pedagogy, collaborating with faculty members to embed information literacy into curricula and to co-design instructional sessions and assignments (Saunders, 2015).

The rapid expansion of digital resources and online platforms has transformed the academic library into a hybrid environment, one that combines physical and virtual services. This transformation underscores the library's role as both a physical space for learning and a digital hub for accessing scholarly materials (Brown & Malenfant, 2017). Moreover, libraries play a pivotal role in ensuring equitable access to information, thus reinforcing the democratic principles of higher education (International Federation of Library Associations and Institutions, 2012).

In Malaysia, academic libraries within public and private universities perform similar roles in supporting teaching, learning, and research. Their functions include curating collections aligned with educational programmes, providing instructional services to enhance information literacy, and offering digital services to meet the demands of twenty-first-century learners (Dzulkipli et al., 2025). However, the specific responsibilities and recognition of teaching librarians within these institutions remain underdeveloped compared to international practice. This gap provides the context for the present study, as understanding the institutional setting of academic libraries is fundamental to examining the competencies required of teaching librarians in Malaysian higher education.

Higher learning education is the parent of academic library is who established to support teaching, learning and research activities and due to rapidly change the user's needs, academic libraries need to move fast to catch up the changes and academic librarian serves in academic libraries in higher education and play such vital roles in fulfilling the information need to higher education communities such as students,

faculty members and researchers (Nakitare et al., 2020). Besides being known as information providers, whose role extends beyond providing access to information (Rabasa & Abrizah, 2024), academic librarians are also recognised as information professionals who serve in various academic library settings, where they often hold leadership positions in library executive roles, leading a diverse range of contexts (Wong, 2021).

#### **2.4 Teaching Librarians in Academic Libraries**

In Malaysia, academic libraries have developed information literacy structures and orientations to familiarise undergraduates and postgraduates with library tools and resources (Ismail et al., 2018). Despite the accessibility of information through online platforms, the librarian's role remains critical, shifting from curator and cataloguer of knowledge to advisor, mediator, and even creator of knowledge (Abdul Karim, 2022). However, this teaching-related function is underexplored in the Malaysian librarianship context, where the term teaching librarian is not widely recognised. Instead, librarians performing instructional duties are often positioned within reference departments and labelled as reference librarians (Adnan, 2001; Osman et al., 2019).

The responsibilities of teaching librarians extend beyond traditional reference services, encompassing information search training, course integration, assignment support, and guidance for both undergraduate and postgraduate students (Mohd Hanafi & Ismail, 2020). This role is particularly significant, given evidence that students frequently rely on general search engines, such as Google and Bing, rather than academic databases and electronic journals (Maidin et al., 2022). The lack of consistent recognition and structured development for teaching librarians in Malaysia has contributed to the limited exploration of their competencies in existing scholarship. Most available literature focuses on teacher librarians in school settings (Abdullah, 1999) or draws heavily from Western contexts, with relatively fewer studies in Malaysian higher education.

Beyond instructional roles, academic librarians are also increasingly responsible for promoting academic integrity and addressing plagiarism (Giannakouli et al., 2023). These expanding responsibilities raise questions about the boundaries of their roles in supervising student academic work (Doty, 2020), with implications for job autonomy, morale, and work satisfaction (Villagran & Martin, 2022). The transition to online and

distance learning has further reshaped instructional practices, requiring librarians to adopt new technologies and pedagogical strategies (Mctavish & Robertson, 2020; Nakitare et al., 2020). This shift highlights the evolving nature of teaching librarianship, which now demands competencies in instructional design, digital pedagogy, and collaboration with disciplinary faculty (McCartin & Wright-Mair, 2022; Ramos Eclevia, 2022).

Internationally, academic librarians' roles have expanded to encompass research support, teaching, and administrative responsibilities (Donkor et al., 2024), while Association of College and & Research Libraries (2017) has formally outlined the multifaceted roles of teaching librarians as advocates, coordinators, instructional designers, leaders, teachers, and partners. However, the Malaysian context lacks an equivalent framework or comprehensive study that systematically identifies and validates the competencies required of teaching librarians.

Research conducted in Ghana on the roles and responsibilities of academic librarians can be categorised into three main areas: research support, teaching, and administrative tasks. Typically, a librarian has the skills to respond to requests for information from users' questions (Renirie, 2020). As written by McGuinness (2021), the related term "information-based teaching" used in the current context of libraries and higher education involves technology-infused education systems, which this research will focus on, specifically in relation to information literacy.

The role focuses on growing changes in instructional information literacy sessions, teacher development, and identities (Baer, 2021). As part of their roles as academic librarians, academic librarians are often assigned as teaching librarians who focus on teaching activities related to information literacy, alongside the use of technology (Ramos Eclevia, 2022). This teaching librarian's roles encompassed several courses in teaching and learning, including course designer, content creator, teacher, and library instructional leader, whether in face-to-face or online sessions (Mctavish & Robertson, 2020; Ramos Eclevia, 2022). Teaching is an academic librarian's primary focus in higher education, particularly working with disciplinary faculty members in the classroom to advance and nurture the librarian profession (McCartin & Wright-Mair, 2022). A collaboration with a faculty member to design and deliver a subject embedded in an information literacy session, which is integrated within the faculty's programmes (Glimstedt et al., 2021), will yield more fruitful results than libraries alone (Bowles-Terry & Sobel, 2022).

While there is recognition of librarians' instructional contributions in Malaysia, the role of the teaching librarian remains ambiguously defined and inconsistently labelled, often subsumed under reference librarianship. Existing studies provide limited insights into the competencies required for this role, with much of the scholarship being derived from Western contexts rather than local practice. Furthermore, the impact of technological change, academic integrity challenges, and collaborative teaching responsibilities on the competencies of Malaysian librarians has not been systematically examined. This absence of context-specific research underscores the need to construct a competence index for teaching librarians in Malaysian higher education.

Scholarly studies have consistently highlighted several recurring issues. First, collaboration with faculty remains a pressing concern, as effective partnerships are necessary to ensure that information literacy instruction is integrated into disciplinary contexts. Second, technological changes accelerated by the COVID-19 pandemic have reshaped instructional delivery, requiring teaching librarians to acquire new digital skills and adapt to online pedagogies. Third, the profession continues to grapple with the challenge of accepting expanded teaching roles, as many librarians remain reluctant to embrace the educator identity despite increasing instructional responsibilities. Fourth, the growth of instructional information literacy underscores the demand for more sophisticated approaches to instructional design, delivery, and assessment to meet institutional and learner expectations. Finally, the dual phenomena of information explosion and information overload complicate the instructional landscape, as teaching librarians must navigate the exponential growth of information while helping students manage cognitive strain and critically evaluate sources of information.

These issues collectively affect the quality and effectiveness of information literacy instruction in higher education. More importantly, they emphasise the need to develop a comprehensive Competence Index for Teaching Librarians. Such an index would provide structured guidance on the knowledge, skills, and abilities required to address these challenges and serve as a benchmark for professional development and institutional support.

Collaboration between teaching librarians and faculty members has been identified as a critical factor in advancing instructional information literacy. Some studies report that librarians may fear losing their "clients" if they fail to expand their instructional approaches in partnership with faculty, particularly regarding structures and systems of practice (McCartin & Wright-Mair, 2022). In contrast, other research

highlights that collaboration with faculty members yields more fruitful outcomes than initiatives led by the library alone, resulting in greater impact on student learning (Bowles-Terry & Sobel, 2022). Such collaboration enables the alignment of information literacy content with disciplinary needs, fostering reciprocal knowledge and skill exchange between academic staff and librarians. This partnership positions librarians as service providers and integral contributors to the teaching and learning ecosystem.

Then, the advancement of technological aspects, particularly the shift to online learning during the COVID-19 pandemic, significantly reshaped the landscape of instructional information literacy in higher education. Academic libraries were particularly affected, as teaching librarians had to transition from traditional face-to-face instruction to online delivery modes, incorporating technological tools and platforms into their pedagogy (Mctavish & Robertson, 2020). This transition posed challenges in maintaining instructional quality, as librarians often lacked sufficient training, experience, or confidence in online teaching (Burns, 2020; Bury, 2024). Students' increasing reliance on search engines such as Google, bypassing librarians for information inquiries, further complicates this shift (Renirie, 2020). Consequently, staffing preferences in reference services have also changed to accommodate technological demands.

Moreover, the need for continuous availability in online environments has contributed to work-life imbalance, stress, and reduced confidence among teaching librarians (Bury, 2024). Supporting this, Reed et al. (2022) found that many librarians felt unprepared to engage effectively in online teaching due to technical and pedagogical limitations. These findings underscore the need for librarians to continually update their technological skills to deliver high-quality instruction in a rapidly evolving digital environment.

Another issue concerns accepting teaching responsibilities as an integral part of the librarian's role. Research indicates that librarians may be hesitant to adopt the titles of "educator" or "teacher," despite being tasked with delivering instructional information literacy (Hostetler & Luo, 2022). This reluctance can hinder collaboration with faculty, which is central to engaging students in information literacy sessions (McCartin & Wright-Mair, 2022). Accepting the teaching role requires librarians to adapt pedagogical approaches, including transitioning from traditional methods to online learning platforms, which was accelerated by the COVID-19 pandemic (Bury,

2024). At the same time, many librarians attempt to establish themselves as research partners, but their contributions are often limited to supportive roles rather than full participation in academic research (Rabasa & Abrizah, 2024). These dynamics illustrate the tension between librarians' expanding instructional responsibilities and professional identity, highlighting the importance of role acceptance for effective collaboration and pedagogical practice.

The contemporary information environment is characterised by two related phenomena: information explosion and information overload. Information explosion refers to the exponential growth of information over time (Cliffe, 1980), while information overload occurs when the sheer volume of information exceeds an individual's capacity to process it effectively (Bawden et al., 1999; X. Chen & Wei, 2019; Lauri & Virkus, 2021). While both involve vast quantities of information, the distinction lies in their focus. An explosion refers to the rapid growth of information, whereas overload highlights the cognitive strain that this growth places on the individual.

These phenomena are further complicated by misinformation and disinformation, which threaten the quality of information accessible to learners (Adewojo et al., 2024). For librarians, managing these challenges requires advanced digital literacy skills to evaluate sources, filter relevant content, and guide users through the complexities of the information landscape (Sinha & Emeka Emeka Ugwulebo, 2022). Studies reveal that information overload can have adverse behavioural, psychological, and workplace effects, including stress, anxiety, and fatigue, particularly when linked to excessive social media use (X. Chen & Wei, 2019; C. Wang et al., 2023; Zhang et al., 2024).

Although information literacy alone may not eliminate overload, it equips information professionals with strategies to mitigate its effects, such as filtering essential information, avoiding unnecessary searches, and saving information for future use (Lauri & Virkus, 2021). Furthermore, investment in digital technologies and tools within libraries has been recommended as a proactive measure to manage the challenges of both information overload and explosion (Sinha & Emeka Emeka Ugwulebo, 2022). For teaching librarians, these insights emphasise the need to integrate information literacy instruction with critical evaluation strategies, thereby helping learners navigate an increasingly complex and saturated information environment.

In summary, the literature reveals that teaching librarians in higher education face multiple interrelated issues, including the need for stronger collaboration with faculty, rapid technological changes, reluctance to embrace teaching roles, the growing demand for instructional information literacy, and the complexities of information explosion and information overload. These issues shape the professional environment in which teaching librarians operate and influence the practical application of their knowledge, skills, and abilities.

#### **2.4.1 Instructional Information Literacy in Higher Education**

This section provides an in-depth discussion of instructional information literacy, including current practices in this area within Malaysian higher education. Academic libraries in higher education primarily focus on a small aspect of information literacy, specifically research skills, which are only beneficial during academic years. Consequently, students may not always perceive the importance of information literacy sessions beyond their application in assignments (Diekema et al., 2020). Information literacy is a crucial aspect of librarianship, although it faces threats from emerging concepts of literacy, such as digital literacy (Azik & Steinerov, 2021). To avoid information overload, students need to learn information literacy, as it is vital in the information age, where information is constantly changing, so that they can use it reliably and ethically (S. Bernard, 2024). Nevertheless, in their early years as undergraduates and postgraduate students, they tend to have difficulty directing their source of information and evaluating information to integrate into their academic purposes (Delmond et al., 2024).

In 1974, Zurkowski introduced the concept of information literacy, suggesting that an individual with a skilled understanding of how to utilise data resources in their work (Badke, 2010; Moin Ud Din et al., 2022). Studies have found that students value basic search skills in information literacy (Davidson Squibb & Zanzucchi, 2020) and that there is a significant relationship between information literacy and its instructor (Fosnacht & Fosnacht, 2020). The proliferation of information available 24/7 through the internet raises concerns about the ability to seek, evaluate, and use information appropriately, especially among Gen Z, which is why information literacy is a vital skill often overlooked by faculty (Delmond et al., 2024). Although there is a tendency for students and faculty to overlook information literacy, the latest trends in the academic

environment, alongside technological advancements, will not render information literacy obsolete, as students still require it to perform basic information searches and evaluate information (Svensson et al., 2022). A review of the literature reveals a significant demand for information literacy in both educational and workplace settings (Reddy et al., 2022). Providing library instruction, such as citation, library catalogue, and library orientation, which focuses on constructing awareness, and a one-shot instruction, compared to information literacy, is more complex to deliver (Anna et al., 2023).

It has been several decades since academic librarians have debated the best model for integrating information literacy into the curriculum (Hammons, 2022). Librarians may also struggle to balance multiple responsibilities, from administrative tasks (Aharony et al., 2019; Harrison & Deans, 2021). Library education is a non-formal education that does not offer academic credit for its courses; however, students gain new knowledge and skills from the information literacy sessions (Anna et al., 2023).

The growth of instructional information literacy underscores the necessity for teaching librarians to develop competencies in instructional design, pedagogy, and technology integration. Competence in instructional preparation and the use of instructional media is increasingly essential for delivering effective practical information literacy sessions (Hostetler & Luo, 2022). Furthermore, teaching librarians must be equipped to provide instruction across various modalities, including online platforms, to meet the diverse needs of learners (Burns, 2020).

Despite these developments, studies suggest that instructional information literacy is often managed through one-sided or static strategies, limiting its transformative potential (Anna et al., 2023). This highlights the need for a more dynamic approach to instructional practices that enhances student learning outcomes. Within the Malaysian context, constructing a competence index for teaching librarians is particularly significant, as it can guide professional development, strengthen instructional design, and contribute to institutional recognition of the value of information literacy in higher education.

#### **2.4.2 Practices of Instructional Information Literacy in Academic Libraries**

This information was retrieved as part of a preliminary study conducted in 2023 on the current practices of instructional information literacy in 20 academic libraries.

Table 2.1 presents the modules offered by academic libraries in the Malaysian higher education system, along with the total number of modules at specific institutions.

This information will then be analysed using findings from the focus group interview in Chapter 4, proposing a standardised module for information literacy that can be used in academic libraries in Malaysian higher education. The existing modules offered across Malaysian universities reveal significant variation in the design and delivery of information literacy (IL) instruction. While USM and UiTM provide more extensive coverage with 11 modules each, other universities such as UNISZA and UPSI offer only two to three modules. Despite these differences in scope, there are notable areas of overlap across institutions, including modules on reference management tools (Mendeley, EndNote, Zotero), plagiarism detection (Turnitin), literature search strategies, citation and referencing practices, and access to online databases. These recurring themes suggest a shared understanding of the core competencies required for information literacy, yet the inconsistency in depth and breadth reflects the absence of a standardised framework.

The fragmentation of IL instruction poses challenges for ensuring consistent student learning outcomes across higher education institutions. For example, while some universities integrate advanced modules such as systematic review searching or publishing strategies, others limit their training to basic catalogue use and library orientation. Consequently, students' IL competencies vary depending on institutional context, potentially impacting their academic success and research readiness.

Given these disparities, a compelling case exists for developing a standardised information literacy module that incorporates essential competencies identified across institutions. Such a module could include technological competencies, such as the effective use of digital platforms, online teaching or learning tools, and the integration of IL into virtual environments.

Standardising these modules would ensure equity in IL instruction, enhance teaching librarians' capacity to deliver consistent training, and better prepare students to navigate the challenges of information overload, technological disruption, and misinformation in the digital age.

Table 2.1  
Information Literacy Modules by Academic Libraries

University	Modules	Total Modules
<b>USM</b>	Fundamentals of Information Literacy Skills	11
	Literature Search	
	Advanced	
	Literature Search for Beginners	
	Publishing Strategy	
	Researcher Profiles	
	Mendeley Reference Manager	
	Thesis Formatting With MS Word	
	Thesis Formatting Template	
	Open Access Scholarly Publications	
	Google Scholar for Research	
Citation and Referencing		
<b>UM</b>	EndNote	9
	A to Z Online Databases	
	Pendata Discovery	
	Browzine & LibKey	
	Nomad	
	Turnitin	
	Researcher ID	
	Google Drive: Your Research Support Tools	
	Evidence-Based Medicine	

	Searching Strategy for Systematic Review	
<b>UKM</b>	Library Introduction	4
	Information Literacy for Resources	
	Information Literacy for Field/Area	
	Information Literacy for Users Need	
<b>UPM</b>	Library Introduction	6
	Information Searching Strategy	
	Turnitin	
	Mendeley	
	Online Databases	
	Citation Indexed Journal	
<b>UTM</b>	Introduction to Library Information Resources	5
	Research Information Literacy for Undergraduate	
	Research Methodology Workshop	
	Endnote for Windows	
	Turnitin for Students	
<b>UiTM</b>	Introduction to Library System	11
	Introduction to PTAR Electronic Resources	
	Online Database For Literature	
	Advanced Literature Search I :Scopus	

	Advanced Literature Search II: Web Of Science	
	Reference Management Software (Endnote)	
	Reference Management Software (Mendeley)	
	Easy Write With Ms Word	
	Publication Ethics & Publishing Tools	
	Open Access for Scholarly	
	Google Scholar & Google Drive	
<b>UIAM</b>	Basic Library Skill	6
	Legal Research Skill	
	Advanced Library Skill (Undergraduate)	
	Advanced Research Skill (Postgraduate)	
	Library Research Skill for LEED 1301	
	Reference Tool: Mendeley	
<b>UMS</b>	Basic Library	6
	Reference Materials	
	Online Public Access Catalog (OPAC)	
	Online Database	
	Mendeley: Reference Management Tools	
	Turnitin: Plagiarism Detection Tool	
<b>UNIMAS</b>	LibrARY Onesearch	5
	Finding Information for	

	Academic Writing	
	Finding Information on the Web	
	Citing References	
	Plagiarism	
<b>UUM</b>	Customer Service Refresher Training	15
	Mendeley	
	Searching Techniques	
	Google Scholar	
	Empowering Researchers Skills	
	APA Citation Style	
	Library Online Databases	
	Harvard Business Publishing for Educators	
	Predatory Journals	
	Scopus	
	Law Online Databases	
	Increase Citation and Research Visibility	
	Turnitin for Instructors	
	Navigate Library Resources and Information Literacy	
	Getting Started with Eikon and Datastream	
<b>UPSI</b>	Opac	3
	Pustaka Portal	
	Online Database	
<b>UTHM</b>	Library Introduction	3
	Research and Information Literacy Class	

	Research Methodology	
<b>UTeM</b>	Introduction to Library	7
	Information Searching	
	Skills	
	Turnitin	
	Mendeley	
	Literature Search	
	Open Access	
	Research Support (GRA/RA/SRA)	
<b>UNIMAP</b>	Digital Research Skill for Academic	5
	Academic Information	
	Resources for Postgraduate	
	WebOPAC dan WorldCat Discovery	
	Turnitin, Understanding Plagiarism	
	Bibliographic Software Mendeley	
<b>UNISZA</b>	Module Information	2
	Literacy	
	Module Information Skills	
<b>UMT</b>	Library Introduction	5
	Basic Information	
	Literacy	
	Advanced Searching Strategy	
	Basic Citation and Bibliography (Mendeley & APA)	

	Research Support (Scopus, WOS, Research ID & Profile)	
<b>UMP</b>	Library Introduction Library Catalog Information Literacy Information Searching Strategy Mendeley Turnitin	6
<b>USIM</b>	Access to Information Opac Online Database Mendeley	4
<b>UMK</b>	Modul S-OPAC Modul Database Searching Modul Endnote Modul Mendeley Modul Turnitin Modul Information Searching	6
<b>UPNM</b>	Library Introduction Item Searching and WebOpac Online Database and Searching Strategy Plagiarism and Turnitin Citation and Mendeley	5

## 2.5 Librarianship Academic Program in Malaysia's Higher Education

Addressing these issues requires systematic support and structured professional preparation. In the Malaysian context, librarianship programs offered by universities

such as the University of Malaya (UM), Universiti Teknologi MARA (UiTM), and Universiti Islam Antarabangsa Malaysia (IIUM) play a pivotal role in equipping future librarians with foundational competencies. However, the growing instructional responsibilities of teaching librarians indicate that existing programs may need to integrate more specialised training in pedagogy, instructional design, and digital literacy to align with the evolving demands of higher education.

Thus, developing a competence index for teaching librarians is both timely and necessary. It provides a structured benchmark that complements existing librarianship programs in Malaysia by addressing professional training gaps and preparing librarians to meet contemporary instructional challenges with confidence and effectiveness. The Ministry of Higher Education Malaysia (MOHE) oversees higher education institutions, including public universities, private universities, polytechnics, and community colleges. Public universities are classified into three categories: five research universities, eleven comprehensive universities, and four focused universities. This classification aims to enhance efficiency and strengthen the overall effectiveness of Malaysia's higher education system.

Among the eleven comprehensive universities, Universiti Teknologi MARA (UiTM) is recognised as the pioneer in offering librarianship programs across multiple levels of education, from diploma to doctoral studies. Subsequently, other public universities, including the University of Malaya (UM) and the International Islamic University Malaysia (IIUM), introduced librarianship programs, although these were initially limited to the postgraduate level. In addition, Universiti Selangor (UniSEL) entered the field as a private institution offering similar programs, followed more recently by the Management and Science University (MSU). While the number of institutions providing librarianship programs remains relatively small, this is sufficient to meet the industry's professional demand, given the field's specialised nature.

The Malaysian Qualifications Agency (MQA) has established specific standards for the field of information science, which serve as guidelines for the academic preparation of semi-professional and professional roles in information, knowledge management, librarianship, museums, records, and archives, as well as related domains (Malaysian Qualifications Agency, 2013). However, a critical issue emerges when considering the evolving role of academic librarians as educators. Despite the growing global instructional responsibilities highlighted in the literature, Malaysian librarianship programs, similar to their international counterparts, tend to provide limited exposure

to pedagogical courses or instructional training. A review of the curricula offered by local universities, as listed on their respective websites, confirms that pedagogical subjects and teaching-related training are mainly absent from the syllabi. This gap persists, although the responsibilities of academic librarians have dynamically shifted to include teaching and information literacy instruction, reflecting broader changes in higher education.

As summarised in Table 2.2, UiTM remains the only public university offering a bachelor's degree in librarianship, while UM and IIUM restrict their programs to the postgraduate level. This indicates a structural gap in the integration of pedagogical preparation within librarianship education in Malaysia, reinforcing the need for a competence index that addresses instructional skills for teaching librarians.

Table 2.2

Pedagogical Subject in Malaysia Higher Educations

No	Universities	Level of Programs	Pedagogical Subject	Sources
1	UiTM	Diploma Bachelor Master PhD	Not offered	<a href="https://kppim.uitm.edu.my/component/content/article/24-im244/1-bachelor-of-information-science-hons-library-management-im244?Itemid=229">https://kppim.uitm.edu.my/component/content/article/24-im244/1-bachelor-of-information-science-hons-library-management-im244?Itemid=229</a>
2	UM	Master Phd	Not offered	<a href="https://fass.um.edu.my/master-of-library-and-information-science-coursework">https://fass.um.edu.my/master-of-library-and-information-science-coursework</a>
3	IIUM	Master PhD	Not offered	<a href="https://kulliyyah.iium.edu.my/kict/master-of-library-and-information-science-3/">https://kulliyyah.iium.edu.my/kict/master-of-library-and-information-science-3/</a>
4	UniSEL	Diploma Bachelor	Not offered	<a href="https://fcvac.unisel.edu.my/bachelor-of-information-science-library-management-hons/">https://fcvac.unisel.edu.my/bachelor-of-information-science-library-management-hons/</a>
5	MSU	Diploma Bachelor	Not offered	<a href="https://www.msu.edu.my/faculty-information-sciences-engineering/bachelor-in-information-management">https://www.msu.edu.my/faculty-information-sciences-engineering/bachelor-in-information-management</a>

The evidence presented in the table underscores the need for closer collaboration between information schools and the library industry to ensure alignment with current trends and professional demands. Such collaboration is essential for producing

graduates who are adequately prepared to meet the evolving requirements of academic libraries, as defined within the scope of this research.

This finding further supports the problem statement outlined in 1.3.1, highlighting that current academic programs do not align with the evolving demands of education and industry. As a result, many librarians enter the profession insufficiently prepared to undertake teaching responsibilities, particularly in delivering information literacy instruction during the early stages of their careers. This lack of preparation contributes to broader challenges, such as identifying who should be responsible for conducting classes and recognising the need to develop pedagogical skills tailored to information literacy education (Moser & Abramovich, 2023).

A complete list of the courses reviewed is provided in Appendix E. Building on this discussion, the following section examines the importance of the competence index for teaching librarians, thereby situating the need for a competence index within both the global and Malaysian higher education contexts.

## **2.6 Professional Competencies of Teaching Librarians**

Competency has long been a central issue in the library and information science field, spanning over three decades, particularly with the growing influence of information and communication technologies (ICT) (S. A. Khan & Parveen, 2020). As libraries evolve, academic librarians are increasingly required to demonstrate professional competencies that encompass knowledge, skills, and attitudes necessary for effective task performance (Tang et al., 2024). A literature review of eighteen competencies identified by professional associations, as reported by Tang et al. (2024) and summarised by Luo & Tang (2024), highlights the range of competencies needed in academic librarianship, including cataloguing and metadata, reference and instruction, library systems, and collection development. Within the scope of this study, reference and instruction are of particular significance, as they align with professional competencies developed to guide the design of learning assessments, instructional delivery, and ongoing professional development for teaching librarians.

The organisational dimension of competency is equally essential. Effective performance requires technical expertise and decision-making capacity in complex and ambiguous environments (Nayebpour, 2023). Scholars have argued that career competencies, defined broadly as knowledge, skills, and abilities, are essential for

professional growth in contexts shaped by uncertainty and challenges (Akkermans et al., 2012; Inkson & Arthur, 2001; Jo et al., 2023). Teaching librarians, often positioned as middle managers within academic libraries, embody this dual responsibility. They are accountable not only for instructional roles but also for quality assurance, conflict resolution, and resource management (Sudirman et al., 2019). Consequently, developing a competence index for teaching librarians must extend beyond technical qualifications to include behavioural and performance-based dimensions, aligning with The Chartered Institute of Personnel Development (2021) emphasis on observable workplace behaviours as indicators of true competency.

Conceptual clarity between "competence" and "competency" further strengthens this discussion. Competency refers to the behavioural aspects of tasks, whereas competence reflects the level of skill and performance achieved by organisational standards (McBreen et al., 2022). Thus, constructing a competency model, or in this study, a competence index, requires a comprehensive mapping of knowledge, skills, and abilities (KSAs) that translate organisational policies into measurable employee behaviours (Campion et al., 2020). Developing such an index clarifies expectations and supports strategic human resource planning, allowing organisations to identify which competencies can be developed internally and which require external acquisition (Nayebpour, 2023).

Competencies are best understood as a blend of knowledge, skills, and abilities that enable individuals to achieve job-specific outcomes (L. Chen et al., 2021; Jiang et al., 2023; Leung et al., 2016). This study, therefore, adopts knowledge, skills, and abilities as foundational attributes, integrating them with the Framework for Information Literacy for Higher Education to create a holistic model tailored for teaching librarians in Malaysia.

Finally, the demand for continuous professional development in librarianship underscores the dynamic nature of competencies. Functional knowledge and skills alone are no longer sufficient; librarians must adapt to emerging trends in higher education and information management (F. Abbas & Ameen, 2022). From a strategic management perspective, competencies are viewed as micro-foundations of dynamic capabilities, which organisations develop to remain competitive and resilient. Such capabilities encompass functions, activities, and competencies that enable libraries to sustain innovation and advance academic services (Jadhav & Shenoy, 2022).

In the context of Malaysian higher education, the urgency of developing a competence index for teaching librarians is exceptionally pressing. Academic libraries are expected to support institutional teaching and learning missions, as well as respond to evolving trends in digital scholarship, information literacy, and lifelong learning. Therefore, librarians require competencies that extend beyond traditional library functions to encompass pedagogical expertise, technological adaptability, and professional behaviours that contribute to student success. While international frameworks such as the ACRL Standards and Framework for information literacy provide valuable foundations, they must be contextualised to reflect Malaysia's specific educational, cultural, and institutional realities. Consequently, this study equipped them to navigate their expanding roles and enhance their impact within academic communities.

The concept of a competence index has emerged as a systematic and quantifiable approach to assessing, evaluating, and comparing levels of professional competence across various domains. In educational and professional contexts, an index serves as a composite measure that integrates multiple dimensions of competence, such as knowledge, skills, and attitudes, into a coherent framework (Mulder, 2014; Spencer & Spencer, 1993b). Unlike single-dimensional assessment tools, a competence index provides a holistic picture by reflecting both the visible aspects of professional practice and the underlying attributes that sustain performance.

From a theoretical standpoint, the development of a competence index requires a solid foundation in established competence models. The widely cited "iceberg model" distinguishes between surface competencies, such as knowledge and skills, and deeper components, including traits, self-concept, and motives, which are less visible yet critical for effective professional functioning (Boyatzis, 1982; Spencer & Spencer, 1993b). In the context of teaching librarians, this implies that competence cannot be reduced merely to technical proficiency in information literacy instruction, but must also encompass interpersonal, pedagogical, and reflective capacities that sustain long-term professional credibility.

Methodologically, competence indices are often constructed through multi-stage processes that combine qualitative exploration with quantitative validation. For example, empirical studies in education and the health professions have employed literature reviews, expert consultation, and the Delphi method to identify relevant indicators, which have been validated through exploratory and confirmatory factor

analysis (Lizzio & Wilson, 2004; Mulder et al., 2009). Several competence indices in educational contexts demonstrate the practical value of such frameworks. For instance, Mulder et al. (2009) proposed a competence framework for vocational education and training that integrated domain-specific knowledge with generic professional skills, enabling systematic curriculum alignment. Similarly, Lizzio & Wilson (2004) developed a competence index for higher education graduates, identifying dimensions such as problem solving, communication, and teamwork, which are transferable across disciplines. Library and information science studies have highlighted the need for validated competence indices to assess librarians' teaching roles in information literacy, emphasising pedagogical knowledge, instructional design, and learner engagement (Oakleaf, 2014).

Applying a competence index in higher education offers multiple benefits, particularly for teaching librarians. It enables institutions to establish benchmarks for professional development, supports evidence-based evaluation of instructional practices, and strengthens librarians' recognition as educators. Moreover, such an index contributes to policy formulation by providing standardised measures that can be compared across institutions and contexts, thus enhancing accountability and professional credibility (Mulder, 2014; Oakleaf, 2014).

The competence index represents a significant methodological advancement in measuring professional practice. For teaching librarians, it offers a structured means to evaluate the multifaceted nature of instructional competence, bridging technical expertise with human attributes. Its development and validation contribute to scholarly discourse and provide practical tools for strengthening professional roles in higher education. A rigorously developed competence index for teaching librarians should be anchored in contemporary information literacy and professional competence frameworks, reflect visible instructional skills and underpinning professional attributes, be validated with robust procedures, and be locally tested (for future research) to ensure contextual validity for Malaysian higher education. Properly designed, such an index will support curriculum alignment, professional development, and evidence-based evaluation of librarians' instructional roles.

## **2.7 Established Standards and Frameworks of Competencies in Librarianship**

The theoretical foundations of competency in librarianship are based on a combination of knowledge, skills, attitudes, and professional values that enable librarians to manage and provide effective access to information. These foundations are influenced by various theories covering library and information science, education, management, and psychology. However, for this research, the theoretical foundation will focus on the aspect or angle of competency in librarianship, specifically the competence of teaching librarians, as the objective is to construct a competence index for teaching librarians in academic libraries within higher education.

There are several guidelines and standards on competency for general practitioner librarians and specific librarians introduced by the American Library Association (ALA). These guidelines and standards aim to provide specialised learning experiences as the foundation of librarianship and information studies developed by relevant librarianship organisations. The generic competency standard is the core competency of librarians, in addition to specific tasks, such as competencies for special collection professionals, acquisition professionals, cataloguing and metadata professionals, and electronic resources librarians. This research focuses on constructing a competence index for teaching librarians in academic libraries, which illustrates the core competency of librarians and provides guidelines for developing the intended competence index. Later in this section is the summary of all the theories explained to give a simple view and for better understanding, as in Table 2.3.

### **2.7.1 Core Competency of Librarians by American Library Association (ALA)**

The American Library Association's (ALA) Core Competencies of Librarianship represent the central benchmark for defining the professional identity of librarians. The 2023 revision, approved by ALA Council, reflects a deliberate attempt to update the framework in line with technological developments, changing user needs, and diversifying library roles (American Library Association, 2023). This revision followed an extensive update process initiated in 2021, which underscored the importance of stakeholder engagement in rearticulating competencies. The first core competency, gateway knowledge, requires library professionals to uphold and apply the profession's ethical standards, values, and foundational principles. In this capacity, they

are expected to actively promote democratic principles and intellectual freedom, while simultaneously advocating for libraries, librarians, staff, users, and the essential services provided.

The second competency, information resources, emphasises the responsibility of library professionals to create awareness of issues across the lifecycle of recorded knowledge and information. This entails applying principles and methods of collection management while integrating emerging formats and genres to ensure that resources remain relevant, diverse, and inclusive. The third competency, lifelong learning and continuing education, highlights the role of library professionals in fostering and providing leadership for ongoing professional development. They are required to recognise the integral role of libraries in advancing lifelong learning initiatives and apply established and emerging learning theories within educational programs and initiatives.

The fourth competency, management and administration, requires responsible fiduciary planning and oversight, as well as equitable supervisory practices. This competency extends to human resources' management, training, and professional development. Furthermore, library professionals are expected to demonstrate proficiency in transformational and change management leadership, drawing upon established leadership theories to navigate organisational challenges. The fifth competency, organisation of recorded knowledge and information, entails a comprehensive understanding of the principles, systems, and trends governing the representation and organisation of information. Professionals must apply developmental, descriptive, analytical, and evaluative skills while also maintaining awareness of how cultural biases influence the classification and description of knowledge.

The sixth competency, reference and user services, emphasises adequate support in locating, retrieving, evaluating, and synthesising information from diverse sources. This includes employing methods necessary for consultation, mediation, instruction, and guidance in using information resources. Moreover, professionals are expected to apply established principles for understanding and assessing the information needs of their communities. The seventh competency, research, requires engaging with, analysing, and synthesising existing scholarship through a multidisciplinary lens. Library professionals must demonstrate an understanding of the ethical application of research methods, techniques, and designs relevant to the profession, while also being

mindful of how professional and cultural values influence different stages of the research process. Finally, the eighth competency, social justice, requires professionals to cultivate critical self-awareness of their cultural identities and positionalities regarding power, privilege, and systems of oppression. They must identify, challenge, and reform practices, services, and programs that reinforce dominant structures and marginalisation. Ongoing professional development in this area is essential to strengthening equity, diversity, and inclusion within library practice.

Scholarly contributions highlight both the value and limitations of the core competencies. Saunders & Saunders (2020) demonstrated that while the framework articulates broad knowledge areas, academic libraries often require specialised skills, suggesting that competencies should be viewed as a foundation rather than an exhaustive prescription. Empirical findings from Hu et al. (2022) reinforced this point, revealing that working librarians frequently identify communication, instructional ability, and adaptability as central to their practice, despite these being underrepresented in competency documents.

Further studies examined the alignment between competencies and employment expectations. Yang et al. (2023) analysed ALA job advertisements and found growing demand for digital scholarship and data-related expertise, reflecting a profession increasingly shaped by technological fluency. In a related development, Evans et al. (n.d.) and a division of ALA published specialised frameworks for cataloguing and metadata professionals, thereby supplementing the generalist ALA competencies with technical depth.

Integrating the revised competences into professional education is also a recurrent theme. Hirsh et al. (2023) argued that LIS programs must systematically align curricula with the updated ALA framework to ensure graduates are adequately prepared for professional demands. At the same time, Harper & Groth (2025) highlighted the pressing need for librarians to extend their competencies beyond traditional boundaries by incorporating the ethical use of artificial intelligence, data literacy, and critical awareness of emerging technologies. The recent ALA strategic planning documents situate the core competencies as central to the association's vision for librarianship. They are both a standard for professional practice and a guiding principle for organisational adaptation in a rapidly evolving information environment.

These studies affirm that the ALA core competencies provide a vital foundation for librarianship, but their relevance depends on continual adaptation. Professional

discourse increasingly stresses the integration of specialised expertise, pedagogical proficiency, digital literacy, and responsiveness to emerging societal and technological contexts. To summarise the core competency of librarians, this competency requires the library professionals to extend across ethical, managerial, educational, and social domains. They must uphold professional ethics, advocate for libraries, and manage information resources across formats. Their role involves supporting lifelong learning, applying effective management and leadership, and ensuring equitable organisation of recorded knowledge. Additionally, they must deliver high-quality user services, engage in research using ethical and evidence-based approaches, and commit to social justice by addressing issues of power, privilege, and inclusion.

### **2.7.2 Roles and Strength of Teaching Librarians by American Library Associations**

The initial stage of creating this standard involved gathering and analysing a collection of job postings for academic instruction or information literacy to identify emerging trends in hiring instruction librarians. The findings suggested that the profession required a professional standard to give additional guidance to specific competencies beyond the language used in the job advertisement. Based on the seven conclusions of the analysis, the standard team developed seven roles that developed this framework. This standard was first documented in 2007 and subsequently revised in 2014 to adopt a comprehensive and holistic approach that considers the roles and responsibilities of the instructional librarian within the academy, connects broader contexts with practical applications, and streamlines the document. The key changes in this standard are the terms used in the standards, such as the transition from proficiencies to roles and from instruction librarians to teaching librarians. The primary reason for changing these words is to broaden their scope and make them more inclusive compared to the terms used previously.

Teaching librarianship is characterised by roles embodying professional practice, pedagogical expertise, and institutional collaboration. The Association of College and & Research Libraries (2017) developed the Roles and Strengths of Teaching Librarians framework, identifying seven core competencies: Advocate, Coordinator, Instructional Designer, Lifelong Learner, Leader, Teacher, and Teaching Partner. These roles are not prescriptive but aspirational, designed to reflect the

evolving nature of librarianship in higher education and the need for engagement within diverse institutional and cultural contexts.

Scholarly work has further reinforced the relevance of these competencies. For instance, Valenti & Lund (2021) mapped these roles within Library and Information Science (LIS) curricula, demonstrating how competencies such as advocate, lifelong learner, and leader are explicitly represented in graduate education. Similarly, Fowler et al. (2020) emphasised that the coordinator role extends beyond administrative management to encompass instructional leadership, involving vision, persuasion, and collaboration in the development of information literacy programs.

The lifelong learner role, in particular, has been discussed in connection with pedagogical innovation. (Armstrong & Armstrong, 2019) highlighted its alignment with the ACRL Framework for Information Literacy for Higher Education, underscoring the importance of reflection, adaptability, and continuous professional growth. Collectively, these studies demonstrate that teaching librarians are not only practitioners of instruction but also institutional leaders, collaborators, and advocates for student learning.

This standard focuses on the roles of a teaching librarian and the strengths that teaching librarians should possess. Instructional design has been widely discussed as a systematic and evidence-based process that integrates pedagogical theory with practical application to improve learning experiences. Scholars agree that effective instructional design requires a range of competencies, though their emphasis may differ across contexts. A foundational competency is the analysis of the instructional environment. Research shows that the psychological, social, cultural, and physical dimensions significantly shape student motivation and engagement (Rusticus et al., 2023). Similarly, Kassab et al. (2024) found that students' perceptions of their educational environment strongly predict their emotional, cognitive, and behavioural engagement, influencing academic achievement. These findings underscore the necessity of considering environmental affordances when planning instructional delivery.

A second competency involves identifying and addressing student learning needs flexibly across contexts. The Universal Design for Learning (UDL) framework advocates for flexible goals, methods, and assessments that accommodate diverse learners (CAST, 2024). While UDL offers a powerful theoretical lens for inclusive teaching, challenges remain in adapting it effectively in resource-constrained or discipline-specific environments (Garay Abad & Hattie, 2025). Another crucial area is

defining learning goals and outcomes. The SMART framework (Specific, Measurable, Achievable, Relevant, and Time-bound) and backward design (Wiggins & Mctighe, 2005) are widely applied to ensure instructional coherence between objectives, teaching, and assessment Atchison et al. (2022) further validate the importance of aligning instruction with curricular goals, showing that misalignment risks undermining the rigour of standards.

Instructional design also requires creating engaging and innovative lessons that are supported by effective instructional materials. Penuel et al. (2024) highlight the importance of designing standards-aligned resources that meet curricular requirements, engage student interests, and reflect community priorities. However, Zhao et al. (2023) caution that teachers often face challenges in maintaining alignment across teaching, learning activities, and assessment in project-based learning contexts. This highlights the difficulty of ensuring innovation in lesson design without sacrificing pedagogical alignment. Evaluating instructional effectiveness is another critical competency. Black & Wiliam (1998) seminal work on formative assessment demonstrated its role in improving student learning by creating feedback loops for adjustment. More recently, Abate & Mishore (2024) found that many teacher-made tests show gaps in alignment with course objectives, underscoring the need for systematic evaluation of assessment practices to ensure validity. Locke & Latham (2018) goal-setting theory further emphasises the role of feedback in motivating learners and refining instruction. Finally, instructional designers and educators must remain current with emerging trends and innovations in pedagogy and technology. As Reiser & Dempsey (2021) observe, trends in instructional design increasingly emphasise technology integration, yet meaningful adoption requires maintaining pedagogical integrity rather than privileging novelty. Continuous professional development is therefore essential for ensuring instructional practices evolve alongside innovations in the field.

The literature points to six interrelated competencies: environment analysis, learner needs assessment, goal definition, lesson design, assessment, and professional updating that underpin effective instructional design. Successful implementation depends on adopting established frameworks and navigating contextual realities, balancing innovation with alignment, and sustaining professional learning.

### **2.7.3 Framework for Information Literacy for Higher Education**

This Framework outlines key concepts for developing information literacy in higher education, emphasising the importance of understanding and utilising information effectively. It introduces six frames that focus on authority, information creation, and the strategic exploration of searching. The Framework promotes scholarship as a collaborative and ongoing process, encouraging research as a form of inquiry and investigation. It also highlights the value of information and the context in which it is constructed (Association of College and Research Libraries, 2015).

The Association of College and Research Libraries' (ACRL) Framework for Information Literacy outlines six core concepts for learners and teaching librarians. First, authority is constructed and contextual, as information reflects the expertise of its creators and must be evaluated according to context, with learners encouraged to respect expertise while maintaining critical inquiry. Second, information creation is a process that emphasises that information is produced and valued differently depending on its purpose, medium, and audience, thus requiring learners to assess its appropriateness for their needs. Third, information has value as a commodity and a means of education, influence, and social negotiation, highlighting the importance of attribution, intellectual property awareness, and equitable access. Fourth, research is inquiry, representing an iterative process where increasingly complex questions guide the expansion of knowledge, encouraging learners to synthesise diverse perspectives. Fifth, scholarship as conversation highlights the collaborative and discursive nature of knowledge creation, requiring learners to engage responsibly with scholarly dialogue. Finally, searching as strategic exploration reflects the iterative and contextual nature of information-seeking, where learners must effectively adapt strategies and tools to address evolving information needs. These frames provide a foundation for integrating information literacy into higher education.

Since its formal adoption, the ACRL Framework for Information Literacy for Higher Education has become the principal conceptual scaffold guiding information literacy (IL) instruction in higher education. The Framework's six threshold concepts (e.g., Authority Is Constructed and Contextual, Searching as Strategic Exploration) provide flexible, conceptual language to shift instruction from procedural skills to deeper epistemological understanding. As the official source, ACRL's Framework remains the primary reference point for scholarship and practice.

Empirical studies conducted since 2020 have indicated uneven implementation and persistent challenges in assessment. A national survey and related practitioner studies report that many librarians endorse the Framework's theoretical value but find it challenging to translate into measurable learning outcomes and routine one-shot instruction formats (Hsieh et al., 2021a). Community college research corroborates these findings: semi-structured interviews with instruction librarians reveal that the Framework often underpins instructional design implicitly rather than explicitly taught, and that the COVID-19 pandemic both constrained traditional delivery formats and opened opportunities for embedded, online instruction approaches.

A related strand of research interrogates the pedagogical accessibility of the Framework's language. Jarson & Hamelers (2022) work demonstrates that undergraduate students sometimes find threshold-concept terminology abstract and difficult to operationalise in coursework, which has important implications for curriculum design and assessment strategies. Practitioners and educators advocate for pedagogical translation, localised learning objectives, scaffolded activities, and assessment instruments that render the Framework's concepts teachable and measurable.

The authority is constructed, and the Contextual frame has attracted particular theoretical scrutiny. Recent multidisciplinary critiques argue that the epistemic assumptions embedded in this frame require clearer unpacking, especially across disciplinary and cultural contexts where markers of authority vary widely. Scholars have employed conceptual analysis and reviews of classroom materials (e.g., ACRL Sandbox outputs) to demonstrate how instruction can inadvertently simplify or obscure complex debates about truth, expertise, and belief, thereby motivating calls for more explicit epistemological scaffolding in IL curricula.

Contemporary technological developments have also prompted practical extensions of the Framework. Practitioner literature and edited volumes have begun mapping generative AI, social media, and digital authorship into the Framework's frames, providing instructors with pedagogical strategies for engaging students with algorithmically generated content and social platforms while preserving critical inquiry goals. These resources exemplify how the Framework's conceptual flexibility supports rapid pedagogical adaptation to emergent technologies.

Finally, professional governance of the Framework is dynamic; ACRL's official review and revision process signals active reconsideration of its scope, language, and

inclusivity, particularly concerning equity, assessment, and the impacts of new information technologies. For research that aims to influence practice, this evolving policy context is crucial for scholars to situate their findings in relation to the ongoing revision process and consider how proposed changes might impact curricular and assessment recommendations.

In conclusion, recent literature converges on three practical implications for higher-education IL work (1) the Framework offers valuable conceptual grounding but requires pedagogical translation to be teachable and assessable in typical course formats, (2) particular frames (notably authority) demand careful epistemological treatment across disciplines and (3) rapid technological change and the ACRL review process make continual revision and contextual adaptation necessary for both curricula and practitioner guidance. These conclusions highlight future research needs in assessment instrument development, discipline-specific translation of frameworks, and the empirical evaluation of Framework revisions as they emerge.

#### **2.7.4 Information Literacy Competency Standard for Higher Education**

The Information Literacy Competency Standards for Higher Education provide a framework for assessing the information literate individual and align with K-12 standards. The competencies help students gain control over how they interact with information and sensitise them to the need for a metacognitive approach to learning. Institutions should review their mission and educational goals to determine how information literacy can improve learning and enhance effectiveness, which also requires faculty and staff development. The standards include five standards and twenty-two performance indicators to assess student progress towards information literacy. Faculty and librarians should develop assessment instruments and strategies tailored to the specific context of each discipline. Institutions must recognise that different levels of thinking skills are associated with various learning outcomes, necessitating distinct assessment methods (American Library Association, 2000).

The Information Literacy Competency Standards for Higher Education (American Library Association, 2000) outline five interrelated dimensions that shape students' engagement with information. First, learners must be able to define their information needs, identify potential sources, and reassess those needs as their inquiry develops. They should also acquire the ability to locate and access information

efficiently, employing appropriate search strategies and retrieval methods. Equally important is the capacity to evaluate information critically, assessing the credibility and relevance of sources before integrating them into their knowledge base and value system. Beyond evaluation, learners are expected to apply information effectively to accomplish specific academic or professional purposes, whether individually or collaboratively. Finally, they must demonstrate an awareness of the ethical, legal, and socio-economic dimensions of information use, including respect for intellectual property, proper attribution, and sensitivity to issues of equity and access. Collectively, these standards provide a comprehensive framework that fosters both technical and ethical competencies, preparing learners to participate responsibly in scholarly and professional communities.

The discourse on information literacy competencies in higher education has shifted in recent years from reliance on the Information Literacy Competency Standards for Higher Education to a growing emphasis on the Framework for Information Literacy for Higher Education, which replaced the Standards. Since 2020, much of the scholarly literature has critically examined the successes, challenges, and pedagogical implications of adopting the Framework, particularly in diverse institutional contexts.

Parallel scholarship emphasises the value of the Framework in fostering collaboration. Fullard (2016) demonstrated how the Framework can act as a bridge between librarians and faculty, particularly in cultivating shared pedagogical approaches. This aligns with Gross et al. (2022a) study of community college librarians, which showed that while the Framework influenced instructional practices, it was often applied implicitly rather than explicitly, especially during the COVID-19 pandemic when instructional modes rapidly shifted.

At the same time, empirical studies have consistently reaffirmed the positive outcomes of integrating information literacy. Mughari et al. (2023) demonstrated that students with stronger information literacy competencies exhibited higher levels of cognitive engagement and academic success, providing quantitative evidence of the Framework's educational value in higher education.

Organizationally, the Association of College and Research Libraries (ACRL) initiated a formal review and revision process of the Framework in 2023, with considerations of inclusivity, equity, and emerging technologies such as artificial intelligence. This ongoing process underscores the profession's acknowledgement that

competencies must adapt to broader shifts in higher education and the information landscape.

Collectively, the literature from 2020 to 2025 illustrates that while the ACRL Framework has largely supplanted the earlier Standards, its practical implementation continues to face challenges, particularly with respect to language, assessment, and conceptual clarity. Nevertheless, evidence from both theoretical critique and empirical validation confirms its centrality in guiding instruction, fostering collaboration, and shaping the future of information literacy in higher education.

### **2.7.5 ACRL Standards for Proficiencies for Instruction Librarians and Coordinators: A Practical Guide**

This standard is intended to help teaching librarians develop the skills required to be competent teaching librarians, delivering instructional information literacy and improving the content of information literacy programs, especially in academic libraries. This guide outlines the essential skills and proficiencies for instruction librarians and coordinators, aiming to enhance their teaching effectiveness and manage instructional services in academic libraries. It highlights the growing role of information literacy and the need for librarians to develop focused skill sets to create impactful learning experiences. The guide highlights several specific skills for instruction librarians to improve their teaching, organised into various proficiencies (American Library Association, 2008).

The competencies required of teaching librarians encompass a broad range of professional and pedagogical domains. Administrative skills are essential for ensuring the alignment of instructional activities with institutional goals through effective communication with coordinators and administrators. Equally important are assessment and evaluation skills, which enable librarians to design meaningful assessments that measure student learning outcomes and to refine instruction based on feedback. Strong communication skills are essential for adapting to diverse learning styles and facilitating inclusive dialogue on complex or controversial topics.

Teaching librarians must also possess curriculum knowledge to analyse subject areas and identify opportunities for meaningful instructional integration. This is closely linked to the integration of information literacy skills, whereby librarians collaborate with faculty to embed information literacy into courses, assignments, and broader

academic programs. Similarly, instructional design skills are critical for defining learning outcomes, sequencing lesson content, and incorporating learner-centred activities, while leveraging technology to enhance engagement and retention.

In addition, teaching librarians are expected to demonstrate leadership skills, take initiative in identifying instructional opportunities, foster collaboration, and contribute to the strategic advancement of information literacy. Finally, teaching skills remain at the role's core, requiring the ability to create inclusive, learner-centred environments that employ active and collaborative learning strategies, respond to diverse learning needs, and encourage reflection to continually improve teaching practices.

Recent scholarship continues to draw upon the ACRL Standards for Proficiencies for Instruction Librarians and Coordinators and its revision, the Roles and Strengths of Teaching Librarians (2017), as a foundation for examining instructional librarianship in higher education. A central theme across recent studies concerns the alignment—or lack thereof—between these professional expectations and the preparation offered by library and information science (LIS) education.

Valenti & Lund (2021) conducted a content analysis of ALA-accredited master's program course descriptions, examining how the ACRL Roles and Strengths of Teaching Librarians are represented. Their findings indicated uneven coverage, with specific roles such as "teacher" and "instructional designer" well-defined, while others, including leadership and advocacy, were underemphasised. This highlights persistent gaps in LIS curricula, particularly in equipping graduates for the broader professional competencies expected of instruction librarians.

This concern was further substantiated by B. Lund et al. (2023), who surveyed LIS educators, library employers, and practitioners to evaluate perceived preparation for instructional roles. Their comparative study revealed a significant misalignment between curricular offerings and professional needs, particularly in areas such as assessment, program management, and leadership competencies outlined in the ACRL documents. This suggests that while the Standards, Roles, and Strengths remain influential, their translation into formal education is inconsistent.

Other studies have examined how instructional librarians themselves conceptualise and enact the competencies. Kogut (2024) explored the relationship between teaching librarians' pedagogical beliefs and classroom practices, noting that while many librarians internalise ACRL's guiding principles, implementation varies

widely depending on individual teaching philosophies. Similarly, Norrell (2022) emphasised the importance of leadership development for instruction coordinators, arguing that the Proficiencies provide a critical framework for cultivating instructional leadership but require institutional support to be fully realised.

Beyond curriculum and practice, broader syntheses underscore the ongoing relevance of ACRL's guidance. Lafferty et al. (2024) conducted an evidence synthesis of LIS instructional offerings, confirming that while instruction-related content is present in many programs, it often lacks the comprehensive integration of proficiencies expected by the profession. Hovious et al. (2023) provided a historical reflection on "blended librarianship," situating the evolution of instructional roles within two decades of changing professional demands and reaffirming the enduring importance of ACRL's frameworks in defining the instructional identity of librarians.

This body of literature demonstrates that while the ACRL standards for proficiencies and the roles and strengths of teaching librarians continue to guide expectations for instructional librarianship, significant challenges remain in embedding these competencies into LIS curricula and institutional practice. The studies highlight the need for stronger integration of leadership, assessment, and programmatic competencies to ensure that instructional librarians are adequately prepared to meet the complex teaching and coordination demands of contemporary higher education.

Table 2.3  
Summary on Theoretical Foundation of Competency in Librarianship

<b>Theories</b>	<b>Components</b>	<b>Focus</b>	<b>Sources</b>
Core Competency of Librarians	9 Competencies	General Librarians General setting	American Library Association (2021)
Roles and Strengths Teaching Librarians	7 Roles	Teaching Librarians	Association of College and Research Libraries (2017)

Framework for Information Literacy for Higher Education	6 Frames	Information Literacy Teaching Librarians Higher Education	Association of College and Research Libraries (2015)
Information Literacy Standards for Higher Education	5 Standards	Information Literacy Higher Education	American Library Association (2000)
ACRL Standards for Proficiencies for Instruction Librarians	8 Skills	Teaching Librarians	American Library Association (2008)

These five theories are among the guidelines and standards established by the American Library Association. The most significant contribution made is the Association of College and Research Libraries (ACRL), a division created for librarians to conduct themselves appropriately in tasks related to librarianship. The core competency for librarians, as produced by ALA, is explicitly designated for the general practice of librarianship. It acts as a guideline or tool for junior librarians at the beginning of their careers. Since this research focuses on a specific scope of librarianship, specifically teaching librarians, the ALA guidelines are not used as a context in this research.

The Roles and Strengths of Teaching Librarians aims to outline the roles and responsibilities of teaching librarians within institutions, providing a broader concept and practical applications. However, the shift to the newer framework, Framework for Information Literacy for Higher Education, has prompted a re-examination of the structure and purpose of the roles of a teaching librarian.

The Framework for Information Literacy for Higher Education is suitable for this research because its focus encompasses all perspectives in the higher education setting, including those of academic librarians, faculty, administrators, and higher

education institutions. This framework aims to guide and construct the development of an information literacy program in higher education, with the collaboration of faculty members to assist in the integration of information literacy into their curricula, promoting better understanding and engagement.

The ACRL Information Literacy Competency Standards for Higher Education were developed to assess an individual's information literacy, and their scope encompasses the higher education environment. In evaluating individual information literacy or students' learning outcomes, teaching librarians must have and master the human attributes necessary to deliver information literacy instruction as part of their competence index. However, this standard covers the knowledge needed or required by a teaching librarian to provide instructional information literacy.

The ACRL Standard for Proficiencies in Instructional Librarianship and Coordinators: A Practical Guide focuses on the skills of a teaching librarian in instructional information literacy, which encompasses several essential skills required of a teaching librarian. However, this standard did not cover other human attributes, including knowledge and ability, which are crucial in developing a competence index.

These five standards and frameworks demonstrate an evolution in the understanding of librarianship competencies. The general competencies (American Library Association, 2021) provide the foundational baseline; the instructional proficiencies (American Library Association, 2008) and roles of teaching librarians (Association of College and & Research Libraries, 2017) highlight the growing professionalization of education as a core function, while the (American Library Association, 2000) and the (Association of College and Research Libraries, 2015) illustrate the shift in conceptualizing information literacy from measurable skills to broader critical and contextual practices. For this study, these references collectively inform the construction of a competence index tailored to teaching librarians in Malaysian higher education and fulfilling the gaps between these standards and frameworks.

## **2.8 Previous Research on Competencies of Teaching Librarians**

Most recent research on competency for teaching librarians discussed several issues in online perspectives, which involve the gaps of competency in current practice, no pragmatic set of degree courses to help librarians become educators, and librarians

should be blended librarians, where they are ready to go online or even physically (Peacock, 2022). The objective of the research was to develop a competence index, and the subsequent discussion focused on the lack of online teaching information literacy among librarians and the deficiency in technology competencies. This research aims to study the current situation, and the findings show that librarians need more experience in teaching than instructional online courses will be successful (Ramos Eclevia, 2022). In 2013, research in South Africa raised a similar issue to the recent study. The problem is that the librarian is not a trained educator, lacks knowledge of educational theories and methods, and struggles with the challenges of using ICT, as well as the cognitive aspects of the librarian's role and the behaviour change (Selematsela & Du Toit, 2013). The main objective of this research is to develop a competence index. The years 2022 and 2013 differ by 9 years; however, recent studies have raised similar issues, highlighting the need for formal education to become an educator and skills in technological aspects.

To progress in the subject taught in the syllabus, professionals need to adopt technologies and effectively blend their responsibilities. Fresh graduates need to have the professional skill (F. Abbas & Ameen, 2022; Cooke, 2012; Corcoran & McGuinness, 2014; Islam & Tsuji, 2016; A. Khan & Du, 2017; Saunders & Budd, 2020; Terrill, 2014), however the requirement is not updated by the ALA since 2009 and due to this professional feels they are not prepared to offer professional duties in the latest update environment of libraries (Abbas & Ameen, 2022 ; Saunders, 2019). In the latest version of Core Competences of Librarianship, published on the ALA website in 2021, the new core competency, which is social justice, and its social justice emphasis on seeking continuous professional development to address issues of power, privilege and oppression (American Library Association, 2021).

Table 2.4

Summary of Previous Studies on Teaching Librarian Competencies

No	Issues	Method & Findings	Sources
1	No pragmatic set of courses in a degree to help become a teacher Blended Librarian – Online	Method: Need Analysis Findings: Competency	Peacock (2022)

	and face-to-face. Study gaps analysis with the current state	Model		
2.	Lack of online teaching Lack of technological competencies	Method: Exploratory descriptive  Finding: More experience in teaching, instruction in online will be successful	Ramos (2022)	Eclevia
3	A librarian is not a trained educator Lack of knowledge of educational theories and methods Challenges – ICT, cognitive & behaviour changes	Method: Empirical survey  Findings: Competency Framework	Selematsela, D. N. S., & du Toit, A. S. (2013)  <a href="https://doi.org/10.7553/73-2-1345">https://doi.org/10.7553/73-2-1345</a>	

## 2.9 Research Gaps

The review of existing scholarship reveals that while considerable attention has been given to developing competency profiles for teaching librarians, prior research has predominantly emphasised technological skills and proficiencies. However, little effort has been directed toward evaluating the effectiveness of teaching librarians' instructional practices or assessing their impact on student learning outcomes. This represents a critical omission, as librarians' ability to influence students' information literacy practices throughout their academic journey is central to the educational mission of higher education institutions.

Equally significant is the neglect of human attributes, knowledge, skills, and abilities that underpin professional competence. Although scholars have acknowledged the need for professional competencies (Campion et al., 2020; Tang et al., 2024), existing models seldom systematically incorporate these attributes. The absence of such integration limits the holistic development of teaching librarians, who must combine technical proficiency with interpersonal and pedagogical skills to perform effectively.

Three specific research gaps emerge. First, the challenges faced by teaching librarians who lack structured training or professional preparation for developing the pedagogical expertise required for information literacy instruction. Second, a standardised competence index currently does not exist for teaching librarians, despite their growing instructional responsibilities in academic libraries. Third, inconsistencies and variations in instructional practices across institutions indicate the absence of a formal, well-documented framework to guide teaching librarians in higher education.

Although international frameworks, such as those developed by the Association of College and Research Libraries (ACRL), provide valuable benchmarks, they were designed for contexts that differ significantly from Malaysia's cultural and educational environment. Consequently, they cannot be applied wholesale without adaptation to the specific context. Moreover, Malaysian studies have not sufficiently examined the specific competencies required of teaching librarians, nor have they highlighted the voices of practitioners themselves in shaping the competence index for teaching librarians in Malaysian higher education.

This study addresses these gaps directly by developing a comprehensive competence index for teaching librarians in Malaysian higher education. The proposed index integrates the core instructional competence index, the human attributes necessary for effective teaching, and the information literacy modules. Notably, the information literacy components within the competence index address an area that has been largely overlooked in previous research. By doing so, the study provides an index for assessing and developing the competencies of teaching librarians and proposes a standardised module for instructional information literacy applicable across Malaysian universities.

The anticipated contribution of this study is double. At the theoretical level, it advances understanding of the competencies required of teaching librarians by integrating human attributes with instructional practices and information literacy components. At the practical level, it provides a structured competence index that can guide professional development, promote consistency in instructional practices, and enhance the recognition of information literacy as a critical academic competency in Malaysian higher education.

## **2.10 The Development of Conceptual Framework**

In developing this research conceptual framework to construct a competence index for teaching librarians in academic libraries of higher education, two models or frameworks were used to guide the entire research. There are the Framework for Information Literacy for Higher Education, the Standards for Proficiencies for Instruction Librarians and Coordinators, and the Information Literacy Competency Standard for Higher Education, which the American Library Association developed under the division of the Association of College and Research Libraries (ACRL).

### **2.10.1 Framework for Information Literacy for Higher Education**

The Association of College & Research Librarians was initially introduced Information Literacy Competency Standards for Higher Education in 2000 and then shifted the framework to Framework for Information Literacy for Higher Education in 2016 where the older version of the framework was more to defined information literacy as a set of specific skills where the latest version defines information literacy as the integration of brink ideas that tells in what way information is theorised, produced and used (Gross et al., 2022b). This framework serves as a tool to guide the development of information literacy in higher education institutions and motivate librarians and faculty to think about how to combine elements in the field of information to be used in the higher education environment (Association of College and Research Libraries, 2015). The framework consists of six frames that represent the principles of information literacy, allowing students to become information literate and lifelong analytical thinkers. It has been years since academic librarians have worked to blend the framework's knowledge practices and dispositions into their information literacy instruction (Renirie, 2020). The framework's frame is shown in Figure 2.1. This framework emphasises the theoretical and critical thinking methods in information literacy, which differ from the standard competency framework and challenge librarians on how to adapt the framework into their teaching scope (Benallack & Rundels, 2021). As information literacy programs in academic libraries expand and become more dynamic, if the framework were adopted in the program, librarians would be responsible for the institution's outcomes, which are related to the basics of student learning and critical thinking (Walker & Whitver, 2020).

The ACRL Framework for Information Literacy for Higher Education provides six core frames that guide teaching librarians in cultivating student competencies. Each frame highlights a distinct dimension of information literacy, reflecting both conceptual understanding and practical application. These frames, including authority as constructed and contextual, information creation as a process, information having value, research as inquiry, scholarship as conversation, and searching as strategic exploration, serve as foundational elements in developing teaching strategies that enable students to engage critically with information in academic contexts.

The first frame, which constructs and contextualises authority, emphasises that authority is not absolute but shaped by social, cultural, and disciplinary contexts. Different communities recognise varying types of authority depending on their information needs. Hence, students must learn to evaluate authority not merely based on credentials, but also by considering relevance, reliability, and context. Albert et al. (2020) stress that this component enhances students' understanding and trust in information, while Withorn et al. (2021) and Lynch & Hunter (2020) argue that librarians should encourage students to engage in self-evaluation, drawing upon their own experiences and perspectives. Saunders & Budd (2020) further note that this frame empowers students to recognise that opinions and lived experiences can, in specific contexts, hold equivalent weight to expertise.

The second frame, "Information Creation as a Process," emphasises the iterative nature of knowledge production and dissemination. Information is generated in diverse formats, shaped by the intent of communication and the method of dissemination. This frame calls upon students to look beyond the medium of presentation and instead examine the processes of creation, revision, and dissemination that underpin a given work. Albert et al. (2020) stated that this deeper understanding equips students to evaluate the usefulness of information critically and fosters a sense of urgency in actively participating in the information environment.

The third frame, information has value, situates information as both a commodity and a social good, tied to legal, educational, and socioeconomic structures. Bohémier (2018) and Withorn et al. (2021) demonstrate that integrating this frame into workshops helps students understand issues of copyright, intellectual property, and peer review, while also exposing them to the evolving nature of academic communication. Furthermore, this framework has implications that extend beyond education; information serves as a tool for persuasion, negotiation, and competitive advantage in

both business and political contexts (Caffrey et al., 2022; Liu et al., 2021). Ellenwood (2020) expands this argument by introducing the concept of "information capitalism," which suggests that the commodification of information should be addressed explicitly within information literacy instruction.

The fourth frame, "Research as Inquiry," reflects the continuous and recursive nature of research, where new questions often emerge from the pursuit of answers. For librarians, responding to inquiries across various platforms, whether digital or face-to-face, represents a fundamental professional skill (Renirie, 2020). Empirical studies demonstrate that applying this framework alongside searching as a strategic exploration supports the development of online discussion activities that encourage students to integrate information literacy concepts into their coursework (Bosman et al., 2021; Caffrey et al., 2022). The fifth frame, scholarship as conversation, positions academic communication as an ongoing dialogue among scholars, researchers, and professionals. Diverse perspectives, evolving evidence, and multiple interpretations mark this conversation. Integrating peer review processes, both blind and open, into information literacy instruction can strengthen students' engagement with scholarly communication (Withorn et al., 2021). Read & Cox (2020) add that librarians themselves require advanced knowledge and skills in scholarly communication, particularly as academic libraries expand their research support services.

Finally, searching as strategic exploration recognises that searching is a non-linear and iterative process that requires persistence, evaluation, and adaptability. Strader (2021) and Caffrey et al. (2022) agree that cataloguing and metadata practices play a central role in supporting this frame, as they provide the necessary structure for students to locate, assess, and integrate diverse sources of information. Together, these six frames form a comprehensive and flexible approach to teaching information literacy. They move beyond technical search skills to incorporate critical thinking, ethical considerations, and disciplinary practices. For teaching librarians, applying the ACRL Framework thus not only develops students' academic competencies but also equips them with lifelong skills to navigate the increasingly complex information landscape.

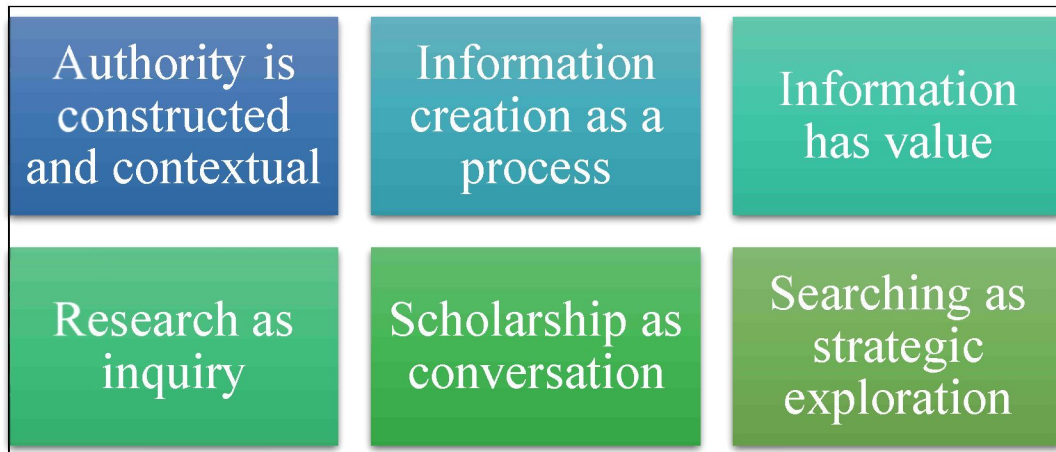


Figure 2.1. Framework for Information Literacy for Higher Education

The study utilises this framework, along with KSA attributes, as a tool in developing a competence index for teaching librarians. Although there are a few concerns about doubting the framework can be used as a teaching tool, librarians have found that the framework is helpful to notify, motivate and change the way librarians teach (Beilin, 2015; M. E. Dempsey et al., 2015; Foasberg, 2015; Jarson & Hamelers, 2022; Latham et al., 2019). That does not change the fact that most librarians have become more familiar with the framework's language and have used the framework to shape their teaching (Jarson & Hamelers, 2022; Gross et al., 2018; Latham et al., 2019). In support of the statement, research conducted by Gross et al. (2018), found that fifteen academic librarians in the US responded that the framework affects their teaching, helps them clarify their view of the framework and their role as librarians, and facilitates collaboration with faculty to create opportunities for research activities.

As mentioned in the framework documentation, the framework can serve as a guide for redesigning the information literacy program for various levels of education courses, ranging from general to upper-level. It is also intended to demonstrate the differences in thinking between novice learners and experts in a specific area (Association of College and Research Libraries, 2015). Again, more research has supported that this framework has been accepted and celebrated by librarians, as it is a pedagogical framework inspired by the ACRL framework and used as the basis for their teaching (Jarson & Hamelers, 2022). Research conducted in the USA suggests that librarians are now adapting the framework as needed in their teaching. There are examples of the teaching aspect in all six frames (Renirie, 2020).

In the academic and professional programs, statements across the Association of College and Research Libraries (ACRL) indicate that the framework is being applied

across various areas. Its application to various disciplinary (Caffrey et al., 2022) such as in library science which involve academic librarian and librarians (Hsieh et al., 2021b; Lapointe et al., 2021), in business (Click et al., 2021) and business education where they explored one of the framework component, Information has Value' to see competitive edge, an informed decision making and to combine several opinions (Liu et al., 2021). Wide spread to other field of studies, as in biochemistry (Pan et al., 2021), social work (Johnson et al., 2021), in area of law(Fletcher, 2021), informal learning spaces (Esparza et al., 2021), even in journalism (Younger et al., 2021), theatre history (Sachs & Duffy IV, 2021), dentistry (Schvaneveldt et al., 2021) and in fashion studies (L. Thompson, 2021). This explained that the framework has been well accepted in various field of studies.

### **2.10.2 Human Attributes**

Competencies are crucial for employees to adapt in the evolving workplace, and addressing the challenges of the digital and information age has been the focus of attention among organisations for more than two decades. While technical competencies are essential, effective performance is often shaped by human attributes, which encompass knowledge, skills, abilities, and personal characteristics such as attitudes, values, and motivation (Nguyen, 2022). The statement is also supported by the fact that to succeed in both work and life, individuals must master a blended repertoire of knowledge, skills, expertise, and literacy (Battelle for Kids, 2019; Nguyen, 2022).

he recognition of human attributes within the broader competency discourse has been reinforced in recent studies. For instance, by identifying, tracking, and documenting employees' records of learning, whether through qualifications, certifications, credentials, or informal learning experiences, organisations are better able to capture not only technical knowledge and skills but also the intangible attributes that influence workplace performance (Braxton, 2023). Aref Shojaei & Geldie Golshahie (2020) Further suggest that competence should be defined as a combination of knowledge, skills, attitudes, and motivation, with the latter two attributes often shaped by external contextual factors.

From an organisational learning perspective, recognising these attributes has long been emphasised. Over the past two decades, organisations have invested

significantly in staff training, acknowledging its positive impact on knowledge retention and transfer across the institution (Amzalag & Shoval, 2023; Argote & Hora, 2017). Within the context of librarianship, the Standards for Proficiencies for Instruction Librarians and Coordinators: A Practical Guide, as well as the Information Literacy Competency Standards for Higher Education, provide an initial framework of human attributes relevant to teaching librarians. However, these standards primarily emphasise knowledge and skills, while giving limited attention to abilities and other personal qualities. Although the standards list twelve proficiencies for teaching librarians, they predominantly represent two categories: knowledge and skills, thus leaving a gap in the dimension of abilities. To address this limitation, this study incorporates additional attributes drawn from the literature, particularly those that highlight the role of abilities, to ensure that the conceptual framework captures a more holistic set of competencies.

Including human attributes in the conceptual framework is crucial for several reasons. First, human attributes such as adaptability, resilience, motivation, and ethical awareness influence how effectively knowledge and skills are mobilised in practice. Without these attributes, technical competencies may remain underutilised. Second, human attributes facilitate interpersonal engagement, collaboration, and leadership competencies, which are increasingly important in complex and dynamic educational environments. Third, they serve as the underlying drivers of continuous learning and innovation, enabling teaching librarians to respond effectively to the evolving demands of higher education. By embedding human attributes into the conceptual framework, this research seeks to provide a more comprehensive and balanced understanding of competencies for teaching librarians, one that integrates technical expertise with the human dimension that sustains long-term professional effectiveness.

#### ***2.10.2.1 Knowledge***

Knowledge has long been recognised as an abstract and distinctive organisational asset that enables the creation of sustainable competitive advantage when effectively managed (Zia et al., 2024). In the contemporary, highly dynamic workplace, organisations are compelled to undergo continuous transformation by strategically developing a workforce that is skilled, knowledgeable, competent, and adaptable (Cui, 2025). Therefore, knowledge management (KM) has emerged as a critical

organisational strategy underpinning innovation, decision-making, and overall performance.

Knowledge is traditionally categorised into two types: tacit and explicit (Nonaka & Hirotaka Takeuchi, 1995). Tacit knowledge encompasses personal insights, intuition, and embedded expertise that are inherently difficult to codify but indispensable for innovation and problem-solving. In contrast, while explicit knowledge is codified, structured, and easily disseminated through written documentation, manuals, and digital systems (Cui, 2025; Zia et al., 2024). Both forms are essential; tacit knowledge enriches organisational creativity and adaptability, while explicit knowledge facilitates dissemination, consistency, and institutional learning.

Recent studies reinforce the importance of tacit knowledge in contemporary organisational contexts. For example, Zia et al. (2024) demonstrate that tacit knowledge management significantly contributes to innovation, enhancing organisational performance. Similarly, research highlights that knowledge sharing, primarily through tacit knowledge exchange, fosters ambidexterity by enabling both exploitative and exploratory learning (Dzenopoljac et al., 2024). Emerging technological developments, including artificial intelligence-driven knowledge systems and dynamic KM capabilities, have enhanced organisations' ability to integrate tacit and explicit knowledge, resulting in measurable improvements in job and organisational performance (Cui, 2025).

In librarianship, particularly for teaching librarians, knowledge is often narrowly defined as curriculum knowledge, as reflected in existing professional standards. However, this narrow scope risks neglecting broader dimensions of knowledge, especially tacit forms such as pedagogical intuition, disciplinary expertise, and instructional experience. Therefore, this research argues for a more comprehensive conceptualisation of knowledge within the competence index for teaching librarians, one that acknowledges both tacit and explicit forms as fundamental to effective practice in higher education.

#### **2.10.2.2 Skill**

The COVID-19 pandemic fundamentally reshaped the workplace, compelling employees to adapt to unprecedented norms, such as social distancing practices and an accelerated reliance on digital technologies, which required the acquisition of new skills

(Kashive & Somaiya, 2022; Tuzovic & Kabadayi, 2021). The rapid shift to remote and hybrid work environments highlighted employees' need to demonstrate agility in technological and interpersonal domains. Skills can be broadly defined as an individual's capacity to perform tasks effectively and efficiently, reflecting proficiency and adaptability (J. Abbas & Sagsan, 2020). Traditionally, skills are divided into two broad categories: technical or “hard” skills, which involve specialised knowledge and procedural expertise, and behavioural or soft skills, which encompass interpersonal communication, collaboration, adaptability, and emotional intelligence (Ansarey, 2017; Kashive & Somaiya, 2022).

Recent scholarship suggests that the distinction between hard and soft skills has become increasingly blurred in the post-pandemic workplace. For example, digital collaboration platforms such as Zoom, Microsoft Teams, and Slack have not only required technical proficiency but also demanded enhanced communication and teamwork skills in virtual settings (Carnevale & Hatak, 2020; Reis & Melão, 2023). Moreover, recent findings underscore the growing importance of soft skills and hybrid competencies, which blend technical proficiency with behavioural agility in confronting dynamic environments. For instance, industry analyses emphasise that communication, adaptability, emotional intelligence, and teamwork are now critical for collaboration, stress management, and empathetic leadership.

These “soft” competencies are increasingly drivers of organisational flexibility and resilience. Interreg Central Europe (2025) further identifies adaptability as the current top skill, advocating for a “learn-it-all” mindset rather than mere specialisation. Within higher education, evidence from post-COVID e-learning environments highlights the role of instructional quality and interactivity in fostering digital skills among students. This finding suggests that educators must balance technological support (hard skills) and thoughtfully designed engagement strategies (soft skills) to facilitate learning in digital contexts. In this context, adaptability, resilience, and digital literacy are critical soft skills that complement technical expertise, ensuring individual employability and organisational resilience (Cui, 2025).

The recognition of multidimensional skills is particularly relevant for professions such as librarianship, where teaching librarians are expected not only to master technical knowledge of information systems but also to engage in instructional roles that require communication, adaptability, and empathy. Thus, integrating hard and

soft skills within a competence index ensures a more comprehensive approach to professional development and organisational capacity-building.

### **2.10.2.3 Ability**

Ability is generally defined as an individual's underlying capacity to perform job-related tasks, and it is commonly classified into two broad categories: intellectual abilities, such as reasoning, analytical thinking, and problem-solving and physical abilities, which encompass attributes like strength, coordination, and stamina (J. Abbas & Sagsan, 2020). Although ability is a fundamental dimension of human performance, its role is often underemphasised in the competence index, which traditionally prioritises knowledge and skills as the primary indicators of professional competence.

This neglect may be attributed to the conceptual overlap between ability and skill. While skills are typically acquired through training and practice, abilities are more intrinsic capacities that enable the acquisition and application of skills. For example, problem-solving skills require an underlying cognitive ability, whereas physical skills such as laboratory techniques require manual dexterity. In some frameworks, the lack of terminological clarity has led to the substitution of "ability" with "attitude," or the conflation of the two, thereby blurring important distinctions (Grenda & Palmunen, 2025).

Recent scholarship calls for greater conceptual precision. For instance, Grenda & Palmunen (2025) argue that managerial competence can be broken down into seven foundational components, including capability and disposition, which align closely with the notions of ability and attitude. Furthermore, contemporary studies on sustainable employability highlight that ability alone is insufficient without the mediating role of attitude and motivation. For example, Gürbüz et al. (2023) and Gürbüz et al. (2024) demonstrate that employees' underlying capabilities are converted into meaningful performance outcomes only when supported by positive attitudes and motivational dispositions. This finding reinforces the argument that the comprehensive competence index should move beyond the traditional KSA approach.

Incorporating ability into the competence index is, therefore, not only conceptually necessary but also practically significant. By recognising abilities distinct from skills, organisations and educational institutions can better identify the foundational capacities underpinning employee performance, resilience, and

adaptability in rapidly evolving professional environments. This expanded view offers a comprehensive understanding of the human attributes essential for professional competence, employability, and sustainable career development. Many competency standards emphasise knowledge and skills but overlook abilities and attitudes. Table 2.5 shows the distinction of all human attributes in a simple explanation.

Table 2.5  
Distinction Between Knowledge, Skills and Abilities (KSAs)

Attributes	Definition	Key Features	Examples
Knowledge	A body of information, facts, concepts, and principles acquired through learning and experience.	Explicit (codified, shareable) and tacit (personal, experiential, difficult to codify).	Curriculum knowledge, research methods, information literacy, coding knowledge.
Skills	The learned capacity to perform tasks or activities proficiently by applying knowledge.	Divided into hard skills (technical) and soft skills (behavioural/relational).	Data analysis, teaching strategies, teamwork, communication, leadership.
Abilities	Underlying capacities that enable individuals to perform job-related tasks successfully.	Encompass intellectual (e.g., reasoning, problem-solving) and physical abilities (e.g., stamina, coordination). Conceptually linked to capability.	Analytical reasoning, adaptability, physical stamina, dexterity.

### 2.10.3 Grouping the Frames and Human Attributes (KSA)

Frames have been defined and explained in detail above and categorised into KSA competencies to ensure all frames fall into specific KSA competencies, as in Table 2.6. The process of grouping these frames was done manually by understanding each frame's definition to suit the human attributes.

Table 2.6

Frames and Human Attributes in Grouping

<b>Frames</b>	<b>Human Attributes</b>	<b>Definition</b>
Information has Value	Knowledge	Experts understand both the legal and socioeconomic aspects of entrepreneurship.
Research as Inquiry	Knowledge	Experts view questions as a process and focus on problems and solutions within or between disciplines.
Information Creation as Process	Skill	Experts acknowledge that information created is valued differently in various circumstances.
Searching as Strategic Exploration	Skill	Experts understand that searching for information requires evaluation and flexibility to continue with different sources.
Authority is Constructed and Context	Ability	Experts understand that the proficiency and reliability reflected in the information resource are evaluated based on the information need and how the information is being used.
Scholarship as Conversation	Ability	Experts understand that scholars communicate through citation, research journals, online communities, and others to gain new understanding and findings.

## 2.11 Conceptual Framework

A conceptual framework provides a visual representation of a study, situating the research problem within its appropriate context and offering a structured discussion of the issues that form the foundation of the investigation (Ravitch & Riggan, 2017). Building on this understanding, the present study draws upon the Framework for Information Literacy for Higher Education, developed by the Association of College and Research Libraries, as well as the Information Literacy Competency Standards for Higher Education and the Standards for Proficiencies for Instruction Librarians and Coordinators: A Practical Guide. These documents underpin the Knowledge, Skill and Ability (KSA) competency model adopted for this research.

The KSA model encompasses a broad spectrum of competencies considered essential for teaching librarians, particularly in guiding students through research strategies and source evaluation (Faix & Fyn, 2020). Accordingly, this study positions knowledge as the cognitive dimension, skills as the practical dimension, and abilities as higher-order competencies that extend the application of both knowledge and skills into critical engagement with information and scholarly communication.

To operationalise these ideas, the conceptual framework for this study is structured into three interconnected components: context, interfering conditions, and output, as illustrated in Figure 2.2. The conceptual framework describes the interrelationship between the competence domains of teaching librarians and the factors that influence their effectiveness in instructional practices within higher education. The framework is structured into four key components: context, competencies (knowledge, skills, and abilities), interfering conditions, and output. The process begins with the context, which provides the structural and institutional setting for teaching librarians' roles. Context is the foundation that shapes how competencies are developed and practised, ensuring they remain relevant to the academic environment.

From this base, the framework highlights three competence domains: knowledge, skills, and abilities that collectively define the professional capacity of teaching librarians. These domains are interdependent; knowledge provides the cognitive grounding, skills translate that knowledge into instructional practice, and abilities extend the application of both knowledge and skills to higher-order critical engagement with information and scholarly communication.

The interfering conditions, represented as instructional information literacy challenges, are a moderating factor. These conditions may either limit the effectiveness of librarians in applying their competencies or influence the extent to which those competencies can be demonstrated. For example, institutional constraints, pedagogical challenges, or technological barriers may hinder the translation of knowledge, skills, and abilities into effective teaching practices.

The final component of the framework is the output, which takes the form of a Competence Index for Teaching Librarians. The arrows leading from the competencies through the interfering conditions to the production demonstrate that the development of the index is grounded not only in theoretical domains of knowledge, skills, and abilities but also in the practical realities and challenges of instructional delivery in higher education. This positions the index as a reflective and adaptive tool, reflecting core competencies while being adaptable to the challenges inherent in instructional information literacy. This index serves as a structured benchmark for assessing, guiding, and enhancing the professional capabilities of teaching librarians, ensuring that they are equipped to meet the evolving instructional demands of higher education environments.

The problem statement of this study highlights a critical gap in the professional practice of teaching librarians in Malaysian higher education. Despite their growing responsibilities in delivering instructional information literacy, no validated competence index currently defines or measures the competencies required for effective practice. This lack of a structured competence index results in inconsistent instructional delivery, limited recognition of teaching librarians' instructional roles, and challenges in professional development and performance evaluation. In effect, the absence of an evidence-based competency framework restricts teaching librarians from fully demonstrating their pedagogical expertise, weakening their professional standing within higher education settings.

The conceptual framework of this study has been deliberately constructed to address these identified gaps. Drawing on the Knowledge, Skills, and Abilities (KSA) model and informed by competency theory, the index organises the diverse attributes required for effective instructional practice into a systematic structure. Furthermore, the index is reinforced by standards and guidelines in librarianship, particularly those developed by professional associations such as the Association of College and Research Libraries (ACRL), which recognise the instructional role of academic librarians.

The conceptual framework directly operationalises the research problem by integrating these theories and models. The issues identified in the problem statement, namely, fragmented instructional practices, lack of recognition of librarians' teaching role, and absence of validated measures of competence, are systematically addressed through the framework. For instance, the environmental analysis and learner needs assessment dimensions address the issue of inconsistent instructional delivery, ensuring that teaching librarians possess the competencies to tailor instruction to diverse student populations. Similarly, the definition of instructional goals and outcomes, together with lesson design and assessment competencies, directly responds to the problem of inadequate instructional coherence, providing a structure for librarians to design meaningful and assessable learning experiences. Finally, the professional updating dimension of the framework responds to the challenge of limited recognition and development by emphasising the importance of ongoing engagement with innovations in pedagogy and technology.

Thus, the conceptual framework is not an abstract theoretical exercise but a targeted response to the research problem. It translates the gaps identified in the problem statement into measurable constructs that can be empirically investigated and validated. This deliberate connection ensures that the study contributes to the theoretical understanding of instructional competencies and offers a practical tool. This validated competence index addresses the professional challenges of teaching librarians in Malaysian higher education. In this way, the conceptual framework provides the foundation for bridging the problem statement with the study's objectives, methodology, and eventual contributions to knowledge and practice.

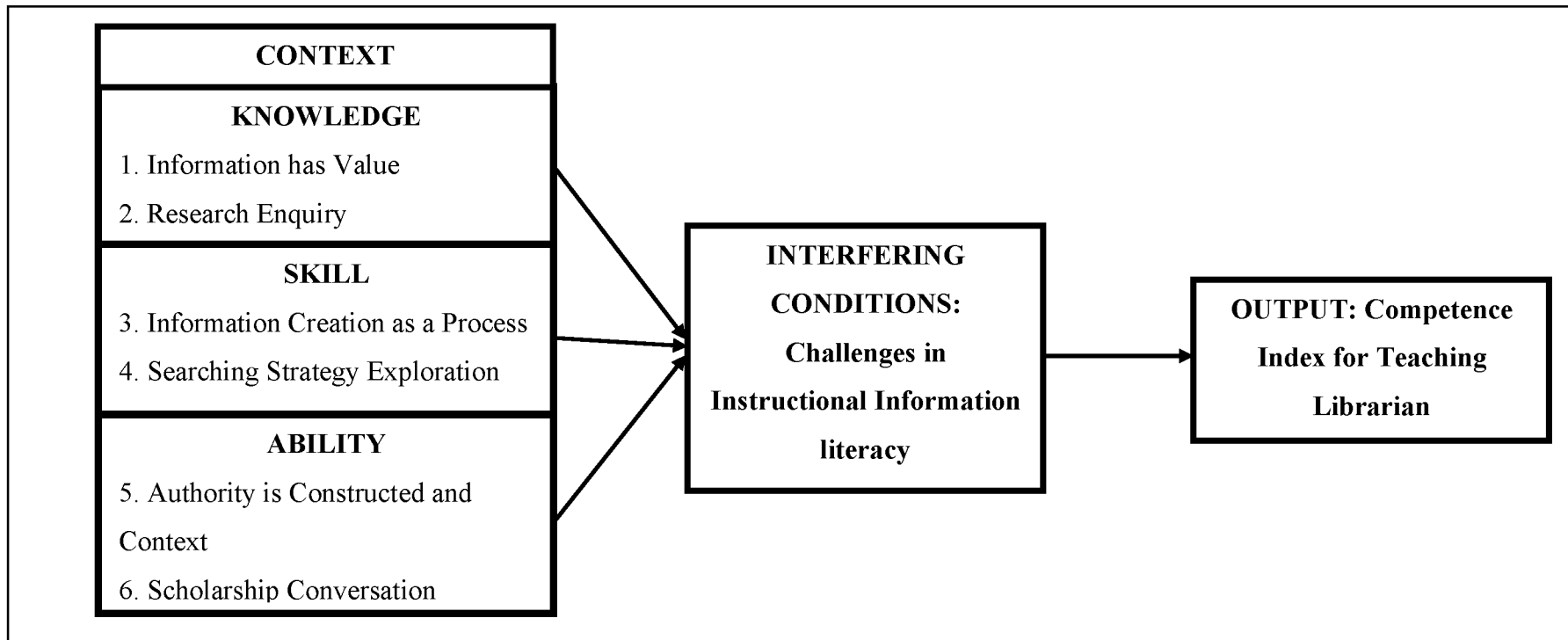


Figure 2.2 Competence Index Teaching Librarian in Academic Libraries in Higher Education Conceptual Framework

## **2.12 Chapter Summary**

This chapter reviews the literature on teaching librarians within the higher education context, beginning with the role of academic libraries and searching strategies, and then examining the emergence of teaching librarians and the development of instructional information literacy practices. The review highlighted gaps in Malaysian librarianship programs, particularly in pedagogical preparation, and discussed the professional competencies required of teaching librarians to address the evolving demands of higher education. Established standards and frameworks were analysed to benchmark global practices, including those from the American Library Association (ALA) and the Association of College and Research Libraries (ACRL). At the same time, previous research has highlighted persistent issues and research gaps in aligning these models with the Malaysian context. To address these gaps, the chapter introduced the conceptual framework guiding this study, which integrates the ACRL Framework for Information Literacy in Higher Education with knowledge, skills, and abilities (KSAs) attributes, organised into three dimensions: context, interfering conditions, and output, providing the foundation for developing a competence index for teaching librarians in Malaysian higher education. Chapter 3 will present the research methodology, detailing the paradigm, design, and methods employed to operationalise the framework and achieve the research objectives.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 Chapter Introduction**

This chapter will provide a detailed explanation of the research paradigm. Three key terms represent the perspective of this research: research approaches, research design and research method. Developing a competence index for teaching librarians in academic libraries requires a rigorous and methodical approach. Chapter 3 outlines the research design and methodology of this study, detailing the systematic processes used to gather, analyse, and interpret the data. This chapter provides a comprehensive overview of the research methods, highlighting the steps taken to ensure the validity and reliability of the findings. This chapter begins by restating the research objectives and questions, emphasising the importance of a structured methodology to achieve the study's aims. The research design section outlines the overall strategy, including an explanation of the chosen qualitative approaches and the rationale behind this choice. It also explains the research's conceptual framework, grounding the study in established academic principles.

The data collection section provides an in-depth explanation of the specific methods used to gather information. This includes descriptions, interviews, focus groups, and the selection criteria for panels and experts. The chapter discusses the development of the interview guide, detailing the process of item generation and validation. Additionally, it addresses ethical considerations, such as informed consent and confidentiality, ensuring that the research adheres to moral standards. Following data collection, the chapter delves into the data analysis procedures. It explains the statistical and thematic analysis techniques used to interpret the data, providing insights into how the competence index was constructed and refined. The chapter highlights the use of software tools for data management and analysis, ensuring accuracy and consistency in interpreting results. This includes techniques such as triangulation and panel verification. The chapter provides a transparent account of the research process, addressing potential biases and limitations, thereby enhancing the study's credibility.

In conclusion, Chapter 3 lays the foundation for the empirical investigation of teaching librarian competencies. Detailing the research design and methodology

prepares the reader for a nuanced understanding of the findings presented in subsequent chapters. This meticulous approach ensures that the competence index is grounded in robust empirical evidence, significantly contributing to academic librarianship. The following sections will present the data collected, analyse the findings, and discuss their implications, building on the methodological framework established in this chapter. Through this structured and systematic approach, the study aims to provide actionable insights for the professional development and enhancement of teaching librarians in higher education.

### **3.2 Research Paradigm**

The research paradigm helps to explain the idea in a broader context, how it should be understood, and why this research chose a qualitative approach. According to Creswell & Creswell (2018), there are four research worldviews or research paradigms: 1) Postpositivism, 2) Constructivism, 3) Transformative and 4) Pragmatism. This research paradigm is constructivism (interpretivism) or social constructivism, as the constructivist or interpretivist paradigm, often used in qualitative research, seeks to understand the world in which they work and live, and develop a broad understanding of their experiences. This paradigm aims to examine and rely on the insights gained from participants' views in related studies. The question is broad and standard, allowing participants to develop an interpretation of the situation through discussion and interaction with other participants, as inquirers generate or inductively develop a theory or pattern of meaning (Creswell & Creswell, 2018).

To explain why this research is situated within the constructivist paradigm, the following are the definitions of the other three paradigms. Postpositivism favours quantitative rather than qualitative research to determine effects and outcomes. The problem studied is the need to identify and assess the causes of the outcomes observed in the experiments. The transformative paradigm encompasses an action agenda aimed at transforming participants' lives, with a focus on addressing the needs of groups or individuals who may be marginalised or excluded. Last, the pragmatism paradigm does not concentrate on method. Still, it emphasises research problems and questions, employing various approaches to understand the issues, a strategy often used in mixed-methods research (Creswell & Creswell, 2018).

Table 3.1

Four Worldviews or Research Paradigms

<b>Postpositivism</b>	<b>Constructivism</b>
<ul style="list-style-type: none"> <li>• Determination</li> <li>• Reductionism</li> <li>• Empirical observation and measurement</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding</li> <li>• Multiple participant meanings</li> <li>• Social and historical construction</li> <li>• Theory generation</li> </ul>
<b>Transformative</b>	<b>Pragmatism</b>
<ul style="list-style-type: none"> <li>• Political</li> <li>• Power and justice oriented</li> <li>• Collaboration</li> <li>• Change-oriented</li> </ul>	<ul style="list-style-type: none"> <li>• Consequences of actions</li> <li>• Problem-centred</li> <li>• Pluralistic</li> <li>• Real world practice oriented</li> </ul>

(Creswell & Creswell, 2018)

### 3.3 Research Method

The researcher can use three research approaches: quantitative, qualitative, and mixed methods (Creswell & Creswell, 2018). Qualitative methods employ more open-ended questions or words, while quantitative research focuses on numbers or closed-ended questions (quantitative hypotheses) (Creswell & Creswell, 2018). This research aims to identify the challenges and attributes required in teaching librarian and information literacy modules, develop a new competence index, and validate the proposed new competence index. The suitable research method for this research is qualitative, as Creswell (2009) mentioned. Qualitative research aims to explore and understand the meaning individuals or groups attribute to a social or human problem. In addition to what Creswell said, qualitative researchers are tasked with addressing one of these approaches, which involves capturing the subjective meaning of the issue from the participants' perspective, exploring the underlying situation in focus, and examining social practices in the real lives of the participants (Flick, 2015). A specific characteristic of panels and experts was selected to participate in this research to gain insight into the purpose of this study and its objectives.

### **3.4 Research Design**

The research design provides a systematic framework for collecting and analysing data to rigorously and coherently address the research objectives and questions. It encompasses the overall inquiry strategy, including methodological choices, data collection procedures, and analytical techniques, which together ensure the credibility and trustworthiness of the study (Flick, 2015). While qualitative research designs typically include narrative, phenomenological, grounded theory, ethnographic, and case study approaches (Creswell & Creswell, 2018), this study employs the Delphi method as its primary research design, aligning with its goal of identifying gaps in the competencies and attributes required of teaching librarians in academic libraries.

The Delphi method is a structured, iterative research design specifically intended for studies that aim to gather expert consensus on complex or underexplored issues. It is particularly suitable for competency development research because it systematically aggregates expert judgments through multiple rounds of data collection and controlled feedback. In this study, a modified Delphi approach was utilised, acknowledging that flexibility in design is often necessary to fit the research context and objectives. The literature indicates that Delphi studies typically involve between two and four rounds, with a minimum of two rounds required to achieve stability or consensus among experts (Batool et al., 2021; Murry & Hammons, 1995; Nguyen, 2022). Consistent with these methodological recommendations, this study was conducted over two Delphi rounds, which were deemed sufficient to refine the competency constructs and reach consensus among panel members.

Data collection within the Delphi process was facilitated through structured focus group interview sessions, which served as the primary instrument for gathering expert input. Focus groups were selected to leverage collective expertise and foster interactive discussion, allowing participants to articulate, challenge, and refine views that may not surface in individual interviews. This approach is particularly valuable when engaging expert or professional populations, as it supports in-depth exploration of complex and potentially sensitive issues (Barbour, 2018). Furthermore, focus groups are widely recognised in qualitative research for their ability to generate rich, interactive data and capture diverse perspectives within a single session.

To ensure balanced representation and depth of insight, the focus group participants were organised into two panels: one comprising academics and researchers,

and the other consisting of practitioners and teaching librarians. This stratification enabled the study to capture both theoretical and practice-based perspectives, thereby strengthening the validity of the Delphi process and ensuring that the resulting competence index reflects both scholarly rigour and professional relevance. In the following section, the research design process is clarified to provide a better understanding of the Delphi method.

### 3.5 Delphi Method

During the Cold War in the 1950s and 1960s, the RAND Corporation developed the Delphi method to assess national security threats. The process involved gathering experts from top foreign policy and national security fields to utilise a new methodology for collecting consensus (Lund, 2020; Woundenberg, 1991). In the early 1970s, this method was considered legitimate for use in research methods, where researchers, mainly from management and marketing, gathered opinions from a large focus group (Lund, 2020). Table 3.2 shows the number of rounds used in the Delphi method in previous studies, and this study implemented two rounds as suggested by Nguyen (2022).

Table 3.2  
Number of Rounds in Delphi Method

No	Sources	Number of Rounds
1.	Khavidaki et al., 2022	3 rounds
2.	Rodríguez-Zarzuelo et al., 2022	3 rounds
3.	Filippone, 2022	4 rounds
4.	Batool et al., 2021	3 rounds
5.	Nguyen, 2022	2 rounds

Traditionally, the Delphi technique is a process of achieving consensus that may solve a complex problem through several rounds, generally between 3 and 4 rounds, where participants answer a set of questionnaires and get feedback within the appointed group. Information is collected and analysed, and a consensus is sought with controlled

input throughout the process (Rodríguez-Zarzuelo et al., 2022). A summary of the Delphi process is shown in Figure 3.1.

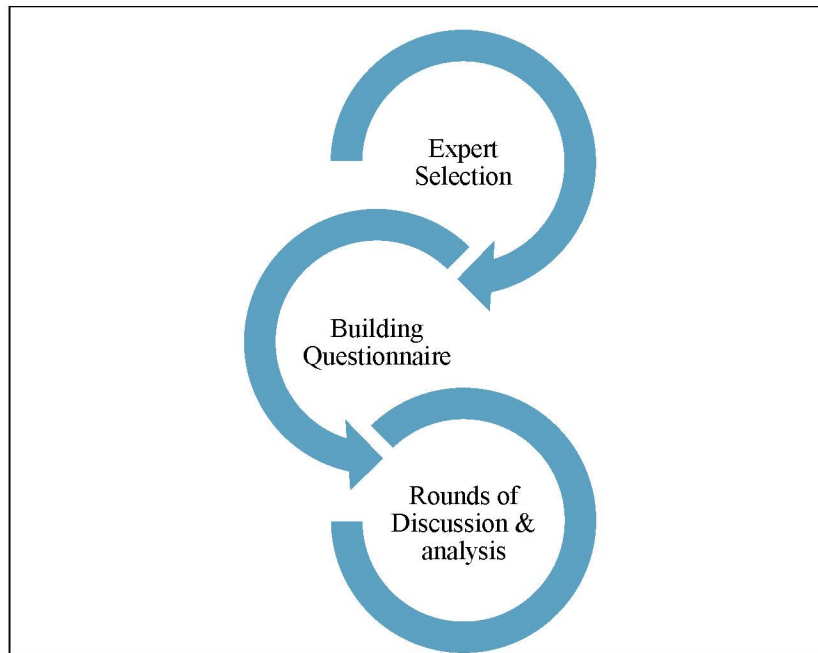


Figure 3.1 Delphi Process (Nguyen, 2022)

### 3.5.1 Modified Delphi Method

In the 1970s and 1980s, a modified Delphi improved consensus formation on specific topics or research questions (Wilder et al., 2019). The number of rounds, based on recent research conducted by several researchers, ranges from two to four rounds, as shown in Table 3.2. This research employs a modified Delphi method, which involves three phases and includes two rounds of Delphi rounds in the second phase. These two rounds of Delphi are referred to as modified Delphi due to the number of rounds employed in this research. In traditional Delphi, three or more rounds are typically used. The reasons are to avoid lengthy and expensive tasks for all, to prevent extended time-consuming tasks that affect the response rate, and to avoid losing interest among panellists (Almenara & Osuna, 2013; Wilder et al., 2019). Data collection in this study was conducted through Google from a list of potential items in the competence index, and panellists were required to select ‘add’, ‘remove’, ‘edit’, and ‘combine’ options in round 1. Panellists were selected based on their experiences delivering instructional information literacy, as mentioned in Table 3.5. The modifications in the Delphi method done in previous research are shown in Table 3.3 below, and this study adopted the criteria of the modified Delphi method listed in the table.

In the 1970s and 1980s, a modified Delphi was used to improve consensus formation on specific topics or research questions (Wilder et al., 2019). The number of rounds, based on recent research conducted by several researchers, ranges from two to four rounds, as shown in Table 3.2. This research employs a modified Delphi method, which involves three phases and includes two rounds of Delphi rounds in the second phase. These two rounds of Delphi are referred to as modified Delphi due to the number of rounds employed in this research, as traditional Delphi typically involves three or more rounds. The reasons are to avoid lengthy and expensive tasks for all, consume extended time that will affect response rate and to avoid loss of interest among panellists (Almenara & Osuna, 2013; Wilder et al., 2019). Data collection in this study was conducted through Google from a list of potential items in the competence index, and panellists were required to ‘add’, ‘remove’, ‘edit’, and ‘combine’ in Round 1. Panellists were selected based on their experiences in delivering instructional information literacy, as mentioned in Table 3.5. The modifications to the Delphi method made in previous research are shown in Table 3.3 below. This study adapted the criteria of the modified Delphi method listed in the table below.

Table 3.3  
Modified Delphi Method

No	Method	Modification Factors	Sources
1.	Data collection	Declarative statement and rounds of questionnaires.	
2.	Experienced practitioners	A consensus has been reached among experienced professionals.	(Zeedick, 2010)
3.	Delphi policy	Aiming to generate opposing opinions, consensus or foresight.	
4.	Number of rounds	Two rounds rather than traditional Delphi, three or more rounds to avoid time-consuming, and maintain interest.	(Almenara & Osuna, 2013)

### 3.5.2 Characteristics of the Delphi Method

The Delphi Method comprises anonymity, iteration, controlled feedback, and statistical group response (Chedi, 2017; Landeta & Barrutia, 2011; von der Gracht, 2012). These characteristics are explained in Table 3.4

Table 3.4  
Characteristics of the Delphi Method

No	Characteristics	Explanation
1.	Anonymity	Panellists should be anonymous to reduce bias or negative factors. This situation will allow panellists to convey their thoughts without being under pressure to comply with others within the group
2.	Iteration	A series of rounds and opinions or thoughts from the panellists are summarised by the facilitator and provided as feedback or basic information for the next round.
3.	Controlled feedback	Controlled feedback allows a panel of panellists to focus on the objectives of Delphi rather than on the winning argument.
4.	Statistical Group Response	This statistical is used for a simple quantitative analysis and data interpretation.

### 3.5.3 Criteria for Delphi Panellists

Panellists in Delphi were chosen because of their knowledge and expertise related to the research, appointed by their head of department to ensure the selection of the panellists was targeted to the objectives of this research, and the panellists should meet these criteria as recommended by Chedi (2017), Adler & Ziglio, (1996) and Skulmoski et al (2007):-

- I. Knowledge and experience related to the research,

- II. Capacity and willingness to participate,
- III. Enough time to participate in the Delphi and
- IV. Having effective communication skills.

Delphi panellists should be individuals who are closely involved with the knowledge and experience in the research area (Baker et al., 2006; Lund, 2020; Welty, 1972). In this research topic, panellists in the area should be library instructors (Lund, 2020). Furthermore, panellists were from different job scopes and roles but within the same field of study (Rajhans et al., 2020). Thus, in this study, Delphi panellists involve [a] have one or more of these characteristics adopted from two relevant research then adapted for information literacy scope based on their knowledge and experience, [b] minimum 5 to 10 years of experience in related field within higher education and [c] professional staff with minimum qualification of bachelor’s degree in related field. The characteristics are as in Table 3.5.

Table 3.5

Criteria Characteristics of Delphi Panellists & Experts

No	Characteristics	References
i.	Member of the university faculty or a research institute.	(Rajhans et al., 2020; Batool et al., 2021; Khavidaki et al., 2022).
ii.	Expert in information literacy	(Batool et al., 2021; Chedi, 2017; Khavidaki et al., 2022).
iii.	Researcher in the area of information literacy	(Rajhans et al., 2020; Khavidaki et al., 2022)
iv.	Practitioners/Teaching librarian who works professionally in information literacy within higher education	(Khavidaki et al., 2022; Lund, 2020; Rajhans et al., 2020)

### 3.5.3.1 Calling for Panellists and Experts

Inviting panellists was initially initiated through the WhatsApp application and email to inform them that they had been selected as panellists. The official invitation

from the faculty was sent out in October 2023 to all panellists through the Head of Department or Chief Librarian to participate in this study. The invitation was out after the ethics committee of UiTM approved the application to proceed with this study. The application directly requests participants from each sampling to encourage panellists to join the data collection. An appointment letter for the focus group interview panellists was emailed on 8th December 2023. All panellists accepted the invitation and were willing to participate in the focus group interview.

Written consent was obtained from participants for all rounds of the Delphi study, and the number of expected rounds and the estimated duration of the study were communicated before conducting the survey (Batool et al., 2021). Calling the experts in the validation phase was a continuous process that began with the preliminary study. The experts who responded to the preliminary study were then called back for the validation round. All experts were sent an email to validate the item in the findings of the competence index. Consent forms, invitation emails, and selection panels, as well as those led by department heads, are shown in Appendices A and B.

### **3.6 The Rationale for Choosing the Delphi Method**

This research aims to develop a competence index, making the Delphi technique a suitable approach for policy research (Barbour, 2018; Bloor et al., 2013). Suit for the aim of this research, Delphi is a famous method not only for the development of competency frameworks and syllabi in curriculum (Green, 2014; Humphrey-Murto et al., 2017; Rajhans et al., 2020), but it also gives an edge in framing fresh goals and objectives (Green, 2014; Rajhans et al., 2020). In April 2021, the term of the Delphi method reached 28,200 hits for five years in Google Scholar search, caused by uncertainty in rapid technology and social change throughout the globe, and this indicates that a collective of panellists' opinion and assessment are likely to be seen as very important (Beiderbeck et al., 2021). The Delphi method is used in research to identify multiple ideas, such as developing policy or predicting outcomes, and in other ways to explore new areas beyond an established scope (Lund, 2020). In another article, the Delphi method is described as a group interaction that participants can use to reach consensus on specific groundwork of competencies and best practices to improve the educational setting (Filippone, 2022). Thus, in this research, the Delphi method is used as the research design.

### **3.7 Preliminary Study**

This section describes the construction of the competence index for teaching librarians in academic libraries, from the early initiation stage prior to data collection. In the initial stage, this process involves gathering information from previous research conducted in academic journals and the most up-to-date available competence index for teaching librarians worldwide. Some preliminary studies were conducted to get current statistics or numbers of teaching librarians throughout the 20 public higher education systems. The preliminary study was extended to prominent library administrators, or Chief Librarians, of each academic library to gain insight into developing a competence index for teaching librarians in academic libraries within the Malaysian higher education system.

The primary purpose of this preliminary study targeted at teaching librarians was to identify the number of teaching librarians currently serving academic libraries in the higher education system in Malaysia. The first preliminary study was done at the end of 2022, and the data were accurate at the time of data collection. The preliminary study results show that 161 teaching librarians are throughout the Malaysian higher education system, specifically at 20 public universities. Questions (see Appendix K) asked ranged from years of experience in practising as a teaching librarian, the number of teaching librarians for each academic library, education background, modules provided in each university, and the method of selection of teaching librarians in academic libraries. The details of this information are in Table 3.6.

The second preliminary study focused on the chief librarian in Malaysian higher education, aiming to gather their perspectives on competencies specific to teaching librarians in academic libraries. This simple study (see Appendix L) was conducted at the end of 2023, prior to the commencement of data collection. One way or another, this preliminary study represented a need assessment analysis from the perspective of the chief librarian. A total of 10 questions were asked in an online form distributed to all chief librarians in 20 academic libraries throughout the higher education system. Of 20 chief librarians, 18 responded to the survey, and the remaining 10% or two did not respond to the preliminary study.

This second preliminary study reveals that the longest-serving academic librarians have 32–15 years of experience, with an average of 24.72 years, or a mean of

24.72 years. This should qualify them as experts for index validation since the minimum years of service is 20 years, which aligns with the industry related to the study.

### 3.8 Population and Sampling

In qualitative research, sampling is usually formalised to represent a larger population in the descriptions and characteristics of the sample that has been drawn (Flick, 2018). The population of this research surrounds the environment of academic libraries and higher education institutions, which involves practitioners, academics and researchers in the field of study.

#### 3.8.1 Teaching Librarians in Academic Libraries in Malaysian Higher Education

For this research, the primary population consists of librarians who teach information literacy in their respective public university academic libraries. A simple questionnaire was emailed to all heads of the User Education Section/Department to retrieve the information. The population of teaching librarians in public university academic libraries is shown in Table 3.6. There are 161 teaching librarians throughout public universities, with three different levels of education: bachelor's degree, master's degree, and Doctor of Philosophy. The highest year of experience teaching librarians is 10 years, and the lowest year of experience teaching librarians is 1 year.

Table 3.6

Population of Teaching Librarians in Public University Academic Libraries

Universities	Numbers of Teaching Librarian	Level of Education			Years of Experience
		BSc	MSc	PhD	
USM	41	13	26	2	7
UM	10	2	6	2	8
UKM	3	-	2	1	10
UPM	9	4	5	-	4
UTM	24	14	9	1	5
UiTM	6	4	2	-	3

UIAM	10	-	9	1	3
UMS	5	4	1	-	3
UNIMAS	2	1	1	-	-
UUM	4	2	2	-	5
UPSI	1	-	1	-	3
UTHM	10	6	4	-	5
UTeM	3	1	2	-	1
UNIMAP	2	2	-	-	8
UNISZA	3	1	2	-	5
UMT	6	4	2	-	5
UMP	2	1	1	-	5
USIM	13	7	6	-	5
UMK	6	4	2	-	5
UPNM	1	-	1	-	5
<b>Total</b>	<b>161</b>	<b>70</b>	<b>84</b>	<b>7</b>	<b>-</b>

### 3.8.2 Sampling

This research employed non-probability sampling, and purposive sampling will be used to select the sample. Purposive sampling is crucial to ensure the inclusion of experts and panellists in policy-making, including those in related fields (Barbour, 2018). Purposive sampling enables this research to select a specific group of people who can provide the most relevant information related to the research topic (Creswell & Poth, 2018). Although the sampling is not representing a general population but based on their expert's capability to response the research question (Fink & Kosecoff, 1985; Shaifuddin, 2017) and as mentioned above the primary sampling would be teaching librarian as it represent this research and this study will also include few other expert who have experience and knowledge in information literacy such as academics, experts and researchers.

Table 3.7

## Years of Experience

<b>Expertise</b>	<b>Experiences (Current/Past)</b>	<b>Number of Sampling</b>
Practitioners		6
Academics/Researchers	5 to 30 years	4
Experts		8
<b>Total</b>		<b>18</b>

The number of panellists considered suitable is 5 to 10 panellists, which is enough (Chedi, 2017; Clayton, 1997), although it could range from 7 to 30 panellists (Cavalli-Sforza & Ortolano, 1984; Chedi, 2017; Dalkey C., 1969; Phillips, 2000; Turoff, 1970; Ward & Armstrong, 1981). To conduct Delphi research, the recommended sampling size ranges from a minimum of 5 to a maximum of 20 to 30 (Nguyen, 2022). Hence, this research involved 18 panellists and experts. Details of panellists and experts involved in the study are in Table 3.7. After finalising the criteria in Chapter Three, the selected panellists are shown in Table 3.8.

Table 3.8

## List of Panellist for Delphi Method and Experts in Experts Validation Phase

<b>Category</b>	<b>Name</b>	<b>Institutions</b>	<b>Experiences (Years)</b>
Practitioners	Panellist 1	Institution A	5
	Panellist 2	Institution B	6
	Panellist 3	Institution C	10
	Panellist 4	Institution D	8
	Panellist 5	Institution E	8
	Panellist 6	Institution F	10
Academics/ Researchers	Panellist 7	Institution E	5
	Panellist 8	Institution G	15
	Panellist 9	Institution G	22
	Panellist 10	Institution G	13

Experts	Expert 1	Institution G	21
	Expert 2	Institution J	24
	Expert 3	Institution L	27
	Expert 4	Institution I	29
	Expert 5	Institution H	27
	Expert 6	Institution K	26
	Expert 7	Institution M	33
	Expert 8	Institution D	26

### 3.9 Sampling Bias

Outlining and addressing potential biases enables more accurate analytical valuation in the research findings and conclusions. A well-designed research protocol explicitly outlining data collection and analysis can help reduce bias in this research (Smith & Noble, 2014). A clear view of the research protocol in data collection and analysis is explained in detail in the next section, which is in the methodological framework or paragraph 3.10. As in a book written by Creswell & Creswell (2018), the reason to clarify the bias is to create openness and an accurate representation of the research findings by interpreting the findings in light of the backgrounds of panellists and experts, such as gender, culture, history, and socioeconomic setting. This research has selected participants based on purposive sampling, which caters to the specific needs of this study and aims to construct a competence index for teaching librarians in Malaysian higher education academic libraries. Therefore, panellists and experts were selected based on specific criteria and characteristics and appointed by the head of department during the preliminary study to reduce bias. This includes their experience in delivering instructional information literacy without discriminating by gender, level of education, or requiring a minimum bachelor's degree to gain better perspectives, and it is part of the MQA qualification for hiring as academic librarians in the Malaysian context of academic libraries.

### 3.10 Methodological Phases

This section outlines the data collection process, which consists of three phases. Phase one involves a predetermined theme based on the reviewed literature and the

understanding gained from it. This study combines a collection of literature to create a basic list of competence index and uses the Delphi method to reach consensus and achieve the objective of framing the competence index (McMillan et al., 2016; Rajhans et al., 2020). In Phase Two, two rounds of Delphi were conducted, comprising two rounds, and as for Round One, a focus group interview with panellists. Round two individual interview, where panellists were required to rank the importance of the themes and to categorise the themes for human attributes. The final phase is phase three, expert validation. In this phase, the content validity index (CVI) was used to measure the validity of items in the index, as mentioned and explained in the paragraph 3.10.3.

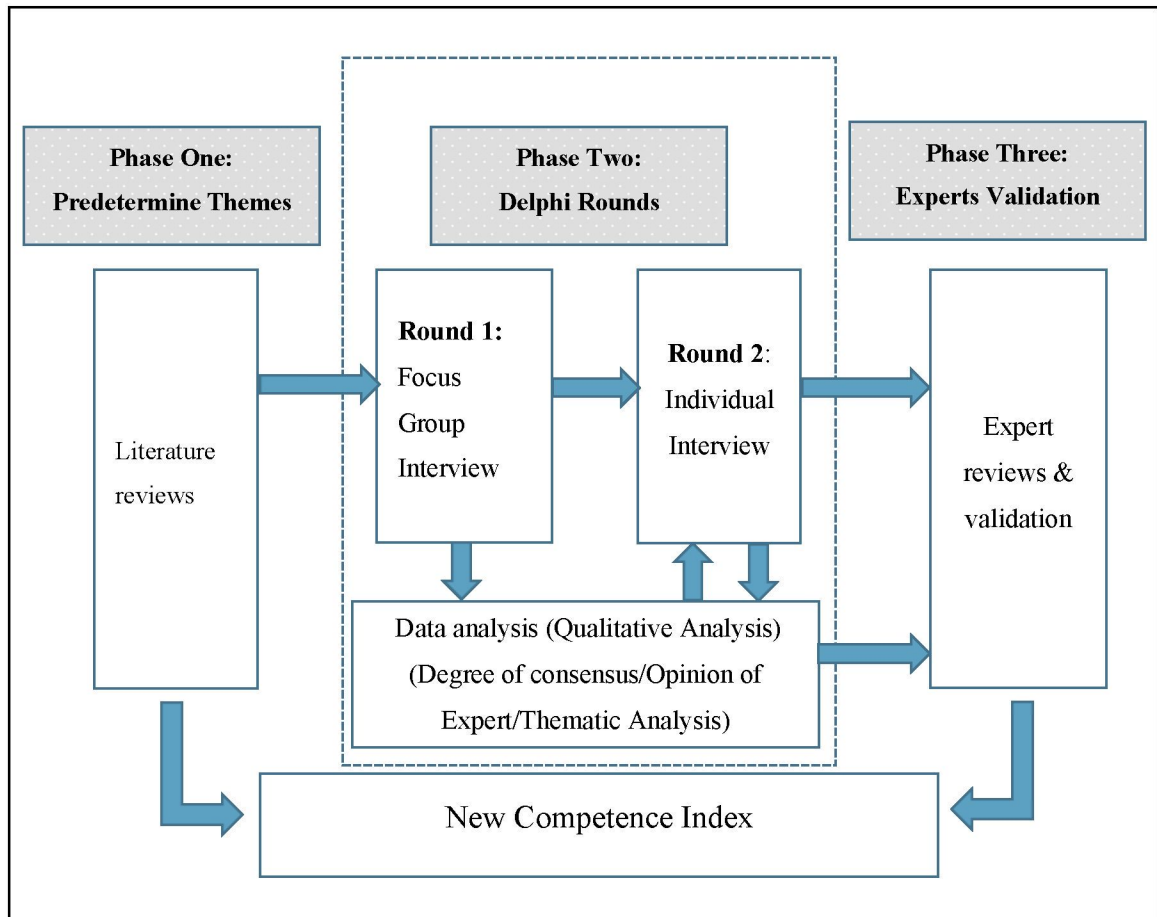


Figure 3.2 Methodological Framework for Modified Delphi

### 3.10.1 Phase One: Predetermine Themes

In this phase, predetermined themes are created based on the literature review, Knowledge, Skill, and Ability (KSA), and the Framework for Information Literacy for Teaching Librarians. The predetermined themes were developed to serve as a guideline and a structural flow for this study. They provided a conceptual foundation that ensured the research remained aligned with the objectives of constructing a competence index for teaching librarians. By establishing these themes early in the research process, the study maintained clarity and focused on the data collection and analysis stages. The themes also functioned as a framework for designing the interview questions, ensuring the discussions with participants were relevant, comprehensive, and systematically linked to the overarching research objectives. In this sense, the predetermined themes guided the direction of inquiry and facilitated consistency and coherence throughout the research process. Moreover, they served as an anchor for thematic analysis, enabling the identification, categorisation, and validation of competencies in a structured and

theoretically grounded manner. Alongside the ACRL's framework demonstrates the functionality of each frame into two elements, [1] knowledge practices which exhibit how teaching librarian can increase their understanding of the concept of information literacy and [2] dispositions which define ways in which teaching librarians tackle the emotional and attitudinal (Association of College and Research Libraries, 2015). The predetermined themes were derived from the conceptual framework, which comprises elements from the framework for information literacy in higher education and the human attributes of knowledge, skills, and abilities. The predetermined themes are illustrated in Figure 3.3

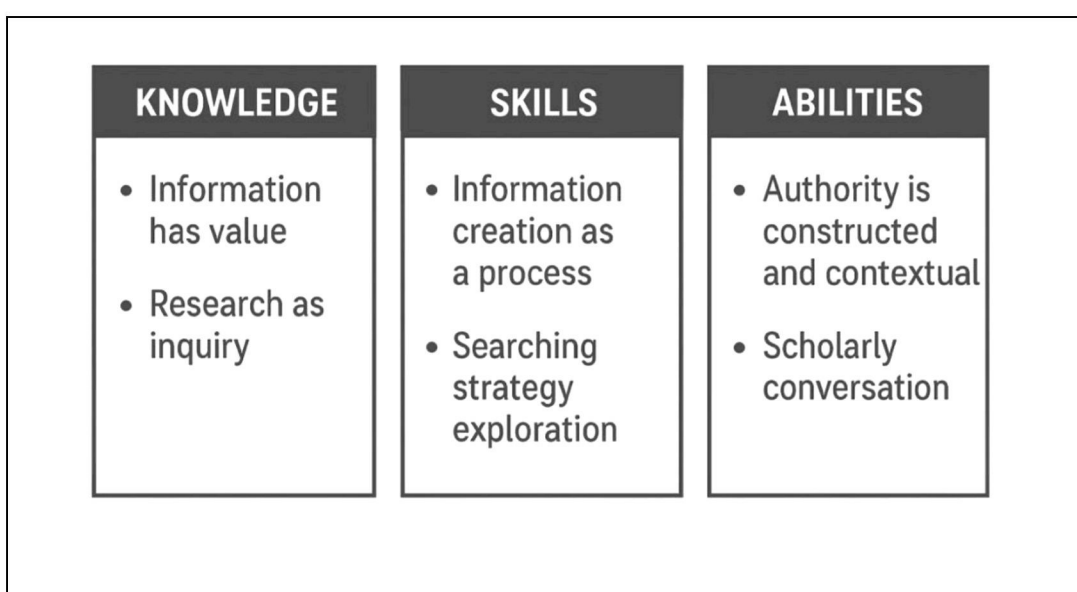


Figure 3.3 Predetermined Themes

### 3.10.2 Phase Two: Delphi Rounds

In Phase Two, the process involved Delphi rounds. Before the Delphi rounds took place, an interview guide was developed to facilitate the interview session. The rounds consist of (1) a focus group interview and (2) an individual interview. The interview guide helps the interviewer in several ways, primarily as a memory aid to ensure the interview stays within the scope of every area decided upon by the interviewer and to gather details about the topic being discussed (Magnusson & Marecek, 2015). This is typically done in a qualitative interview, where the researcher often develops a guide before the session, which serves as a list of questions or topics to be covered during the interview (Mauldin, 2020). This research requires an interview

guide to gather all the necessary information, ensuring that the objectives are met. The interview guide is shown in Appendix F.

As this research aims to develop a competence index and assess the performance effectiveness of teaching librarians in higher education, the KSA competency framework defines every aspect of human attributes (Knowledge, Skill, Ability) in relation to the Framework for Information Literacy for Higher Education. These frameworks enable librarians and faculty to redesign information literacy instructional sessions, initiate student success, collaborate on pedagogical research in the research area, and foster conversations that promote student learning and teaching (Association of College and Research Libraries, 2015).

### ***3.10.2.1 Round One: Focus Group Interview***

In qualitative research, interviews are categorised into three types: structured, unstructured, and semi-structured. This research implements a semi-structured interview. Denzin & Lincoln (2018), argue that semi-structured interviews have more advantages because this type of interview tends to produce more potential knowledge from the session by allowing the discussion to unfold from different angles in the interviewee's perspective, and the knowledge produced is more visible to the interviewer. Round 1 is an exploratory to create a qualitative and open-ended understanding (Batoool et al., 2021).

The first focus group interview session, consisting of 5 panellists (teaching librarians), was held on January 3, 2024, through the online platform Microsoft Teams, following UiTM's ethics committee approval for data collection on December 15, 2023. The second session also consisted of a 5-panellist (academics and researchers) session for a focus group interview, which was held in two sessions on January 10th and 25th, 2024. This is because two panellists who were supposed to join withdrew from participation due to work and time constraints. These sessions were conducted through online meetings using Microsoft Teams, and it was the right choice since the employer subscribes to the application to access the full features of the platform. The platform manages to transcribe the discussion, record the entire interview session, and save the recording directly to cloud storage. A total of 10 panellists were involved in this Delphi round, comprising 4 academics and researchers and 6 teaching librarians; both rounds consisted of the same panellists.

The focus group interview consists of 3 parts: an introduction to the study, a brainstorming and discussion session, Appendix C and the competence index consensus as shown in Appendix M.

a) Introduction to the Study

The session began when all panellists submitted their consent forms, and an introduction to the research was explained and presented to them. This includes four key research concepts: teaching librarian, competency, academic librarian, and academic library. These four key concepts form the central theme of this research, and for panellists to gain a clear understanding of the research problem statements and objectives. A link to the consent form was distributed to all panellists in the chat room to obtain their consent to participate in the interview. The consent form was generated using UiTM's ethics application in PDF format and then converted into a Google Form for data management, as the session was conducted online. Panellists were advised and encouraged to ask any questions or queries during the presentation for better clarification, rather than waiting until the end of the presentation.

b) Brainstorming and Discussion

In the second part of Round 1, panellists were asked to scan the QR code or click a link to participate in the second part, which involved brainstorming and discussion. The session was conducted through an application called Mentimeter (see Appendix I). Since this is an online session, it was decided to use this application to clarify any unclear points through verbal communication, given the potential issues with internet connection. Points from panellists can be easily recorded in a PDF after the session, and points are displayed live (in real-time) for data management. By being displayed, it encourages panellists to discuss or support the point given by other panellists and offers ideas to other panellists to talk and brainstorm the ideas. 6 main questions, as in the interview guide (see Appendix H), were asked to all panellists, and other questions related to the research were also asked.

Panellists were required to share their opinions on this research topic during the interview session, which utilised open-ended questions to elicit their views and opinions. The main issues and points related to the research question associated with the study are outlined in Appendices F–H, which serve as a guide for interviewing

panellists. The brainstorming process began with the introduction and objectives of this study, followed by a detailed description of the entire Round 1 process.

c) Competence Index Consensus

The third part was a consensus on the list competence index, which involved using Google Forms for panellists to answer all potential competencies. Using Google Forms made it easy for panellists to consider items for the competence index. A total of 7 links or Google forms, which consist of 6 frames from Framework for Information Literacy for Higher Education and Knowledge, Skills, and Attitude (KSA) attributes, were distributed to all panellists. Panellists were asked to accept, remove, combine or edit all items in each frame and KSA attributes. Accepted items will be included in the index if they achieve a consensus of 90-100% from all panellists. Remove means the panellists think it is unsuitable to be in the index, and combine means that panels consider incorporating one or more items into a single item. As for editing, panellists can give ideas, suggestions, or correct spelling.

### ***3.10.2.2 Round Two: Individual Interview***

In this round, the foundational competence index, identified in Round 1, was reintroduced. In the second round, the results from the first round were analysed and included in the round 2 discussion. The same panellists as in Round 1 were asked to evaluate the responses and review the comments if needed (Khavidaki et al., 2022). Panellists are requested to rate the importance of each index based on their background's perspective. The panellists rated the importance level of each item on a 5-point Likert scale. In addition, round two included open-ended questions where panellists could add points if any had been left behind during round one. All panellists were required to review the responses and give comments, if necessary, on the analysed findings from the first round. Panellists were arranged based on the index's most important list, and the results were validated (Batoool et al., 2021). Appendix J presents a sample of the Round 2 process that was conducted.

### **3.10.3 Phase Three: Expert Validation**

In the final phase, or Phase Three of this research methodology, expert validation is conducted. This validation implements the Content Validation Index (CVI), an extension of the measurement tool to the measured theory, providing significant evidence to support the validity of the measurement tool. Content validity should be established systematically based on evidence and best practices, and it is essential to ensure overall validity. CVI consists of two forms: item-content validity index (I-CVI), defined as the proportion of content given by experts by rating the relevancy level 3 or 4 and scale-level content validity index (S-CVI), defined as the relevance of all scales decided by the content experts (Smith et al., 2024; Yusoff, 2019). The details of the CVI steps and process are explained in paragraph 3.11.3 below in the section on data analysis.

## **3.11 Data Analysis**

Qualitative data analysis primarily focuses on making sense of text or image data, which is then grouped into themes or segments, disassembled, and reassembled (Creswell & Creswell, 2018). Thus, data can be restructured into meaningful information, which then can be interpreted by reader in understandable theory and practical impact of the findings (Miles & Huberman, 1994; Morse & Field, 1996; J. Thompson, 2022) transform it into meaningful themes (Braun & Clarke, 2019; K. A. Campbell et al., 2021; J. Thompson, 2022). Data analysis in this research involved three approaches: 1) in Delphi rounds, the degree of consensus and panellists' opinion on subject matters, 2) Thematic analysis was used to form a data set into a meaningful pattern, and 3) Content Validity Index (CVI) was used to measure the items' validity.

### **3.11.1 Degree of Consensus for Delphi Rounds**

An agreement or consensus level of at least 80% (Filippone, 2022) or 95% (Rajhans et al., 2020) for all rounds is set to validate and approve the competency document. Therefore, for this study, consensus is determined by the percentages achieved when they reach 90-100% or the highest level of acceptance.

### **3.11.2 Thematic Analysis**

This research employs thematic analysis to analyse the findings. The definition of thematic analysis is to identify a repetition or pattern of words that reveal essential themes through reading the transcripts of the findings (Fereday et al., 2006). Patterns and themes, as reflected in the panellists' consensus, emerged at the end of the Delphi round. As this research implemented focus groups and interviews in the data collection phase, an inductive data analysis approach is appropriate for the data analysis. The induction approach primarily relies on primary sources. In this case, the themes are derived from the data itself, without the influence of previous theories (Braun & Clarke, 2006).

After the interview, the recorded interview is transcribed from Microsoft Teams into Microsoft Word. This software is reliable for transcribing recorded interviews, as it automatically transcribes audio into text and then transfers it to Microsoft Word. Each participant is assigned a number and a coding P (P1-P10) to help organise responses and for confidential purposes. All transcriptions are sent back to participants for clarification and verification. The principal steps in thematic analysis are coding the data, identifying themes, refining the themes, and reporting the findings (Uwe Flick, 2022). Thus, the data analysis for this research followed six steps: thematic analysis, data transcription and familiarisation, coding, generating themes, reviewing themes, defining themes, and writing and reporting the analysis (Clarke & Braun, 2013). The step in the thematic analysis is as follows, and the process is illustrated in a picture. A sample of the coded references and themes creation can be seen in Appendix D.

#### ***3.11.2.1 Step 1: Data Transcription and Familiarisation***

Data from focus group interviews were transcribed using Microsoft Word, which was extracted from Microsoft Teams, and read and listened to to become familiar with the discussion. This process was repeated twice to ensure understanding of data interpretation between the panels and the researcher, and to confirm that its meaning can be interpreted accordingly.

### ***3.11.2.2 Step 2: Coding***

Step 2 is to code the process of identifying the critical keyword that aligns with the research questions or interview guide. In this research, coding is evident in the coded references within each data finding, as well as in the questions asked of the panel. One example of coding is presented in Table 4.4, which has been simplified for clarity in a table format. NVivo was used for coding, but then the results were carefully revised by the researchers to ensure the coding accurately represented the data.

### ***3.11.2.3 Step 3: Generating Themes***

Step 3 is to generate or search for themes; these themes should be rational and significant, aligning with the research question. This step involves searching for similarities within the coding and then categorising them in a thematic form, which the researcher interprets. Themes were defined from a group of codes in step 2, which shared the same meaning and interpretation, allowing for the identification of a pattern. Although the software generated themes, they were assigned after the reviewing process was done.

### ***3.11.2.4 Step 4: Reviewing Themes***

Step 4 is to review the generated theme and determine whether it is functional and correlates with the complete data set and coded references. The themes should be convincing to represent the data story. It is possible to merge and unmerge the merge into two or more different themes, or delete the theme and create new ones. One example of combining and changing names is illustrated in Table 4.4. This is intended to enhance the reliability and validity of the themes employed.

### ***3.11.2.5 Step 5: Defining Themes***

Step 5 in this thematic analysis defines the theme and ensures the themes represent the data set. Themes should identify the essence of the data set and construct brief, practical and informative theme names.

### ***3.11.2.6 Step 6: Writing and Reporting the Analysis***

The final step in the thematic analysis is to write up and report the findings in a report; for this research, the reporting is presented in Chapter 5. Report writing involves an analytics narrative and a clear data extract to explain a convincing and reasonable story of the data and to interpret the connection to the present literature.

### **3.11.3 Content Validity Index (CVI)**

Data analysis for experts' validation utilises CVI to validate the items in the findings. The phase of validation is based on steps and processes done by Yusoff (2019), and it involves six procedures: -

#### ***3.11.3.1 Prepare content validity form***

A form for experts to complete is based on findings gathered under specific themes and items. This form is divided into seven main sections, including the consent form, which is part of the ethics process. The remaining sections include demographic profiling, themes from the framework for information literacy in higher education, KSA attributes, and a final section on new components of information literacy. Each item is listed, and experts are required to rate the degree of relevance, as shown in Table 3.9 below.

Table 3.9

Content Validity Index Degree of Relevance

<b>Rating</b>	<b>Degree of relevance</b>
<b>1</b>	The item is not relevant to the measured theme
<b>2</b>	The item is somewhat relevant to the measured theme
<b>3</b>	The item is quite relevant to the measured theme
<b>4</b>	The item is highly relevant to the measured theme

### 3.11.3.2 *Select experts*

Experts are selected based on their years of experience as academic librarians in higher education environments and hold the position of chief librarian in academic libraries. A preliminary study was conducted in Phase 1 to gather information on expert criteria. Details of this information can be viewed in Table 3.7. The minimum number of experts is two, but based on the literature, the most common number is around 5 to 8 experts. Yusoff (2019) recommended that there should be at least six experts and a maximum of 10 experts. The recommended number of experts and the cut-off score of CVI are shown in Table 3.10 below.

Table 3.10

The Number of Experts and Acceptable Cut-Off Score

<b>number of experts</b>	<b>Acceptable CVI values</b>	<b>Sources</b>
<b>2 experts</b>	At least 0.80	(Davis, 1992)
<b>3 – 5 experts</b>	Should be 1	(Polit et al., 2007; Polit & Beck, 2006)
<b>at least 6 experts</b>	At least 0.83	(Polit et al., 2007; Polit & Beck, 2006)
<b>6 – 8 experts</b>	At least 0.83	(Lynn, 1986)
<b>at least 9 experts</b>	At least 0.78	(Lynn, 1986)

### 3.11.3.3 *Conduct Content Validity*

Content validity can be achieved physically and through an online approach. This phase implemented an online approach since it is more convenient and suitable for the current moment. A Google Form is used to create a Content validity form, which is then distributed to all targeted experts via email. All experts are given 30 days to respond to the form. Since the approach is through an online form, a thorough explanation was provided in each theme and section so experts would get a clear view of what they were expected to respond to. Experts were also provided with contact details for the research, should they have any inquiries or require further discussion. The most crucial factors to consider in making this decision are the response rate and the time-consuming nature

of a physical approach.

### **3.11.3.4 Review Domain and Items**

The references provided in each theme represent the themes supplied to the experts. Experts were requested to critically review the theme and items based on the rating in Table 3.9 for each item listed in the form.

### **3.11.3.5 Provide a Score on Each Item**

Experts were required to score each item individually based on the rating table provided in the form. After scoring all items, expert responses were submitted to the researcher.

### **3.11.3.6 Calculate CVI score**

The definition and formulas are indicated in Table 3.11 below. There are two categories in CVI for items (I-CVI) and CVI for scales (S-CVI). In calculating S-CVI, there are two methods available, which include the average (S-CVI/Ave), calculated from the I-CVI score for all items in the scale and the proportion (S-CVI/UA), which is the score of 3 or 4 for all items as rated by experts.

Table 3.11  
Definition and CVIs Formulas

<b>CVI Indices</b>	<b>Definitions</b>	<b>Formulas</b>
<b>Item-Level Content Validity Index (I-CVI)</b>	The proportion of content experts giving item a relevance rating of 3 or 4	$I-CVI = \frac{\text{(agreed item)}}{\text{(number of expert)}}$
<b>Scale-Level Content Validity Index based on the Average Method (S-CVI/Ave)</b>	The average of the I-CVI scores for all items on the scale or the average of proportion relevance judged by all experts. The proportion relevant is the average of relevance rating	$S-CVI/Ave = \frac{\text{(sum of I-CVI scores)}}{\text{(number of item)}}$ $S-CVI/Ave = \text{(sum of proportion relevance)}$

	by individual expert.	rating) / (number of expert)
<b>Scale-Level Content Validity Index based on the Universal Agreement Method (S-CVI/UA)</b>	The proportion of items on the scale that achieve a relevance scale of 3 or 4 by all experts. Universal agreement (UA) score is given as 1 when the item achieved 100% experts in agreement, otherwise the UA score is given as 0.	$S-CVI/UA = (\text{sum of UA scores}) / (\text{number of item})$

Before calculating CVI, all responses of relevance rating must be recoded as 1, which is derived from the relevance scale of 3 or 4 or recoded as 0 when responses are from the relevance scale of 1 or 2.

### 3.12 Validity and Reliability in Data Analysis

In qualitative research, findings are validated throughout the research process, such as in selecting panellists and experts to avoid bias and in the rigorous and iterative data collection and analysis process. However, to ensure the validity and reliability of the findings and data analysis, researchers suggest implementing approaches to enhance trustworthiness, authenticity, and credibility. Qualitative validity checks the accuracy of the findings by implementing specific procedures, while qualitative reliability shows that the researcher's approach is consistent across diverse researchers and other projects (Creswell & Creswell, 2018).

#### 3.12.1 Qualitative Validity

Several strategies for qualitative validity are suggested by Creswell & Creswell (2018), including triangulation, member checking, using rich and thick descriptions, clarifying bias, presenting conflicting information, prolonging time, peer debriefing, and involving an external auditor. As for this research, several strategies have been implemented in the data collection and analysis: 1) triangulation, 2) member checking, and 3) clarifying bias.

### ***3.12.1.1 Triangulation***

Triangulation is a process where themes emerging from different data sets or sources, and viewpoints from participants, were used to justify the themes. Then, it can be declared to add to the validity of the research (Creswell & Creswell, 2018). The participants or panellists for data collection in this research were selected from four different categories to gain a clear understanding of the panellists' viewpoints and perspectives. Details of the panellist's criteria and characteristics can be seen in paragraph 3.5.3. The themes that emerged in the findings were derived from data collection, which was conducted solely from the perspective of the selected and analysed panellists, revealing meaningful patterns and themes.

### ***3.12.1.2 Member Checking***

Member checking involves returning the final analysis, report, explicit explanation, and themes to participants to gather their responses and feedback on the accuracy of the report or analysis through a follow-up interview (Creswell & Creswell, 2018). This research employs two rounds of the Delphi method, which consists of focus group interviews and individual interviews to gather the panellists' consensus and feedback or comments after the interview sessions have been conducted. The details of the whole process are explained in Section 3.10.2. Between interviews, a verification process consisting of a report and a brief analysis of the round one findings was presented to the panellists before the final themes were presented to them in round two. In round two of individual interviews, the final themes were presented to the panellists, who were asked to provide feedback on whether the themes accurately represented the findings. These processes and steps are visible in CHAPTER 4.

### ***3.12.1.3 Clarify Bias***

Good qualitative research involves researchers clarifying research bias, which reflects the research's openness, and explaining factors such as gender, culture, history, and socioeconomic background (Creswell & Creswell, 2018), as discussed in paragraph 3.9. The study has clarified the selection criteria for all panels and experts, including

educational background, employment history, years of experience in the field, and gender, as outlined in paragraph 3.8.2.

### **3.12.2 Qualitative Reliability**

A thorough documentation of the procedures and processes throughout the entire research journey is one way to determine whether the research approach is reliable, allowing other researchers to follow the procedures and methods (Yin, 2009). To accomplish this, Gibbs (2018) suggested several qualitative reliability procedures: 1) check transcripts, 2) no drift in code definitions, and 3) cross-check codes. As mentioned earlier, this research has followed the first procedures to verify transcription and eliminate transcription errors. A careful transcription was performed twice, listening to the recording piece by piece to avoid tedium and boredom. It took almost two months to complete the whole listening process. As explained earlier, the second procedure utilised NVivo software to avoid time-consuming manual coding and redundancy. This software helped transcribe the data and analyse it accordingly. The final procedure involves cross-checking codes, and in this research, the cross-check was conducted using the Content Validity Index (CVI) to validate the findings, rather than the codes themselves. Selected experts did the validation process as in paragraph 3.8.2. This ensures that experts validate each item listed in the themes. Details of the process of CVI are explained in paragraph 3.11.3, and findings on CVI are shown in paragraph 4.4. The agreement of this CVI must be at least 0.83 of the acceptance CVI value, and this research successfully achieved the acceptance CVI value for both the item-content validity index and the scale-content validity index for the average.

### **3.13 Programming Software and Tools in Data Analysis**

In the data analysis process, this research utilised NVivo version 14.23.3 (61), a programming software licensed by Universiti Teknologi MARA (UiTM). NVivo is a qualitative data analysis computer software package that helps identify patterns and connections in transcription documents, transforming unstructured data into structured data to facilitate analysis. NVivo was used in this data analysis for thematic analysis, one of the data analysis methods employed in this research, and was provided by the institution for students' use.

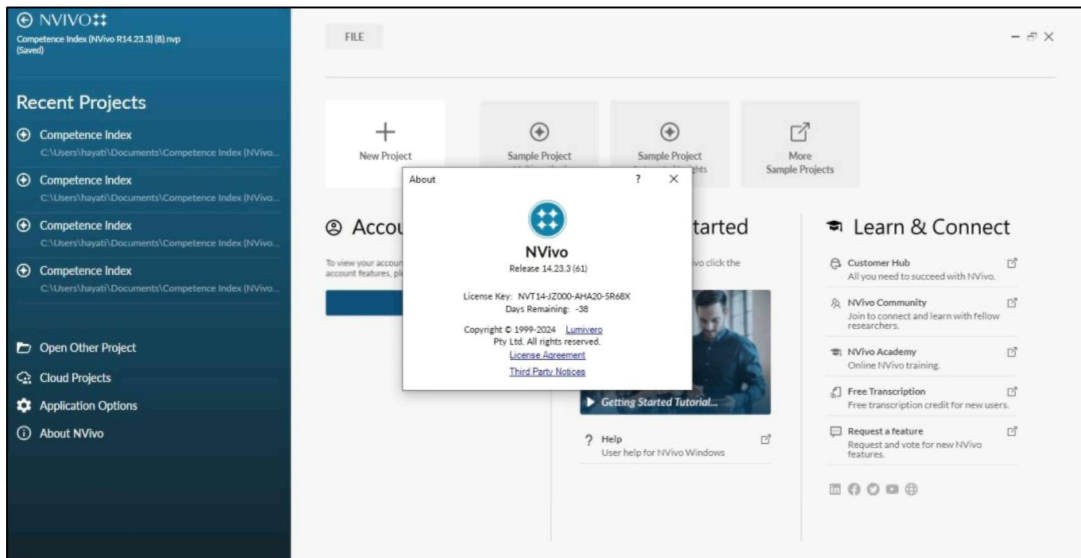


Figure 3.4 NVivo Software version 14

### 3.14 Ethical Consideration

Ethical considerations are fundamental in any research effort, ensuring that studies are conducted responsibly, with respect for the rights and well-being of participants, and in alignment with ethical standards and guidelines. This section addresses the ethical framework underpinning the research on the competence index for teaching librarians in academic libraries within higher education. By addressing ethical considerations, this study strives to uphold the highest standards of research integrity and promote trustworthiness in the findings presented. Moral awareness and responsibility are essential for conducting ethical and rigorous research that respects the rights and dignity of all participants involved. This section sets the stage for the ethical conduct that underpins the entire research endeavour on teaching librarian competencies in academic libraries.

The UiTM Research Committee approved this study on 15<sup>th</sup> December 2023 with approval code REC/12/2023/(PG/MR/475). Participants were informed of the voluntary nature of their participation and the secrecy and confidentiality of this research and data collection.

### 3.15 Chapter Summary

This chapter has outlined the research methodology adopted to achieve the study's objectives. A qualitative research design, employing a modified Delphi method,

was selected as the most appropriate approach to construct a competence index for teaching librarians in academic libraries within Malaysian higher education. The rationale for this choice was explained, supported by the need to obtain the panellists' consensus and having a group of experts to validate the essential competence index required for teaching librarians. The participant selection, data collection, and data analysis processes were also described in detail. Panellists and experts were purposefully selected to ensure the credibility of the findings. At the same time, thematic analysis was employed to identify recurring themes and patterns that informed the development of the framework. Considerations of validity, trustworthiness, and ethical responsibility were incorporated to ensure the integrity and rigour of the research process.

In conclusion, this chapter provided a comprehensive account of the study's methodological phases. The design and procedures presented form the foundation for the subsequent analysis and discussion. The next chapter, Chapter 4, will present the results and findings from these processes.

## **CHAPTER 4**

### **DATA ANALYSIS AND FINDINGS**

#### **4.1 Chapter Introduction**

This chapter presents the results of data collection in constructing a competence index for teaching librarians in higher education through two rounds of the modified Delphi method. As in Chapter 3, the research methodology, results, and findings for this research were gathered from the opinions, knowledge, and experiences of panellists and experts through four categories of experts. There are academics, researchers, experts (with more than 20 years of experience), and practitioners or teaching librarians. This chapter is divided into three sections: a) data analysis of two rounds of the Delphi method, b) thematic analysis and c) summary. This chapter then provides a detailed examination of the research objectives and questions outlined in the initial stages of this study. This analysis aims to assess how well the research has addressed its intended goals and provide insights into the underlying patterns and trends observed during the investigation. Chapter 4 provides a comprehensive overview of the findings related to the competence index for teaching librarians in academic libraries within higher education. This chapter presents the study's results systematically, offering a detailed examination of the data collected through various research methods.

The chapter begins with a brief recap of the research objectives and questions, reminding the reader of the study's purpose and the specific areas of inquiry that will be explored. This section sets the stage for the detailed presentation of findings by emphasising the importance of each competence area identified in the competence index. The data presentation is organised into several key sections, each corresponding to the major competency domains identified in the competence index. The chapter presents qualitative data, including interview panellists, and then analyses the findings through a thematic analysis to provide a holistic view of the competencies. Tables, charts, and graphs are used to visually represent the data, making it easier for readers to grasp key findings and trends. The chapter also includes a comparative analysis, highlighting any significant differences or patterns observed across different panellist groups based on categories mentioned in paragraph 3.8. This comparative approach

helps to contextualise the findings and identify areas where targeted interventions may be needed.

In conclusion, Chapter 4 lays the foundation for the subsequent chapters' discussion and interpretation of results. Providing a detailed and systematic presentation of the data prepares the reader for a deeper understanding of the implications and recommendations that will follow. This comprehensive analysis aims to contribute to the ongoing efforts to enhance the competencies of teaching librarians, ultimately improving the quality of education and support provided to students and faculty in higher education institutions. Chapter 4 presents the results and findings in accordance with the methodological process phases mentioned earlier. Findings in the Delphi rounds and the experts' validation will be given.

## **4.2 Phase One: Predetermined Themes**

In Phase One, predetermined themes served as the foundation for structuring the Delphi Rounds, but did not yield findings. Therefore, findings are reported starting from Phase Two. Although this phase is not currently producing results from data collection, at the end of this study, the layers of themes should be revised to align with the findings from the data collection. This will be explained later in the section Data Analysis 4.5.

## **4.3 Phase Two: Delphi Rounds Results**

This section explains the findings from Phase 2. In this phase, the Delphi method was employed as a data collection procedure, consisting of two rounds: focus group interviews and individual interviews. Between these rounds, a verification process is conducted to validate the findings gathered in the focus group interviews, which are then presented in the individual interviews. This phase consists of three sessions: an introduction to the study, brainstorming and discussion, and the final session, which involves consensus on the competence index.

### **4.3.1 Round 1: Focus Group Interview (FGI)**

Round 1 consists of brainstorming among panellists and getting a consensus on items for the competence index. Brainstorming topics related to knowledge, skill, and attitude in practising teaching librarians, information literacy, and interfering

conditions. Interfering conditions in this research context are challenges and barriers to practice teaching in the profession. Open-ended questions were used in a brainstorming session where panellists could simultaneously answer through a word cloud using Mentimeter (Appendix I).

#### **4.3.1.1 Panellists Demographic Profiling**

This demographic characteristic aims to capture the composition and background of panellists in Delphi rounds. Ten panellists were invited to participate in the Delphi method, which was divided into three sessions: six panellists from teaching librarians and four panellists from academics and researchers. The response rate for all sessions was 100% in both rounds. As shown in Table 4.1, 3 male panellists represent 30%, compared to 7 female panellists, who comprise 70%. The highest qualification with a PhD represents 40% or four panellists, and master's and bachelor's degrees share the same percentage, with 30% or three panellists each. Years of experience are essential in this research, as indicated in the selection of panellists for both categories. Panellists with a minimum of 5 – 10 years of experience represent 40% or four panellists, and more than half of the panellists with a range of years of experience of 11 – 22 years indicated 60% or six panellists. All panellists are from public Higher Education institutions under the Ministry of Higher Education.

Table 4.1  
Panellists Demographic Profiling (N=10)

<b>Demographic Variables</b>	<b>Number</b>	<b>Valid Percentage (100%)</b>
<b>Gender</b>		
Male	3	30
Female	7	70
<b>Total</b>	<b>10</b>	<b>100</b>
<b>Education Qualification</b>		
PhD	4	40
Masters	3	30
Degree	3	30

<b>Total</b>	<b>10</b>	<b>100</b>
<b>Years of Experience</b>		
5 – 10 years	4	40
11 – 22 years	6	60
<b>Total</b>	<b>10</b>	<b>100</b>
<b>Panellists Categories</b>		
Practitioners/Teaching		
Librarian	6	60
Academics/Researchers	4	40
<b>Total</b>	<b>10</b>	<b>100</b>

#### ***4.3.1.2 Brainstorming and Discussion***

At the start of this data analysis will present all results based on the session we gathered from the focus group interview (FGI). This session focused on exploring panellists' experiences, knowledge, opinions, and perspectives on the questions. There were six base questions and findings from all panellists (P1-P10), as in Table 4.2. The highlights at this stage are questions 4 and 5, which relate to Research Objective 1, and questions 6 to Research Objective 3. Still, the rest of the questions are also important, as those questions signify the added value to the competence index for teaching librarians.

Table 4.2

#### **Teaching Librarian and Information Literacy**

<b>No</b>	<b>Questions</b>
1	Who is the Teaching Librarian
2	How is the environment as teaching librarian at your institution?
3	What are exactly teaching librarian job description?
4	What are the challenges and barriers in practicing teaching librarian at your institution?
5	How to overcome these challenges and barriers?
6	What would be the components in information literacy?

i) Who is the Teaching Librarian?

Panellists were asked, in their own words and based on their experience, to describe who teaches librarians, in line with definitions from the literature. The response rate for this question was 100. Results from the interview were analysed, indicating three main themes: information literacy, users and librarians. These themes signify that a teaching librarian is a librarian who works in an academic library and teaches information literacy to higher learning stakeholders or library users. This indicates a fundamental shift in the role of librarians from traditional tasks such as collection management and reference services to actively engaging in teaching and educational initiatives. It suggests a proactive approach to support information literacy and user education. There were four coded references with 87.31% coverage, as in the interview by the panellists:-

**P1:** *“Librarian handling information literacy classes and other programs including setting up modules for the institution”*,

**P2:** *“Teaching librarian refers to librarians who is engage in teaching & user education or information literacy program as main duty”*,

**P3:** *“Librarians are assigned to design the curriculum for information literacy skills library users”*.

**P4:** *“Responsible for guiding & assisting research for the researchers”*

**P5:** *“Known as a reference librarian. Responsible for planning, organising, implementing & evaluating information literacy sessions whether small (consultation/private) or large (class to community in the institution)”*,

The findings suggest that librarians actively engage in various aspects of teaching, user education, and research support within the institution. Their roles extend beyond traditional library services to curriculum development, instructional design, and personalised assistance, highlighting their vital contribution to promoting information literacy and supporting academic success.

During Session 2, the academic and research group was also asked the same question as in the previous session. The panellists were then asked to clarify further, and the additional question was added during the brainstorming session. Six themes were highlighted by the panellists in response to this question, with the most frequently mentioned themes being information literacy, teaching, user education, classes, the library, and the role of the librarian. These themes are significant, as defined by the practitioners/teaching librarian group, which identifies the main tasks, the individuals involved, the locations where they teach, and their target audiences. Teaching librarians work collaboratively to plan and deliver instruction in information literacy. This involves guiding students through a standard research process, which typically includes identifying information needs, searching for relevant resources, critically evaluating information, and using it ethically. The highest reference made by the panellists is information literacy, where there are eight references made by the panellists saying:-

**P6:** *“Teaching librarians are collaboratively plan and teach information literacy skills, which includes a standard research process”*,

**P7:** *“Teaching librarian is a librarian involved in user education program”*,

**P8:** *“A teaching librarian also known as an instructional librarian or information literacy librarian is a specialised academic librarian who teaches students and faculty information literacy skills”*,

**P9:** *“Teaching Librarian is an information literacy experts”*,

**P9:** Added point on the previous point saying that *“teaching librarian is a reference librarian assigned in user education unit who teaches information literacy”* and also *“as an instructor in the classroom”*. *Teaching librarian can act as co-teaching with lecturer as subject lecturer”*

**P10:** *“Teaching librarian is a person who is responsible to execute training and awareness campaigns in or about the library services and their references”*

The findings highlight the multifaceted role of teaching librarians as educators, collaborators, subject specialists, and advocates for information literacy within academic institutions. The findings were then analysed, and the comparison between the themes in both sessions is shown in Table 4.3. Two themes were highlighted in both interview sessions: information literacy and Librarianship. Overall, nine themes were generated from the interview sessions, and 40 codes and 123 references were coded. The highest reference is information literacy, which represents 87.64% coverage. Despite all the themes in the analysis of combined findings, three additional themes were generated: information literacy skills, program, and research.

Table 4.3  
Themes Comparison for Question 1

<b>No</b>	<b>Session 1</b>	<b>Session 2</b>	<b>Combine All Sessions</b>
<b>1</b>	Information literacy	Information literacy	Information literacy
<b>2</b>	Users	Teaching	Librarian
<b>3</b>	Librarian	User education	Users
<b>4</b>		Classes	Library
<b>5</b>		Library	Information Literacy Skills
<b>6</b>		Librarian	Teaching
<b>7</b>			Classes
<b>8</b>			Program
<b>9</b>			Research

A teaching librarian is a librarian who teaches instructional information literacy in classes, as highlighted by panellists, since it shows up in both sessions. Since information literacy and information literacy skills share similar references within these two themes, they are combined into a single theme: information literacy and library themes, merged into teaching. A new theme, session evaluation, is created as a stand-alone project. All the final results after merging the reference coded are listed in Table 4.4.

Table 4.4

## Question 1 Themes Coded Reference

<b>No</b>	<b>Themes</b>	<b>References</b>	<b>Remarks</b>
<b>1</b>	Information Literacy	Information literacy skills library users	Merged with Information literacy skills, users, program
		Faculty information literacy skills	
		Information literacy librarian	
		Information literacy program	
		Handling information literacy classes	
		Information literacy expert	
		User education program	
<b>2</b>	Librarian	Teaching Librarian	
		Information literacy librarian	
		Academic Librarian	
		Instructional librarian	
		Reference librarian	
<b>3</b>	Teaching	Information literacy skills	Merged with library
		Library resources	
		Library services	
		Co teaching	
<b>4</b>	Classes	Specific classes	
		Handling information literacy classes	
<b>5</b>	Research	Standard research process	
		Assisting research	
<b>6</b>	Session Evaluation	Information literacy librarian	
		Information literacy skills	
		Handling information literacy classes	

From this finding, it is clear that teaching librarian is a librarian works as teaching librarian, instructional, reference librarian, academic librarian and information literacy librarian (in context of Malaysia, a librarian is a person with qualification of bachelor's degree in library science or equivalent) who responsible in teaching information literacy classes that includes assisting and give support to research standard process. A teaching librarian is also responsible for managing session evaluations at the end of the program, which assess not only program outcomes but also the teaching librarian's performance, information literacy skills, and the handling of classes.

ii) How is the Environment as Teaching Librarian at Your Institution?

The panellists were asked to identify whether there is positive or negative support from faculty or top management, how the facilities are in the online environment at the institution, and how users are accepted toward information literacy. The results suggest that students and staff highly value and appreciate the resources and assistance provided by these entities. In this practitioners/teaching librarian session, all responses by panellists are positive to see a unanimous agreement on this aspect, where they received good support from both management and faculties, as said by four panellists:-

**P2:** Teaching librarian in my institution received *“good support from the library & faculties”*,

**P3:** Same goes with us, where *“We have the support from our top management and faculty”*,

**P4:** We have connection and *“Get good support from some faculty and academicians”*,

**P5:** The vibes on information literacy are good here and we get *“support from some faculty and lecturers”*

However, this support from management and faculty should align with the importance and relevance of information literacy towards student learning and supporting their

journey throughout study years in higher education, as one panellist mentioned that:-

**P1:** *“We do not have specific sessions for all students, but each semester, we are given a 2-hour slot specifically for information literacy sessions with first-year students of each faculty”.*

**P3:** Although we get support from management and faculty, *“However, it is important to show them the relevance of the content”.*

The importance and relevance of information literacy showed when libraries received attention from faculty by giving specific hours, slots or compulsory sessions for their students to attend information literacy, as said by two panellists:-

**P5:** The most support is we get from *“two of our modules are compulsory for all students”.*

Overall, the findings of this group session paint a picture of a diverse environment with varying levels of support from different stakeholders. While there are areas of strength, such as library support and designated sessions for skill development, there also appear to be areas for improvement, such as ensuring consistent support from faculty and addressing the need to demonstrate the relevance of content to stakeholders. These findings provide valuable insights into the current state of the institution's academic environment and areas for potential improvement.

Academics and research groups have shown that the institution's teaching librarian environment is multifaceted, presenting both opportunities and challenges. Findings indicate four themes surrounding this session of panellists, specifically the environment, as experienced by teaching librarians: budget, library, class, and support. Each theme was mentioned twice by panellists. This finding suggests that teaching librarians are in high demand, as evidenced by their busy schedules with classes from students and their frequent requests from faculty throughout the year. This indicates a recognition of the librarian's value to the institution in terms of information literacy instruction.

Findings also found positive support from academic or faculty level who are willing to schedule special classes and invite the librarian to teach information literacy

to students. This support is crucial in fostering a collaborative environment between faculty and the librarian, enhancing the integration of information literacy into courses. And a collaborative environment. The environment seems conducive to collaboration with faculty, potentially leading to partnerships to integrate information literacy into various classes. This collaboration can enrich the learning experience for students and demonstrate the importance of information literacy across disciplines. Panellists mentioned this as they said:-

**P6:** *“We received very good response from faculty and we are busy with classes from students and requested by faculty for whole year”,*

**P7:** *“Good support from academics which they will set for special class and invite librarian to teach information literacy to students”,*

**P8:** *“Normally environment might foster collaboration with faculty, encouraging partnerships to integrate information literacy into courses”,*

**P9:** *“Teaching librarian need new environment for the university/library to have the information literacy class” and “new approach to have mandatory information literacy class for every undergraduate and postgraduate student”.*

**P10:** *“When I was a teaching librarian the setting of information literacy was acceptable with expected support from management, given the fact that it is new during that time and on dry run phase”.*

In summary, the findings suggest a dynamic environment for the teaching librarian, with opportunities for collaboration, stakeholder support, and budgetary backing. However, challenges in implementing new initiatives and staying abreast of technological changes are inherent. Effective communication, collaboration, and adaptability will be key for the teaching librarian to navigate this environment successfully.

Seven themes were identified after analysing all responses from all sessions. Compared to each session, no themes were identified for the teaching librarian; however, the academic session identified four themes. Comparison between each

session and the combined session is shown in Table 4.5. Session 1 refers to the teaching librarian session, while Session 2 refers to the academic session.

Table 4.5

Themes Comparison for Question 2

No	Session 1	Session 2	Combine All Sessions
1		Class	Information literacy
2		Library	students
3		Support	Sessions
4		Year	Support
5			Year
6			Library
7			Top management

After combining all responses, five new themes were added: information literacy, students, session, library and top management. However, based on analysing coded references for each theme, they found that the same references were used; therefore, they decided to merge those themes into one. Coded references for each theme and merged themes are listed in Table 4.6.

Table 4.6

Question 2 Themes Coded Reference

No	Themes	References	Remarks
1	Information Literacy	Information literacy sessions	Merged with sessions and library
		Mandatory information literacy class	
		Special class	
		Specific session	
		Library resources	
2	Students	First year students	
		Student education enhancement	

<b>3</b>	Support	Expected support	Merged with top management
		Good support	
		Top management	
		Class request whole year	
<b>4</b>	Budget	Yearly budget	Changed from year
		Library services & facilities	

Ultimately, only four themes were fully identified for question 2, which were based on coded references analysed from NVivo. The merging and renaming of theme names are due to repetitive references within merged themes, a more suitable and clearer name for the theme, or a reference for better understanding. This positive support from all sides stems from the information literacy class itself, where panellists mentioned that their class is booked throughout the year, they have mandatory classes, and specific classes tailored to users' particular needs. The focus of class crowds is first-year students. This seems reasonable since those 1st year students do not know how to use library facilities and resources. Although there was good support from top management in practising the teaching librarian role, there are still issues that need attention from management, which involve budgeting. This budget will be used to send a teaching librarian for training and to maintain library facilities and services.

### iii) What are Exactly Teaching Librarian's Job Description?

This question was asked to identify and determine the teaching librarian's job description at the panellists' institution, or what the teaching librarian is expected to do. The reality faced by teaching librarians in Malaysian public academic libraries is that they are assigned based on the institution's needs, and teaching is not the only responsibility they have daily. The findings of this question reveal that three main elements or themes were identified. Panellists, namely literacy, reference, and research, were mentioned and highlighted twice in the interview. Twenty responses were received during the interview session. Teaching librarians should perform and conduct

information literacy skills, and as literacy instructors, as mentioned in the interview session:-

All panellists (P1-P5) agree that the teaching librarian's job description includes handling "*literacy skills*" classes, conducting "*user education*" programs and serving as a "*literacy instructor*".

Aligning with the academic level in higher institutions, teaching librarians should also be involved in research, as academic staff need to get support from them. As said by panellists, a teaching librarian's task should include supporting research and assisting the research process. Three panellists added points in the discussion and mentioned that the other functions surrounding the teaching librarian's job description are related to research.

**P2:** Teaching librarians should be a part of *the "research support"* team

**P3** "*Assisting research*" in research activities is helping teaching librarian to become prominent among academics and help to promote the important of information literacy.

**P5:** Teaching librarian is also responsible for "*supporting research*" activities in the institution

A teaching librarian is traditionally or predominantly assigned to the reference department and the user education unit. Panellists identified that the teaching librarian should also perform tasks similar to those of a reference librarian, such as answering queries and promoting services, as they suggested.

All panellists (P1 – P5) agree that teaching librarians, also known as "reference librarians", should also be involved in "promoting resources" provided by the library to users. Hence, the services utilised participate in "library promotion" to attract users ranging from students to faculty members to use library services and conduct reference services, such as the reference desk and "Ask a Librarian." These findings provide a comprehensive picture of the various roles and responsibilities of teaching librarians, encompassing reference services, user education, research support, community engagement, and other related activities.

The findings for academic researchers suggested that teaching librarians play a crucial role in facilitating information access, promoting critical thinking, and

supporting academic success within their institutions, which indicates the main subject is information literacy, as said by the panellists in the interview:-

**P6:** *“Teaching librarians need to be a proactive liaison officer so that, we can promote the important of information literacy session to the faculty and students. Only through liaison connection, they know what we can offer to them as it directly from library to faculty and lecturers”.*

**P7, P9, P10:** These three panellists were agreed that, teaching librarian job description are *“we teaches as our main task, handling literacy class and as information literacy instructor”.*

**P8 and P10:** Teaching librarian should *“assist students and lecturer on research matter”.*

Later, the question further up with what the credentials that a teaching librarian should have, the panellists listed out these points:-

**P6:** *“Skilled in handling information literacy”*

**P7:** *“Critical thinking”*

**P9:** *“Knowing how to evaluate sources”*

**P8:** *“Knowledgeable in subject matter and always updated with current needs of students and faculty”.*

**P10:** *“Well educated in terms of education background, should have research skill and stay relevant by updating knowledge as we do teaching instructional information literacy everyday”.*

Teaching librarians are expected to assess the credibility and reliability of various information sources, guiding students and patrons in discerning quality materials when evaluating information. They should encourage critical thinking skills

in students, helping them analyse information, question assumptions, and form their own conclusions. The most crucial part is that teaching librarians should possess various skills, including information literacy, research, communication, and instructional design, as well as a deep understanding of library resources, information systems, research methodologies, and subject matter expertise in relevant fields.

Again, the research theme shows up after question 1, which is who is teaching librarian, and as in question 3, the same theme comes out to show that research is part of teaching librarian's main tasks in the current situation, mainly since higher education institutions are focusing on high research production among students and academic staff. To recap the theme identified in Session 1, which involved teaching librarian panellists, three themes surround this group of panellists. In contrast, for the 2nd session, which involved the academic and researcher group, only one theme emerged from the analysis. The same theme, literacy, shows in both session findings and all findings combined; there are four themes within the context of this question. Details of these themes are shown in Table 4.7. In the combined findings, it appears that the research and literacy themes share the highest number of references, with four references each, compared to the two other themes. Once again, this shows that literacy and research are the main themes in this research.

Table 4.7  
Themes Comparison for Question 3

<b>No</b>	<b>Session 1</b>	<b>Session 2</b>	<b>Combine All Sessions</b>
<b>1</b>	Literacy	Literacy	Literacy instructor
<b>2</b>	Reference		Literacy
<b>3</b>	Research		Research
<b>4</b>			Skill

Table 4.7 presents a comparison between the two data collection sessions and the combined responses from both sessions. As shown in the table, literacy and research are evident in both sessions and the combined findings. Two new themes in the combined findings are literacy instructor and skills. The reference is only shown in Data Collection Session 1.

Table 4.8

## Question 3 Themes Coded Reference

<b>No</b>	<b>Themes</b>	<b>References</b>	<b>Remarks</b>
<b>1</b>	Literacy	Literacy instructor	
		Literacy skills	
		Literacy class	
<b>2</b>	Skills	Literacy skills	
		Research skills	
<b>3</b>	Research	Research skills	
		Supporting research	
		Assisting research	
		Research support	
<b>4</b>	Literacy instructor	Literacy instructor	

Mentioned above, literacy and research contributed the highest number of references coded, followed by skills and literacy instructors. The literacy instructor provided two references, but the data analysis indicates that only one reference was used. This is because two panellists coded the same reference. This research is to find the connection between the framework for information literacy and KSA attributes, skills that seem very important in teaching library main tasks, such as research and literacy skills, other than knowledge and attitude.

iv) What are the Challenges or Barriers in Practicing Teaching Librarians at Your Institution?

Before the competence index for teaching librarians can be developed, it is necessary to identify the challenges and barriers by answering the research question and understanding what challenges and barriers prevent teaching librarians from being competent. These challenges and barriers are the gaps that hinder teaching librarians from practising as such. Based on panellists representing practitioners or teaching librarians, findings identify two themes or main issues that lead to the challenges and barriers to performing as a teaching librarian. The two themes are specific subject areas and skills-related issues. Issues such as technical and network were the primary concern

since the post-pandemic period, when most classes were held online. As mentioned in the problem statement, the literature suggests adapting an online environment for teaching librarians, as users of information literacy classes prefer online classes over physical ones, as they require less effort to attend a virtual class. The issue of technology was a hot topic during the discussion, where almost all panellists raised it as a challenge and barrier in practising teaching librarians in delivering instructional information literacy. The latest technology or updated version of online class applications makes it hard for teaching librarians to adapt to the changes, as panellists said and highlighted these points:-

**P1:** *“We having difficulty in handling the session using online platform where we have to handle the technical issues such as the malfunction of hardware and software”.*

**P2:** *“Resources constraints such as budgeting for staffing, the rapid change of technology”* is the challenges and barriers faced by teaching librarian in the institution.

**P2:** Added point that, although we have provided basic tools to be used by users, the *“demand of users to get something else”* other than provided by the library, such as software, is also challenging.

**P3:** *“Most of our classes are online, we encounter technical issues, network issue”* during information literacy session.

**P4:** *“Lack of resources, technology, sometimes not all faculty knows the value of this module from the library and the importance of information literacy”.*

**P5:** We also faced the same problem in terms of *“resources constraints which involved the facilities used to conduct teaching sessions”.*

While discussing the lack of technology facilities and budget constraints, panellists then added that the point is the module of information literacy itself, which they view as their challenge and barrier.

**P2:** I agreed with P5, about the outdated module, *“we need to have latest and advanced*

*modules*” so it will attract more students to participate information literacy session.

**P4:** Added point about the *“module in information literacy provided by library is not valued by the faculty”*.

**P5:** We have started information literacy since the establishment of this institution, we need to review current module provided by the library and *“development new module that suit the needs of students and faculty”*.

Then, panellists discussed other challenges and barriers faced by the teaching librarian, such as having the skills to handle technology, information literacy, and communication skills.

**P1:** *“We need knowledge and skill in conduction session and on to navigate the facilities of hardware and software”*.

**P2:** We often having *“communication barrier on how to be more interactive in the information literacy session”*.

**P3:** Based on the after-session survey, the audience of our information literacy session responded that, *“teaching librarians are not funny enough to attract the attention of users in the classes”*.

**P4:** Since faculty is not valuing module in the session, *“the skill of information literacy is important for students and faculty member to have the ability search, evaluate and use the information in proper manner”*.

**P5:** *“We are lacking of creativity in attracting student’s attention”*.

Addressing these challenges requires a multifaceted approach that involves investing in resources, promoting professional development, and fostering collaboration among educators, administrators, and other stakeholders. The discussion of challenges and barriers faced by teaching librarians in delivering instructional information literacy continues with the academics and researchers. This finding can be

categorised into several themes to indicate the pattern of challenges or barriers. There is an understanding of terminology and subject, which contributed the biggest challenges in this session, where librarians need to comprehend specialised terminology and adapt their communication to meet users' expectations. Teaching across various subject areas requires librarians to have a broad understanding of diverse topics and may also require additional training in specific disciplines. Balancing the depth of information shared and ensuring the content aligns with the users' needs and capabilities can be challenging. These factors, as mentioned by panellists in the session of the interview, are:-

**P6:** Currently, what we have in the institution is the *“basic module in information literacy such as how to search information in online databases, to use application like Mendeley or Endnote”*.

**P6:** Added point and expressed other challenges faced by most teaching librarians is *“we same education background (library science) but librarian have to understand variety subject area offered by the faculty”*

**P7:** We must face *“users' judgement on librarian's communication” how we handle information literacy, and they might compare us to their lecturers, or we should be able to give proper lecturers as their lecturers”*.

**P8:** Agreed to P9, teaching librarian have *“To handle and understand terms of other subject area” and the comprehend terminology each faculties”*.

**P9:** The most difficulty in giving instructional information literacy is *“to gain knowledge about the subject area”*,

**P10:** *“I always have doubt on the depth of information that should be shared in the information literacy session and to find the right timing to fit in student's schedule so they can join the information literacy session”*.

Training and exposure come next to the challenges or barriers that teaching librarians face. A lack of proper training and exposure to effective teaching

methodologies indicates a need for structured training programs to help librarians develop their teaching skills. Relying solely on observation from senior librarians may not provide sufficient guidance or understanding of effective teaching practices. These points were mentioned in the interview as panellists said:-

**P6:** *“Never been exposed how to teach” during our university years and even there is no teaching subject were taught”*,

**P7:** *“Training just based on observation from senior”*.

**P8:** *“Lack of proper teaching training”*,

Students’ engagement and feedback also seem like challenges and barriers to the teaching librarian. Finding suitable timing for classes that accommodate students’ schedules can be complex. Negative feedback from students may arise due to misunderstandings, lack of engagement, or dissatisfaction with the teaching approach. Maintaining passion and motivation for teaching is crucial for delivering engaging and practical instruction. Points highlighted in the interview by panellists -

**P9:** *“No passion in doing what we do (teaching)”*.

**P10:** *“Finding the right timing to fit students schedule” and “Negative feedback from ignorance student”*,

Tackling these challenges requires a multifaceted approach, including targeted training programs, technical support, and strategies to enhance communication, subject knowledge, and teaching effectiveness. Additionally, creating a supportive environment that encourages continuous learning and feedback can help librarians improve their teaching practices and better meet the needs of their users.

Compared to the two separate sessions for teaching librarians, academics, and researchers, two main issues were highlighted: information, issues, and subject areas. The subject area is the primary concern that both sessions have in common. Issues surrounding teaching librarian barriers and challenges are network and technical issues. Academics and researchers focus more on the information itself. How is the information

being shared, and how is the information literacy class handled? Combined responses reveal three additional challenges or barriers that need to be addressed by this research, enabling teaching librarians to practice and conduct instructional sessions on information literacy effectively. This narrative is simplified in Table 4.9 below, where a comparison of both sessions (Session 1 and Session 2) and combined responses is presented in a theme analysis.

Table 4.9

Themes Comparison for Question 4

<b>No</b>	<b>Session 1</b>	<b>Session 2</b>	<b>Combine All Sessions</b>
<b>1</b>	Issues	Information	Information
<b>2</b>	Specific subject area	Variety subject area	Issues
<b>3</b>			Module
<b>4</b>			Session
			Teaching

The highest coded themes in this question are information and teaching, with three references each, and the remaining themes have two coded references each. These two themes with the highest coded references show that this is the primary concern or challenge that teaching librarians face, and that a solution is required, along with this research objective and the significance of this research to develop a competence index and a well-documented syllabus on information literacy for teaching librarians in the higher education system. All coded references for this 4th question are listed in Table 4.10. Information themes encompass concerns or high-level worries about managing information literacy and persuading panellists of the value and importance of information literacy and its related content. In other coded references, information shared in information literacy is part of the concern of panellists. At what level or how much information should be shared in information literacy, and to which audience should this information be taught or shared in the classes? This is also related to the level of knowledge among teaching librarians to cope with users' demands and needs for information. This relates to other themes with the same number of coded references. The main concerns are teaching librarian training in information literacy, maintaining

expertise in specific subject areas, and resource constraints in facilitating teaching sessions, especially in conducting online classes.

Table 4.10

Question 4 Themes Coded Reference

<b>No</b>	<b>Themes</b>	<b>References</b>	<b>Remarks</b>
<b>1</b>	Information	Information literacy	
		Information share	
<b>2</b>	Issues	Network issue	
		Technical issue	
<b>3</b>	Module	Advanced module	
		Simple (basic) module	
<b>4</b>	Session	Conducting session	
		Teaching session	
<b>5</b>	Teaching	Proper teaching training	
		Teaching librarian	
		Teaching session	

Issues, modules, and sessions are the other three themes that challenge and put barriers in the way of teaching librarians to practice instructional sessions in academic libraries. An online environment has sometimes stressed teaching librarians since the COVID-19 pandemic, which led to a shift to online learning, even though the pandemic ended on April 1, 2022. This new environment has replaced the everyday classroom practices. In the context of Malaysian public academic libraries, librarians are still adapting to teaching information literacy in the online environment, as the process of updating library facilities takes time. Teaching librarians must develop and learn new skills in handling hardware and software to effectively conduct online classes. That is not all, since there was no proper or formal education in pedagogy practices, teaching librarians how to conduct efficient instruction for information literacy. This includes the session on how teaching librarians can attract the class crowd to make the subject more attractive and meaningful to users.

This question is to address research objective 1, to investigate gaps in practising teaching librarians in delivering instructional information literacy and to answer

research question 1: What are the challenges faced by teaching librarians in delivering instructional information literacy in academic libraries?. These findings address the challenges and barriers faced by teaching librarians in Malaysian academic libraries when delivering instructional information literacy, encompassing issues related to information, technical aspects, module development, and instructional and teaching aspects.

v) How to Overcome the Challenges and Barriers?

This study also proposes strategies to overcome those gaps or challenges. To determine whether these challenges and barriers can be eliminated and whether teaching librarians can perform the task successfully, the panellists were asked this question. There are 12 responses based on challenges and barriers mentioned by the panellists. Analysis of the findings has identified two key themes for overcoming these challenges and barriers: upgrading knowledge and acquiring new skills. The findings suggest several strategies to overcome challenges and barriers, presumably in the context of education or professional development. This implies a recognition that continuous learning and skill enhancement are crucial in overcoming challenges. It suggests a proactive approach towards personal and professional development. Teaching librarians need to update their knowledge so they can stay relevant to teach at higher institutions, as said by panellists:-

**P1:** To overcome the challenges teaching librarians need to *“Upgrade knowledge and skill through training”*.

**P1:** The other way is to *“promote information literacy module and the importance of information literacy session through JKP”*. Added point by P1, teaching librarians can also *“identify information needs and skills gaps of the audience”*

**P2:** *“Training and collaboration with other institutions/teaching librarians may be attachment for a few periods, upgrade knowledge and be creative. We can also have an assessment after the session to evaluate the learning outcome for both sides, teaching librarian and students for improvement”*

**P3:** *“We need to attend courses related to our challenges and barriers such as if we lack of communication skill we need to attend courses in communication skills”.*

**P4:** Through reference department, to attract more students or crowd to join information literacy session can be done through *“promoting the module intensively to the faculty or Minggu Hahuan Siswa”.*

**P5:** *“They didn’t know what we do, some faculty didn’t see what we have, we need to show them what we can do and capable off by convincing the faculty or top management about the relevance of the module through webinar on special skills and knowledge”.*  
P5 added more points, *we can conduct on special session for that specific faculty to show we are capable to teach information literacy classes”.*

These findings suggest a multifaceted approach to overcoming challenges and barriers, incorporating elements of personal development, advocacy, collaboration, creativity, and evaluation. Effective implementation of these strategies could lead to improved outcomes and success in navigating obstacles.

The findings in academic and research groups offer a comprehensive list of strategies to overcome challenges or barriers in library management and professional development. Similar to Session 1, training focuses on overcoming these challenges and barriers by providing specific programs to address identified areas of improvement or skill gaps among library staff. Exposing librarians to different cultures and practices through international training opportunities can inspire innovation and best practices. Providing librarians with opportunities to gain experience in diverse environments can broaden their perspectives and skill sets. Supporting librarians’ pursuit of additional education allows them to expand their expertise and contribute more effectively to the library’s mission. Panellists mentioned these points as they said:-

**P6:** *“One of the ways is to adapting best practices from other institution such as oversea training and benchmarking with well-known universities for different exposure/culture/environment”.*

**P7:** *“Allow librarian with degree in library science to further study in different area of subject/courses”.*

**P8:** Teaching librarian should be sent for a proper *“training and skill enhancement program” especially in teaching and pedagogy related courses*,

**P9:** Agreed to the point given by P6 *“where teaching librarian can learn the effective way of teaching information literacy is through outbound staff by send librarian for attachment in and out country”*,

**P10:** *“Find the right timing to fit in a student schedule through synchronize and collab with the HEA and HEP and to solve the problem in how deep information should be shared in the information literacy session is through observe the report from past session”*.

On specific notes or points of recommendations to overcome the challenges and barriers, one panellist suggested having a better component of syllabus in the information literacy modules, two panellists suggested having a teaching librarian with a different background of education other than library science graduates, and three panellists indicated that top management allocate more budget for training and courses.

**P6:** *“Go for standard or guideline of information literacy syllabus that consist of important component needed by institutions & proposed to higher authority (PERPUN/JKPUA)”*.

**P7:** *“Hired new librarian from different background of study so they will have different background of education such as different degree/diploma. It will suit to any faculty in higher education”*

**P6:** *“A special budget allocation should be allocated to teaching librarian training and benchmarking to other institution so we can learn new from others”*

**P7:** *“or else, entry requirement is library science but top management need to allowed librarian to take other subject area for further studies. Certain top management, they will ask their librarian to take same course which is librarian field of studies. If possible to take different course library will more richer in term of knowledge”*.

**P8:** *“Hired assistant librarian from different background so librarian can groomed &*

*learn something from them”*

P8: *“True! A higher allocation in budget is needed to teaching librarian especially those who interested in research, they should allow teaching librarian to submit article to conferences or reputable journal by supporting in fees”*

P9: *“Teaching librarian hem/herself need to request for higher budget in training so that they can go all out in sending themselves to courses”.*

These strategies emphasise the importance of ongoing learning, collaboration, and adaptability in overcoming challenges and enhancing library services. Combining these approaches can contribute to a more effective and responsive library environment.

Based on the responses, all items surround the teaching librarian or academic librarian themselves, information literacy sessions/classes, and information, which will be elaborated on later. Upon examining the theme analysis for this question across sessions one and two, two themes were identified in session one, and four themes were identified in session two. However, nine themes were identified in the combined analysis responses for both sessions, and we must take these seriously to overcome the challenges and barriers. A slightly different number in the primary key concepts in theme analysis shows that these three categories of panellists were a good combination in identifying the problem and how to overcome it. These comparison themes between sessions 1 and 2, and the combination of these two sessions, are shown in Table 4.11, as this focuses on solving the challenges and barriers that block teaching librarians from practising and becoming competent instructors in information literacy sessions.

Table 4.11  
Themes Comparison for Question 5

No	Session 1	Session 2	Combine All Sessions
1	Skills	Area	Area
2	Upgrade knowledge	Experienced teaching librarian	Different background
3		Librarian	Faculty
4		Library	Information

5	Librarian
6	Library
7	Skills
8	Teaching librarian
9	Upgrade knowledge

The table above lists eight themes that represent the responses in question 5, which were derived from focus group interviews. As in Session 1, the teaching librarian emphasises that skills and upgrading knowledge are necessary to overcome the challenges and barriers. This time, the required skills in practising teaching librarians relate to what is lacking in skills among teaching librarians, and a special skill is needed in conducting information literacy sessions. Session 2 panellists proposed covering a broad subject that spans different fields, including engineering, medicine, and social sciences, and this theme was reiterated in the combined analysis.

Table 4.12

Question 5 Themes Coded Reference

No	Themes	References	Remarks
1	Subject area	Aware subject area	The theme changes from area
		Different area	
2	Study background	Different background	The theme changes from different background
3	Faculty collaboration	Convince faculty	The theme changes from faculty
		Proactively approach faculty	
4	Information	Information literacy	
		Information needs	
5	Teaching librarian	Teaching librarian	Merged theme with librarian
		Assistant librarian	

Senior teaching librarian		
6	Upgrade knowledge	Upgrade knowledge
7	Library	Library equipment Library science
8	Skills	Skill enhancement program Skills gaps Special skills

Table 4.12 shows coded references for each theme identified in question 5. A few themes have been renamed based on their similarity and meaning, as mentioned in the table above. In this question, the solutions to the challenges and barriers spoken out by panellists surround the teaching librarian themselves, information literacy, collaboration with faculty, the subject area of teaching, and upgrading knowledge.

vi) What would be the Components of in Information Literacy Program?

The significance of this research lies in providing properly documented and standardised components and syllabi for information literacy programs in academic libraries for higher education. During the interview, eight responses from panellists are extracted below. To have comprehensive and to meet all academic libraries' needs, teaching librarians need, as the panellists said:

**P1:** Aware that first they need to think of who and what the clients or stakeholder's need then the components of information literacy can be suited up. Understanding the specific requirements and deficiencies of the target audience is crucial for tailoring the program to their needs effectively. This involves *“conducting surveys, interviews, or assessments to gather insights into what knowledge and skills they lack”*.

**P2:** We now should know the level of users' information literacy skills and users' information needs, since we are in a higher education learning institution, we should include components such as *“research methodology, systematic searching strategy, artificial intelligence for research, bibliography management tool and systematic literature review”*.

**P3:** *“Identify information needs and skills gaps of the audience, develop the module and instructional methods and assessment”.*

**P4:** Also touched on *“research where it seems significant and important to have in the information literacy component or as one of the syllabuses”*. These are the main points pointed out by panellists from practitioners/teaching librarians based on their experiences and knowledge.

**P5:** Our institution has information literacy module long enough, one of the longest among public university. *“Thus, we need module upgrade, and we need to change and insert the latest information to the session. We need to teach them on how to search information and use the reliable resources”* since Boolean operators have been ages in search engine. What the use of teaching Boolean operator if the search engines are not able to read those function.

These components collectively form a comprehensive Information Literacy Program that empowers participants with the necessary skills and knowledge to navigate the vast information landscape effectively in academic and professional contexts.

Two themes were identified: the subject area of teaching and student needs. Teaching librarians need to understand the subject area they teach in order to effectively teach information literacy. Familiarising students with terminology and concepts relevant to a specific area of their study. Understanding educational theories and frameworks that inform teaching and learning processes, such as Bloom’s Taxonomy, as mentioned in the interview:-

**P6:** A similar suggestion as P10, *“a session that cater the student requirement such as related to students assignment or FYP”*,

**P7:** *“Digital literacy skills is a must now since the audience in information literacy are from digital era, so they need also the skill in handling the content in digital forms. This will help them on the do’s and don’ts in using information online or digitally”.*

**P7:** *“Added to the components of information literacy, ethic in information sharing and how to use information is needed in the module of information literacy”,*

**P8:** *“What is being suggested by P9 is more towards to out process of teaching such as producing rubric for teaching measurement. We need to measure on every module what will they get after the learning process. When we develop module, we need to know how to measure, what is the learning outcome and what type of assessment to be given”.*

**P8:** *“A case study based such as the session is based on demand’s from faculty or students that suit to their current needs of information such as in completing assignment”.*

**P9:** *“Teaching librarians should have a bit knowledge on education subject such as bloom taxonomy and know which level of bloom taxonomy. They need several levels of module like novice, intermediate and advance level. They must have gradually development based on users’ level of knowledge”.*

**P9:** *“Research strategies is the latest trend and the main focus in higher education, research aspect should be included in the module of information literacy”,*

**P10:** *The same point also pointed out by P10 where, “a preliminary research method class is suitable with the current situation in higher learning institution as we serving in academic libraries”*

2nd theme mentioned by panellists in the interview is student needs. Most users who attend information literacy sessions are students and rely on the librarian to guide them throughout their academic years in defining their requirements or needs by tailoring information literacy instruction to meet their specific needs and skill stages. Students are required to complete the final year project (FYP) at the end of their academic year. By integrating information literacy skills into the context of student assignments or projects, practical applications can be made in the area of information literacy.

There is a vast difference in the theme derived from a single session compared to the combined responses from both sessions. As shown in Table 4.13, session 1

identifies only one theme from the gathered responses, while session 2 identifies two themes; however, both sessions reveal different themes. Session 1 focuses more on skills, while Session 2 emphasises more on students and subjects. These three themes from sessions 1 and 2 reappear when all responses are combined for theme analysis, and six new themes are identified. As listed in the table below, the latest themes created appear more transparent regarding the components or contents that should be used for information literacy.

Although a few themes suggest that they may already be implemented in current information literacy, some themes appear new to the field, such as research, skills, student requirements, and methods. In a later chapter, this component will be discussed in more detail. A comparison of current practices in information literacy modules will be made to see which elements have not yet been implemented in academic libraries.

Table 4.13  
Themes Comparison for Question 6

No	Session 1	Session 2	Combine All Sessions
1	Skills	Student	Databases
2		Subject	Information
3			Literacy
4			Literature review
5			Method
6			Research
7			Skills
8			Student
9			Subject

#### 4.3.1.3 Core Competence Index Consensus

This section provides an overview of all responses from all panellists and sessions. Since data collection was conducted in two sessions, this analysis also examines the differences in results between these two sessions regarding the addition of items to the competence index and themes. Developing the index requires both session responses to be analysed in thematic analysis. Table 4.14 below presents the

framework for information literacy in higher education, as outlined in sessions 1 and 2. A total of 85 items from this framework, comprising six frames, were presented to panellists during focus group interviews. Seventy-seven items from the overall set were accepted based on the criteria mentioned in Section 3.11.1 and the details of the accepted items by each frame are presented in the table below. Eight items were removed from the list, 12 items were edited, and 24 items were combined and complete consensus is attached in Appendix M.

Table 4.14

Results of Items in Framework for Information Literacy for Higher Education

<b>Frames</b>	<b>Accept</b>	<b>Remove</b>	<b>Edit</b>	<b>Combine</b>
<b>1</b>	11	2	6	7
<b>2</b>	13	1	4	4
<b>3</b>	11	1	3	4
<b>4</b>	14	3	1	12
<b>5</b>	14	1	5	3
<b>6</b>	14	-	-	9
<b>Total</b>	<b>77</b>	<b>8</b>	<b>12</b>	<b>24</b>

Compared to the findings of sessions 1 and 2 for this framework on information literacy in higher education, in session 1, 60 items were accepted, 25 items were removed, 10 items were edited, and 27 items were combined. In session 2, 65 items were accepted, 20 were removed, 12 were edited, and 24 were combined. Figures in both sessions are not that far and seem more or less consistent. This shows the same trends in all categories of panellists.

#### ***4.3.1.4 Human Attributes Consensus***

These KSAs, or knowledge, skills, and abilities attributes, are used to measure the framework and to assess the practice of teaching librarians. Forty-eight items were presented to panellists in 2 sessions, including the three attributes: knowledge, skills, and abilities. To compare with the two focus group interview sessions, 42 items were accepted, six items were removed from the list, and 10 items were combined in session

1, specifically for teaching librarians or practitioners. In Session 2, 12 items were removed, 36 items were accepted, and two items were edited. Details of this statistic are listed in Table 4.15 below, and a complete consensus is attached in Appendix M.

Table 4.15

Results of Items in Human Attributes (KSA)

<b>Attributes</b>	<b>Accept</b>	<b>Remove</b>	<b>Edit</b>	<b>Combine</b>
<b>Knowledge</b>	7	1	2	2
<b>Skills</b>	38	1	-	6
<b>Abilities</b>	1	-	-	-
<b>Total</b>	46	2	2	8

The table above illustrates the distribution of findings from the two previous sessions, out of a total of 48 items. Specifically, 46 items were accepted, while two items were removed from the list. Meanwhile, the items edited and combined were 2 and 8 items each. This figure was assigned before the items were edited and combined; the final items, after editing and combination, are listed in the table below.

#### **4.3.2 Results Verification and Endorsement**

Between rounds 1 and 2, a process of verification and endorsement was conducted as part of the procedures in the Delphi method. This step is part of the qualitative research validity process to ensure that this study's approach is reliable, allowing other research to follow the guidelines and processes clarified in Section 3.12.1.2. All information gathered from the focus group interview was transcribed and documented. After these two groups completed the round 1 session, findings from both focus group interview sessions were compiled and transcribed, which needed panellists' verification and endorsement. This verification is required to confirm items or findings discussed during the focus group interview. An email was sent to all panellists to verify findings from the focus group interview, which was held in January 2024. All panellists responded to the email and verified the findings. All verified and endorsed conclusions from the focus group interview are then eligible to be presented in round 2 of this data

collection, which involves individual interviews. Panellists are given a time frame to complete the verification process.

### 4.3.3 Round 2: Individual Interview

After completing the Round 1 focus group interview (FGI), the results have been verified and endorsed, as mentioned in Section 4.3.2. While panellists verify information gathered, findings from both sessions are analysed for thematic analysis. Thematic analysis is done through NVivo software for each question and section.

For Round 2, the process involved an individual interview, where panellists were interviewed via the online platform Microsoft Teams at a time of their choice, within a range of available slots. Panellists were free to select any of the slots according to their time preferences. For this round, panellists were asked to rank and rate themes for each question, frame, and attribute. This round is handled through a Google Form to obtain better and more organised results from panellists and is conducted individually. Still, it was carefully read to the panellists for each item/section. Panellists explained their responsibilities for round 2 earlier, and each result or theme was presented during the briefing session. To decide which theme comes first in order, panellists were required to rank the main element in this research, the Framework for Information Literacy for Higher Education, and rate the importance of each theme from 'very important' to 'least important' for the additional question's themes. For the KSAs' attributes, panellists must classify which themes fall under which attributes.

Themes in the core competence index are defined to provide a brief explanation of what each theme represents and its significance to the competence index. The definition of themes is shown in Table 4.16.

Table 4.16

Themes Definition

No	Themes	Definition
1	Methods	This theme involves understanding and employing different research methodologies and techniques. Articulating the capabilities and constraints of information involves a deep comprehension of how

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		<p>information is created, which is central to research methods. This includes recognising the strengths and limitations of both traditional methods (like peer-reviewed journal articles, books, and conference papers) and emerging methods (like digital publications, social media, and open-access platforms). Understanding these aspects is crucial for selecting appropriate research methods and for critically evaluating the information gathered through them.</p>
<b>2</b>	Process	<p>This theme involves navigating and managing the steps and stages of research and information gathering. Determining the fit between an information creation process and a specific information need is a critical part of the research process. It requires understanding how different processes can fulfil various types of information requirements and selecting the appropriate process to meet those needs effectively.</p>
<b>3</b>	Research	<p>This theme encompasses the entire research process, from formulating questions to selecting appropriate methodologies and managing the scope of an investigation. The elements outlined in the statement are central to the research process and involve various stages and aspects of conducting effective and thorough research.</p>
<b>4</b>	Search	<p>This theme specifically deals with the strategies and techniques involved in locating and retrieving information. Managing the searching process involves understanding how to use various search tools, databases, and search engines efficiently. It also includes organising and evaluating search results to ensure they meet the research needs.</p>

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5	Knowledge	This theme aims to equip individuals with the knowledge and skills necessary to navigate the complex information landscape, make informed decisions, and use information effectively and ethically.
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#### 4.3.3.1 Ranking the Core Competence Index

As the main component in this research, panellists were required to identify and prioritise the themes that should appear first in the index listing. This ranking will not affect the total importance of other themes or items within each theme, but rather which element should be prioritised more when officially used in academic libraries. Figure 4.1 below displays the themes ranking for the Framework for Information Literacy for Higher Education, which consists of five themes: information, research, process, method, and search.

For this section, the ranking format is a 5-point Likert scale, with 5 indicating extremely important, 4 indicating very important, 3 indicating moderately important, 2 indicating slightly necessary, and 1 indicating low importance. Again, a rating of low importance does not mean the theme and its components are unimportant; instead, it helps identify which theme should come first.

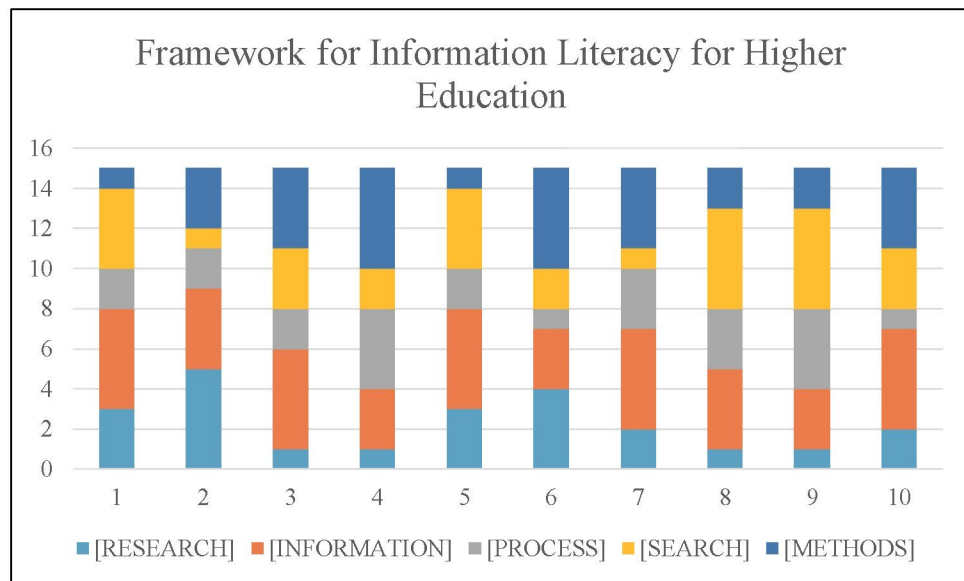


Figure 4.1 Framework for Information Literacy for Higher Education's Themes Ranking

The bar chart above displays the dataset from 10 panellists, distributed across five themes: research, information, process, search, and methods. This numerical value is used to identify rank themes within the findings from panellists in the Framework for Information Literacy for Higher Education. The descriptive analysis is calculated in Table 4.17 below.

Table 4.17

Framework for Information Literacy for Higher Education Descriptive Analysis

<b>Themes</b>	<b>Mean</b>	<b>Median</b>	<b>Mode</b>	<b>Theme Rank</b>
<b>Research</b>	2.3	2	1	5
<b>Knowledge</b>	4.2	4.5	5	1
<b>Process</b>	2.4	2	2	4
<b>Search</b>	3.0	3	3	3
<b>Method</b>	3.1	3.5	4	2

High scores are frequent, with a mode of 5, suggesting a strong emphasis on or high importance of the information theme, as indicated by a mean of 4.2 and a rank of 1 in the list. Rank 2 in the list is the method theme, with a moderate score, a mode of 4, suggesting a balanced but not exceptionally important aspect, and a mean of 3.1. Rank 3rd on the list is the search theme, indicating that scores are more evenly distributed, with a mean of 3, showing varied importance. The process is scored consistently around the median of 2, or, to be more accurate, 2.4, indicating it is moderately important. The last theme, research, is ranked at 5, with data showing a low score, characterised by a high frequency of 1 and a median of 2.3, indicating less emphasis or lower importance in this theme.

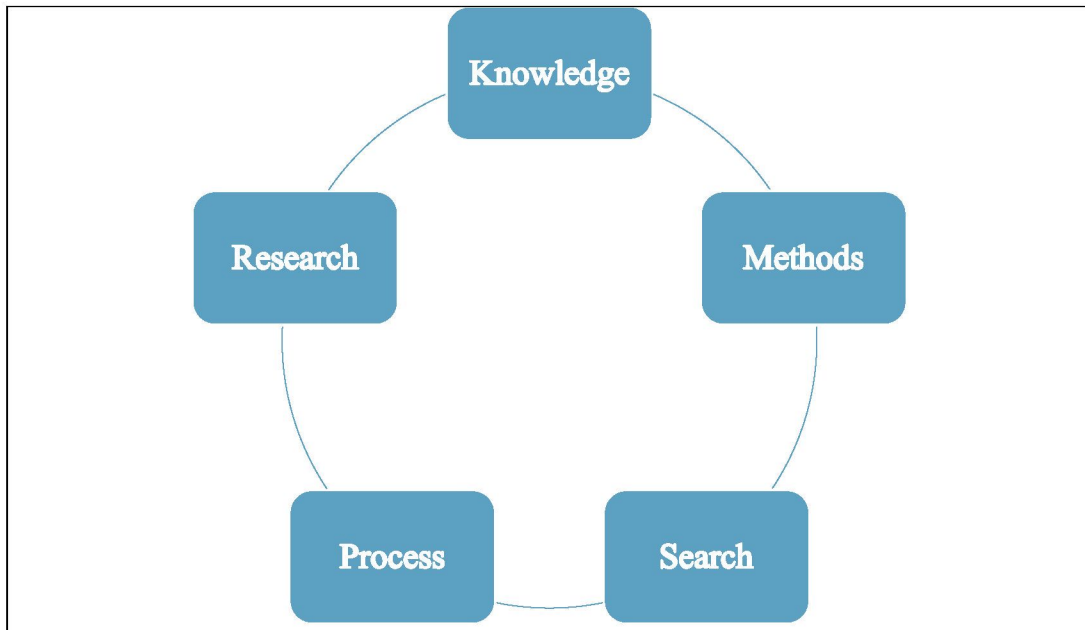


Figure 4.2 Competence Index for Teaching Librarian for Higher Education Themes

Based on the panellists' consensus, this research has identified five themes, with knowledge being the area with the most coded references, methods, processes, searches, and research, as displayed in Figure 4.2. Knowledge is about understanding information literacy, where teaching librarians need to teach students how to locate, evaluate, and effectively use information. Emphasise the importance of distinguishing between different types of information sources and their reliability. The method employs users with research methods on various research methodologies appropriate to other disciplines. Cover qualitative and quantitative methods and stress the importance of choosing the proper method for their research question. Next is navigating the research process to guide users through the steps, from defining a topic and formulating a thesis to drafting, revising, and finalising their work. Highlight the iterative nature of research, where revisiting and refining ideas is crucial. Search is conducted by teaching effective search strategies for academic databases, library catalogues, and internet resources.

Cover keywords, Boolean operators, and other search techniques to refine and optimise search results. The last theme is research, which involves conducting scholarly research by encouraging users to engage deeply with their chosen topic through comprehensive research. Discuss synthesising information from various sources to build a cohesive argument or narrative in their work. By structuring teaching librarians around these themes, users can develop robust skills for managing and utilising

information throughout their academic and professional lives by focusing on the importance of integrating information from diverse sources and applying it to their research questions: Emphasise critical thinking, analysis, and the synthesis of information to create new knowledge.

Table 4.18

Items into Themes in Core Competence Index Construct

<b>No</b>	<b>Items</b>	<b>Theme</b>
<b>1</b>	Define different types of authority and utilize research tools and indicators to determine credible sources	Research
<b>2</b>	Understand that while many disciplines have acknowledged authorities, one scholar would challenge the authority of those sources, yet acknowledge they are developing their own authoritative voices in a particular area, all while acknowledging the importance of seeking accuracy and reliability, respecting intellectual property, and participating in communities' practices.	Research
<b>3</b>	Understand the increase of social nature in information ecosystem where authorities connect to each other and sources develop overtime	Knowledge
<b>4</b>	Develop & maintain open mind when encounter conflict	Process
<b>5</b>	Motivate to find authoritative sources in unexpected ways	Process
<b>6</b>	Develop awareness of importance of accessing content with sceptical, own biases and worldview	Process

<b>7</b>	Maintaining attitudes & action required frequent self-evaluation	Process
<b>8</b>	Articulate both the capabilities and constraints of information developed through various creation processes, including traditional and emerging methods of information creation and dissemination in a particular discipline.	Methods
<b>9</b>	Fit between an information product creation process & particular information need	Process
<b>10</b>	Recognize information may be perceived differently based on format packaged	Knowledge
<b>11</b>	Recognize the implication of information formats that contain static or dynamic information	Knowledge
<b>12</b>	Monitor the value is placed upon different types of information product in varying contexts	Knowledge
<b>13</b>	Transfer knowledge of capabilities & constraints to new types of information products	Method
<b>14</b>	Develop own creation process, understand the impact of purpose information being used & message conveyed	Process
<b>15</b>	Seek out characteristics of information products that indicate the underlying creation process	Process
<b>16</b>	Value the process of matching information need to appropriate product	Knowledge

<b>17</b>	Accept that information creation may begin through communicating in a range of formats or modes, and acknowledge the ambiguity surrounding the potential value of information creation expressed in emerging formats or modes.	Knowledge
<b>18</b>	Understand different methods of information dissemination with different purposes are available for their use	Methods
<b>19</b>	To give credit to the original ideas through proper attribution and citation, it is important to understand that intellectual property is a legal and social construct, while also recognizing the issue of access or lack of access to information sources	Knowledge
<b>20</b>	Articulate the purpose & distinguishing characteristics of copyright, fair use, open access & public domain	Knowledge
<b>21</b>	Understand how & why individuals/groups may underrepresented/systematically within system that produced & disseminate information	Knowledge
<b>22</b>	Decide where & how information is published	Process
<b>23</b>	Understand how personal information as commodity & online interaction affects information received, produced or disseminate	Knowledge
<b>24</b>	Make informed choices to online action & awareness to privacy and commodity of personal information	Process
<b>25</b>	Respects the original ideas of others	Method

<b>26</b>	Value skills, time & effort to produce knowledge	Process
<b>27</b>	Inclined to examine their own information privilege	Knowledge
<b>28</b>	Formulate questions for research based on information gaps or re-examination of existing or possible conflicting data, determine the scope of investigation, handle complex research by breaking it down into simpler questions and limiting the scope of investigation, utilize various research methods based on need, circumstance, or type of inquiry, all while demonstrating intellectual humility.	Research
<b>29</b>	Monitor gathered information & assess for gaps/weaknesses	Knowledge
<b>30</b>	Consider research as open-ended question & engagement with information	Research
<b>31</b>	Appreciate question appear to be simple but still disruptive & important to research	Research
<b>32</b>	Value intellectual curiosity in developing questions & learn new investigation methods	Methods
<b>33</b>	Maintain open mind & critical stance	Process
<b>34</b>	Value persistence, adaptability & flexibility & recognize ambiguity benefit the research process	Research
<b>35</b>	Seek multiple perspectives during information gathering and assessment, and seek appropriate help when needed.	Knowledge
<b>36</b>	Follow ethical & legal guidelines in gathering & using information	Knowledge

<b>37</b>	Cite the contributing work of others in their own information production, contribute to scholarly conversation at an appropriate level, identify barriers to enter scholarly conversation via various venues, and recognize the contribution that particular articles, books, and other scholarly pieces make to disciplinary knowledge.	Research
<b>38</b>	Critically evaluate contributions made by others in participatory information environments	Knowledge
<b>39</b>	Summarize changes in scholarly perspective over time on particular topic within specific discipline	Research
<b>40</b>	Recognize given scholarly work may not represent the only or even the majority perspective on issue	Knowledge
<b>41</b>	Seek out conversation taking place in research area in various venues	Research
<b>42</b>	See as contributor to scholarship rather than only consumers	Search
<b>43</b>	Suspend judgement on value of particular piece of scholarship until larger context for the scholarly conversation is better understood	Process
<b>44</b>	Understand the responsibility comes with entering the conversation through participatory channels	Search
<b>45</b>	Value user generated content & evaluate contribution made by others	Knowledge
<b>46</b>	Recognize system privilege authorities & not having fluency in the language & process of a discipline disempowers their ability to participate & engage	Process

<b>47</b>	Determine the initial scope task required to meet information needs	Process
<b>48</b>	Identify interested parties might produce information about topic & determine how to access that information	Search
<b>49</b>	Utilize brainstorming & select best source thinking when searching	Method
<b>50</b>	Match information needs and search strategies to appropriate search tools, and design and refine needs and search strategies as necessary based on search results.	Search
<b>51</b>	Understand how information systems are organized in order to access relevant information	Knowledge
<b>52</b>	Use different types of searching language	Search
<b>53</b>	Manage searching process & results effectively	Search
<b>54</b>	Exhibit mental flexibility and creativity, recognize the value of browsing and other serendipitous methods of information gathering, and persist through search challenges, knowing when to have enough information to complete the information task.	Search
<b>55</b>	Understand that first attempts at searching do not always produce adequate results and realize that information sources vary in content, format, relevance, value, need, and nature of the search.	Information
<b>56</b>	Seek guidance from experts	Process

### 4.3.3.2 Classification of the Human Attributes

In round 2, panellists were requested to classify all themes in KSA attributes rather than ranking them as in frames. Initial themes generated from NVivo were 20; after merging the new themes for KSA attributes, there were 16 themes. Figure 4.3 shows a more comprehensive distribution of KSAs across different instructional components, including research and assessment. Each category is thoroughly represented by knowledge, skills, and ability, ensuring that all instructional elements and their subcomponents are covered. For example, the "Research" and "Assessment" categories are specifically identified as requiring additional KSAs beyond the original 16 themes.

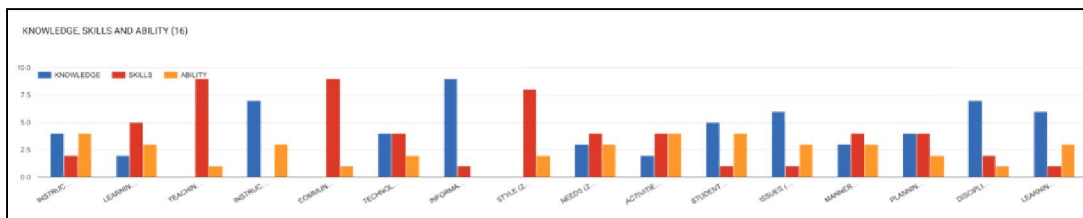


Figure 4.3 KSA Themes Classification

The three key terms in this section are knowledge, which refers to theoretical understanding or awareness of a subject, skills, which refer to practical application or proficiency in performing tasks, and abilities, which are the inherent capacity to perform an activity or task. In addition to the 14 themes identified in the literature review, two further themes were identified through the focus group interviews, which would be added to the existing themes: research and assessment. Data analysis of the distribution of panellists' classifications on each theme and consensus classifications is tabulated in Table 4.19 below.

Table 4.19

Data Distribution on KSA Themes

KSA themes	Knowledge	Skills	Abilities	Consensus Classification
Students	5	1	4	Knowledge

Instruction content	7	0	3	Knowledge
Discipline (subject area)	7	2	1	Knowledge
Planning	4	4	2	Knowledge/Skills
Teaching	0	9	1	Skills
Learning	2	5	3	Skills
Communication	0	9	1	Skills
Instruction	4	2	4	Knowledge/Abilities
Information	9	1	0	Knowledge
Activities	2	4	4	Skills/Abilities
Issues	6	1	3	Knowledge
Technologies	4	4	2	Knowledge/Skills
Manner	3	4	3	Skills

The highest number of classified attributes is 9, representing each panellist, and it was also decided that these themes fall under the specific KSA attributes. The themes that garnered the highest number of consensuses, classified under knowledge, are information, and those classified under skills, teaching, and communication. In contrast, the highest number of consensuses on abilities is 4. 4 themes have the same vote among panellists, which need to be classified into which attributes.

This involves several factors in determining this theme in planning, such as where it contributes to the application of knowledge. Skill in planning consists of applying theoretical knowledge to real-world scenarios. It requires practical implementation of planning strategies. Problem-solving and critical thinking require adequate planning, identifying potential issues, analysing situations, and developing solutions. Organisation skills, managing resources, time, and tasks efficiently, are crucial to planning. Communication and coordination involve coordinating with various stakeholders and ensuring everyone is on the same page. Practical communication skills are essential for conveying plans clearly and concisely. Adaptability and flexibility, being able to adjust plans in response to changing circumstances, are critical skills.

While instruction requires a solid foundation of knowledge, it is primarily an ability because it focuses on applying teaching skills to facilitate learning. Effective

instruction is the ability to translate knowledge into practice, engage students, and adapt to their individual learning needs. Thus, instruction should be viewed more as a skill. Effective instruction relies heavily on the ability to communicate clearly and effectively. This includes verbal and non-verbal communication skills to convey information understandably and engagingly. These are the practical teaching skills required to deliver content in a way that facilitates learning. It encompasses lesson planning, classroom management, and the ability to tailor teaching strategies to meet the diverse needs of learners. Engaging with students, encouraging their participation, asking questions, and providing constructive feedback are essential for effective instruction. This includes fostering a supportive and inclusive learning environment. The ability to assess students' understanding and progress, provide constructive feedback, and adjust instruction based on assessment results is a key instructional ability. Instructors must be able to adapt their teaching methods to suit the classroom dynamics and the individual needs of their students. This requires problem-solving skills to address challenges as they arise.

Activities often involve performing specific tasks or actions that require particular techniques and skills. Skills are acquired through practice and repetition. Engaging in activities allows individuals to practice and refine these skills. Skills are typically evaluated based on performance in specific activities. Activities are usually task-oriented, requiring the application of particular skills to complete.

As items in technology become more practical, focusing on the abilities to apply, use, and manipulate technologies effectively will be considered essential skills. These findings align with those gathered during the focus group interview, where panellists expressed concern about teaching librarians skills in handling hardware and software.

The final findings on themes for knowledge, skills, and abilities attributes are displayed in Table 4.20 below.

Table 4.20  
Final KSA Themes Classification

<b>KSA themes</b>	<b>Consensus Classification</b>
Students	Knowledge
Instruction content	Knowledge
Discipline (subject area)	Knowledge

Planning	Skills
Teaching	Skills
Learning	Skills
Communication	Skills
Instruction	Abilities
Information	Knowledge
Activities	Skills
Issues	Knowledge
Technologies	Skills
Manner	Skills
Research Advocate (New)	Knowledge
Academic Assessment (New)	Knowledge

Thirteen themes were identified based on the literature review, and two new themes emerged during the focus group interview. This brings the total number of themes identified from this section to 15. Figure 4.4 below shows that half of these themes are classified as skills, representing 50% of the themes, with a frequency of 9 times. Next to skills is knowledge, which contributed 44% or eight frequencies. Data show that only 6% of the merged themes are abilities, with one frequency, and this 6% represents the ability.

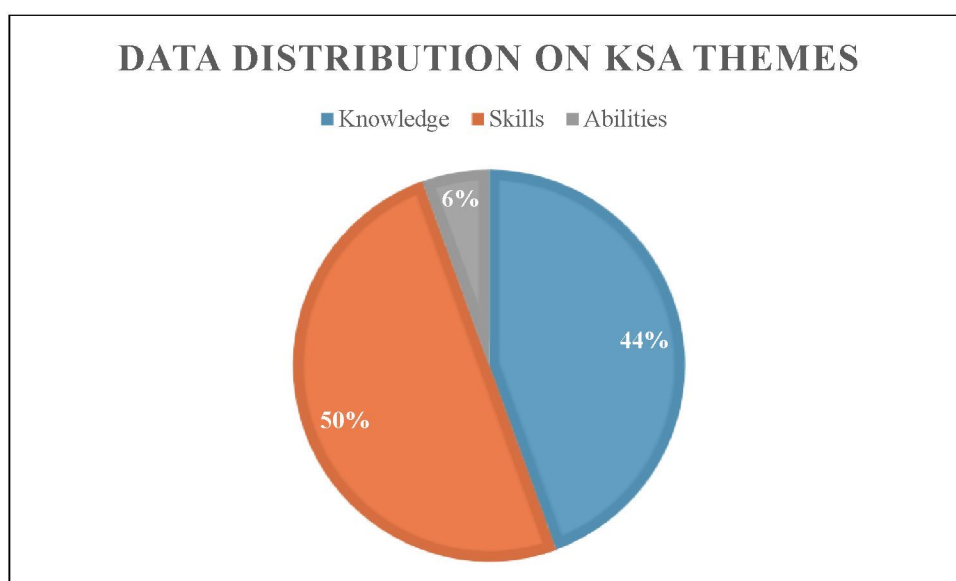


Figure 4.4 Data Distribution on KSA Themes Classification

Table 4.21

## Items into Themes in Human Attributes Construct

<b>No</b>	<b>Items</b>	<b>Theme</b>
<b>1</b>	Assess the needed information effectively and efficiently	@Information
<b>2</b>	Determine the extent of information needed	@Information
<b>3</b>	Use information effectively to accomplish a specific purpose	@Information
<b>4</b>	Understand the economic, legal & social issues surrounding the use of information & access & use information ethically & legally	Issues
<b>5</b>	Analyse curriculum in the assigned subject area while being aware of student assignments and the role of the library in completing them.	Student
<b>6</b>	Communicate with coordinator for instruction activities	Activities/Instruction
<b>7</b>	Work in team with knowledge, skill & time to improve instructions	@Instruction
<b>8</b>	Maintain & regularly report accurate statistics	@Assessment
<b>9</b>	Design effective assessment of student learning	@Assessment
<b>10</b>	Maintains awareness of communication needs of different learning, communication style & methods accordingly	Communication/Learning/Needs /Style
<b>11</b>	Facilitates discussion of unexpected issues in a skilful, non-judgmental manner	Issues/Manner
<b>12</b>	Uses common communication technologies to provide assistance to	Communication/Technologies

	students in & out classroom	
<b>13</b>	Requests feedback from peers on communication skills for improvement	Communication/Skills
<b>14</b>	Describes the role of information literacy to academia/users	Information
<b>15</b>	Collaborates with faculty to integrate information literacy competencies, concepts & skill within subject discipline curriculum	Discipline/Information/Learning
<b>16</b>	Collaborates with faculty by defining expectations and desired learning outcomes	@Assessment
<b>17</b>	Sequences information in a lesson plan to guide the instruction session	Information/Instruction/Planning
<b>18</b>	Creates learner-centred course content and incorporates activities directly tied to learning outcomes	Content/Learning
<b>19</b>	Assists learners to assess information needs, differentiate sources of information, and help develop skills to effectively identify, locate, and evaluate sources	Information/Needs
<b>20</b>	Design instruction and scales presentation content to the amount of time and space to meet the common learning characteristics of learners	Content/Learning
<b>21</b>	Integrates appropriate technology into instruction	Technologies
<b>22</b>	Actively seeking out instruction opportunities within the library, institution, or national organisations	Instruction/Learning
<b>23</b>	Encourages librarians and faculty to participate in discussions, ask questions,	@Learning

	and share ideas on instructions	
<b>24</b>	Plans presentation content and delivery in advance & preparation time for instruction	@Planning
<b>25</b>	Promotes library instruction opportunities and services	Instruction/Learning
<b>26</b>	Maintains relationship with assigned academic departments	@Planning
<b>27</b>	Represents library and instruction program in an effective and positive manner	Instruction/Manner
<b>28</b>	Creates a learner-centred teaching environment by using active, collaborative, and other appropriate learning activities	Activities/Learning/Teaching
<b>29</b>	Participates in constructive student-teacher exchanges by encouraging students to ask and answer questions	Student
<b>30</b>	Modifies teaching methods to match the class style and setting	Styles/Teaching
<b>31</b>	Encourages teaching faculty to participate in discussion	Teaching
<b>32</b>	Reflects practice to improve teaching skills and acquires new knowledge of teaching methods and learning theories	Learning/Skills/Teaching
<b>33</b>	Shares teaching skills and knowledge with other instructional staff	Skills/Teaching
<b>34</b>	Makes the best possible use of voice, eye contact, and gestures to keep class lively and students engaged	@Teaching
<b>35</b>	Presents instructional content in diverse ways	Content
<b>36</b>	Uses classroom instructional technologies	Technologies

<b>37</b>	Seeks to clarify confusing terminology, avoids excessive jargon, and uses vocabulary appropriately	@Communication
<b>38</b>	Practices instruction content to achieve familiarity and confidence	Content/ Instruction
<b>39</b>	Keeps current basic precepts, theories, methodologies, and related subject areas when planning instruction	Instruction/Planning
<b>40</b>	Identifies primary and secondary sources within subject area and promotes the use of resources	@Discipline
<b>41</b>	Uses vocabulary for the subject and related disciplines in the classroom	Discipline

There is a list of items that were not assigned and assigned redundantly between two or more themes; this is explained in the manual decision made regarding the duplicate themes. The details of the decision are outlined in Table 4.22 below. Twenty items were categorised under several themes out of 42, representing almost half.

Table 4.22

Duplicate Themes on Items

<b>No</b>	<b>Items</b>	<b>Theme</b>
<b>1</b>	Communicate with coordinator for instruction activities	Activities
<b>2</b>	Maintains awareness of communication needs of different learning, communication style & methods accordingly	Communication
<b>3</b>	Facilitates discussion of unexpected issues in a skilful, non-judgmental manner	Manner
<b>4</b>	Uses common communication technologies to provide assistance to students in & out classroom	Technologies
<b>5</b>	Requests feedback from peers on communication skills for improvement	Communication

<b>6</b>	Collaborates with faculty to integrate information literacy competencies, concepts & skill within subject discipline curriculum	Discipline
<b>7</b>	Sequences information in a lesson plan to guide the instruction session	Planning
<b>8</b>	Creates learner-centred course content and incorporates activities directly tied to learning outcomes	Learning
<b>9</b>	Assists learners to assess information needs, differentiate sources of information, and help develop skills to effectively identify, locate, and evaluate sources	Information
<b>10</b>	Design instruction and scales presentation content to the amount of time and space to meet the common learning characteristics of learners	Learning
<b>11</b>	Actively seeking out instruction opportunities within the library, institution, or national organizations	Instruction
<b>12</b>	Promotes library instruction opportunities and services	Instruction
<b>13</b>	Represents library and instruction program in an effective and positive manner	Manner
<b>14</b>	Creates a learner-centred teaching environment by using active, collaborative, and other appropriate learning activities	Teaching
<b>15</b>	Modifies teaching methods to match the class style and setting	Teaching
<b>16</b>	Reflects practice to improve teaching skills and acquires new knowledge of teaching methods and learning theories	Teaching
<b>17</b>	Shares teaching skills and knowledge with other instructional staff	Teaching

<b>18</b>	Practices instruction content to achieve familiarity and confidence	Instruction
<b>19</b>	Keeps current basic precepts, theories, methodologies, and related subject areas when planning instruction	Instruction

#### **4.3.3.3 Modules of Information Literacy**

This section made a significant contribution to developing the competence index for teaching librarians. It can be benchmarked to a new level of information literacy, where the modules will introduce components. Later, we will discuss this section in detail in CHAPTER 5, where we can explore what is currently offered in academic libraries and what should be included in information literacy modules or components.

Table 4.23

Descriptive Analysis of Components in Information Literacy Modules

<b>Category</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Databases</b>	3.8	1.32	1.0	5.0
<b>Information searching skills</b>	4.2	1.69	1.0	5.0
<b>Literature review</b>	3.8	1.32	1.0	5.0
<b>Research</b>	3.5	1.58	1.0	5.0
<b>Method</b>	3.3	1.49	1.0	5.0
<b>Students' requirement</b>	3.6	1.26	1.0	5.0
<b>Subject area</b>	3.5	1.18	1.0	5.0
<b>Literacy</b>	4.0	1.63	1.0	5.0
<b>Skills</b>	3.8	1.75	1.0	5.0

In Round 2 of data collection, panellists were asked to rate all themes on a Likert scale from 'extremely important' to 'not important', as shown in Table 4.23. The result shows that two themes were rated as very important: information searching skills and literacy, with means of 4.2 and 4.0, respectively. The remaining themes were rated as moderately important, with an average rating of 3.3 to 3.8, and the lowest mean was 3.3



research with four references, followed by skills with three references. The remaining seven themes consist of 2 references each.

The list proposed by panellists during the focus group interview was more towards after being analysed using NVivo to code the references. The new module for information literacy should focus on needs and gaps by identifying users' information needs, researching methodologies through literature reviews, and promoting digital and information literacy by emphasising digital literacy skills. The new module then explained educational techniques, such as implementing the Bloom taxonomy in developing the syllabus or information literacy module structure, which includes elements before and after the session. This study further proposes student-centric approaches through case study-based learning and the sharing of more general information, such as ethics in information sharing and dissemination, when completing assignments.

Later in discussion chapter, this research will focus on components or module development based on what has been discussed during the focus group interview. This research is not trying to override what has been implemented in academic libraries but more to closing the gaps or what has been left out in the information literacy and added up into the current modules supported by current and latest academic literatures. In conclusion, the modules list focuses more on specific tools, platforms, and library resources, while the panellists list emphasises understanding the audience's needs, digital literacy, and educational strategies. Bridging these gaps could involve incorporating more audience-focused and ethical considerations into the modules and integrating specific tools and resources into the panellists' strategies.

#### **4.4 Phase Three: Content Validity Index (CVI)**

The final phase of the methodological processes is to validate the competence index items, which is done through the content validity index (CVI). The CVI method measures the validity of items and scale factors, as well as themes, by identifying experts, as explained in Section 3.5.3. An explanation of calculating CVI is spread out in six steps or procedures. Here are the findings from phase 3 of experts' validation on the competence index for teaching librarians in higher education academic libraries.

#### 4.4.1 Experts Demographic Profiling

The selection of experts in this phase was based on the characteristics and criteria outlined in paragraph 3.8 which explains the details of the experts for this phase. A total of eight experts agreed to contribute their expertise and experiences as academic librarians to validating the competence index for teaching librarians in academic libraries in higher education.

Table 4.24

Demographic Characteristics of Experts (N=8)

<b>Demographic Variables</b>	<b>Number</b>	<b>Valid Percentage (100%)</b>
<b>Gender</b>		
Male	1	12.5
Female	7	87.5
<b>Total</b>	<b>8</b>	<b>100</b>
<b>Education Qualification</b>		
Masters	6	75
Degree	2	25
<b>Total</b>	<b>8</b>	<b>100</b>
<b>Years of Experience</b>		
20 - 25 years	2	25
26 – 30 years	5	62.5
31 – 35 years	1	12.5
<b>Total</b>	<b>8</b>	<b>100</b>

Table 4.24 presents the distribution of the demographic profiles of eight experts, including gender, academic qualifications, and years of experience. The institutions of each expert were listed in Table 3.8. As mentioned in Chapter Three, one of the criteria for experts is a prominent academic library administrator or chief librarian from a public university. Seven of eight experts were female, representing 87.5% and 12.5% were male experts. The highest academic qualification among experts is possession of a master's degree, with 75% of experts holding a master's degree and 25% holding a bachelor's degree. One expert, or 12.5%, has the longest experience serving as an

academic librarian, with a range of 31 to 35 years of service. Most experts have experience ranging from 26 to 30 years, with 62.5% of the experts, or six, having experience of 20 to 25 years as academic librarians.

#### 4.4.2 Relevance Rating Scale on Items by Eight Experts

This is the list of items in the competence index for teaching librarians in academic libraries of higher education, consisting of 108 items from three primary constructs: guidelines for learning librarians, human attributes in delivering instructional information literacy, and new components in the information literacy modules. All items are rated for relevance by eight experts representing the I-CVI and S-CVI/Ave, as well as the S-CVI/UA.

Table 4.25

Relevance Rating by Experts for Information Literacy for Higher Education

Items	E1	E2	E3	E4	E5	E6	E7	E8	Agreement	I-CVI	UA
108 Items									Sum I-CVI	104.87	87
Proportion	1	0.81	0.97	1	1	1	1	0.98			
Relevance									S-CVI/Ave	0.97	
Average Proportion of Relevance Items by 8 Experts								0.97	S-CVI/UA		0.80

\*E=Expert

Table 4.25 summarises the final distribution of ratings by eight experts on the overall items of the competence index for teaching librarians in academic libraries in higher education. The full rating is presented in Appendix N. Experts rated 108 items, and three items were rated below the cut-off for acceptance relevance, as shown in Table 3.9. The three items are excluded and discarded from the competence index for teaching librarians. The 105 items were rated between 0.87 and 1 in relevance rating and accepted as the final competence index for teaching librarians. The score for the average proportion of relevance items rated by eight experts is 0.97, indicating a high level of relevance for the overall 108 items. The S-CVI/Ave scored 0.97, and the S-CVI/UA scored 0.80 on relevance rating. The summary of I-CVI and S-CVI is tabulated in Table 4.26 and Table 4.27 below.

Table 4.26

Findings of I-CVI Value

<b>I-CVI Value</b>	<b>No of Items</b>
<b>1.0</b>	86
<b>0.87</b>	19
<b>0.75</b>	3
<b>Total</b>	<b>108</b>

Table 4.27

Findings of S-CVI/Average and S-CVI/Universal Agreement Value

<b>S-CVI</b>	<b>S-CVI Value</b>
<b>S-CVI/Average</b>	0.97
<b>S-CVI/Universal Agreement</b>	0.80

#### 4.4.3 Calculation I-CVI and S-CVI

Equation (4.1), (4.2) and (4.3) below are the details on calculating the I-CVI and S-CVI are explained in Section 3.10.3, and this section outlines the process for identifying I-CVI and S-CVI. The first step is to recode the relevance scale that the expert responded to, as shown in Table 4.28 below. The formula to calculate I-CVI:-

$$\text{I-CVI} = \frac{\text{Agreed Items}}{\text{Number of Experts}} \quad (4.1)$$

$$\text{S-CVI Average} = \frac{\text{Sum of I-CVI}}{\text{Number of Items}} \quad (4.2)$$

$$\text{S-CVI Average} = \frac{\text{Sum of UA}}{\text{Number of Items}} \quad (4.3)$$

Table 4.28

Recode Scale

<b>Original Rating Scale</b>	<b>New Rating Scale</b>
<b>1 or 2</b>	0

---

**3 or 4**

---

1

## 4.5 Themes Analysis

Thematic analysis was applied to Delphi findings to generate the competence index. Before discussing the details in this section, it is helpful to recap both the core competence index and human attributes to facilitate a deeper understanding. As in the earlier section, details were sorted out one by one to clarify the data. This index is divided into three constructs: the core competence index, the human attributes construct, and the module in the information literacy construct, which should be used in conjunction.

### 4.5.1 Challenges Themes

An interfering condition for this study is the challenges teaching librarians face in delivering instructional information literacy in academic libraries in higher education settings. These challenges are the main hindrances to teaching librarians how to provide instructional information literacy. Identifying the central problem and giving solutions to the challenges and barriers will help improve teaching librarian competencies in instructional information literacy. This study identified five themes from the brainstorming and discussion session in the focus group interview. These are the main issues that arise in delivering instructional information literacy in academic libraries in higher education. The challenges include teaching, issues, modules, and sessions. The highest coded references are teaching and information, with three coded references.

Table 4.29 presents a descriptive analysis of the challenges and barriers identified through data analysis, indicating which modules and teaching approaches have the highest mean compared to other themes, with rates of 4.3 and 4.0, respectively. This data also indicates that these two themes are considered very important, as rated by panellists during round 2 of the data collection process. The lowest mean is 3.3, representing a moderately important issue.

Table 4.29

Themes Descriptive Analysis on Challenges and Barriers

<b>Statistic</b>	<b>[information]</b>	<b>[teaching]</b>	<b>[issues]</b>	<b>[module]</b>	<b>[session]</b>
<b>Count</b>	10	10	10	10	10

<b>Mean</b>	3.8	4.0	3.3	4.3	3.4
<b>Minimum</b>	1	1	1	2	1
<b>Maximum</b>	5	5	5	5	5

Later, this study proposes strategies to resolve the challenges teaching librarians face in delivering instructional information literacy. These themes, highlighted by the panellists, indicate that the issues raised must be overcome for a librarian to teach information literacy effectively in higher education. The highest mean among themes is information, where the themes received a 4.1 mean, indicating that information is the key point for practice teaching librarians and panellists believe that gathering information in this theme will help overcome the particular challenges and barriers mentioned above in the challenges and barriers section.

While the lowest mean falls under a different background with a 2.8 mean, there is an argument between panellists about whether teaching librarians should be people from other backgrounds or not. This jeopardises librarianship's exclusivity, which will be discussed later in CHAPTER 5. Descriptive data on mode have at least one panellist rated '4' as the minimum point, and the highest rating is '5' in the data set, representing 'very important' to 'extremely important'. While the median is 3, the lowest rate in the data set, which is moderately important, is associated with only one theme, and the highest rate is 5, which is extremely important. These descriptive data analyses are tabulated in Table 4.30 below.

Table 4.30

Themes Descriptive Analysis on Strategies to Overcome Challenges and Barriers in Practicing Teaching Librarian.

<b>Themes</b>	<b>Mean</b>	<b>Mode</b>	<b>Median</b>
<b>Subject area</b>	3.7	5	4
<b>Skills</b>	3.5	5	4
<b>Collaboration with faculty</b>	3.9	5	4.5
<b>Different background</b>	2.8	1, 4	3

<b>Teaching Librarian</b>	3.4	3, 4	3.5
<b>Upgrade knowledge</b>	3.8	5	5
<b>Information Library</b>	4.1	5	5
<b>Library</b>	3.8	4	4

The subject area received an average rating of 3.7 out of 5, which is slightly above the moderately important level. The mode analysis for the standard rate indicates a preference for 5 among panellists. The median of 4 suggests that most respondents think teaching librarians need to perceive that they have good subject area knowledge. Skills were rated slightly lower than the subject area, where panellists rated them moderately important, with an average rating of 3.5 out of 5. However, as for mode, half of the panellists rated 5, which is extremely important, but the median of 4 indicates that the perception of skills is slightly lower compared to subject area knowledge. Rated as almost very important, this theme was more than two themes above where panellists decided to rate 3.9 out of 5 on average. A common rating is extremely important, with a rating of 5 from half of the panellists, and the median rating of 4 supports this, suggesting that consistent collaboration with faculty will bring positive perceptions and classes. Rated lowest among other themes, this different background does not have a positive impact on teaching librarians' performance and may have a minimal impact compared to other themes. This theme is rated 2.8 out of 5, which is below moderately important. The modes are 1 and 4, indicating perceptions of some diversity, but it is not as common as frequent, with a slightly essential and very important rate. The median of 3 suggests that the perceptions of background diversity vary, with some respondents rating it higher than others.

This theme concerns the teaching librarian themselves, specifically learning from experienced teaching librarians, training and collaboration, and hiring an assistant librarian from a different background to facilitate learning. The mean rating for this theme is moderately important, with a score of 3.4 out of 5; the mode is commonly rated 3 and 4, indicating that effective teaching is expected among teaching librarians who teach information literacy in higher education. While the median for this theme is 3.5, it indicates that opinions about teaching ability are consistent but not overwhelmingly positive. The mean for this theme is 3.8 out of 5, which translates to moderately

important, indicating that most items in this theme recommend that teaching librarians upgrade their knowledge and skills. Both the mode and median are 5, indicating that panellists commonly perceive that the teaching librarian needs to be proactive in upgrading knowledge, as the teaching librarian is the primary source of information through information literacy. The highest mean among the rest of the themes is information, with 4.1 out of 5 indicated as very important, the only theme categorised as very important. The mode and median are 5, indicating that teaching libraries must consistently provide high-quality information.

While other themes discussed what it takes to be a teaching librarian to overcome challenges and barriers, this theme discusses the facilities and services provided to academic librarians. The mean rating is 3.8 out of 5, with the most common rating being 4. The median of 4 suggests that most panellists perceive the library's facilities and services as being ready at any time and performing at their best.

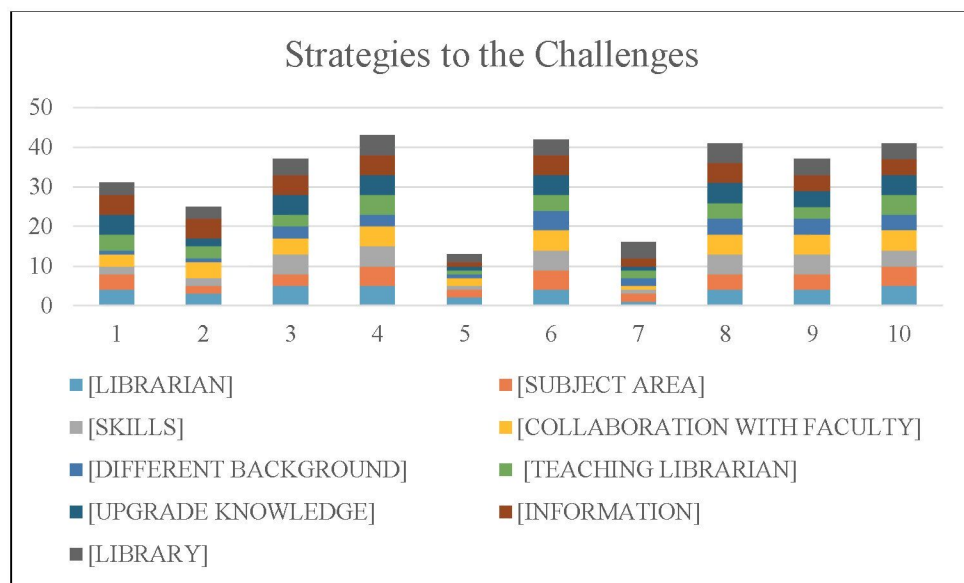


Figure 4.6 Data Distribution in Graph for How to Overcome the Challenges and Barriers

The detailed data set distribution for each theme is presented in Figure 4.6 above for a detailed view of the data. Four out of ten panellists rated more than 40, scoring the highest among the other panellists. In comparison, two panellists rated the lowest number, contributing to the difference between 'slightly low' in importance to solve the challenges and barriers.

#### **4.5.2 Human Attributes Themes**

Findings from 2 sessions were analysed in NVivo to develop themes, consisting of 72 coded with 189 references. Twenty themes were identified and spread from every angle. However, after analysing the data from NVivo, it was decided to merge a few themes into one due to similarity, redundancy, and the meaning of each reference. The number of themes after merging is 13, comprising 65 codes and 177 references, compared with the previous data analysed by NVivo, as shown in Table 4.31 below.

The data analysis revealed thirteen overarching themes that reflect the competencies, practices, and contextual considerations associated with teaching librarians in higher education. These themes illustrate the multifaceted nature of instructional roles undertaken by librarians, ranging from the design and delivery of learning experiences to the integration of disciplinary knowledge and technological applications.

Activities emerged as a central theme, encompassing both instructional and learning activities. This theme reflects the practical dimension of teaching librarianship, where abstract information literacy concepts are translated into tangible exercises such as database searching, critical evaluation of sources, and citation practices. Instructional activities represent the structured teaching strategies implemented by librarians, while learning activities highlight the engagement and participation of students in the instructional process.

The theme of Communication highlights the importance of interaction in instructional settings, which extends beyond verbal exchanges to include communication technologies, skills, needs, and styles. Teaching librarians must demonstrate communication clarity while adapting to diverse student needs. Effective communication encompasses face-to-face interaction and the use of digital platforms such as learning management systems, discussion forums, and synchronous or asynchronous communication tools that facilitate continuous engagement.

Content represents the substantive element of instruction and includes instructional content, learner-centred course content, and presentation materials. The theme underscores the importance of aligning instructional content with learners' academic contexts and institutional goals. Providing relevant, engaging, and discipline-specific content enables librarians to situate information literacy competencies within the broader framework of higher education curricula.

The theme of discipline relates to integrating library instruction into subject-specific curricula. Teaching librarians must adapt instructional approaches to disciplinary contexts, recognising that the information practices of students vary significantly across fields. For instance, students in the sciences may require competencies in data management, while those in the humanities may need greater emphasis on archival research. Such disciplinary considerations ensure that information literacy instruction remains relevant and meaningful.

Information is a core theme that directly relates to the central mission of teaching librarians. It encompasses information literacy competencies, information needs, and the sequencing of information. Competency in this area requires librarians to scaffold instruction in a way that gradually introduces foundational information literacy skills before advancing to more complex research strategies. This theme also underscores the responsibility of librarians to address learners' evolving information needs while promoting ethical and practical use of information.

The theme of instruction extends beyond individual sessions to encompass broader instructional programmes, planning processes, and opportunities for integration into the academic environment. Instruction in this context reflects the structural and programmatic aspects of library teaching, including lesson planning, coordination with faculty, and the systematic delivery of information literacy education.

Issues represent the challenges encountered in instructional practice, including social issues such as accessibility, equity, and the digital divide, as well as unexpected problems like technological failures or institutional priorities. This theme highlights the dynamic and often unpredictable environment in which teaching librarians operate, requiring flexibility and adaptive strategies.

The learning theme focuses on the student perspective, encompassing common learning characteristics, activities, outcomes, and learning experiences. It emphasises the learner-centred nature of instruction, acknowledging diversity in student backgrounds, prior knowledge, and learning preferences. Furthermore, the theme aligns with the measurement of learning outcomes, where librarians assess the extent to which students have acquired targeted competencies. Theoretical underpinnings such as constructivism and experiential learning provide the pedagogical foundation for this theme.

Manner reflects the attitudinal and interpersonal dimensions of teaching practice. The emphasis on a non-judgmental and positive manner highlights the role of

librarians in fostering an inclusive and supportive learning environment. Such an approach is fundamental as many students may experience anxiety or lack confidence in developing research skills. A constructive manner can enhance learner motivation and engagement.

The planning theme relates explicitly to the preparatory stages of instructional delivery, including lesson planning and sequencing teaching activities. Effective planning ensures that instructional goals are clearly defined, activities are appropriately structured, and teaching aligns with curricular requirements and learner needs.

Students represent the strategies employed by teaching librarians to engage learners actively. This includes encouraging student participation, designing meaningful assignments, and promoting independent inquiry. By positioning students as active participants rather than passive recipients of information, librarians support the development of critical thinking and self-directed learning.

The teaching theme encompasses teaching methods, collaboration with faculty, teaching skills, classroom styles, and the creation of learner-centred environments. It reflects the dual nature of teaching librarianship, which requires pedagogical expertise and collaborative engagement with academic staff. Effective teaching by librarians involves selecting appropriate methods such as lectures, demonstrations, or group work, adapting to diverse classroom contexts, and aligning with broader institutional teaching strategies.

Finally, technologies represent the tools and platforms underpinning communication and instruction. This theme includes instructional technologies, communication technologies, and the selection of appropriate digital resources. Technology, such as online tutorials and interactive software, is conceptualised here as a teaching medium. An object of instruction, such as training students to navigate databases, reference management tools, or research platforms.

Collectively, these themes reflect the interconnected domains of practice that define teaching librarianship in higher education. They demonstrate how teaching librarians draw on pedagogical knowledge, disciplinary expertise, communication and technological skills, and attitudinal approaches to create meaningful learning experiences while responding to institutional and societal challenges.

Table 4.31

KSAs Themes Coded Reference

<b>No</b>	<b>Themes</b>	<b>References</b>	<b>Remarks</b>
<b>1</b>	Activities	Instruction activities	
		Learning activities	
<b>2</b>	Communication	Common communication technologies	Merged with skills, style and needs
		Communication needs	
		Communication skills	
		Communication styles	
<b>3</b>	Content	Instruction content	
		Instructional content	
		Learner-centred course content	
		Presentation content	
<b>4</b>	Discipline	Related disciplines	
		Subject disciplines curriculum	
<b>5</b>	Information	Information literacy competencies	Merged with information literacy
		Information needs	competencies and needs
		Sequences information	
<b>6</b>	Instruction	Instruction activities	Merged with library instruction opportunities
		Instruction content	
		Instruction program	
		Instruction session	
		Library instruction opportunities	
<b>7</b>	Issues	Social issues	
		Unexpected issues	

<b>8</b>	Learning	Common learning characteristics	Merged with learning outcomes
		Different learning	
		Learning activities	
		Learning outcomes	
		Learning theories	
<b>9</b>	Manner	Non-judgemental manner	
		Positive manner	
<b>10</b>	Planning	Lesson plan	
		Planning instruction	
<b>11</b>	Students	Encouraging students	
		Students assignments	
<b>12</b>	Teaching	Learner-centred teaching environment	Merged with teaching methods, style & skills
		Teaching faculty	
		Teaching method	
		Teaching skills	
		Class style	
<b>13</b>	Technologies	Appropriate technology	
		Common communication technologies	
		Instructional technologies	

Apart from this analysis, the study also identifies interesting new themes that stand out from the focus group interview findings, as well as academic assessments and research advocates. These two themes emerged regularly in each question asked in the focus group interview. This shows the panellists are trying to point out what has been left behind or aspects crucial to human attributes as a teaching librarian.

This expanded table below details the curriculum development, ensuring that all aspects of the educational process, including research and assessment, are addressed. It can also guide professional development and competency assessments, ensuring educators are well-equipped in all necessary areas. This table can be used for curriculum development, teacher training, or competency assessments, ensuring that all

instructional elements are comprehensively covered in knowledge, skills, and abilities. Seven panellists decided that research falls under knowledge attributes, whereas the other three think research should be classified as skills. Academic assessment is also classified under knowledge, where 4 out of 10 panellists believe this theme should be categorised under expertise. In comparison, the other three panellists think assessments should be categorised by skills and abilities.

In conclusion, the additional new themes that emerged from the focus group interviews fall under the knowledge attributes. All data from the focus group interviews were processed and analysed to identify rare reference codes in the current literature or framework and KSA attributes. The details of the spread for these new themes are shown in Table 4.32 below.

Table 4.32  
New Themes Coded References and Items.

No	Themes	Coded	Items
1	Academic Assessment	Handling information literacy classes Effective assessment design Collaborate to define expected learning outcome Statistic reports	Design effective assessment of student learning Collaborates with faculty by defining expectations and desired learning outcomes Maintain & regularly report accurate statistics Handling information literacy and setting up modules for institution Planning, organizing, implementing & evaluating information literacy session
2	Research Advocate	Research support Research skill Assisting research Supporting research Standard research process	Provide research support to users Having research skills to give research support Assisting in research process Responsible for guiding and assisting research for the researchers

Research methodology	Teach standard research process and methodology in information literacy with collaborative plan
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### 4.5.3 Competence Index Themes

This section explains the themes generated after analysing the findings from both sessions in NVivo, as this research employs thematic analysis. This theme analysis comprises three constructs developed based on the data findings and analysis. The three constructs are the Core Competence Index, the Human Attributes, and the Module in Information Literacy constructs.

#### 4.5.3.1 Core Competence Index

These 77 accepted item numbers are before items are combined and edited. Once the item numbers are combined, the total number is down to 56 items. The process of analysing data or findings from focus group interview sessions was explained in CHAPTER 3. This framework for information literacy in higher education analysis has identified five themes, comprising 43 codes and 129 references. The highest number of references is from the information theme, with 22 references, followed by the process with six references. The other three themes share the same number of 5 references, and include methods, research, and search.

Table 4.33

Frameworks Themes Coded Reference

No	Themes	References	Remarks
1	Knowledge	Disseminate information	
		Dynamic information	
		Enough information	
		Information formats	
		Information gaps	
		Information gathering	
		Information privilege	

		Information product creation process
		Information sources
		Information systems
		Information task
		Matching information
		Participatory information environment
		Particular information
		Purpose information
		Relevant information
		Using information
<b>2</b>	<b>Methods</b>	Different methods
		Emerging methods
		Investigation methods
		Serendipitous methods
		Various research methods
<b>3</b>	<b>Process</b>	Information product creation
		Research process
		Searching process
		Underlying creation process
		Various creation process
<b>4</b>	<b>Research</b>	Complex research
		Research area
		Research process
		Utilize research tools
		Various research methods
<b>5</b>	<b>Search</b>	Appropriate search tools
		Search challenges
		Search results
		Searching language
		Searching process

The final items after the process of experts' validation in CVI are listed out in Table 4.35, which consists of five themes: 1) knowledge, 2) process, 3) search, 4) method and 5) research. In total, 56 items were validated by experts, and three items were excluded from the competence index since the acceptance value did not meet the minimum requirement set for this research. The largest items are in the knowledge theme, and items in the search theme have the lowest number.

#### ***4.5.3.2 Human Attribute Construct***

These human attributes consist of knowledge, skills and ability, all of which were grouped into the KSAs. A total of 15 themes emerged for these human attributes as explained in paragraph 4.5.2.

#### ***4.5.3.3 Modules in Information Literacy Constructs***

This section is another critical component in the competence index for teaching librarians in academic libraries in higher education, a significant aspect of this research, as it involves developing proper, well-documented instructional modules in information literacy. This finding is not specific to the module to be implemented in instructional information literacy, but rather the mechanisms and gist gathered from panellists in the data collection process. Academic libraries should incorporate these components to embed and create a new module within their existing instructional information literacy modules. The findings of these components, which compared existing module practices in all 20 public academic libraries in Malaysia and a collective dataset from panellists in the data collection process, provide new insights for academic libraries. The identified gaps in instructional information literacy are outlined in Table 4.37 below.

The details of coded references for each theme were created after analysing the panellists' responses in Table 4.34. In this table, the highest coded references are in the 'Databases' theme, with four references. This indicates that teaching databases, searching strategies, and other essential functions are crucial, as the library is responsible for providing these services to users. Next to databases are skills with three references, and this theme surrounds digital literacy, searching skills, and skills gaps. The remaining themes comprise two references each, including literacy, literature

review, method, research, students, and subject, for a total of nine themes identified for this question.

Table 4.34

Question 6 Themes Coded Reference

<b>No</b>	<b>Themes</b>	<b>References</b>	<b>Remarks</b>
<b>1</b>	Databases	Databases search strategy	
		Online databases	
		Searching skill	
<b>2</b>	Information	Information needs	
		Information sharing	
<b>3</b>	Literacy	Information literacy	
		Literacy skills	
<b>4</b>	Literature review	Literature review	
		Systematic literature review	
<b>5</b>	Method	Research method	
		Instructional method	
<b>6</b>	Research	Research methodology	
		Research method	
<b>7</b>	Skills	Literacy skills	
		Searching skills	
		Skills gaps	
<b>8</b>	Student	Student requirement	
		Student assignment	
<b>9</b>	Subject	Education subject	
		Subject area	

The last two themes seem very interesting, and we can see a different side of information literacy class, students, and subjects. Panellists suggested a specific class for students' needs and requirements in completing assignments, or even to guide the final year project. As in question 1 of the focus group interview, the assessment theme

has been identified, where the teaching librarian should conduct an assessment of the session, teaching, and outcome of the program. Teaching librarians should take the initiative to learn about education or pedagogy subjects, such as Bloom's taxonomy. Other than that, panellists suggested that teaching librarians should also be knowledgeable in specific subject areas, as libraries serve higher education by providing a broad range of knowledge across various subject areas. Therefore, teaching librarians should be aware of or familiar with specific or related terms in the session or information literacy class.

This question represents one of the constructs in the competence index for teaching librarians in academic libraries in Malaysian higher education. This study also proposes a standardised module for instructional information literacy in 20 academic libraries in the Malaysian higher education system. These modules are designed to serve as basic guidelines or tools for measuring the instructional information literacy quality outcome, as they will be used throughout the system.

Table 4.35

Core Competence Index Construct

No	Themes	References	Items
1	Knowledge	<ol style="list-style-type: none"> <li>1. Disseminate information</li> <li>2. Dynamic information</li> <li>3. Enough information</li> <li>4. Information formats</li> <li>5. Information gaps</li> <li>6. Information gathering</li> <li>7. Information privilege</li> <li>8. Information product creation process</li> <li>9. Information sources</li> <li>10. Information systems</li> <li>11. Information task</li> <li>12. Matching information</li> <li>13. Participatory information environment</li> </ol>	<ol style="list-style-type: none"> <li>1. Understand that while many disciplines have acknowledged authorities, one scholar would challenge the authority of those sources, yet acknowledge they are developing their own authoritative voices in a particular area, all while acknowledging the importance of seeking accuracy and reliability, respecting intellectual property, and participating in communities' practices.</li> <li>2. Understand the increase of social nature in information ecosystem where authorities connect to each other and sources develop overtime</li> <li>3. Recognize information may be perceived differently based on format packaged</li> <li>4. Recognize the implication of information formats that contain static or dynamic information</li> <li>5. Monitor the value is placed upon different types of information</li> </ol>

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14. Particular information	product in varying contexts
15. Purpose information	6. Transfer knowledge of capabilities & constraints to new types of information products
16. Relevant information	7. Value the process of matching information need to appropriate product
17. Using information	8. Accept that information creation may begin through communicating in a range of formats or modes, and acknowledge the ambiguity surrounding the potential value of information creation expressed in emerging formats or modes.
	9. To give credit to the original ideas through proper attribution and citation, it is important to understand that intellectual property is a legal and social construct, while also recognizing the issue of access or lack of access to information sources
	10. Understand how & why individuals/groups may underrepresented/systematically within system that produced & disseminate information
	11. Decide where & how information is published
	12. Understand how personal information as commodity & online

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- interaction affects information received, produced or disseminate
13. Make informed choices to online action & awareness to privacy and commodity of personal information
  14. Value skills, time & effort to produce knowledge
  15. Inclined to examine their own information privilege
  16. Monitor gathered information & assess for gaps/weaknesses
  17. Seek multiple perspectives during information gathering and assessment, and seek appropriate help when needed.
  18. Follow ethical & legal guidelines in gathering & using information
  19. Cite the contributing work of others in their own information production, contribute to scholarly conversation at an appropriate level, identify barriers to enter scholarly conversation via various venues, and recognize the contribution that particular articles, books, and other scholarly pieces make to disciplinary knowledge.
  20. Determine the initial scope task required to meet information needs
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21. Identify interested parties might produce information about topic & determine how to access that information
  22. Understand how information systems are organized in order to access relevant information
  23. Understand that first attempts at searching do not always produce adequate results and realize that information sources vary in content, format, relevance, value, need, and nature of the search.
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<b>2</b> Methods	<ol style="list-style-type: none"> <li>1. Different methods</li> <li>2. Emerging methods</li> <li>3. Investigation methods</li> <li>4. Serendipitous methods</li> <li>5. Various research methods</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop &amp; maintain open mind when encounter conflict</li> <li>2. Motivate to find authoritative sources in unexpected ways</li> <li>3. Maintaining attitudes &amp; action required frequent self-evaluation</li> <li>4. Fit between an information product creation process &amp; particular information need</li> <li>5. Develop own creation process, understand the impact of purpose information being used &amp; message conveyed</li> <li>6. Seek out characteristics of information products that indicate the underlying creation process</li> <li>7. Articulate the purpose &amp; distinguishing characteristics of copyright, fair use, open access &amp; public domain</li> <li>8. Respects the original ideas of others</li> <li>9. Maintain open mind &amp; critical stance</li> <li>10. Recognize system privilege authorities &amp; not having fluency in the language &amp; process of a discipline disempowers their ability to participate &amp; engage</li> </ol>
<b>3</b> Process	<ol style="list-style-type: none"> <li>1. Information product creation</li> <li>2. Research process</li> </ol>	<ol style="list-style-type: none"> <li>1. Articulate both the capabilities and constraints of information developed through various creation processes, including</li> </ol>

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3. Searching process

traditional and emerging methods of information creation and

4. Underlying creation process

dissemination in a particular discipline.

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5. Various creation process

2. Understand different methods of information dissemination with different purposes are available for their use
3. Formulate questions for research based on information gaps or re-examination of existing or possible conflicting data, determine the scope of investigation, handle complex research by breaking it down into simpler questions and limiting the scope of investigation, utilize various research methods based on need, circumstance, or type of inquiry, all while demonstrating intellectual humility.
4. Value intellectual curiosity in developing questions & learn new investigation methods
5. Exhibit mental flexibility and creativity, recognize the value of browsing and other serendipitous methods of information gathering, and persist through search challenges, knowing when to have enough information to complete the information task.

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- |   |          |  |   |
|---|----------|--|---|
| 4 | Research | <ol style="list-style-type: none"><li>1. Complex research</li><li>2. Research area</li><li>3. Research process</li><li>4. Utilize research tools</li><li>5. Various research methods</li></ol> | <ol style="list-style-type: none"><li>1. Utilize brainstorming &amp; select best source thinking when searching</li><li>2. Match information needs and search strategies to appropriate search tools, and design and refine needs and search strategies as necessary based on search results.</li><li>3. Manage searching process &amp; results effectively</li></ol> |
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5	Search	<ol style="list-style-type: none"> <li>1. Appropriate search tools</li> <li>2. Search challenges</li> <li>3. Search results</li> <li>4. Searching language</li> <li>5. Searching process</li> </ol>	<ol style="list-style-type: none"> <li>1. Define different types of authority and utilize research tools and indicators to determine credible sources</li> <li>2. Consider research as open-ended question &amp; engagement with information</li> <li>3. Appreciate question appear to be simple but still disruptive &amp; important to research</li> <li>4. Value persistence, adaptability &amp; flexibility &amp; recognize ambiguity benefit the research process</li> <li>5. Summarize changes in scholarly perspective over time on particular topic within specific discipline</li> <li>6. Recognize given scholarly work may not represent the only or even the majority perspective on issue</li> <li>7. Seek out conversation taking place in research area in various venues</li> <li>8. See as contributor to scholarship rather than only consumers</li> <li>9. Suspend judgement on value of particular piece of scholarship until larger context for the scholarly conversation is better understood</li> </ol>
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- 10. Understand the responsibility comes with entering the conversation through participatory channels
  - 11. Value user generated content & evaluate contribution made by others
  - 12. Seek guidance from experts
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Table 4.36

Human Attributes Construct

No	Themes	References	Items
1	Activities	<ul style="list-style-type: none"> <li>1. Instruction activities</li> <li>2. Learning activities</li> </ul>	<ul style="list-style-type: none"> <li>1. Communicate with coordinator for instruction activities</li> </ul>

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<b>2</b>	Communication	<ol style="list-style-type: none"> <li>1. Common communication technologies</li> <li>2. Communication needs</li> <li>3. Communication skills</li> <li>4. Communication styles</li> </ol>	<ol style="list-style-type: none"> <li>1. Maintains awareness of communication needs of different learning, communication style &amp; methods accordingly</li> <li>2. Requests feedback from peers on communication skills for improvement</li> <li>3. Seeks to clarify confusing terminology, avoids excessive jargon, and uses vocabulary appropriately</li> </ol>
<b>3</b>	Instruction Content	<ol style="list-style-type: none"> <li>1. Instruction content</li> <li>2. Instructional content</li> <li>3. Learner-centred course content</li> </ol> <p>Presentation content</p>	<ol style="list-style-type: none"> <li>1. Presents instructional content in diverse ways</li> </ol>

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4	Discipline	<ol style="list-style-type: none"><li>1. Related disciplines</li><li>2. Subject disciplines curriculum</li></ol>	<ol style="list-style-type: none"><li>1. Uses vocabulary for the subject and related disciplines in the classroom</li><li>2. Collaborates with faculty to integrate information literacy competencies, concepts &amp; skill within subject discipline curriculum</li><li>3. Identifies primary and secondary sources within subject area and promotes the use of resources</li></ol>
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<b>5</b>	Information	<ol style="list-style-type: none"> <li>1. Information literacy competencies</li> <li>2. Information needs</li> <li>3. Sequences information</li> </ol>	<ol style="list-style-type: none"> <li>1. Describes the role of information literacy to academia/users</li> <li>2. Assists learners to assess information needs, differentiate sources of information, and help develop skills to effectively identify, locate, and evaluate sources</li> <li>3. Use information effectively to accomplish a specific purpose</li> <li>4. Determine the extent of information needed</li> <li>5. Assess the needed information effectively and efficiently</li> </ol>
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<b>6</b>	Instruction	<ol style="list-style-type: none"> <li>1. Instruction activities</li> <li>2. Instruction content</li> <li>3. Instruction program</li> <li>4. Instruction session</li> <li>5. Library instruction opportunities</li> <li>6. Planning instruction</li> </ol>	<ol style="list-style-type: none"> <li>1. Actively seeking out instruction opportunities within the library, institution, or national organizations Promotes library instruction opportunities and services</li> <li>2. Practices instruction content to achieve familiarity and confidence</li> <li>3. Keeps current basic precepts, theories, methodologies, and related subject areas when planning instruction</li> <li>4. Work in team with knowledge, skill &amp; time to improve instructions</li> </ol>
<b>7</b>	Issues	<ol style="list-style-type: none"> <li>1. Social issues</li> <li>2. Unexpected issues</li> </ol>	<ol style="list-style-type: none"> <li>1. Understand the economic, legal &amp; social issues surrounding the use of information &amp; access &amp; use information ethically &amp; legally</li> </ol>

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<b>8</b>	Learning	<ol style="list-style-type: none"> <li>1. Common learning characteristics</li> <li>2. Different learning</li> <li>3. Learning activities</li> <li>4. Learning outcomes</li> <li>5. Learning theories</li> </ol>	<ol style="list-style-type: none"> <li>2. Creates learner-centred course content and incorporates activities directly tied to learning outcomes</li> <li>3. Design instruction and scales presentation content to the amount of time and space to meet the common learning characteristics of learners</li> <li>4. Encourages librarians and faculty to participate in discussions, ask questions, and share ideas on instructions</li> </ol>
<b>9</b>	Manner	<ol style="list-style-type: none"> <li>1. Non-judgemental manner</li> <li>2. Positive manner</li> </ol>	<ol style="list-style-type: none"> <li>1. Facilitates discussion of unexpected issues in a skilful, non-judgmental manner</li> <li>2. Represents library and instruction program in an effective and positive manner</li> </ol>

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<b>10</b>	Planning	<ol style="list-style-type: none"> <li>1. Lesson plan</li> <li>2. Planning instruction</li> </ol>	<ol style="list-style-type: none"> <li>1. Sequences information in a lesson plan to guide the instruction session</li> <li>2. Plans presentation content and delivery in advance &amp; preparation time for instruction</li> <li>3. Maintains relationship with assigned academic departments</li> </ol>
<b>11</b>	Students	<ol style="list-style-type: none"> <li>1. Encouraging students</li> <li>2. Students assignments</li> </ol>	<ol style="list-style-type: none"> <li>1. Analyse curriculum in the assigned subject area while being aware of student assignments and the role of the library in completing them.</li> <li>2. Participates in constructive student-teacher exchanges by encouraging students to ask and answer questions</li> </ol>

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<b>12</b>	Teaching	<ol style="list-style-type: none"><li>1. Learner-centred teaching environment</li><li>2. Teaching faculty</li><li>3. Teaching method</li><li>4. Teaching skills</li><li>5. Class style</li></ol>	<ol style="list-style-type: none"><li>1. Encourages teaching faculty to participate in discussion</li><li>2. Creates a learner-centred teaching environment by using active, collaborative, and other appropriate learning activities</li><li>3. Modifies teaching methods to match the class style and setting</li><li>4. Reflects practice to improve teaching skills and acquires new knowledge of teaching methods and learning theories</li><li>5. Shares teaching skills and knowledge with other instructional staff</li><li>6. Makes the best possible use of voice, eye contact, and gestures to keep class lively and students engaged</li></ol>
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<b>13</b>	Technologies	<ol style="list-style-type: none"> <li>1. Appropriate technology</li> <li>2. Common communication technologies</li> <li>3. Instructional technologies</li> </ol>	<ol style="list-style-type: none"> <li>1. Integrates appropriate technology into instruction</li> <li>2. Uses classroom instructional technologies</li> <li>3. Uses common communication technologies to provide assistance to students in &amp; out classroom</li> </ol>
<b>14</b>	Academic Assessment	<ol style="list-style-type: none"> <li>1. Handling information literacy classes</li> <li>2. Effective assessment design</li> <li>3. Collaborate to define expected learning outcome</li> <li>4. Statistic reports</li> </ol>	<ol style="list-style-type: none"> <li>1. Design effective assessment of student learning</li> <li>2. Collaborates with faculty by defining expectations and desired learning outcomes</li> <li>3. Maintain &amp; regularly report accurate statistics</li> <li>4. Handling information literacy and setting up modules for institution</li> <li>5. Planning, organizing, implementing &amp; evaluating information literacy session</li> </ol>
<b>15</b>	Research Advocate	<ol style="list-style-type: none"> <li>1. Research support</li> <li>2. Research skill</li> <li>3. Assisting research</li> <li>4. Supporting research</li> <li>5. Standard research process</li> <li>6. Research methodology</li> </ol>	<ol style="list-style-type: none"> <li>1. Provide research support to users</li> <li>2. Having research skills to give research support</li> <li>3. Assisting in research process</li> <li>4. Responsible for guiding and assisting research for the researchers</li> <li>5. Teach standard research process and methodology in information literacy with collaborative plan</li> </ol>

Table 4.37

## Modules in Instructional Information Literacy Construct

No	New Components of Instructional Information Literacy
1	Ethics in information sharing
2	Identifying information needs
3	Applying bloom's taxonomy
4	Digital literacy skills
5	Case study-based learning
6	Systematic literature review

#### 4.6 Chapter Summary

This chapter presents the study's findings, which are based on three phases: predetermined themes, Delphi rounds, and expert validation. The predetermined themes served as the initial themes for the study. The Delphi method refined these themes through iterative rounds of consensus among panellists. The findings demonstrated that panellists strongly agreed on the importance of competencies related to information as value, research as inquiry, information creation, searching strategies, authority as constructed, and scholarly conversation. Across the Delphi rounds, levels of agreement increased, reflecting a growing consensus on the essential competencies for teaching librarians. In the final phase, expert validation confirmed the relevance and applicability of the refined themes, validating an early draft of the competence index for teaching librarians in academic libraries in Malaysian Higher education.

# CHAPTER 5

## DISCUSSION

### 5.1 Chapter Introduction

In the pursuit of accurately measuring and evaluating competence, constructing a reliable and valid competence index is an essential yet complex endeavour. This chapter, titled Chapter 5: Discussion, explores the multifaceted challenges that researchers and practitioners face during this process. Understanding these challenges is crucial for developing robust indices that genuinely reflect the competencies they aim to measure. Constructing a competence index involves several key stages, including defining the competencies by explaining and debriefing each research objective, recapping the process involved in constructing the competence index and validating the index. Each stage presents unique challenges that can impact the accuracy and usability of the final product. One of the primary challenges lies in the precise definition and conceptualisation of competencies. Competencies are often multifaceted, encompassing a range of skills, knowledge, and abilities. As in chapter 4, achieving consensus on what constitutes a particular competence can be difficult, especially when considering the diverse perspectives of stakeholders involved in the process.

Another significant barrier is the selection of indicators that accurately and comprehensively represent the defined competencies. Indicators must be specific, measurable, and relevant, which requires careful consideration. The selection process is often constrained by the availability and quality of data, which can vary significantly depending on the context and available resources. Additionally, the dynamic nature of competencies, which can evolve, necessitates ongoing data collection and analysis to maintain the index's relevance and accuracy. Validation of the competence index is the final, yet equally crucial, stage. Validating an index involves demonstrating that it accurately measures what it intends to measure and can be reliably used across different contexts and populations.

Throughout this chapter, the research objectives and analysis of the questions are positioned in Chapter 5 for a better view. In the following subsection, the discussion aims to identify and understand these challenges, so that it can develop strategies to mitigate their impact and enhance the effectiveness of competence indices. Ultimately,

this will contribute to more accurate assessments and better-informed decision-making in various fields, including education, workforce development, and organisational management.

## **5.2 Challenges and Recommendations**

This section critically synthesises the challenges identified in the study and proposes corresponding recommendations to address these issues within the context of teaching librarianship and instructional information literacy. Drawing upon the research objectives and questions as an analytical lens, the discussion highlights key constraints, gaps, and inconsistencies revealed through the findings. The analysis is structured in relation to each research objective and its associated research question, enabling a systematic examination of recurring challenges, dominant patterns, and emerging concerns encountered by teaching librarians in academic libraries.

The findings are presented in a manner that integrates empirical evidence with interpretive analysis, enabling a nuanced understanding of the underlying factors contributing to the identified challenges. Based on this critical examination, the section advances targeted recommendations aimed at strengthening professional practice, enhancing competency development, and improving the delivery of instructional information literacy. These recommendations are grounded in the study's data and aligned with both theoretical perspectives and practical realities.

Beyond outlining challenges and recommendations, this section reflects on the broader implications of the findings for the library and information science discipline and for key professional stakeholders in higher education. It underscores how the proposed recommendations may inform policy formulation, professional development initiatives, and institutional strategies. The section concludes by evaluating how effectively the study addresses the research objectives and questions, and by emphasising the role of the findings in guiding future practice and research in teaching librarianship.

### 5.2.1 Research Objective 1: To investigate gaps in practising teaching librarians in delivering instructional information literacy in academic libraries

As higher education continues to emphasise the development of information literacy, the role of teaching librarians in academic libraries has become more critical. These professionals are responsible for equipping students with the competencies to locate, evaluate, and apply information effectively. Despite the significance of this role, the findings of this study indicate that teaching librarians encounter several challenges that hinder the effective delivery of instructional information literacy.

The analysis reveals notable practice gaps, including limitations related to instructional modules, teaching approaches, the quality and depth of information delivered during sessions, the structure of instructional activities, and technological constraints. These gaps collectively affect the effectiveness and sustainability of information literacy initiatives in academic libraries. Building on the thematic analysis presented in Chapter 4, this section consolidates the challenges into five overarching themes: 1. Module, 2. Teaching, 3. Information, 4. Session and 5. Issues as presented in Table 5.1. This structured index provides a consolidated and coherent overview of the barriers teaching librarians encounter in academic libraries.

Table 5.1

Themes of Challenges Faced by Teaching Librarians

<b>Theme</b>	<b>Description</b>	<b>Key Issues Identified</b>
<b>Module</b>	Limitations in the availability, design, and standardisation of instructional modules.	Lack of structured content; inconsistency across institutions.
<b>Teaching</b>	Constraints in pedagogical approaches and instructional delivery methods.	Reliance on traditional methods; limited innovation in teaching strategies.
<b>Information</b>	Challenges related to the selection, depth, and relevance of instructional content.	Overloaded content; insufficient tailoring to learners' needs.
<b>Session</b>	Difficulties in managing instructional sessions effectively.	Time constraints; limited student engagement;

		scheduling conflicts.
<b>Issues</b>	Broader barriers, including technological limitations and institutional constraints.	Insufficient ICT support; lack of institutional recognition and collaboration.

These five themes are further elaborated in the following subsections, with supporting evidence drawn from the data. Each subsection discusses the nature of the challenge, its impact on instructional effectiveness, and possible strategies for mitigation. Addressing these challenges requires a holistic and multi-dimensional approach, which includes strengthening institutional support, investing in appropriate technologies, enhancing teaching competencies, and developing standardised yet adaptable modules. Such measures will enable teaching librarians to overcome existing barriers and deliver more impactful information literacy programmes within academic libraries.

Each theme is explored in detail in the subsequent subsections, providing a systematic and comprehensive account of the barriers encountered by teaching librarians. Addressing these challenges requires a multifaceted strategy that encompasses adequate resource provision, the effective integration of technology, stronger institutional and faculty support, the enhancement of pedagogical and communication skills, and sustained efforts to engage learners. By systematically addressing these barriers, academic libraries can strengthen the capacity of teaching librarians and enhance the quality, relevance, and impact of information literacy programmes.

### ***5.2.1.1 Modules***

Teaching librarians frequently balance multiple responsibilities within academic libraries, and instructional delivery is often not their sole or primary task. The competing demands of reference services, collection development, administrative duties, and user support can limit the time for designing, preparing, and delivering structured instructional sessions. This challenge is further compounded by inadequate access to essential resources, including instructional materials, technological tools, and opportunities for ongoing professional development. These constraints collectively hinder the effectiveness of teaching librarians in fulfilling their instructional roles.

The findings of this study indicate that the most critical barrier, as identified by the expert panellists, lies in the development and structuring of instructional modules. The highest mean rating among the identified challenges was attributed to module development issues and the need for well-defined phases. Specifically, panellists emphasised that information literacy modules should be designed with progressive levels or phases, enabling the measurement of students' competencies across different stages and aligning these competencies with their evolving information-seeking behaviours. Phased approaches facilitate assessment and support the scaffolding of skills from basic to advanced levels.

This finding resonates with the existing literature, which has consistently highlighted the challenges of the lack of formalised and standardised modules in information literacy programmes. Gupta et al. (2024) argue that faculty and administrators' inadequate recognition of information literacy often impedes its integration into curricula, thereby limiting the scope of programme development. Librarians face difficulties embedding structured modules into teaching and learning frameworks without institutional acknowledgement. To address this, librarians require clear guidance and collaborative mechanisms with faculty to design research-focused instructional modules that are discipline-specific and pedagogically robust.

Furthermore, studies have shown that students acquire research skills more effectively when instruction is delivered within the disciplinary context, rather than in isolation. Lacy & Hamlett (2021) observe that embedding information literacy into subject-specific courses enhances its relevance and encourages stronger student engagement, underscoring the need for collaboration between librarians and academic staff. Integrating discipline-based modules contextualises the learning experience and increases the likelihood that information literacy will be perceived as a core academic competency.

Technological integration poses another layer of complexity in module development. Mashiyane et al. (2020) note that while technology can significantly enhance instructional design and delivery, its adoption is often hampered by a lack of institutional support, limited training, and insufficient collaboration among colleagues. For teaching librarians, these challenges translate into barriers when attempting to design comprehensive, technology-enabled instructional modules that meet contemporary pedagogical standards.

In summary, developing comprehensive, phased information literacy modules is essential to strengthening instructional practices in academic libraries. This requires a collaborative approach between librarians and faculty, as well as recognition and support from institutional leadership, and adequate resources and training for librarians. By addressing these structural and contextual barriers, academic libraries can ensure that information literacy instruction is sustainable and responsive to students' diverse and evolving needs.

### ***5.2.1.2 Teaching***

One major challenge teaching librarians face in delivering instructional information literacy is the lack of formal pedagogical training. Many librarians enter the profession with a strong academic background in library and information science, but without systematic preparation in educational theory or instructional practice. This gap significantly affects their ability to design engaging lesson plans, apply learner-centred strategies, and deliver practical teaching sessions. Without pedagogical grounding, teaching librarians may revert to traditional, lecture-style instruction, which often proves insufficient in fostering critical thinking and transferable information literacy skills (Saib et al., 2022).

The findings of this study confirm that teaching itself constitutes the second most pressing challenge identified by panellists, specifically in relation to how librarians are trained to deliver information literacy sessions. Many academic libraries adopt rotational staffing practices, meaning librarians are expected to teach ad hoc rather than being formally designated as educators. As a result, training is often informal and based on the peer-to-peer transfer of knowledge, where junior librarians learn instructional methods by observing their senior colleagues. While this approach provides some exposure, it lacks the structured pedagogical foundation to equip librarians with practical teaching competencies (Giangrande et al., 2022).

The literature further corroborates this issue. Teaching has been considered a “grey area” within librarianship for decades, with ongoing debates about whether academic librarians are adequately prepared for teaching roles (Saib et al., 2022). Research from Italy reveals that librarians often perceive their professional identity more closely aligned with bibliographic expertise than with pedagogy, reflecting a gap in acquiring teaching competencies (Giangrande et al., 2022). Similarly, Hammons

(2020) notes that while the most effective delivery of information literacy instruction requires creativity, adaptability, and innovative teaching strategies, librarians without formal training may struggle to create engaging, learner-focused content.

Inadequate pedagogical training also has direct consequences for students. Studies have shown that ineffective instructional delivery can lead to disengagement, low attendance, and poor learning outcomes (Aharony et al., 2019; Harrison & Deans, 2021). Without structured professional development, overreliance on observational learning from senior staff may reinforce outdated or ineffective teaching practices. Conversely, equipping librarians with foundational training in pedagogy, such as classroom management, assessment design, and active learning strategies, would significantly improve the quality and impact of information literacy instruction.

Professional development plays a crucial role in bridging these gaps. Continuous Professional Development (CPD) opportunities, particularly those focused on teaching and instructional design, are essential for librarians to remain current with best practices in higher education. However, findings from this study indicate that librarians often face barriers in accessing such opportunities, primarily due to limited budgets, insufficient institutional support, and a lack of prioritisation by library management. Similar constraints are well-documented across international contexts. Aharony et al. (2019) and Harrison & Deans (2021) identify budgetary restrictions as one of the most significant barriers to librarian training, while Mashiyane et al. (2020) highlight inadequate infrastructure and managerial support as persistent obstacles. Munshi et al. (2024) further stress that the absence of financial support from institutional leadership exacerbates these professional gaps.

Evidence from Pakistan reflects challenges similar to those observed in Malaysia. A. Khan (2020) reports that librarians are often undervalued by top management, particularly in terms of professional development and skills enhancement, resulting in widening gaps between faculty, researchers, and librarians. Ubogu (2021) also notes that while libraries are increasingly adopting 21st-century teaching roles and integrating new technologies, insufficient financial allocation for technology procurement and maintenance poses further obstacles. These findings underscore the need for institutions to view pedagogical training as a strategic investment rather than an expendable cost.

This is to conceptualise the processes and supports necessary for librarians to become effective educators in information literacy instruction. The structure

demonstrates how foundational training, continuous professional development, and institutional support influence effective instructional practices and positive student outcomes. The foundational training of teaching librarians is a critical first step in preparing them for their instructional roles. While librarians typically possess expertise in information management, many enter the profession with limited or no formal preparation in pedagogy. Therefore, structured training at the entry level is necessary to provide a solid grounding in instructional design, classroom management, and learner-centred teaching approaches (Giangrande et al., 2022; Saib et al., 2022). Such training enables librarians to move beyond a content-delivery model and instead adopt teaching practices that engage students actively in the learning process. Without this foundation, librarians risk defaulting to traditional, lecture-driven methods that often fail to cultivate higher-order information literacy skills.

Beyond initial preparation, continuous professional development (CPD) enables librarians to respond effectively to the rapidly evolving landscape of higher education. CPD allows librarians to refine their instructional practices, adopt innovative pedagogies, and integrate emerging technologies into teaching. Scholars emphasise that CPD should prioritise active learning, evidence-based assessment strategies, and digital learning tools to enhance student engagement and outcomes (Harrison & Deans, 2021; Munshi et al., 2024). In a context where digital platforms increasingly shape knowledge creation and dissemination, CPD ensures that teaching librarians remain agile and responsive to new modes of instruction.

Equally important is institutional and peer support, which forms the enabling environment for pedagogical development. Institutional recognition of librarians as educators is often inconsistent, and in many cases, their teaching contributions are undervalued compared to those of faculty members (Mashiyane et al., 2020). Addressing this requires tangible commitments such as budget allocations, release time, and opportunities for collaborative teaching with academic staff. Peer support also plays a central role, as collaboration with colleagues and participation in professional learning communities allow librarians to share expertise, experiment with new strategies, and sustain professional motivation (A. Khan, 2020).

Librarians can cultivate pedagogical competence when they have adequate training and institutional backing. This competence encompasses a range of skills, including instructional design, classroom facilitation, assessment of learning outcomes, and adaptability to diverse learner needs (Hammons, 2020). Developing these

competencies enables librarians to design sessions that are not only content-rich but also engaging and contextually relevant. As a result, librarians can transition from being perceived solely as resource specialists to being recognised as educators who contribute meaningfully to student learning.

The culmination of these efforts is reflected in effective information literacy instruction. Competent librarians can design and deliver discipline-integrated instruction that aligns with curricular goals, bridges theoretical knowledge with practical application, and fosters critical engagement with information. Research demonstrates that students respond more positively to instruction embedded within their disciplinary context, as it enhances both relevance and application (Lacy & Hamlett, 2021). Ultimately, these developments contribute to positive student learning outcomes. When librarians possess pedagogical expertise supported by CPD and institutional recognition, students exhibit higher levels of engagement, improved mastery of information literacy skills, and greater capacity for lifelong learning (Aharony et al., 2019; Ubogu, 2021). Moreover, the recognition of information literacy as a core academic competency strengthens the position of academic libraries as integral partners in higher education teaching and learning.

In conclusion, the lack of pedagogical training and ongoing professional development represents a significant barrier to the effective delivery of information literacy programmes. Overcoming this challenge requires a systemic and multi-layered response. This includes embedding pedagogical competencies into professional library education, investing in structured CPD initiatives, ensuring institutional recognition of librarians as educators, and allocating dedicated financial resources for training and development. Only through these measures can teaching librarians be adequately prepared to deliver impactful, future-ready instruction that meets the evolving needs of learners in higher education.

### ***5.2.1.3 Information***

One of the significant challenges highlighted in this study concerns the depth of subject knowledge and disciplinary specialisation of teaching librarians. The delivery of information literacy (IL) instruction requires librarians to engage with a broad spectrum of content, ranging from basic search strategies to more advanced research practices. However, the findings indicate that librarians are frequently positioned as

generalists, delivering broad, transferable information skills across disciplines rather than providing in-depth, discipline-specific expertise. While such a generalist approach offers scalability and efficiency, ensuring that a wide range of students are reached, it simultaneously constrains the depth of instruction. It reduces the potential to tailor teaching to the unique epistemological needs of students in specialised fields (P. R. Dempsey, 2021).

This study further reveals that teaching librarians often experience uncertainty in determining the appropriate depth of content to deliver within a single session. This uncertainty becomes particularly problematic when librarians lack sufficient knowledge of students' prior levels of information literacy or familiarity with disciplinary conventions and terminologies. The tension lies in balancing between content that risks being overly superficial and material that may overwhelm students with unnecessary complexity. As Rieh et al. (2022) observe, ongoing debates persist within higher education regarding the scope and intensity of IL instruction, particularly regarding whether it should be integrated as a core component of formal curricula or treated as supplementary skills training. The absence of a consistent framework across institutions for assessing students' IL competencies further exacerbates this challenge, leaving librarians without a clear benchmark for instructional depth and depth of instruction.

A related barrier stems from the disconnect between librarians and academic faculty, which often undermines opportunities for meaningful collaboration. Findings from the Delphi study suggest that some faculty members do not fully acknowledge the pedagogical value of IL instruction beyond their disciplinary content. Consequently, librarians' teaching contributions are frequently marginalised and remain peripheral to the curriculum. The literature similarly highlights that effective collaboration between librarians and faculty is essential for embedding IL instruction in ways that are both discipline-specific and pedagogically impactful (Wilson et al., 2024). Without such collaboration, librarians are often required to design instruction in isolation, with limited understanding of disciplinary research practices, course objectives, and student learning outcomes.

In response to these issues, the concept of the subject librarian has gained increasing attention. Subject librarians are typically responsible for a defined disciplinary domain, encompassing collection management, instructional activities, research support, and outreach. Although not all subject librarians hold formal academic qualifications in their assigned disciplines, their focused responsibilities and

accumulated experience enable them to develop contextual knowledge that strengthens their instructional roles (P. R. Dempsey, 2021). Recent scholarship underscores that subject librarians not only bridge gaps between students, faculty, and library resources but also contribute to embedding IL instruction within disciplinary contexts, with success contingent on subject expertise and pedagogical competence (Wilson et al., 2024).

For teaching librarians, subject specialisation offers notable advantages. It enables the cultivation of disciplinary familiarity, which enhances the ability to design targeted instructional modules aligned with student needs and disciplinary standards. Specialisation also strengthens partnerships with faculty, positioning librarians as collaborators who can co-develop course-integrated IL sessions and scaffold instruction to support disciplinary research expectations. In increasingly research-intensive and interdisciplinary academic environments, subject-specialist librarians are critical in helping students achieve academic success and develop professional preparedness.

However, while subject specialisation is widely advocated, it has limitations. Overemphasis on subject expertise may inadvertently create silos within the library workforce, reducing flexibility and leading to disparities in service provision across disciplines with varying levels of demand. In resource-constrained environments, smaller institutions may find it financially or logistically unsustainable to maintain subject-specialist roles for every discipline, which risks unequal access to IL support for students in less well-funded subject areas. Additionally, subject specialisation places higher expectations on librarians to continuously update their disciplinary knowledge in fast-evolving fields, which can increase workload pressures and require significant investment in ongoing professional development. Furthermore, while subject expertise enhances instructional relevance, it should not overshadow broader pedagogical skills, as effective teaching also relies on communication, facilitation, and an understanding of diverse learning needs across student cohorts.

From the perspective of this study's competence index for Teaching Librarians, subject knowledge and specialisation emerge as a critical competency domain. The findings demonstrate that without sufficient disciplinary awareness, teaching librarians may struggle to design pedagogically meaningful and contextually relevant instructional interventions. At the same time, the framework acknowledges the need for balance: while subject expertise enhances credibility and instructional quality, it must be integrated with broader competencies such as collaboration, pedagogy, adaptability,

and reflective practice. Therefore, the index positions subject knowledge not as an isolated requirement but as part of an interconnected set of competencies that enable librarians to deliver impactful IL instruction.

In summary, the challenge of providing appropriate depth in IL instruction reflects two interrelated issues: the predominance of a generalist model and the limited collaboration with faculty. Addressing these requires a strategic institutional response that balances generalist and specialist approaches. This includes investing in subject-specialist librarian roles where feasible, supporting continuous professional development in disciplinary knowledge, and fostering closer partnerships between librarians and faculty members. At the same time, institutions must remain mindful of practical constraints, ensuring that specialisation does not exacerbate inequalities in service provision or overburden individual librarians. By explicitly embedding subject knowledge and specialisation within the competence index, this study provides both a theoretical justification and a practical guide for academic libraries seeking to strengthen the role of teaching librarians in higher education.

#### ***5.2.1.4 Session***

A further challenge identified in this study relates to the assessment and evaluation skills of teaching librarians in delivering information literacy (IL) instruction. Measuring, evaluating, and reflecting on instructional practices is a critical component of effective teaching, yet the findings suggest that many teaching librarians encounter difficulties in this area. Gaps in assessment practice impact the session's performance and influence the quality of teaching, as well as the extent to which learning outcomes are achieved. Without robust mechanisms for evaluating student learning and collecting constructive feedback, librarians may struggle to refine their instructional strategies or demonstrate the impact of IL instruction on student performance.

Assessment is central to understanding whether students have acquired the intended competencies during an IL session. However, this study reveals that many librarians lack the necessary tools and training to assess student outcomes effectively. For example, while formative and summative assessments are widely used in traditional classroom settings, these approaches are less commonly adopted in library-led instruction, where IL sessions are often short, non-credit-bearing, and delivered on a

voluntary or demand-driven basis. As (de Chambeau et al., 2021) observe, the absence of formal recognition for IL in university curricula makes it challenging for librarians to integrate systematic assessment practices. Consequently, librarians often rely on indirect measures, such as attendance numbers or informal student feedback, which provide limited insights into the actual effectiveness of instruction.

The structural downgrading of IL instruction also contributes to these challenges. Since IL is typically offered as a supplementary service rather than a core, credit-bearing course, librarians face difficulties securing adequate instructional time, attracting students, and ensuring faculty preparation. The lack of integration into the formal syllabus reduces the legitimacy of IL instruction, making it more challenging to establish structured assessments before and after sessions. These limitations, in turn, contribute to practical challenges during teaching, such as insufficient faculty preparation, variation in student knowledge gaps, a lack of self-confidence among learners, and difficulties in managing the overwhelming volume of information encountered in research (Baird & Soares, 2020).

Time constraints further worsen the issue. A survey conducted in South Africa found that IL sessions were frequently delivered in compressed timeframes, which not only caused cognitive overload for students but also led to fatigue and disengagement (Bangani et al., 2020). Similar findings from Jamaica suggest that poorly structured IL sessions can lead to student frustration, reduced confidence, and limited skill retention, particularly when instruction is not tailored to students' needs or delivered using effective teaching methods (Harrison & Deans, 2021). In such contexts, the ability of librarians to design appropriate assessments becomes even more critical, as it helps identify learning gaps, avoid information overload, and sustain student engagement.

Student engagement itself represents a recurring barrier to practical evaluation. As highlighted by Ibacache et al. (2021) and Shin et al. (2022), librarians in the United States report significant challenges in sustaining student attention and participation, particularly in online platforms where distractions are prevalent. Similarly, research from Canada suggests that a lack of communication between librarians and faculty regarding course assignments can result in IL sessions that are misaligned with student needs, thereby reducing opportunities for meaningful engagement and accurate assessment of outcomes (Gupta et al., 2024).

Another dimension of this challenge relates to communication barriers. Effective communication is essential for teaching and assessment; yet, librarians often

face obstacles, including language barriers, diverse student backgrounds, and negative perceptions of library-led instruction. In multilingual and international higher education contexts, students' varying levels of English proficiency and familiarity with academic discourse may hinder interaction and limit the accuracy of assessments (Bangani et al., 2020). Findings from this study also suggest that negative student feedback, or perceptions of IL sessions as peripheral, can affect how librarians prepare for and deliver instruction, limiting opportunities for constructive assessment and reflection (Aharony et al., 2019; Harrison & Deans, 2021).

Emerging pedagogical models such as embedded librarianship provide valuable insights into addressing these challenges. Munshi et al. (2024), in a study of Indian academic libraries, identify communication and interpersonal skills as essential competencies for librarians in embedded roles. Such skills are crucial for establishing rapport with students and faculty, as well as for implementing effective assessment strategies that capture learning outcomes beyond surface-level indicators. The emphasis on communication highlights the importance of integrating interactive teaching methods, such as active learning, peer collaboration, and reflective activities, to enhance engagement while providing opportunities for authentic assessment.

These findings highlight that challenges in assessment and evaluation are not merely technical but structural, pedagogical, and relational. The lack of recognition for IL within the curriculum, time constraints, and communication barriers significantly limit librarians' capacity to measure student learning and improve instructional practices. From the perspective of this study's competence index for teaching librarians, assessment and evaluation skills emerge as a vital domain of competence. Effective teaching requires delivering content, assessing its impact, adapting to student needs, and demonstrating value to stakeholders. Embedding assessment and evaluation within the competence index positions it as integral to the professional development of teaching librarians. Furthermore, the framework emphasises the importance of institutions supporting librarians with training in educational assessment, providing opportunities for collaboration with faculty in designing assessment activities, and establishing feedback systems that are both systematic and actionable.

Assessing and evaluating IL sessions remains a pressing challenge for teaching librarians. Addressing this requires a multi-faceted approach: greater curricular integration of IL instruction, professional development in assessment practices, stronger collaboration with faculty, and enhanced communication strategies to engage diverse

student populations. By embedding assessment and evaluation skills within the competence index, this study highlights their centrality to effective IL instruction and calls for institutional support to ensure that librarians are equipped to meet this challenge.

#### ***5.2.1.5 Issues***

The findings of this study indicate that technological proficiency remains one of the most pressing challenges faced by teaching librarians in Malaysian academic libraries when delivering instructional information literacy. Panellists' discussions revealed two critical gaps: (i) persistent network instability and technical malfunctions, and (ii) insufficient mastery of digital tools and emerging technologies. These issues became particularly prominent during the COVID-19 pandemic and in its aftermath, when information literacy sessions were predominantly conducted online. While the shift to online teaching was perceived as more practical and necessary due to health and safety concerns, it also placed unprecedented demands on teaching librarians to adapt swiftly to new digital environments.

Digital literacy instruction presupposes that librarians possess a high level of digital competency. However, gaps in their understanding and use of emerging technologies can significantly impede their instructional effectiveness. The rapid pace of technological innovation further compounds this challenge, as librarians must familiarise themselves with evolving digital platforms and integrate them effectively into instructional design. Such demands necessitate continuous professional learning and adaptability (Harrison & Deans, 2021).

In the Malaysian context, teaching librarians expressed concern regarding technological barriers in online and face-to-face instructional modes. Regardless of modality, technology is central in delivering information literacy, encompassing hardware such as computers and projectors, online platforms, meeting applications, and reliable internet connectivity. Academic libraries, therefore, must be prepared to support hybrid approaches to instruction, in line with the dynamic transformations of higher education. As Saib et al. (2022) argue, financial, social, political, and technological shifts continue to reshape higher education, necessitating that libraries evolve with the digital era.

The findings of this study align with global literature, which documents similar challenges. For instance, Ubogu (2021) highlighted that the proliferation of information and communication technologies (ICT) has invaded library services, compelling librarians to develop competencies in hardware and software applications. However, many librarians lack adequate IT skills, which limits their ability to utilise technological tools in instructional contexts fully. Evidence from South Africa further demonstrates that, although librarians acknowledge the benefits of technology in teaching, relatively few effectively incorporate digital tools into their instructional practices (Mashiyane et al., 2020). Similarly, studies have shown that librarians in developing countries, including Pakistan, face a digital divide characterised by inadequate ICT infrastructure, limited digital skills, and insufficient pedagogical knowledge to bridge the gaps between technology and learning (Aharony et al., 2019; A. Khan, 2020; Munshi et al., 2024).

Several recurrent challenges were identified in the literature and corroborated by this study's findings: lack of confidence in handling online platforms, difficulty in engaging students virtually, and the psychological strain faced by both educators and learners during online teaching (Casacchia et al., 2021; Schwab et al., 2022; Watermeyer et al., 2021). Furthermore, inadequate institutional support, including insufficient budgets, infrastructure investment, and staffing shortages, exacerbates the problem. These limitations restrict access to essential tools and professional development opportunities, increasing workload pressures on existing staff and leading to burnout and reduced instructional effectiveness (Adam-Turner et al., 2020).

The issue of managerial support also emerged as a critical barrier. While institutional leaders often recognise the importance of ICT in enhancing academic library functions, their commitment is not consistently reflected in resource allocation or training opportunities (Aharony et al., 2019; Munshi et al., 2024). Without adequate organisational backing, teaching librarians are left to navigate technological transitions independently, often without sufficient time or skills to fully integrate digital tools into their instructional repertoire.

Overall, the findings reinforce the argument that technological proficiency is not merely a supplementary skill but a fundamental requirement for teaching librarians in the digital age. Addressing these gaps requires a multi-pronged strategy that includes targeted pedagogical and technological training, investment in ICT infrastructure, and the creation of sustainable support systems for librarians. Enhancing the technological

competence of teaching librarians will improve the quality of information literacy instruction and better equip students to navigate the digital information landscape critically.

This theme thus directly addresses Research Objective 1, which sought to identify the challenges and barriers teaching librarians face in achieving competence. The findings confirm that technological barriers, encompassing both technical infrastructure and personal digital proficiency, constitute one of the most significant obstacles to effective instructional delivery. Alongside other identified themes, such as pedagogical training, resource constraints, and subject specialisation, technological proficiency is a pivotal area that requires urgent attention from academic institutions and policymakers.

### **5.2.2 Research Objective 2: To Explore the Needed Competence for Teaching Librarian to Deliver Instructional Information Literacy**

To address the second research objective, this study aimed to explore the competencies required of teaching librarians to deliver adequate instructional information literacy within Malaysian higher education. The methodological framework was structured into three phases, as illustrated earlier in Figure 3.2. The first phase entailed an extensive review of existing frameworks for information literacy in higher education, particularly the Framework for Information Literacy for Higher Education, the Knowledge, Skills, and Abilities (KSA) model, and relevant scholarly literature. This phase provided the theoretical foundation for conceptualising competency in the context of teaching librarianship.

The second phase focused on empirical data collection through the Delphi method, which was implemented across two iterative rounds. Round one consisted of focus group discussions, while round two involved individual expert interviews. The findings from these rounds were analysed thematically, with the degree of consensus among participants determining the reliability of the themes. The outcomes of this phase yielded the initial set of competencies and human attributes, presented as themes, which were subsequently refined and validated.

The final phase involved expert validation, where the identified competencies were assessed for relevance, accuracy, and applicability. This validation step was critical to ensure that the competence index reflected theoretical rigour and practical

feasibility in academic library settings. Teaching librarians extends beyond transmitting technical search skills in the contemporary higher education landscape. They are increasingly viewed as facilitators of student learning and critical inquiry, requiring a broad spectrum of competencies to navigate the complexities of the digital information environment. Consequently, this research objective aimed to explore the essential competencies and classify them in relation to the KSA model, thereby providing a systematic framework for professional development and institutional evaluation.

Two main clusters of findings emerged from the Delphi analysis: (i) five core competence index essential for information literacy instruction, and (ii) fifteen human attributes underpinning these competencies. These are summarised in Table 5.2.

Table 5.2

Themes for Core Competency and Human Attributes

<b>No</b>	<b>Core Competence</b>	<b>Human Attributes</b>
<b>1</b>	Knowledge	Students
<b>2</b>	Process	Instruction Content
<b>3</b>	Methods	Discipline and Subject Area
<b>4</b>	Search	Planning
<b>5</b>	Research	Teaching
		Learning
		Communication
		Instruction
		Information
		Activities
		Issues
		Technologies
		Manner
		Academic Assessment
		Research Advocate

The panellists also ranked the competencies by priority and importance, while the attributes were classified into knowledge, skills, and abilities to align with the sub-objectives of this research. This classification process enabled the mapping of

competencies onto the KSA model, facilitating a deeper understanding of how teaching librarianship encompasses technical expertise and humanistic qualities.

Notably, these findings resonate with previous literature Abang Mohtar & Mohamad (2023), for example, identified six competency areas among academic librarians in Asia and the Pacific: teaching skills, teaching awareness, teaching impact, module design, preparation, and teaching challenges. Several of these overlap with the themes identified in the present study, particularly instruction content, discipline and subject area, planning, teaching, learning, and instruction. This congruence highlights the universality of these competencies in shaping student learning outcomes across different contexts.

The fifteen human attributes were further grouped into knowledge, skills, and abilities. This classification, shown in Table 5.3, illustrates how the attributes align with the KSA model and their role in contributing to the overall competence index.

Table 5.3  
Themes Classification on Human Attributes

<b>Themes</b>	<b>Classification</b>
<b>Students</b>	Knowledge
<b>Instruction Content</b>	Knowledge
<b>Discipline (Subject Area)</b>	Knowledge
<b>Planning</b>	Skills
<b>Teaching</b>	Skills
<b>Learning</b>	Skills
<b>Communication</b>	Skills
<b>Instruction</b>	Abilities
<b>Information</b>	Knowledge
<b>Activities</b>	Skills
<b>Issues</b>	Knowledge
<b>Technologies</b>	Skills
<b>Manner</b>	Skills
<b>Academic Assessment</b>	Knowledge
<b>Research Advocate</b>	Knowledge

This classification directly informs Research Question 2: How can these competency attributes and the information literacy framework contribute to teaching librarian competency in higher education?. The integration of the two models demonstrates that competencies cannot be understood in isolation; instead, they must be examined in relation to their interrelationship with KSAs.

Although the original Framework for Information Literacy for Higher Education consists of six frames, the findings of this study, through thematic analysis, condensed and reorganised these into five emergent themes. This reconfiguration reflects the contextual realities of Malaysian academic libraries and the adaptability of the framework. The new grouping of themes and their alignment with KSAs.

- Knowledge was linked primarily with information and research themes.
- Skills were associated with process and search themes.
- Abilities were integrated into the methods theme.

This regrouping offers a nuanced understanding of how teaching librarians operationalise competencies in practice. By aligning these emergent themes with KSAs, the study provides a more context-sensitive competence index to guide future professional development.

Next is sub-research objective 1, which aims to identify the knowledge attributes required to evaluate and use information, emphasising the value of information, research enquiry, and understanding the processes involved in research inquiry. Within the conceptual framework of this study, the themes of information and research were identified as the two central domains underpinning this objective. The relationship between these domains is illustrated in Figure 5.1, which highlights how knowledge serves as the foundation for teaching librarians to integrate information evaluation with research competencies.

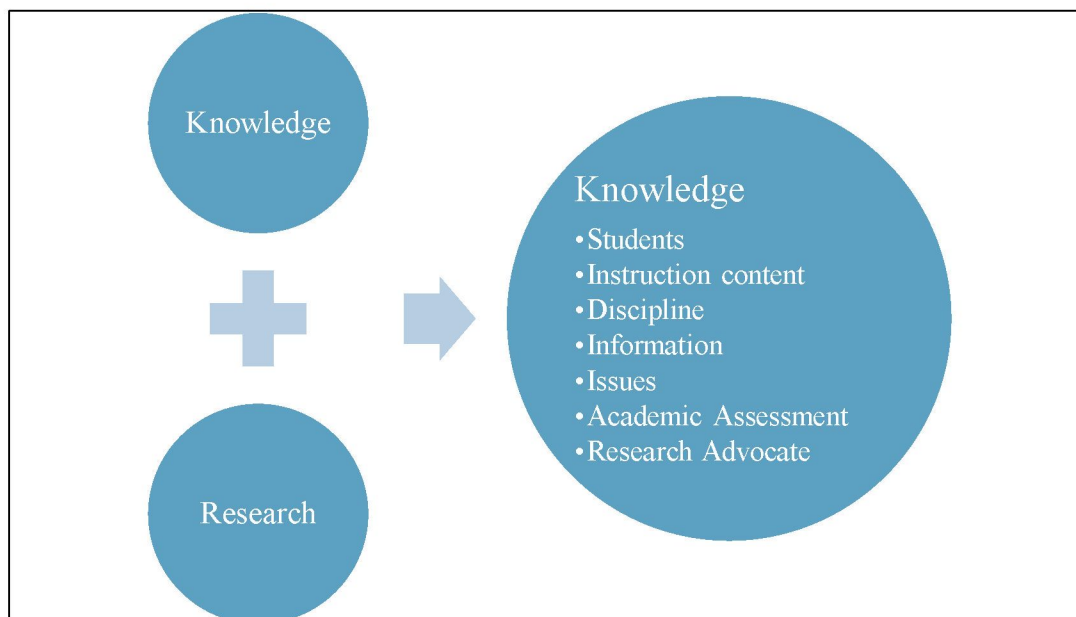


Figure 5.1 Knowledge Attribute Required to Evaluate and Use Information Emphasizing Information Value and Research Enquiry

The findings demonstrate that teaching librarians require a robust foundation of knowledge that extends beyond generic information literacy concepts to encompass advanced subject expertise, ethical awareness, and disciplinary research practices. This highlights the importance of professional development and training programs, which should be tailored to enhance librarians' knowledge in identified areas. Such programs contribute to the principles of lifelong learning, encouraging librarians to remain current with emerging trends, technological innovations, and pedagogical best practices in information literacy instruction. Importantly, reflective practice and incorporating feedback from students and peers were also identified as mechanisms through which librarians can continually refine their teaching effectiveness.

A standardised and structured information literacy curriculum in higher education would further support the integration of these knowledge areas into teaching practices. Such a curriculum would ensure consistency across academic libraries while allowing adaptation to specific institutional or disciplinary contexts. Central to this curriculum is the expectation that teaching librarians develop expertise in advanced information retrieval, including complex search strategies, database navigation, and the effective use of specialised information resources.

Equally important is teaching students to critically evaluate information sources for credibility, relevance, and bias. As ethical information use is increasingly significant in higher education, teaching librarians must also possess comprehensive knowledge of

plagiarism, copyright, academic integrity, and data privacy, and be able to communicate these effectively to students. Furthermore, subject expertise and specialisation remain vital for tailoring instructional content to disciplinary needs. This includes familiarity with relevant research methodologies within different fields of study, enabling librarians to support students in designing, conducting, and evaluating practical research projects.

The sub-research question guiding this objective asks what knowledge attributes are required in valuing information and making research enquiries? Analysis of data collected through the Delphi method revealed that seven themes are aligned with the knowledge attribute.

Table 5.4

List of Themes in Knowledge Attribute

<b>KSA Themes</b>	<b>Classification</b>
<b>Students</b>	Knowledge
<b>Instruction Content</b>	Knowledge
<b>Discipline (Subject Area)</b>	Knowledge
<b>Information</b>	Knowledge
<b>Issues</b>	Knowledge
<b>Academic Assessment</b>	Knowledge
<b>Research Advocate</b>	Knowledge

These findings suggest that teaching librarians need to develop expertise in several key areas. First, they must understand the needs and levels of information literacy competence of students to design appropriate instruction. Second, they need a firm grasp of instructional content, including what should be included and how it should align with course objectives. Third, disciplinary knowledge is necessary to situate information literacy within subject-specific contexts. Fourth, librarians must determine how much information to disseminate, striking a balance between breadth and depth while addressing broader issues surrounding teaching and the use of technology. Fifth, knowledge of academic assessment is essential for evaluating both the quality of instructional sessions and the effectiveness of librarians' teaching practices. Ultimately,

the librarian's role as a research advocate necessitates knowledge of scholarly communication and the ability to cultivate a research culture within academic libraries.

In sum, this sub-research objective underscores that knowledge attributes are the intellectual foundation of teaching librarians instructional role. Developing these knowledge areas will allow librarians to guide students in evaluating the value of information, constructing meaningful research enquiries, and ultimately achieving higher academic and professional competence levels.

The second sub-research objective examines the skills and attributes employed by teaching librarians in information searching and implementing searching strategies, particularly in instructional information literacy. The ability to search for, retrieve, and utilise information effectively is not only a technical requirement but also a pedagogical one, as teaching librarians are expected to integrate these skills into their instructional practices to enhance student learning outcomes.

The process of information creation and the development of effective search strategies require the integration of multiple skill sets. In this regard, teaching librarians act as facilitators who must guide students in acquiring transferable competencies across academic disciplines. Therefore, practical instruction in information literacy requires librarians to combine professional expertise, pedagogical approaches, and technological proficiency.

Central to this process is the librarian's ability to demonstrate technological proficiency using digital tools and resources that enhance information literacy instruction. These include online databases, discovery layers, learning management systems, and educational software. Teaching librarians must integrate technology seamlessly into instructional sessions by using interactive whiteboards, digital presentations, online collaborative platforms, and emerging technologies. This integration increases student engagement and mirrors the digital environment in which students conduct their academic work.

Equally important is competence in teaching digital literacy skills beyond simple database searching. Librarians are tasked with helping students navigate vast quantities of digital information, critically evaluate sources, and apply ethical considerations when using information. Such instruction requires librarians to emphasise technical searching skills and higher-order thinking skills related to information evaluation and responsible use.

Furthermore, strong verbal and written communication skills are essential. The ability to present complex concepts clearly, using language appropriate to the students' academic level, ensures that learning outcomes are achieved. Effective communication enables librarians to adapt instructional content to different learning styles, enhancing inclusivity and accessibility. In this sense, the teaching librarian serves as both a communicator of knowledge and a mentor, guiding students toward independent inquiry and research.

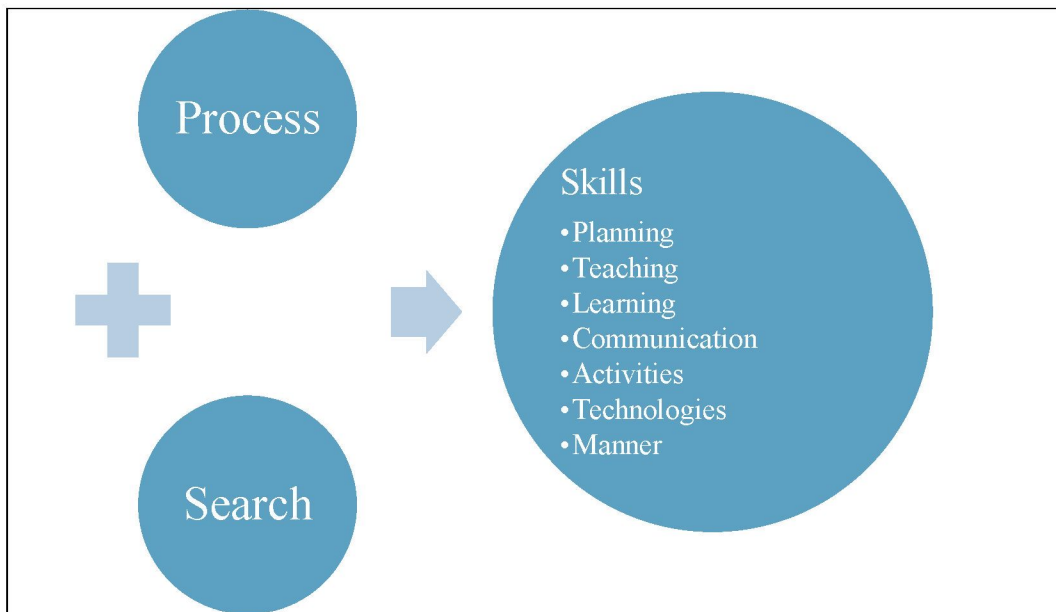


Figure 5.2 Skills Attributes Employed by Teaching Librarians in the Processes of Information Searching and the Implementation of Searching Strategies

Figure 5.2 illustrates the relationship between the skills required for searching and determining information through the information creation process and searching strategies. This figure emphasises that the instructional delivery of information literacy requires a synthesis of multiple skill attributes, each contributing to the overall effectiveness of teaching practice. To illustrate these interrelationships, a visual composition is provided that shows how skill attributes are positioned within the cycle of information searching and strategy development. The figure conceptualises the teaching librarian's role as integration and facilitation, where skills attributes are mobilised at different stages of the instructional process. For example:

- Planning skills initiate the process by structuring sessions around specific learning outcomes and search objectives.
- Teaching and learning skills drive the interactive classroom dynamic, ensuring knowledge transfer and skill development.
- Communication skills serve as a bridge, allowing librarians to translate abstract searching strategies into practical demonstrations.
- Activities represent hands-on practices that encourage students to apply searching strategies independently.
- Technologies underpin all process stages, providing both the medium and tools for searching.

- Manner, representing professional disposition and adaptability, ensures librarians create a supportive and approachable learning environment.

To operationalise this sub-research objective, the guiding sub-research question was: What are the skill attributes used in information creation and exploration of searching strategies? The findings reveal that the classification of skills attributes aligns closely with the knowledge attributes identified in Sub Research Objective 1, thereby maintaining a coherent set of competencies. Similar to the first objective, this second objective also identified seven recurring themes that describe the skills required by teaching librarians in instructional information literacy Table 5.5.

Table 5.5  
List of Themes in Skills Attribute

<b>KSA themes</b>	<b>Consensus Classification</b>
Planning	Skills
Teaching	Skills
Learning	Skills
Communication	Skills
Activities	Skills
Technologies	Skills
Manner	Skills

The seven skill themes are planning, teaching, learning, communication, activities, technologies, and manners. Each theme represents a distinct yet interconnected dimension of skill required to deliver information literacy instruction effectively. For instance, planning involves designing sessions with clear learning outcomes and structured searching strategies. Teaching and learning reflect the dynamic interaction between the librarian and students in the classroom, while communication underscores the need for clarity and engagement. Activities refer to the design of interactive tasks that enable hands-on practice with information resources. Technologies represent the digital tools and platforms required for modern information searching, while manner encompasses professional conduct, adaptability, and interpersonal skills necessary for effective instruction.

Together, these seven themes present a schematic framework that outlines the general skill sets expected of employees in educational settings and the specific skill attributes required by teaching librarians in Malaysian higher education. As previously explained, these attributes are vital in ensuring that learning librarians can deliver meaningful, relevant, and pedagogically sound information literacy instruction that supports students' academic success. Thus, the figure highlights that the instructional delivery of information literacy necessitates a comprehensive skill set rather than isolated abilities. Each skill theme reinforces the others, forming an interconnected network that supports the information creation process and strengthens students' capacity for independent inquiry.

The third sub-research objective is to explore the required abilities in the current context and scholarly discourse through a discussion of context, authority, and scholarship, particularly in relation to the dimensions of contextual authority and scholarly conversation. While the earlier sub-research objectives emphasised knowledge and skills, this objective shifts attention to the abilities that underpin the practical application of both in teaching practice. Teaching librarians are facilitators of information searching and educators who must adapt pedagogical approaches to diverse instructional contexts. The findings indicate that the ability to integrate pedagogical skills into instructional information literacy is closely tied to the librarian's capacity to situate teaching within the framework of scholarly communication and to establish context authority. This involves designing instructional sessions that are engaging, practical, and grounded in active learning principles, student-centred teaching approaches, and recognition of diverse learning styles.

A key ability identified is the capacity for instructional design, which encompasses planning and delivering sessions that encourage student participation, inquiry-based learning, and critical engagement with information. This requires librarians to move beyond providing content in a didactic manner, toward fostering learning environments where students actively construct their own understanding. Related to this is the ability to manage classroom dynamics, ensuring that instructional sessions remain inclusive, participatory, and respectful of multiple perspectives. Such abilities enhance the effectiveness of information literacy instruction and empower students to engage meaningfully with scholarly discourse.

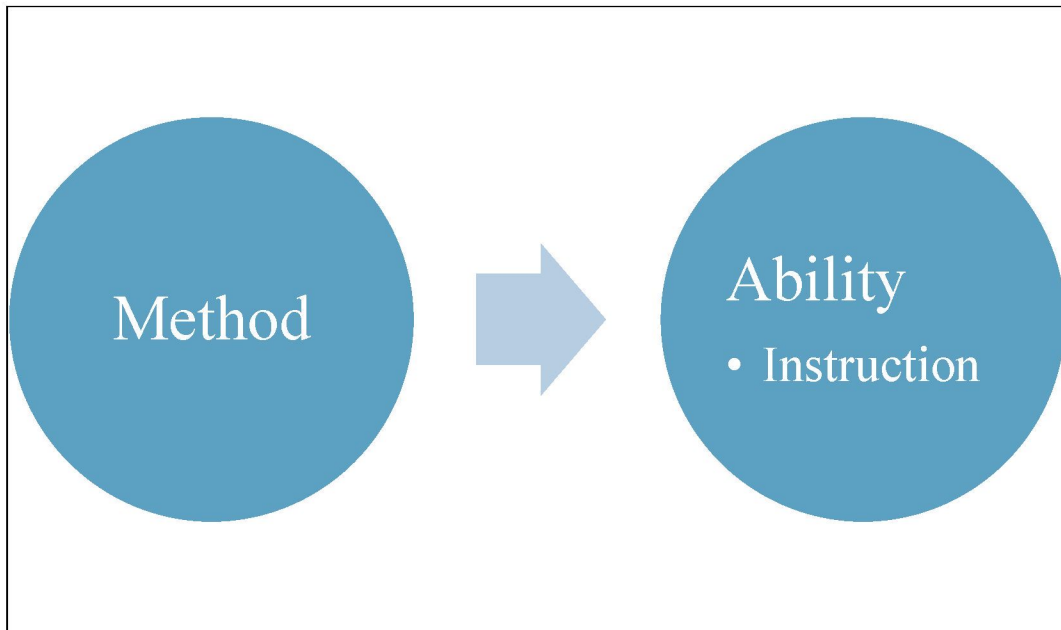


Figure 5.3 Abilities in the Current Context and Scholarly Discourse Through Context Authority and Scholarship Conversation

Figure 5.3 illustrates how the instructional ability of teaching librarians is shaped by their positioning within the academic context. Contextual authority refers to the credibility and expertise librarians bring into the instructional space, while scholarly conversation reflects the ability to situate information literacy within broader academic dialogues. The figure highlights that abilities bridge pedagogical design and educational authority, ensuring that instruction is technically sound and contextually relevant to students' disciplinary needs.

The importance of defining and developing these abilities is underscored by their role in enhancing the quality of teaching librarianship within higher education institutions. By cultivating competencies in pedagogical adaptation, instructional design, classroom management, and professional growth, institutions can ensure that teaching librarians are better equipped to support students' academic success and lifelong learning. In this regard, the competence index presented in this study can guide institutional development, fostering teaching excellence and contributing to a more informed and capable student body.

To address this objective, the guiding sub-research question asked, What are the ability attributes impacted by contextual authority and scholarly conversation? The analysis revealed that, unlike knowledge and skills, ability attributes were represented by only one theme. During the Delphi rounds of data collection, the instrument initially

identified only a single item classified as an ability attribute. Subsequent analysis confirmed this finding, as the classification of KSA attributes consistently placed instruction as the sole theme under the category of abilities.

This outcome suggests that abilities, while essential, may be more narrowly defined compared to knowledge and skills within the context of teaching librarianship. In practice, however, the instructional ability carries significant weight, reflecting the librarian's competence in integrating all other attributes into effective pedagogical practice. The results emphasise that instructional ability functions as a capstone attribute, synthesising knowledge, skills, and professional values into a coherent teaching practice that aligns with scholarly and contextual expectations.

### **5.2.3 Research Objective 3: To Develop a Competence Index for Teaching Librarian**

The competence index for teaching librarians developed in this study provides a comprehensive framework for evaluating and developing the knowledge, skills, and abilities (KSAs) required for adequate instructional information literacy within academic libraries. This index functions not only as a descriptive model but also as a practical tool that can be employed for self-assessment, professional development, and performance evaluation. Offering structured benchmarks ensures that teaching librarians are adequately equipped to respond to the dynamic and evolving demands of higher education in Malaysia.

The construction of the competence index was grounded in the thematic analysis of data collected throughout this research. Research Objective 3 specifically sought to synthesise findings into a framework of competencies that could serve both academic and professional purposes. As explained in CHAPTER 4, themes were derived systematically through data analysis and mapped against the two main frameworks used in this study: (i) the Framework for Information Literacy for Higher Education (ACRL, 2015), which provided five thematic dimensions, and (ii) the Knowledge, Skills, and Abilities (KSA) attributes, which yielded fifteen themes. The process of developing the Competence Index was executed in three distinct phases:

Phase 1, Predetermined themes, a comprehensive review of the literature was conducted to establish the conceptual foundation of the research. The initial framework was formulated during this phase, providing a theoretical anchor for the subsequent

phases. Phase 2, data collection, was conducted using the Delphi method with a panel of experts selected based on rigorous criteria. This phase was critical in capturing expert consensus and ensuring the index reflects theoretical and practical dimensions of teaching librarianship. The last phase is phase 3, expert validation, where findings from the thematic analysis and expert input were synthesised into the final competence index, which integrates the major themes into an organised, layered framework.

The final Competence Index for Teaching Librarians in Malaysian Higher Education is structured into three primary constructs, each reflecting different but interrelated dimensions of teaching librarianship. Instructional guidelines and standards represent the foundation of practical information literacy instruction. It comprises five themes: knowledge, methods, search, process, and research. These themes correspond to the essential competencies that form the backbone of teaching practice in academic libraries. Human Attributes, the second construct, emphasises the personal and professional qualities that underpin effective teaching. It comprises fifteen themes from the KSA framework, encompassing planning, teaching, learning, communication, activities, technologies, manner, and related human-centred attributes. This construct highlights that effective instruction requires technical expertise, interpersonal competence, and adaptability. The Information Literacy Module, the final construct, situates the competence index within the practical component of instructional delivery. It reflects the ability of teaching librarians to design, implement, and evaluate information literacy modules aligned with institutional goals and responsive to student needs.

Together, these three constructs form a holistic index that integrates pedagogical, technical, and personal dimensions of teaching librarianship. The layered structure of the index demonstrates the interdependence of knowledge, skills, and abilities, underscoring that excellence in instructional librarianship is achieved through the combination of technical expertise, human attributes, and applied pedagogical practice.

A simplified visualisation of the Competence Index is presented in Figure 5.4. This figure illustrates the hierarchical relationship among the constructs and highlights the layered integration of competencies that collectively define the role of the teaching librarian.

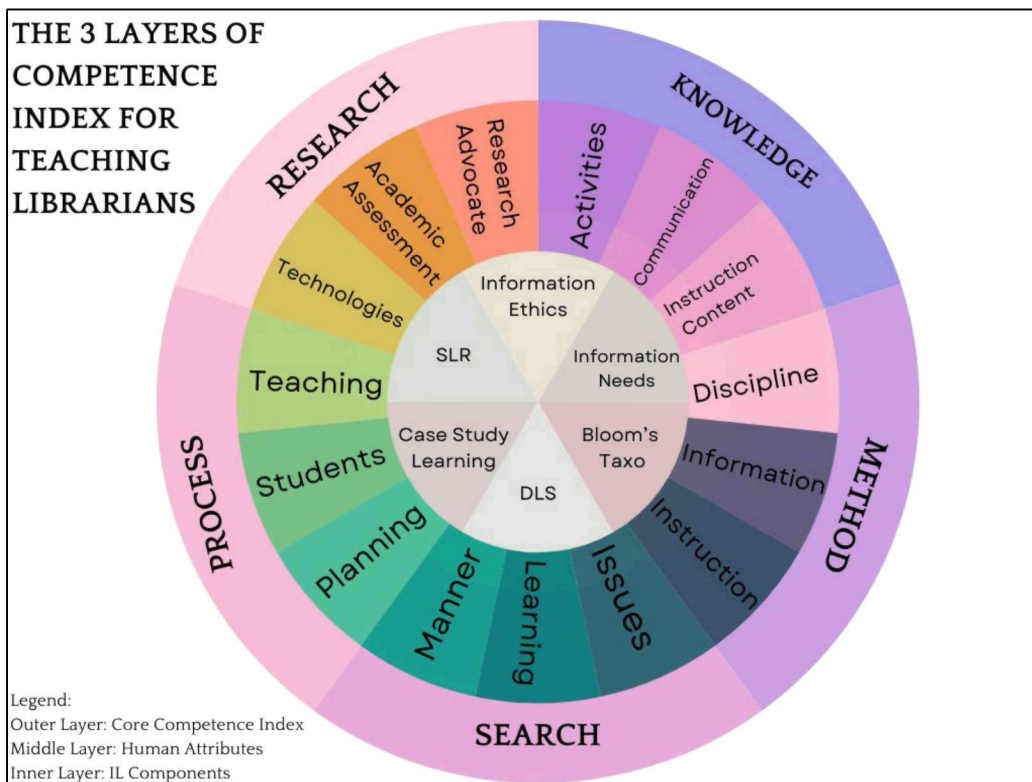


Figure 5.4 The Three Layers of Competence Index for Teaching Librarians in Academic Libraries in Malaysian Higher Education

### 5.2.3.1 Construct 1: Core Competence Index

The theme of knowledge highlights the multifaceted role of information in teaching, research, and everyday decision-making. Knowledge is not static but rather dynamic, cumulative, and contextual, evolving continuously through interaction, dissemination, and application. This study revealed that the discussion of knowledge must encompass several critical aspects: the fluid nature of knowledge, its dissemination across multiple formats, the presence of knowledge gaps, and the adequacy of resources available to information users.

Equally significant is the recognition of information privilege, whereby access to subscription-based databases, institutional holdings, and proprietary resources often creates disparities in knowledge acquisition. Such unequal access can influence academic progress, research productivity, and professional decision-making. Within this theme, the focus is placed on information gathering, sources, dissemination, formats, purposes, and management systems. In its most practical application,

knowledge serves as a tool for decision-making, a foundation for teaching, and a catalyst for research advancement (Dzulkipli et al., 2024).

When effectively harnessed, information generates tangible benefits through academic outputs, professional practice, and personal growth (Qi et al., 2024). However, the mere availability of information is not sufficient. Its utility depends on the user's ability to locate, evaluate, interpret, and apply information while distinguishing between accurate and misleading sources (Reddy et al., 2022). The selection of sources also profoundly shapes individuals' reflections and actions in various contexts (Fauzi & Bahri, 2024).

The need for information is highly circumstantial, influenced by the information seeker's goals, context, and situational constraints. As Taheri et al. (2023) argue, understanding these contextual drivers can support more targeted retrieval processes and enhance the effectiveness of information use. In an era of information abundance and overload, librarians emerge as key custodians of information integrity. They safeguard the quality, credibility, and ethical use of knowledge, ensuring that students and researchers are equipped with reliable resources (Adewojo et al., 2024).

The second theme centres on methods, encompassing the strategies and approaches applied in information acquisition, research, and investigation. Findings highlighted the coexistence of traditional methods of inquiry, structured investigative approaches, and emerging techniques shaped by technological advancement and evolving user behaviours.

This theme emphasises that methods are not limited to search strategies but extend to pedagogical practices in teaching information literacy. Effective instructional design integrates relevant content, active learning, peer interaction, diverse teaching approaches, assessment, and sufficient resources (Hammons, 2022). Thus, information literacy requires an intentional balance between retrieval skills and the learning environment that fosters them. In higher education, students need exposure to multiple methodological perspectives to cultivate critical thinking and develop their research capacity. Teaching librarians must remain adaptive, incorporating established and emerging methods to accommodate learners' dynamic and diverse needs.

The search theme reflects the complexity of the information-seeking process, which is not a singular act but an iterative and multifaceted practice. It involves the design of effective search strategies, the selection of appropriate tools, the use of accurate search languages, and the evaluation of search outcomes. Searching may occur

in academic contexts, such as exploring journal databases for scholarly purposes, or in social contexts, such as engaging with social media platforms for informal knowledge and personal learning (Wu et al., 2022). Regardless of setting, the core motivation remains the pursuit of useful information for academic, professional, or personal growth (Singh, 2023).

The process typically follows a cycle of (1) identifying information needs, (2) formulating keywords, (3) analysing results, and (4) refining keywords when results are unsatisfactory (Naghieb et al., 2021). Importantly, unsuccessful searches are not failures but part of an iterative process that requires persistence and adjustment (Borlund et al., 2024). Scholars have proposed various models of information seeking to reflect users' behaviours across tasks, disciplines, and phases of inquiry (Berget et al., 2021). However, one persistent challenge is the reliance of most search engines on computerised text retrieval, which often generates an overwhelming volume of results, many of which are irrelevant (Golub et al., 2023). To mitigate this, researchers recommend that information seekers employ diverse strategies, including advanced search techniques, Boolean operators, and interdisciplinary approaches, to improve precision and reduce informational "noise" (Lai et al., 2024).

The process theme highlights the broader sequence of actions underpinning information literacy, including information creation, search, research practices, and knowledge generation. It emphasises that information use is not an isolated act but a systematic process requiring reflection, evaluation, and ethical consideration. This process is most visible for higher education students in academic writing, research assignments, and critical engagement with scholarly sources (Clements & Bracke, 2020). Nevertheless, the challenge of information overload resulting from the constant availability of digital resources necessitates that students acquire information literacy skills promoting the responsible, ethical, and sustainable use of information (S. Bernard, 2024).

Research suggests that students frequently encounter difficulties in search formulation and keyword construction. Extended or complex keywords often reduce retrieval effectiveness, leading students to modify search terms repeatedly. This slows down the retrieval process and reflects challenges in navigation and search success rates (Taheri et al., 2023). These findings highlight the importance of librarian-led interventions that scaffold students' ability to transition from basic search practices to sophisticated, analytical engagement with information.

The final theme, research, functions as a cornerstone of the competence index, unifying the themes of knowledge, methods, search, and process. Research was conceptualised in this study not only as an advanced academic undertaking but also as a set of preparatory and foundational abilities that shape effective information-seeking behaviour. These abilities include identifying information needs (Taheri et al., 2023), applying appropriate instructional methods (Hammons, 2022), engaging in iterative searching practices (Berget et al., 2021), and evaluating the relevance and credibility of retrieved information (Clements & Bracke, 2020). Rather than viewing research as a rigid methodological sequence, participants perceived it as a flexible and iterative process that supports learning, inquiry, and evidence-based decision-making.

For teaching librarians, this theme emphasises the responsibility of fostering research-related competencies among students, enabling them to become independent learners who can navigate complex information environments. By bridging the technical aspects of information retrieval with the reflective practices of research, librarians contribute to cultivating graduates prepared for academic scholarship and lifelong learning.

#### ***5.2.3.2 Construct 2: Human Attributes***

The competence index for teaching librarians is supported by three human attributes: knowledge, skills, and abilities (KSAs). These attributes emerged from the qualitative phase of this study, where fifteen themes were identified through focus group interviews. Each theme was subsequently categorised under the three attributes presented in Chapter 5 and visually represented in Figure 5.1. Collectively, these attributes provide the foundational structure of the competence index and contribute to a holistic understanding of the role of teaching librarians in delivering instructional information literacy.

For the attribute of knowledge, seven themes emerged: students, instructional content, discipline, information, issues, academic assessment, and research advocate. These themes reflect the intellectual and cognitive foundation required for practical teaching librarianship. The findings highlight that teaching librarians must possess sufficient knowledge to encourage students to use reliable information resources and to provide tailored guidance aligned with students' academic assignments. At a minimum, teaching librarians should demonstrate familiarity with common forms of student

assessment, such as final-year projects, case studies, or research papers, as these tasks often form the basis of students' information needs.

The study further indicates that instructional content should adopt a student-centred approach, whereby examples and resources are contextualised according to students' disciplinary background, level of study, and academic requirements. For instance, librarians should design content that resonates with their audience's specific faculty or subject area, thereby ensuring relevance and engagement. Moreover, the instructional delivery must be aligned with the academic tasks assigned by lecturers, thus positioning information literacy as a supportive element in students' educational journey. To achieve this, teaching librarians must first acknowledge their audience's demographic and academic profile, such as level of study, faculty background, and prior exposure to information literacy, before tailoring session objectives and instructional design accordingly.

In addition to face-to-face settings, the study highlights the increasing reliance on online instructional platforms. Teaching librarians are therefore expected to anticipate and manage potential challenges associated with online delivery, including technical difficulties, varying levels of digital literacy, and broader social issues that may arise due to diverse student demographics. For example, differences in race, gender, and country of origin may influence students' perceptions of and engagement with online sessions, requiring librarians to adopt culturally sensitive pedagogical approaches.

A critical finding of this study is the importance of assessment in evaluating both instructional sessions and student learning outcomes. While the literature has traditionally emphasised post-session assessments as a mechanism to measure information literacy acquisition, the focus group panellists in this study stressed the need for librarians to develop structured and systematic assessment tools. Such tools should measure student progress and serve as mechanisms for professional reflection and growth among teaching librarians. Assessment is crucial in determining the long-term impact of information literacy instruction and supports the broader goal of integrating information literacy into higher education curricula (Riehle et al., 2024).

Empirical evidence supports this assertion. For example, a study conducted in the United States demonstrated that structured information literacy instruction significantly improved students' ability to evaluate and use information effectively (Delmond et al., 2024). The study, which assessed final-year students before and after

attending an information literacy session, reported an increase in performance from 75% to 87%. This aligns with the current study's findings, where panellists emphasised the dual need for assessing both the effectiveness of teaching librarians and students' learning outcomes. These findings demonstrate that discipline-specific information literacy instruction can improve students' academic performance and facilitate cross-disciplinary learning.

Another significant insight relates to the role of teaching librarians as research advocates. Two additional themes emerged during focus group discussions, underscoring the expectation that librarians should possess research literacy and the capacity to support research processes actively. Recent studies affirm the increasing need for academic librarians to engage in research activities alongside faculty, thereby repositioning librarians as integral partners in the research ecosystem (Rabasa & Abrizah, 2024). According to Anna et al. (2023), the evolving academic environment requires librarians to move beyond responding to routine or technical inquiries to delivering instruction on advanced research practices, including research design, research writing, and digital platforms for scholarly communication.

In the Malaysian context, this expectation is particularly evident in initiatives such as the data stewardship for open science training, which aims to strengthen librarians' roles in supporting open science and research data management (Zainal et al., 2023). These initiatives highlight the evolving responsibilities of teaching librarians and their contribution to institutional research capacity. Rabasa & Abrizah (2024) further argue that librarians must empower themselves as dependable research partners, aligning their expertise with the mission of higher education institutions.

These findings illustrate that knowledge as a human attribute is multifaceted, encompassing not only disciplinary expertise and instructional content but also student-centred pedagogy, assessment literacy, and research advocacy. Teaching librarians must therefore continuously update and expand their knowledge base to remain relevant and practical in a dynamic academic landscape.

Within the human attributes identified in this study, skills emerged as a critical dimension of the competence index for teaching librarians. This attribute is centred around two overarching themes: process and search. It is subdivided into seven themes: planning instructional information literacy, teaching, learning, communication, activities, technologies, and manner. Collectively, these themes represent the practical abilities and pedagogical expertise required for teaching librarians to successfully

deliver instructional information literacy in academic libraries within higher education. The significance of these skill-based attributes was consistently highlighted during the focus group discussions, in which panellists underscored their centrality to professional practice.

One of the most crucial elements of this attribute is the ability to plan instructional sessions effectively. Teaching librarians must prepare lesson content, instructional activities, and supporting materials in advance of class sessions. This requirement aligns closely with the knowledge attribute discussed in the preceding subsection, particularly regarding acknowledging student demographics, disciplinary contexts, and learning preferences. Effective planning ensures that instructional sessions are appropriately structured and tailored to student needs, enabling smoother execution and higher engagement levels.

Regarding teaching, four primary references emerged from the panel discussions: teaching skills, teaching methods, faculty collaboration, and learner-centred environments. Teaching librarians are required to possess sound pedagogical knowledge and be adept at applying various teaching strategies to foster meaningful interaction with students. As highlighted in recent scholarship, teaching librarians who incorporate diverse instructional techniques are better positioned to stimulate critical thinking, cultivate learner autonomy, and promote active engagement (Anna et al., 2023). This reflects a shift away from traditional didactic approaches towards more interactive, student-centred pedagogies, which in turn demand continuous professional development in teaching strategies, technological applications, and innovative methods of information delivery.

The learning dimension of this attribute is equally essential. Findings from the panel discussions indicated that teaching librarians must be informed by established learning theories and sensitive to diverse learning activities, outcomes, and characteristics. This implies that teaching librarians must recognise variations in learning styles, adapt to students' differing levels of prior knowledge, and develop instructional approaches that accommodate individual and collective learning needs. Such adaptability is vital in ensuring inclusivity and effectiveness in information literacy instruction.

Among all identified skills, communication was consistently emphasised as the most indispensable. The effective delivery of instructional information literacy inherently depends on strong communication skills, encompassing both verbal and non-

verbal modes of interaction. Teaching librarians must be mindful of different communication styles, student needs, and the affordances of emerging communication technologies. The ability to clearly explain complex information literacy concepts, respond constructively to student queries, and foster mutual respect and understanding is pivotal to successful instruction.

The pervasive influence of technological change in higher education further amplifies the need for teaching librarians to acquire and sustain technological competencies. This includes mastery of instructional technologies, proficiency in selecting appropriate digital tools, and adaptability in utilising commonly adopted communication platforms. Embedding technology in instructional delivery enhances teaching efficiency and enriches the student learning experience, making instruction more interactive and accessible (Anna et al., 2023). Integrating digital resources, multimedia content, and collaborative platforms has become a benchmark of effective contemporary information literacy instruction.

How teaching librarians conduct themselves plays a significant role in shaping the overall learning environment. Librarians must adopt a professional, positive, and non-judgmental disposition as educators serving a diverse user population. Such demeanour is essential in building trust, encouraging participation, and ensuring equitable treatment of all learners. This finding aligns with the professional competencies for reference and user services librarians, emphasising the importance of understanding human behaviour and user perceptions to deliver practical reference and instructional services (Luo & Tang, 2024). Interpersonal skills and behavioural awareness are as critical as technical and pedagogical competencies in this context.

The skills attribute within the competence index encapsulates a comprehensive range of practical and interpersonal capabilities. Effective planning, sound pedagogical practices, adaptability to varied learning needs, strong communication, technological literacy, and professional conduct collectively underpin the effectiveness of teaching librarians in delivering instructional information literacy. Integrating these skills not only enhances teaching practice but also reinforces the overall role of academic libraries in supporting student learning and development in higher education.

The third human attribute within the competence index is ability, which in this study is primarily associated with the capacity of teaching librarians to design, deliver, and sustain practical instructional activities. This attribute encompasses several interconnected elements, including planning instruction, developing instructional

programmes, creating content, identifying library instruction opportunities, conducting instruction sessions, and facilitating instructional activities. Collectively, these abilities reflect the practical and performative dimensions of competence, where teaching librarians translate their knowledge and skills into tangible outcomes within the teaching and learning environment.

The increasing complexity of information literacy instruction underscores the importance of ability as a core competency. In contemporary higher education, the role of the teaching librarian has evolved from that of a passive information provider to an active educator and facilitator of learning. This shift requires heightened confidence and adaptability, particularly when addressing the nuanced and multifaceted nature of information literacy. Recent studies suggest that teaching librarians are now expected to engage with learners across various disciplinary contexts and learning levels, despite the growing sophistication and difficulty of information literacy concepts (Anna et al., 2023; Fribley et al., 2021). The ability to navigate these challenges effectively demonstrates professional expertise, resilience, and flexibility in teaching practice.

Another critical dimension of ability lies in the collaborative role of teaching librarians. Historically, academic librarians have established working relationships with faculty members to support the integration of information literacy into curricula. These collaborations extend beyond one-off instruction sessions to more sustained partnerships, where librarians contribute as faculty developers who support curricula design, teaching strategies, and learning outcomes (Fribley et al., 2021). Such collaborations highlight the ability of teaching librarians to function as both subject specialists and pedagogical partners, thereby bridging the gap between library services and academic programmes. Moreover, librarians' contributions to faculty development initiatives have enhanced the institutional capacity to embed information literacy within broader educational goals (Hammons, 2022).

The ability attribute also implies a forward-looking orientation. Teaching librarians must be able to identify opportunities for library instruction in both formal and informal settings, whether through structured, credit-bearing courses, embedded workshops, or ad hoc instructional sessions. Their ability to seize such opportunities reflects not only their awareness of user needs but also a proactive approach to positioning the library as a central actor in the institution's teaching and learning mission. In this regard, ability is not merely a function of performing instructional tasks,

but also of demonstrating initiative, innovation, and leadership in advancing information literacy within higher education.

In addition, the design and delivery of instructional content requires teaching librarians to exercise judgement and adaptability in tailoring materials to diverse student populations. Instruction must be aligned with learning objectives, responsive to disciplinary contexts, and attentive to the varied levels of students' prior knowledge. This underscores that ability is not a static trait but a dynamic attribute, requiring continuous refinement and responsiveness to changes in educational practice, student expectations, and institutional demands.

The ability attribute reflects how teaching librarians can enact their knowledge and skills in real-world instructional contexts. It captures their capacity to design and deliver instructional programmes, to collaborate meaningfully with faculty, to identify and exploit instructional opportunities, and to maintain confidence in addressing the increasing complexity of information literacy. Beyond technical proficiency, the ability attribute speaks to the adaptability, initiative, and leadership required of teaching librarians in fulfilling their evolving instructional role within academic libraries and higher education.

The analysis of human attributes within the competence index reveals that knowledge, skills, and abilities (KSAs) are an integrated set of competencies that collectively shape the professional practice of teaching librarians in delivering instructional information literacy. While each attribute carries distinct emphases, their interconnections highlight the holistic nature of competence, where theoretical understanding, practical application, and performative capacity reinforce one another.

Knowledge serves as the foundational element. It equips teaching librarians with the conceptual grounding needed to understand information literacy theories, subject content, and the broader academic and disciplinary contexts in which they operate. Without this knowledge base, teaching librarians would lack the intellectual scaffolding to design and justify instructional approaches or to situate information literacy within students' academic pursuits.

Building upon this foundation, skills represent the practical capabilities through which knowledge is operationalised. Skills such as instructional planning, pedagogical strategies, communication, technological integration, and interpersonal engagement enable librarians to transform theoretical concepts into effective teaching practices. Skills, therefore, act as the "bridge" between knowledge and practice, ensuring that

instructional delivery is not only informed by theory but also attuned to the needs and behaviours of learners in higher education.

Finally, ability reflects the enactment of knowledge and skills in authentic instructional contexts. It captures the confidence, adaptability, and initiative required of teaching librarians to design and deliver instructional programmes, to collaborate meaningfully with faculty, and to respond effectively to the increasing complexity of information literacy. Whereas skills indicate what librarians can do, ability demonstrates how well they can do it in dynamic, real-world situations.

The interplay among these attributes suggests that competence is not a linear construct but a cyclical and reinforcing process. Knowledge informs skills, skills are refined through practice, and ability is demonstrated through confident and adaptive instructional performance. At the same time, the experience of exercising ability feeds back into skills development and deepens knowledge acquisition. This dynamic interaction underscores the importance of viewing competence as an evolving continuum rather than a fixed set of attributes.

In the context of academic libraries in higher education, the synthesis of KSAs highlights the need for teaching librarians to be both specialists and generalists: specialists in their capacity to apply disciplinary knowledge and teaching expertise, and generalists in their ability to adapt to varied user populations, technological shifts, and institutional priorities. Ultimately, integrating knowledge, skills, and ability within the competence index reinforces the role of teaching librarians as educators, collaborators, and leaders in advancing information literacy as a core component of higher education.

### ***5.2.3.3 Construct 3: Information Literacy Modules***

Following the preliminary and primary data collection analysis presented in Chapter 4, this section examines the essential components that should be incorporated into information literacy modules in higher education. The discussion highlights the current practices employed by academic libraries and the gaps identified through insights from the expert panellists involved in this study. By comparing these two perspectives, this section offers recommendations for bridging the gap between existing instructional approaches and the evolving needs of higher education learners.

The findings of this research reveal several critical gaps in current information literacy modules offered by academic libraries. Among the most notable omissions are

explicit attention to the ethics of information sharing, identifying information needs, integrating Bloom's taxonomy into instructional design, developing digital literacy skills, and using innovative pedagogical strategies such as case study-based learning and systematic literature reviews. While existing modules often emphasise tools, platforms, and library resources, the panellists highlighted the importance of addressing the needs of learners through audience-focused, pedagogically sound, and ethically grounded strategies. This suggests a tension between resource-oriented and learner-centred approaches, indicating the need for a more comprehensive instructional framework.

To bridge these gaps, it is essential to revisit established frameworks and guidelines on information literacy, such as the ACRL Framework for Information Literacy for Higher Education. A fundamental component of these competence index is the ability to critically evaluate information sources regarding credibility, relevance, accuracy, and bias. This skill is at the core of information literacy and underscores the importance of cultivating critical thinking in higher education students. For instance, the competence index emphasises that authority depends on the creator's expertise, credibility, and the context in which information is used. Embedding such principles into academic curricula fosters trust in the value of information literacy instruction and strengthens learning outcomes (Ford-Baxter et al., 2022).

The changing information needs of students also require teaching librarians to adopt dynamic instructional methods that encourage engagement and active participation. Recent studies have demonstrated that teaching strategies tailored to users' evolving needs enhance student learning and promote greater interaction with information literacy content (Mashiyane et al., 2020). The COVID-19 pandemic further amplified this requirement, as librarians were compelled to respond rapidly to the digital learning environment by extending instructional support through online platforms (Keeran, 2022). This shift underscores the importance of flexibility and adaptability in information literacy instruction.

Beyond evaluation skills, several additional components must be integrated into information literacy modules to ensure their comprehensiveness. These include the ability to interpret and work with data, encompassing data analysis and visualisation skills; a firm grounding in the ethical use of information, including intellectual property, privacy, and data security; and the development of media literacy to critically understand, create, and communicate messages in diverse formats. Furthermore,

learners should be exposed to how cultural contexts shape the creation, dissemination, and interpretation of information, thereby fostering a deeper awareness of information as a socially constructed phenomenon. Equally vital is cultivating a mindset of lifelong learning, adaptability to new information environments, and proficiency in digital collaboration and communication tools.

Integrating these components enriches the instructional value of information literacy modules and enhances their practical applicability across academic and professional contexts. Information literacy is no longer confined to the educational sphere; it plays a fundamental role in decision-making across various fields, including education, finance, healthcare, and many others (Anyaoaku & Osuchukwu, 2022). As such, teaching librarians hold a critical responsibility in guiding learners to navigate vast and complex information landscapes, assisting them in choosing reliable, accurate, and ethically sound information from the multitude of available sources (Dzulkipli et al., 2024; Lee et al., 2020).

Ultimately, the goal of information literacy instruction in higher education libraries is to empower learners with the capacity to independently seek, evaluate, and apply information to their academic, professional, and personal lives (Begum & Hasinul Elahi, 2022). Information literacy modules can become more holistic, learner-centred, and future-ready by addressing the gaps identified in this study and integrating broader frameworks, ethical considerations, and innovative pedagogical strategies. This strengthens the role of teaching librarians as educators and ensures that higher education students are equipped with the critical competencies required to thrive in increasingly complex and digitalised information environments.

### **5.3 Chapter Summary**

This chapter presents a detailed discussion of the findings related to the research objectives and questions. The analysis drew upon the themes that emerged from the focus group interviews and was examined in relation to existing literature and theoretical perspectives on information literacy, library instruction, and professional competence. The chapter was structured around the three main research objectives: to investigate the challenges faced by teaching librarians in instructional information literacy, to explore the competencies required for effective delivery, and to construct a

competence index for teaching librarians in academic libraries within Malaysian higher education.

The first part of the discussion revisited the challenges encountered by teaching librarians, which include limitations in subject expertise, insufficient collaboration with faculty, the complexity of student learning needs, and the need to adapt to technological change continually. These findings highlight the dynamic and evolving instructional role of librarians, as well as the institutional and structural constraints that influence their practice. The second part of the chapter examined the competence attributes required for teaching librarians, which were categorised into three dimensions: professional, personal, and human attributes. Within the human attribute, the analysis was refined through the Knowledge, Skills, and Abilities (KSAs), systematically articulating the intellectual, practical, and performative capacities essential for instructional information literacy. Knowledge provided the conceptual foundation, skills represented the operationalisation of knowledge through pedagogy and communication, while ability demonstrated competence in authentic instructional contexts. The synthesis of these three attributes highlighted their interdependent and cyclical nature, reinforcing the idea that competence is an evolving continuum rather than a fixed set of traits.

Finally, the chapter consolidated these findings into the proposed competence index, offering theoretical and practical contributions. The framework strengthens the scholarly understanding of teaching librarianship in Malaysian higher education. It serves as a tool for professional development, institutional planning, and faculty librarian collaboration in advancing information literacy education. This chapter has linked empirical findings with theoretical insights to provide a nuanced understanding of the challenges, competencies, and frameworks relevant to teaching librarians. It has been established that the evolving role of teaching librarians requires robust knowledge and technical skills, as well as the ability to adapt, collaborate, and lead in increasingly complex educational environments. The next chapter will conclude the thesis by synthesising the overall contributions, highlighting implications for practice, and offering recommendations for policy, professional development, and future research.

## CHAPTER 6

### CONCLUSIONS

#### 6.1 Chapter Introduction

Teaching librarians in academic libraries has become increasingly pivotal in the rapidly evolving landscape of higher education. As institutions strive to equip students with critical research skills and promote information literacy, the competence of teaching librarians has a direct impact on the quality of education and students' academic success. This chapter explores the findings related to the competence index for teaching librarians in academic libraries, offering a comprehensive analysis of the skills, knowledge, and attributes essential for effective teaching in this dynamic environment. The competence index serves as a robust framework for evaluating and enhancing the capabilities of teaching librarians, ensuring they meet the diverse needs of students and faculty.

This study has revealed two critical dimensions in advancing the role of teaching librarians in Malaysian higher education. First, the findings highlighted the challenges that teaching librarians face in delivering instructional information literacy. These challenges stem from evolving academic demands, limited institutional recognition, and the absence of structured professional development pathways. Such barriers have constrained librarians' ability to position themselves as instructional partners within higher education institutions. Second, the research contributed to the development of a validated competence index for teaching librarians, which integrates core competencies with human attributes, knowledge, skills, and abilities, supported by standardised information literacy modules. The index defines the professional scope of teaching librarians and provides a systematic tool to enhance their instructional capacity and credibility.

The synthesis of these findings suggests that addressing existing challenges requires more than individual effort; it necessitates institutional support and recognition of the evolving role of the teaching librarian. At the same time, the competence index offers a practical pathway to professionalise instructional practices, improve consistency in delivering information literacy, and strengthen alignment with higher education outcomes. Together, these insights contribute to the academic discourse on

librarianship and the practical advancement of teaching librarians as critical partners in higher education teaching and learning.

By examining various dimensions, including pedagogical expertise, technological proficiency, subject knowledge, and interpersonal skills, this chapter summarises the key findings and their implications for professional development and policymaking in higher education. The discussion will highlight the strengths and areas for improvement identified through the study, offering valuable insights into the current state of teaching librarian competencies. Ultimately, this chapter aims to contribute to the ongoing discussion on enhancing the role of learning librarians in academic libraries, advocating for targeted interventions and ongoing professional development to create an enriching learning environment for all stakeholders in higher education.

## **6.2 Facing the Challenges and Barriers in Delivering Instructional Information Literacy**

Addressing the challenges and barriers associated with information literacy instruction requires a set of strategic, multi-dimensional approaches. Central among these is the need for enhanced pedagogical training. Institutions should provide formal pedagogical preparation for teaching librarians, including courses on instructional design, active learning, and classroom management. Continuous professional development must also be prioritised, with training opportunities focusing on emerging educational technologies, digital literacy, and subject-specific knowledge. These initiatives directly support the significance of this thesis, as they reinforce the competencies identified in the framework and strengthen the capacity of librarians to deliver impactful instruction in higher education.

A second strategy lies in collaboration and partnerships. Close cooperation between teaching librarians and faculty members enables the integration of information literacy into curricula, ensuring that instruction is discipline-specific and meaningful to students. Partnerships with educational technology providers can further enhance librarians' capacity to incorporate innovative tools and techniques into their practice. The findings of this study affirm that collaboration is not merely beneficial but fundamental; teaching librarians must acknowledge and adapt to the subject-specific contexts of faculties so that the language and content of information literacy instruction resonate with learners. Literature strongly supports this position, emphasising

collaboration as a critical success factor in embedding information literacy within academic programs and aligning librarianship with institutional missions (Baird & Soares, 2020; A. Khan, 2020; Rabasa & Abri zah, 2024).

Equally important is the establishment of assessment and feedback mechanisms. Training in assessment methods and tools equips librarians to measure student learning outcomes more effectively. By incorporating systematic feedback from students and faculty, librarians can refine instructional practices and ensure their efforts translate into improved academic performance and information literacy competence. This aligns with the significance of the thesis by operationalising the competence index into measurable outcomes that directly inform teaching and learning effectiveness.

The issue of resource allocation and institutional support is also pivotal. Institutions must allocate adequate time and resources for librarians to prepare, deliver, and evaluate instructional sessions. Investment in instructional materials, digital resources, and technological tools enhances the quality of teaching and supports sustainable program delivery. Without such institutional support, even the most skilled teaching librarians may be constrained in their ability to enact effective instruction.

Another theme emerging from this research is the importance of integrating the curriculum. Teaching librarians should work collaboratively with faculty to embed information literacy into subject syllabi, ensuring that sessions are tailored to the disciplinary context. Embedding IL instruction strengthens students' ability to access, evaluate, and disseminate information and situates librarians as academic partners in the teaching and learning process. Examples such as interactive digital platforms, including social media and online conferencing tools, illustrate the potential for flexible and engaging instruction (Harrison & Deans, 2021).

On a broader scale, these strategies highlight the need for a systematic review of LIS program curricula to prepare future academic librarians. Frequent updates to course offerings will ensure that graduates are equipped with competencies that reflect both the framework and the evolving demands of higher education. As the academic environment continues to change rapidly, the professional readiness of librarians must extend beyond instructional competencies to include adaptability, leadership, and collaboration across disciplines.

In conclusion, the significance of this thesis is underscored by identifying the strategies necessary to strengthen the professional capacity of teaching librarians. These include structured professional development programs, mentorship and peer

collaboration initiatives, resource investment, and competency-based assessment frameworks. Collectively, these measures ensure that librarians meet current instructional demands and contribute to the long-term mission of academic institutions by fostering students' ability to think critically, engage ethically, and navigate an increasingly complex information landscape.

### **6.3 Competence Index for Teaching Librarians in Delivering Instructional Information Literacy in Academic Libraries in Higher Education**

In Chapter 5, this study introduces a competence index comprising three attributes: knowledge, skills, and abilities essential for adequate instructional information literacy. These attributes are designed to complement the ACRL Framework for Information Literacy for Higher Education, not as a replacement but as an applied extension that contextualises the Framework for the Malaysian higher education environment. As mapped in Chapter Five, the competence index and the Framework should be read in tandem, with the index providing a practical and context-specific guide for teaching librarians to operationalise the broader conceptual dimensions of the Framework.

The knowledge, skills, and abilities (KSAs) model underpinning the competence index reflects the basic proficiencies required of teaching librarians in academic libraries. These three constructs form the foundation for librarians to develop professional expertise in instructional delivery. By emphasising these elements, the index clarifies the minimum standards expected of teaching librarians, ensuring that their instructional practices align with institutional missions and the needs of students.

Notably, this study builds upon the KSA model by incorporating human attributes as a functional dimension within the competence index. These attributes, adaptability, cultural awareness, empathy, and reflective practice, add value to the traditional knowledge and skill set by addressing the humanistic dimensions of teaching. This addition is particularly significant for the Malaysian context, where diverse student populations and institutional cultures necessitate that librarians exercise sensitivity, inclusivity, and responsiveness in their instructional approaches. By incorporating new themes into the human attributes construct, this index ensures that teaching librarians are equipped to navigate the technical, pedagogical, interpersonal, and cultural complexities of higher education in Malaysia.

The third construct of the competence index focuses on the components of instructional information literacy modules. This construct offers a structured framework for designing and delivering IL modules that are responsive to current student learning outcomes, disciplinary needs, and technological trends. By articulating clear components, the index supports librarians in developing pedagogically sound, contextually relevant modules adaptable to changing information environments. This alignment between module components and student outcomes further underscores the significance of the thesis, as it bridges theoretical competencies with measurable impacts on learners.

Moving forward, the competence index is intended to function as a guideline and standard for professional practice in academic libraries. It holds particular relevance for the professional development of teaching librarians, serving as both a roadmap for individual career progression and a benchmark for institutional training programs. Adopting this index ensures that librarians' instructional practices are systematically developed, assessed, and improved in alignment with international standards and national educational priorities.

Collaborative engagement with key stakeholders is essential to ensure broad adoption and impact. Strategic partnerships with bodies such as the Malaysian Librarian Association (MLA) and the Majlis Ketua Pustakawan Universiti Awam (MKPUA) can promote and implement this competence index across public academic libraries. Such collaboration will strengthen the recognition of teaching librarianship as a professional specialisation, positioning the competence index as a unifying framework for enhancing instructional practices nationwide.

Developing this competence index significantly contributes to theory and practice. This study addresses identified gaps in the preparation of teaching librarians by providing a structured, context-sensitive, and forward-looking Framework. It contributes to the broader mission of academic libraries in Malaysia: to support student success, foster lifelong learning, and enhance institutional excellence. The competence index thus stands as a cornerstone for the future of teaching librarianship, ensuring that instructional information literacy remains responsive, inclusive, and impactful within an evolving higher education landscape.

#### **6.4 Contribution and Implication to the Librarianship and Professional Development of Teaching Librarian in Malaysian Academic Libraries**

The Association of College and Research Libraries (ACRL) Framework for Information Literacy for Higher Education has long been recognised as an academically energising instrument that provides clear guidance for developing information literacy curricula. It provides conceptual underpinnings and practical recommendations for enhancing instructional sessions, thereby equipping teaching librarians with a pedagogical framework for content delivery (Harrison & Deans, 2021). Despite its global recognition, the Framework has not been systematically implemented within Malaysian academic libraries, particularly in the context of instructional information literacy. This gap underscores the importance of adopting a standardised pedagogical approach within higher education libraries. The absence of such a framework has resulted in inconsistent practices, whereby individual libraries have developed their own information literacy programs tailored to local needs, without a shared national guideline. This research, therefore, addresses a pressing gap by proposing a competence index for teaching librarians, intended as a national standard that complements the ACRL Framework while being adapted to the context of Malaysian higher education. This study also acknowledges its boundaries and limitations, which define the scope of its contributions. While the competence index was developed and validated within a specified timeframe and panel, future research should focus on field-testing the index in real instructional environments. Such studies will provide further evidence of its applicability, adaptability, and impact on student learning outcomes. Additionally, items that did not achieve consensus during the Delphi process warrant deeper investigation to determine whether they reflect emerging trends, contested practices, or context-specific challenges.

This study makes a significant contribution to the theoretical, practical, and methodological aspects of librarianship. Theoretical contribution, the research extends existing competencies frameworks by contextualising them within the Malaysian higher education environment. Unlike most international models that focus primarily on knowledge and skills, this study emphasises the critical role of abilities, including adaptability, communication, and pedagogical application. Additionally, identifying new themes in academic assessment and research advocacy expands the theoretical understanding of the evolving capabilities of teaching librarians. A distinctive

contribution of this research lies in its incorporation of human attributes, knowledge, skills, and abilities into the competence index. While existing literature often emphasises knowledge and skills, this study highlights the crucial role of ability in instructional delivery. Ability is framed here as the capacity to enact knowledge and skills effectively within dynamic and diverse teaching contexts. Notably, this research identified new themes within human attributes particularly relevant to the Malaysian higher education environment, namely academic assessment and research advocacy. These themes have not been explicitly included in existing literature, but are vital to ensuring that librarians can support universities' growing emphasis on research productivity and academic quality assurance. Instructional sessions, therefore, must not only disseminate information literacy skills but also integrate evaluative mechanisms to measure their effectiveness, ensuring alignment with student learning outcomes.

Practically, the competence index provides a valuable and actionable tool for librarians and institutions. It can be used to design professional development programs, create competency-based evaluation frameworks, and guide the integration of information literacy into curricula. The findings also highlight the importance of embedding Bloom's taxonomy into instructional design, ensuring alignment with learning outcomes. By positioning librarians as educators and research partners, the study enhances their professional recognition and strengthens their contributions to the institution's mission. The competence index developed in this study holds significant implications for professional practice and development. At an individual level, teaching librarians can employ the competence index as a self-evaluation tool to assess their strengths and areas requiring improvement. The results of such self-assessments can inform personalised professional development plans, thereby encouraging reflective practice and continuous growth. At the institutional level, universities can utilise the index to design targeted training and professional development programs, ensuring librarians acquire competencies that directly address evolving academic needs.

Furthermore, by integrating the index into institutional review processes, libraries can continuously monitor, update, and enhance instructional quality, keeping pace with trends in pedagogy, technology, and higher education priorities. The findings also reveal the need for teaching librarians to use Bloom's taxonomy when designing instructional information literacy modules. This pedagogical tool enables librarians to scaffold student learning outcomes across cognitive levels, ensuring that information

literacy instruction is structured, measurable, and aligned with higher education standards. Moreover, modules developed under the competence index emphasise the ethical dimensions of information use, including copyright compliance and plagiarism prevention, which are critical for cultivating academic integrity throughout the students' university journeys.

The final contribution is through methodological contribution, where this research demonstrates the value of the modified Delphi method in competence index development. Through iterative rounds of expert consultation, the study ensured that the competence index reflects scholarly perspectives and professional realities. The diversity of participants, drawn from different institutional and professional backgrounds, enriched the validity and reliability of the findings. This methodological approach offers a model for future research in librarianship and related fields. From a methodological perspective, this study contributes to knowledge by employing a modified Delphi method, which engages information literacy practitioners and scholars in iterative evaluation rounds. This approach encompasses diversity, comprising experts from various backgrounds, institutions, and experience levels, thereby enhancing the validity and credibility of the findings. Each item within the competence index was rigorously reviewed and validated by experienced academic librarians, ensuring that the final Framework reflects both theoretical grounding and practical realities. This methodological approach demonstrates originality in the Malaysian context, where similar large-scale, consensus-based studies on teaching librarian competencies remain scarce.

Collectively, these contributions highlight the importance of the competence index in shaping the professional identity of teaching librarians. By equipping them with the competencies required for effective instruction, the index positions librarians as key partners in higher education, supporting student success and institutional excellence. This research makes theoretical and practical contributions by establishing the competence index. Theoretically, it refines and extends existing competency models by integrating new attributes and contextualising them within the Malaysian higher education system. It demonstrates how the ACRL Framework, initially developed in the United States, can be adapted to new cultural, institutional, and pedagogical settings, thereby generating a new theory of practice for teaching librarianship in Malaysia. Practically, the competence index provides a standardised, implementable solution to the fragmented instructional practices prevalent in academic libraries. It provides

concrete components for module design, fosters collaboration among libraries nationwide, and ensures that instructional information literacy is delivered with consistency, rigour, and relevance.

In conclusion, this research makes a significant contribution to the advancement of librarianship in Malaysia. It constructs a new competence index that blends global frameworks with local realities, transforming teaching librarians into recognised educators within the academic community. The theoretical contribution lies in refining competency standards and the Framework by integrating human attributes and emerging themes; the practical contribution lies in providing a standardised guideline for module design and professional development. Empirically, the study provides data-driven insights from experienced practitioners, advancing the field of library and information science by bridging scholarship, practice, and policy. Ultimately, the competence index serves as a roadmap for enhancing instructional information literacy and a catalyst for positioning academic librarians as integral partners in higher education teaching and learning.

## **6.5 Future Research**

While this research has significantly contributed to the development of a competence index for teaching librarians in Malaysian academic libraries, several limitations should be acknowledged for future research. First, the study employed a qualitative design using the modified Delphi method, which, although effective for gathering expert consensus, is inherently limited by the subjective perspectives of the selected panellists. Although the panel comprised experienced practitioners and academics, the findings may not fully capture the diversity of practices and challenges across all Malaysian higher education institutions. Second, the study was conducted within the Malaysian context, where cultural, institutional, and policy environments differ from those in other countries. As such, the competence index developed here may require adaptation before it can be applied in different national or regional settings. The specificity of the index to Malaysian higher education may limit its direct generalizability, although it provides a strong foundation for contextual adaptation.

Third, the study focused on developing the competence index rather than its practical implementation and impact assessment. While the Delphi process ensured rigour and consensus, the competence index has yet to be tested in real-world

instructional settings. Its effectiveness in improving teaching librarians' performance and enhancing student learning outcomes remains an area for further empirical exploration. Finally, certain items proposed during the Delphi rounds did not achieve consensus and were excluded from the final competence index. These excluded items may still hold relevance in specific contexts, and their omission indicates areas where further investigation is necessary to refine the competence index.

Future research should consider conducting empirical validation studies of the competence index in academic library settings to evaluate its practicality, effectiveness, and adaptability. The instructional information literacy sessions could provide valuable insights into their strengths, limitations, and impact on student learning outcomes. Comparative studies could also be undertaken across different countries or regions to examine how cultural and institutional contexts influence the competencies required of teaching librarians. This would validate the current index and contribute to the development of a more globally adaptable model of instructional competencies.

Furthermore, additional research could expand on the newly identified themes of academic assessment and research advocacy, exploring their integration into the broader roles of teaching librarians. Longitudinal studies that track professional development, career progression, and institutional impact following the adoption of the competence index also provide deeper insights into its long-term relevance. Finally, future investigations should consider incorporating mixed-methods approaches, combining quantitative measures such as surveys and performance metrics with qualitative insights, to provide a more holistic evaluation of teaching librarians' competencies and their contributions to higher education.

## **6.6 Chapter Summary**

This chapter consolidates the study's findings, demonstrating how the competence index addresses the challenges and barriers that teaching librarians face in delivering instructional information literacy. The chapter has also highlighted the contributions of the research to theory, practice, and methodology, emphasising its relevance to national and international contexts. The competence index developed in this study is more than a theoretical construct; it is a practical tool with the potential to transform information literacy instruction in Malaysian academic libraries. The index creates a standardisation, collaboration, and professional recognition pathway by

bridging global frameworks with local needs. While limitations exist, particularly in scope and the need for field testing, these open new opportunities for future research.

In conclusion, this thesis advances the understanding of teaching librarians' competencies, provides a structured solution to long-standing challenges, and offers a foundation for future professional development. By elevating the role of teaching librarians to that of recognised educators, the study contributes to the transformation of academic librarianship in Malaysia, ensuring its alignment with the dynamic demands of higher education.

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## **APPENDICES**

# APPENDIX A

## Consent Forms Panels and Expert

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Questions Responses 4 Settings

### CONSENT FORM

Research Ethics Committee  
Research Management Centre  
Universiti Teknologi MARA  
40450 SHAH ALAM  
Tel: 03-5544-8069, Faks: 03-5544-2096/2767

**Subject Information Sheet**

**Research Title**  
**COMPETENCE INDEX FOR TEACHING LIBRARIAN IN ACADEMIC LIBRARIES IN HIGHER EDUCATION**

**Introduction of Research**  
The job of being a librarian started in Assyrian King era in 631BC where the king asked someone to take care of his collection by collect, catalogue and organise in logical order and then librarian has been an educator since 1900. Librarian has evolved since then and growth to become one of main subject in higher institution. Librarian who teach in information literacy class or program is known teaching librarian. Research problem are identified as there is no verified competence index for teaching librarian, no formal pedagogical skills or syllabus during academic years, information overload and explosion and librarian readiness in online environment

**Purpose of Research**  
To investigate gaps that make teaching librarian hard to conduct instructions in academic library. To explore and define the needed competency of teaching librarian in academic library for higher education. Able to use knowledge to evaluate and use information through information has value and research enquiry using skill to search information and determine information need through information creation as a process and searching strategy exploration. Adapt the ability to current situation and scholarly conversation through context authority and scholarship conversation. To develop competence index for teaching librarian in academic library

**Research Procedure**  
This research is implementing qualitative research and focus group as research design. Research method is modified Delphi method which will be in 3 phases.  
Phase 1: Predetermine Theme  
Phase 2: 2 Delphi rounds  
Phase 3: Expert verification

**Participation in Research**  
As for participation for this research, it has identified 4 groups:-  
1. Academic in research area  
2. Expert matter in research area  
3. Researcher in information literacy  
4. Practitioners/Teaching librarian

**Benefit of Research**  
1. A Well-Structured Information Literacy Program and Documented Pedagogical Practices  
2. Profession Credibility and Career Development Knowledge Sharing  
3. Validity to Teach in Higher Education Setting

**Confidentiality**  
The information you will share with us if you participate in this study will be kept completely confidential to the full extent of the law. Your information will be assigned a code number that is unique to this study. No one will be able to see your transcribe or

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ository.ifa.org/server/api/core/bitstreams/bb... ALA Standards & Guidelines | ALA

Questions Responses **1** Settings

\* Indicates required question

To become a subject in the research, you or your legal guardian are required to sign this Consent Form I herewith confirm that I have met the requirement of age and am capable of acting on behalf of myself / as a legal guardian as follow:

	YES	NO
I understand the nature and scope of the research being undertaken.	<input checked="" type="radio"/>	<input type="radio"/>
I have read and understood all the terms and conditions of my participation in the research.	<input checked="" type="radio"/>	<input type="radio"/>
All my questions relating to this research and my participation therein have been answered to my satisfaction.	<input checked="" type="radio"/>	<input type="radio"/>
I voluntarily agree to take part in this research, to follow the study procedures and to provide all necessary information to the investigators as requested.	<input checked="" type="radio"/>	<input type="radio"/>
I may at any time choose to withdraw from this research without giving any reason.	<input checked="" type="radio"/>	<input type="radio"/>
I have received a copy of the Subjects Information Sheet and Consent Form.	<input checked="" type="radio"/>	<input type="radio"/>
Except for damages resulting from negligent or malicious conduct of the researcher(s), I hereby release and discharge UITM and all participating researchers from all liability associated with, arising out of, or related to my participation. I agree to hold them harmless from any harm or loss that may be incurred by me due to my participation in the research.	<input checked="" type="radio"/>	<input type="radio"/>

NAME \*  
as in I.C.

docs.google.com

ository.ifa.org/server/api/core/bitstreams/bb... ALA Standards & Guidelines | ALA

Questions Responses **1** Settings

researcher(s), I hereby release and discharge UITM and all participating researchers from all liability associated with, arising out of, or related to my participation. I agree to hold them harmless from any harm or loss that may be incurred by me due to my participation in the research.

NAME \*  
as in I.C.  
[REDACTED]

I.C NO \*  
E.g 801111104545 (without dash)  
[REDACTED]

HIGHEST EDUCATION \*  
PhD

AFFILIATION \*  
E.g Universiti Teknologi MARA (UiTM)  
[REDACTED]

YEARS OF EXPERIENCE AS AN ACADEMIC OR RESEARCHER \*  
E.g 10 years  
5 years

DIGITAL SIGNATURE \*  
PDF or Image only (max size 10mb)  
Signature 2 - ...  
Add File

Submitted 10/01/2024, 09:42

## APPENDIX B

### Panellists Selection by Head of Department

Re: JEMPUTAN SEBAGAI PANEL FOCUS GROUP INTERVIEW DAN INDIVIDUAL INTERVIEW

MA  
To: MOHD RAZIF BIN DZULKIPLI  
Fri 08/12/2023 4:14 PM

You replied on Fri 08/12/2023 4:33 PM

Walaikumsalam En Mohd Razif,  
h sedang bercuti sambung belajar. Saya cadangkan dimajukan kepada h. Thanks.

On Fri, 8 Dec 2023 at 15:21, MOHD RAZIF BIN DZULKIPLI <mohdrazif@utem.edu.my> wrote:  
Assalamualaikum wrt. wbt dan Salam Sejahtera.

Merujuk kepada perkara diatas dan emel bertarikh 6 Disember 2023 adalah berkaitan.

2. Sukacita dimaklumkan bahawa puan dijemput sebagai panel *Focus Group Interview* dan *Individual Interview* bagi proses pengumpulan data kajian *Competence Index for Teaching Librarian in Academic Libraries in Higher Education*. Maklumat sesi temubual adalah seperti berikut:-

**Pusingan 1 (Focus Group Interview)**  
Tarikh : 3 Januari 2024 (Rabu)  
Masa : 9 pagi - selesai  
Link : [Microsoft Teams](#)

**Pusingan 2 (Individual Interview)**  
Tarikh : Februari 2024  
Masa : akan dimaklumkan kemudian  
Link : akan dimaklumkan kemudian

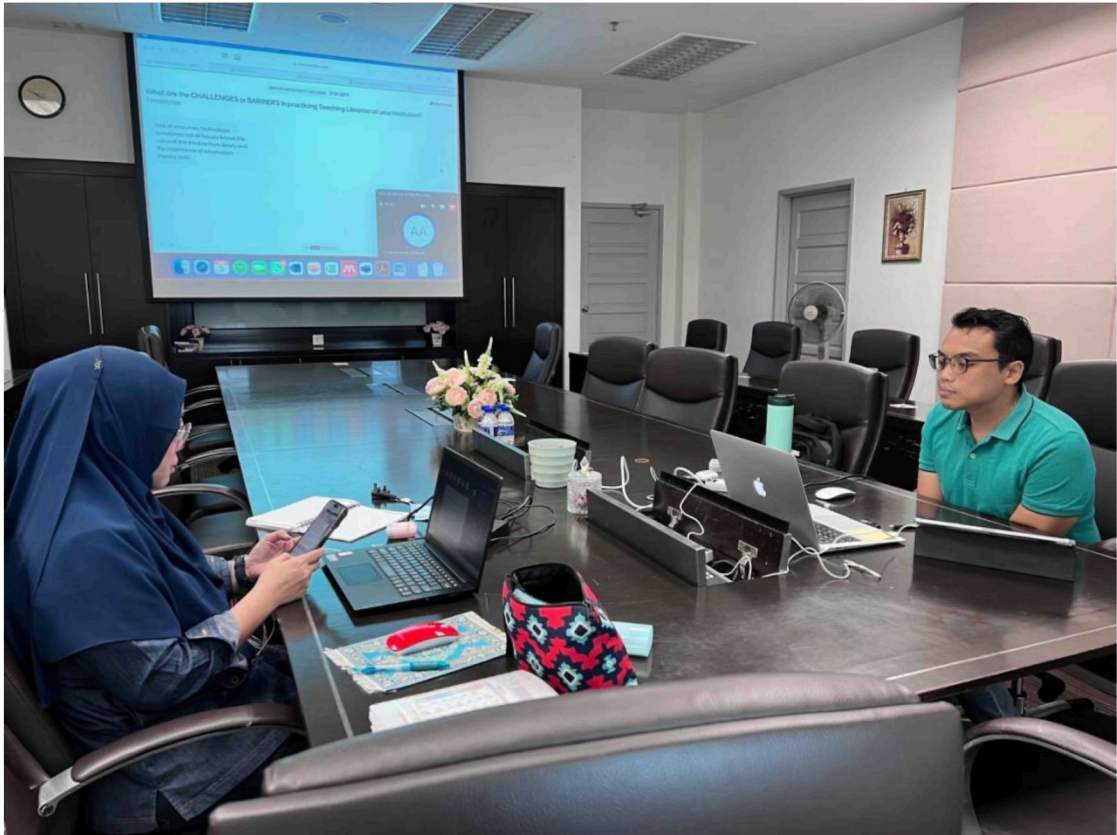
3. Bersama-sama ini dilampirkan surat jemputan dan tentatif program untuk rujukan puan.

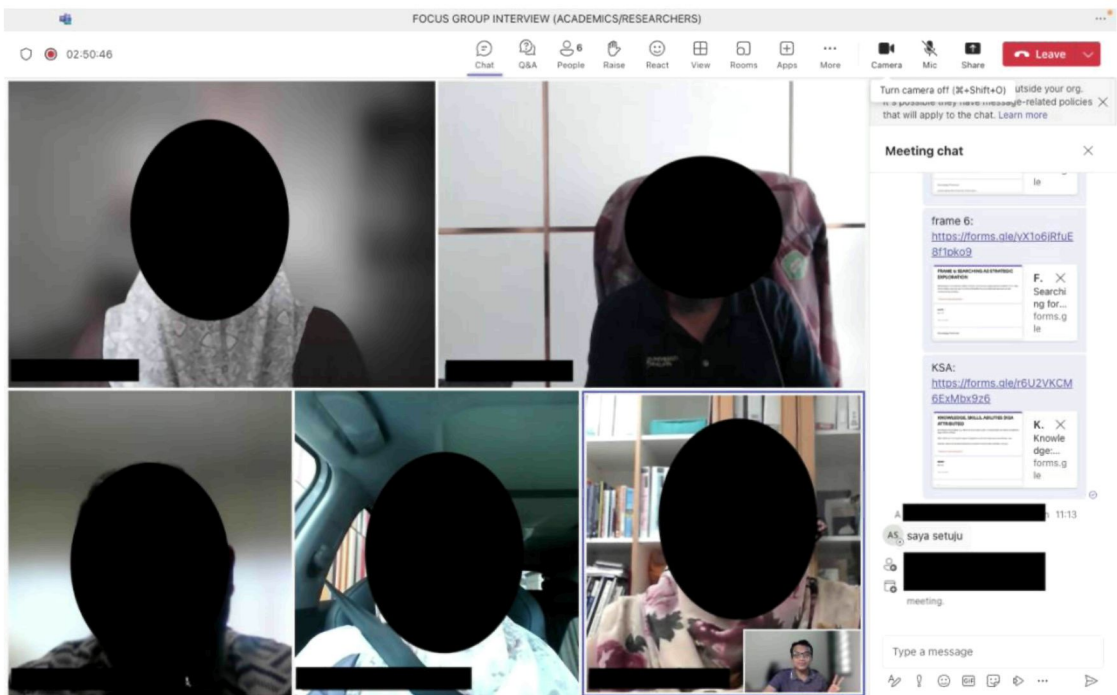
Kerjasama dan sokongan yang diberikan oleh pihak puan dalam perkara ini amat dihargai dan didahului dengan ucapan ribuan terima kasih.

Sekian,  
Terima Kasih.

## APPENDIX C

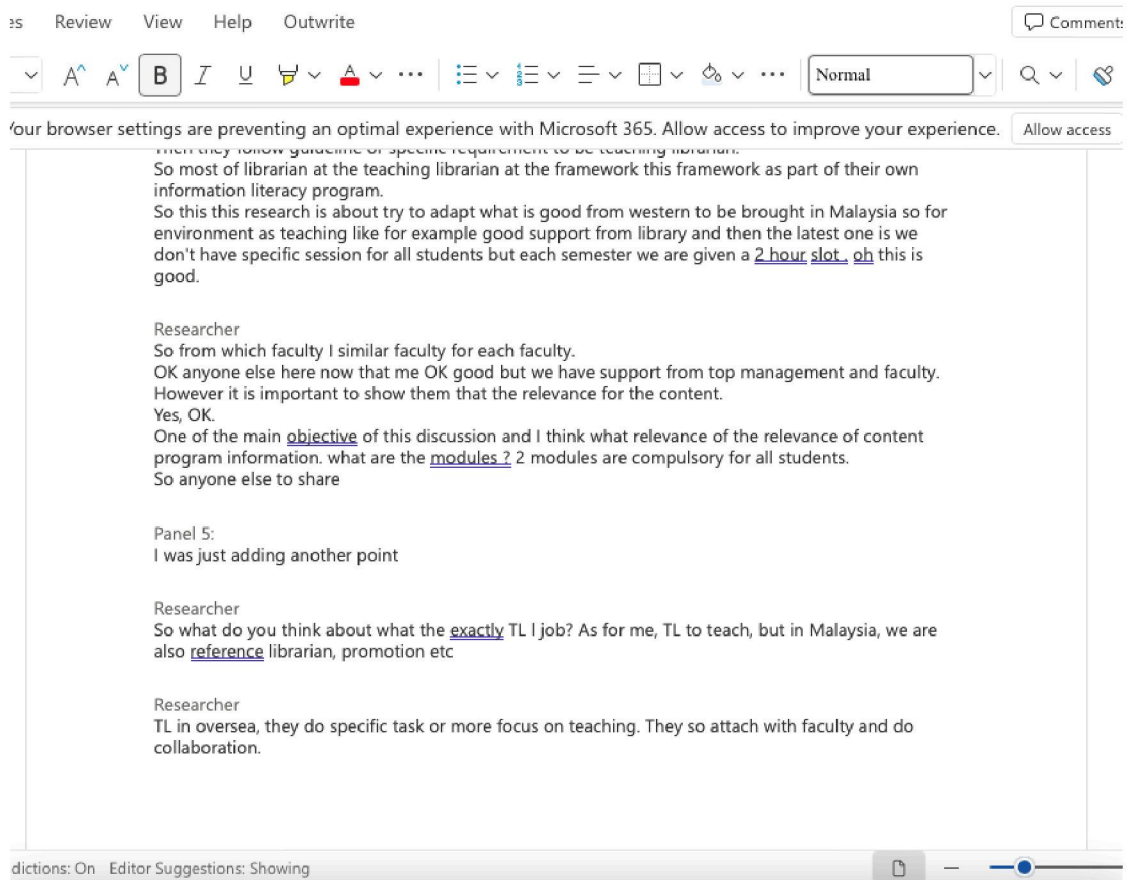
### Data Collection Processes



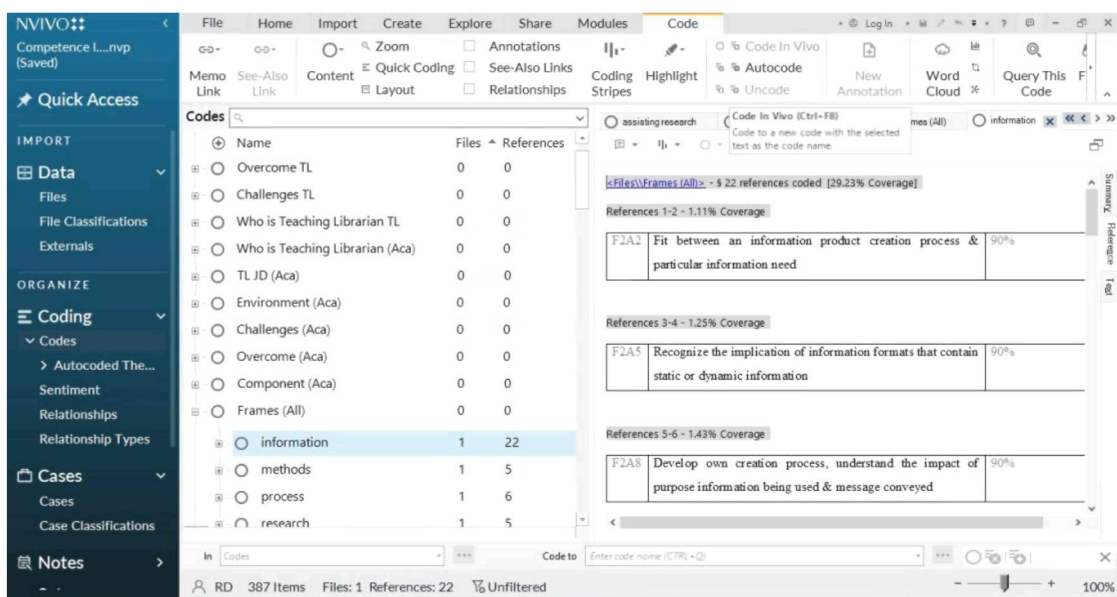


# APPENDIX D

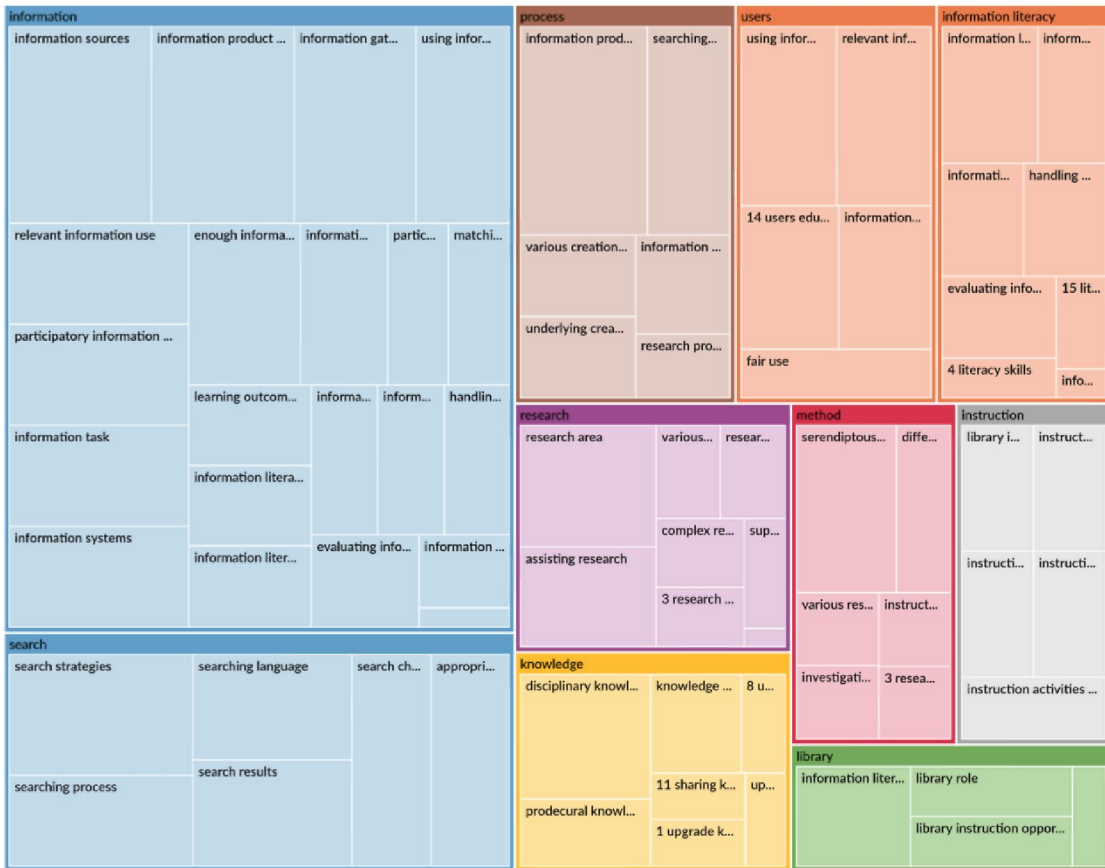
## Thematic Analysis Processes



### Step 1: Data Transcription and Familiarisation



### Step 2: Coding



Step 3: Generating Themes

## APPENDIX E

### Courses Offered by University

No	Universities	Courses	Program
1	UiTM	<ul style="list-style-type: none"> <li>• ICT application in LIS</li> <li>• Digital reference services</li> <li>• Intro to web development and library portal</li> <li>• OI I: resource description and discovery</li> <li>• Knowledge management</li> <li>• OI II: subject analysis and access to information</li> <li>• Digital publishing</li> <li>• Information sources and services</li> <li>• Libraries and media centres management</li> <li>• Public relations and community engagement</li> <li>• Digital libraries</li> <li>• Library analytics and metrics</li> <li>• Research methods in LIS</li> <li>• Independent study</li> </ul>	Bachelor
2	UniSel	<ul style="list-style-type: none"> <li>• Record Keeping in Organization</li> <li>• Theories and Principles of Information</li> <li>• Science and Librarianship</li> <li>• Management Skills</li> <li>• Organization of Knowledge III: Computerized Cataloguing and Metadata.</li> <li>• Preservation : Principles and Practices</li> <li>• Digital Libraries and Management of</li> <li>• Internet Resources and Service</li> <li>• Organization of Knowledge IV: Abstracting and Indexing</li> <li>• Advanced Report Writing</li> <li>• Medical Librarianship</li> <li>• Managing Project at Work</li> <li>• Planning and, Designing of Library and Infor Center</li> <li>• Information Resources for the Social Science and Humanities</li> <li>• Medical Librarianship</li> <li>• Project Paper</li> <li>• Organization of Knowledge in Library and Resource Center Management</li> <li>• Introduction to Library Management and Intellectual Property</li> <li>• Library Skills and Information Literacy</li> </ul>	Bachelor

---

		<ul style="list-style-type: none"> <li>• Reference and Information Services</li> <li>• Community Information Services &amp; Children Library</li> <li>• Principles Of Industrial Management</li> <li>• Organizational Behavior in Industries</li> <li>• Resource Description and Access</li> <li>• Organization of Knowledge I : Descriptive Cataloguing of Books &amp; Non Books</li> <li>• Organization Of Knowledge II: Subject Cataloguing And Classification</li> <li>• Computer Application in Libraries Collection Development</li> <li>• Ethics in Information Science</li> <li>• Infopreneur and Marketing in Information Services</li> <li>• Public Relation in Information Work</li> <li>• Electronic Record Keeping and Retrieval</li> <li>• Research Methodology and Statistics in Library and Resource Centre</li> <li>• Negotiation Proficiency</li> <li>• Public Speaking and Communicative skills</li> </ul>	
<b>3</b>	MSU	<ul style="list-style-type: none"> <li>• Principles of Programming</li> <li>• Statistics and Probabilities</li> <li>• Library and Information Skills</li> <li>• Management of Information Sources and Services</li> <li>• Organization of Information</li> <li>• Multimedia Applications</li> <li>• Software Analysis and Modelling</li> <li>• Management of Academic Library</li> <li>• Descriptive Cataloguing</li> <li>• Database System</li> <li>• Abstracting and indexing</li> <li>• Information System for Management</li> <li>• Cataloging and classification</li> <li>• Evaluation of Information Sources</li> <li>• Educational Materials and Digitization Activities in Library</li> <li>• Library Planning</li> <li>• Industrial Training</li> </ul>	Bachelor
<b>4</b>	UM	<ul style="list-style-type: none"> <li>• Organization of Information</li> <li>• Reference and Information Literacy Services</li> <li>• Technologies for Information Management</li> <li>• Digital Libraries</li> <li>• Libraries, Information and Society</li> <li>• Development of Information Collection</li> <li>• Management of Library and Information</li> </ul>	Masters

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		<ul style="list-style-type: none"> <li>Services</li> <li>• Research Methods in Library and Information Science</li> <li>• Indexing, Abstracting and Thesauri Construction</li> <li>• Web Publishing</li> <li>• User Needs and Behavior</li> <li>• Measurement and Evaluation of Library and Information Services</li> <li>• Special Topics in Library &amp; Information Science</li> <li>• Digital Humanities</li> <li>• Bibliometrics and Scientific Publishing</li> <li>• Statistics for Library &amp; Information Science Research</li> </ul>	
<b>5</b>	IIUM	<ul style="list-style-type: none"> <li>• ICT Research Methods</li> <li>• Islamic Worldview on ICT and Society.</li> <li>• Information Sources &amp; Services</li> <li>• Management of Information Institutions</li> <li>• Information Analysis &amp; Organizational I</li> <li>• Information Analysis &amp; Organizational II</li> <li>• Application of IT in Library</li> </ul>	Masters

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## APPENDIX F

### Predetermined Themes and Items for Core Competence Index

Human Attributes	Frames	Items
<b>Knowledge</b>	<b>Information Has Value</b>	<p>To give credit to the original ideas through proper attribution &amp; citation</p> <hr/> <p>Understand that intellectual property is a legal &amp; social construct</p> <hr/> <p>Articulate the purpose &amp; distinguishing characteristics of copyright, fair use, open access &amp; public domain</p> <hr/> <p>Understand how &amp; why individuals/groups may underrepresented/systematically within system that produced &amp; disseminate information</p> <hr/> <p>Recognize issue of access or lack to information sources</p> <hr/> <p>Decide where &amp; how information is published</p> <hr/> <p>Understand how personal information as commodity &amp; online interaction affects information received, produced or disseminate</p> <hr/> <p>Make informed choices to online action &amp; awareness to privacy and commodity of personal information</p> <hr/> <p>Respects the original ideas of others</p> <hr/> <p>Value skills, time &amp; effort to produce knowledge</p> <hr/> <p>See as contributors to the</p>

	information rather than consumer
	Inclined to examine their own information privilege
<b>Research as Inquiry</b>	Formulate questions for research based on information gaps/re-examination of existing/possible conflicting
	Determined scope of investigation
	Deal complex research by breaking complex into simple questions & limit scope of investigation
	Use various research method based on need/circumstance/type of inquiry
	Monitor gathered information & assess for gaps/weaknesses
	Organize information in meaningful ways
	Synthesize idea gathered from multiple sources
	Draw reasonable conclusions based on analysis & interpretation of information
	Consider research as open-ended question & engagement with information
	Appreciate question appear to be simple but still disruptive & important to research
	Value intellectual curiosity in developing questions & learn new investigation methods
	Maintain open mind & critical

		stance
		Value persistence, adaptability & flexibility & recognize ambiguity benefit the research process
		Seek multiple perspectives during information gathering & assessment
		Seek appropriate help when needed
		Follow ethical & legal guidelines in gathering & using information
		Demonstrate intellectual humility
<b>Skill</b>	<b>Information Creation as Process</b>	Articulate the capabilities & constraints of information developed through various creation process
		Fit between an information product creation process & particular information need
		Articulate traditional & emerging process of information creation & dissemination in a particular discipline
		Recognize information may be perceived differently based on format packaged
		Recognize the implication of information formats that contain static or dynamic information
		Monitor the value is placed upon different types of information product in varying contexts
		Transfer knowledge of capabilities & constraints to new types of information products

---

Develop own creation process, understand the impact of purpose information being used & message conveyed

---

Seek out characteristics of information products that indicate the underlying creation process

---

Value the process of matching information need to appropriate product

---

Accept information creation may begin through communicating in range of format or modes

---

Accept the ambiguity surrounding the potential value of information creation expressed in emerging formats or modes

---

Resist the tendency to equate format with the underlying creation process

---

Understand different methods of information dissemination with different purposes are available for their use

---

**Searching as Strategic Exploration**

---

Determine the initial scope task required to meet information needs

---

Identify interested parties might produce information about topic & determine how to access that information

---

Utilize brainstorming & select best source thinking when searching

---

Match information needs & search strategies to appropriate search tools

---

		Design & refine needs & search strategies as necessary based on search results
		Understand how information systems are organized in order to access relevant information
		Use different types of searching language
		Manage searching process & results effectively
		Exhibit mental flexibility & creativity
		Understand first attempts searching do not always produce adequate results
		Realize information sources vary in content/format & vary in relevance/ value / need/ nature of search
		Seek guidance from experts
		Recognize the value of browsing & other serendipitous methods of information gathering
		Persist the search challenges, know when to have enough information to complete information task
<b>Ability</b>	<b>Authority is Constructed and Context</b>	Define different types of authority
		Use research tools & indicators of authority to determine credible sources
		Understand the elements that might temper this credibility
		Understand many disciplines have acknowledge authorities

	Understand one scholar would challenge the authority of those sources
	Acknowledge they are developing their own authoritative voices in particular area
	Acknowledge in seeking accuracy and reliability, respect intellectual property & participate in communities' practices
	Understand the increase of social nature in information ecosystem where authorities connect to each other & sources develop overtime
	Develop & maintain open mind when encounter conflict
	Motivate to find authoritative sources in unexpected ways
	Develop awareness of importance of accessing content with sceptical & own biases & worldview
	Follow the traditions & recognize the value of diverse idea & worldviews
	Maintaining attitudes & action required frequent self-evaluation
<b>Scholarship as Conversation</b>	Cite the contributing work of others in their own information production
	Contribute to scholarly conversation at appropriate level
	Identify barriers to enter scholarly conversation via various venues
	Critically evaluate contributions

---

made by others in participatory  
information environments

---

Identify contribution particular  
articles/books & other scholarly  
pieces make to disciplinary  
knowledge

---

Summarize changes in scholarly  
perspective over time on particular  
topic within specific discipline

---

Recognize given scholarly work  
may not represent the only or even  
the majority perspective on issue

---

Recognize enter on ongoing  
scholarly conversation & not a  
finished conversation

---

Seek out conversation taking place  
in research area

---

See as contributor to scholarship  
rather than only consumers

---

Recognize that scholarly  
conversation take place in various  
venues

---

Suspend judgement on value of  
particular piece of scholarship until  
larger context for the scholarly  
conversation is better understood

---

Understand the responsibility comes  
with entering the conversation  
through participatory channels

---

Value user generated content &  
evaluate contribution made by others

---

Recognize system privilege  
authorities & not having fluency in

---

---

the language & process of a  
discipline disempowers their ability  
to participate & engage

---

## APPENDIX G

### Items for KSA

No	Items	Sources
1.	Assess the needed information effectively and efficiently	
2	Determine the extent of information needed	
3	Evaluate the information and its sources critically	
4	Incorporate selected information into one's knowledge base	(American Library Association, 2000)
5	Use information effectively to accomplish a specific purpose	
6	Understand the economic, legal & social issues surrounding the use of information & access & use information ethically & legally	
7	Analyse curriculum in assigned subject area	(American Library Association, 2008)
8	Aware student assignment & library role in completing assignments	
9	Communicate with coordinator for instruction activities	
10	Work in team with knowledge, skill & time to improve instructions	
11	Maintain & regularly report accurate statistics	
12	Design effective assessment of student learning	
13	Maintains awareness of communication needs of different learning, communication style & methods accordingly	(American Library Association, 2008)
14	Facilitates discussion of unexpected issues in a skillful, nonjudgmental manner	
15	Uses common communication technologies to provide assistance to students in & out classroom	
16	Requests feedback from peers on communication skills for improvement	

<b>17</b>	Describes the role of information literacy to academia/users
<b>18</b>	Collaborates with faculty to integrate information literacy competencies, concepts & skills
<b>19</b>	Implement integration of information literacy competencies & concepts within subject discipline curriculum.
<b>20</b>	Collaborates with faculty by defining expectations and desired learning outcomes
<b>21</b>	Sequences information in a lesson plan to guide the instruction session
<b>22</b>	Creates learner-centered course content and incorporates activities directly tied to learning outcomes
<b>23</b>	Assists learners to assess information needs, differentiate sources of information, and help develop skills to effectively identify, locate, and evaluate sources
<b>24</b>	Scales presentation content to the amount of time and space
<b>25</b>	Designs instruction to best meet the common learning characteristics of learners
<b>26</b>	Integrates appropriate technology into instruction
<b>27</b>	Actively seeking out instruction opportunities within the library, institution, or national organizations
<b>28</b>	Encourages librarians and faculty to participate in discussions, ask questions, and s
<b>29</b>	Plans presentation content and delivery in advance & preparation time for instruction
<b>30</b>	Promotes library instruction opportunities and services
<b>31</b>	Maintains relationship with assigned academic

---

	departments
<b>32</b>	Represents library and instruction program in an effective and positive manner
<b>33</b>	Creates a learner-centered teaching environment by using active, col-laborative, and other appropriate learning activities
<b>34</b>	Modifies teaching methods and delivery to different groups of users
<b>35</b>	Participates in constructive student-teacher exchanges by encouraging students to ask and answer questions
<b>36</b>	Modifies teaching methods to match the class style and setting
<b>37</b>	Encourages teaching faculty to participate in discussion
<b>38</b>	Reflects practice to improve teaching skills and acquires new knowledge of teaching methods and learning theories
<b>39</b>	Shares teaching skills and knowledge with other instructional staff
<b>40</b>	Makes the best possible use of voice, eye contact, and gestures to keep class lively and students engaged
<b>41</b>	Presents instructional content in diverse ways
<b>42</b>	Uses classroom instructional technologies
<b>43</b>	Seeks to clarify confusing terminology, avoids excessive jargon, and uses vocabulary appropriately
<b>44</b>	Practices instruction content to achieve familiarity and confidence
<b>45</b>	Keeps current basic precepts, theories, methodologies, and related subject areas when planning instruction

---

- 
- 46** Identifies primary and secondary sources within subject area and promotes the use of resources
- 
- 47** Uses vocabulary for the subject and related disciplines in the classroom
- 
- 48** Perform action to observed & supervised
-

## APPENDIX H

### Interview Guide

Focus Area	Questions
<b>Demographic</b>	Gender
	Occupation/Responsibilities
	Year of Experiences
	Highest Education
<b>Challenges of Practising Teaching Librarian</b>	Who is teaching librarian?
	What are job descriptions of teaching librarian?
	How are the environment in institution as teaching librarians?
	What are the challenges and barriers in practicing teaching librarian?
	What are the strategies to overcome these challenges?
	Syllabus of information literacy?
<b>Knowledge</b>	Tacit knowledge Information has value
	Explicit knowledge Research as inquiry
<b>Skill</b>	Technical skills Information creation as process
	(Hard skills) Searching as strategic exploration
	Behavioural element (soft skills)
<b>Ability</b>	Intellectual abilities Authority is constructed and context
	Physical abilities Scholarship as conversation

\*Items for each Core Competence Index and Human Attributes is listed in Appendix F and Appendix G

# APPENDIX I

## Round 1: Focus Group Interview – Examples Brainstorming using Mentimeter

Mentimeter

What are exactly Teaching Librarian job description

20 responses



Mentimeter

### Who is Teaching Librarian?

Testing 2

In UTM Library all librarians are teaching librarian.

Teaching librarian refers to librarians who is engaged in teaching and user education or information literacy program as their main duty

librarians who are assigned to design the curriculum for information literacy skills for the library users.

Also known as a reference librarian. He/she is responsible for planning, organizing, implementing and evaluating information literacy sessions whether small-scale (consultation / private) or large-scale

(cont.) or large-scale (class), especially to the community in their respective institutions.

who are responsible for guiding and assisting research for the researchers.

The librarian handling the literacy classes and other programs including the modules for their institution.



## How the environment as Teaching Librarian at your institution?

Testing 1

good support from the library & faculties

We do not have specific sessions for all students, but each semester we are given a 2-hour slot specifically for information literacy sessions with first-year students of each faculty.

We have the support from our top management and faculty. However, it is important to show them the relevance of the content.

Get good support from some faculty and academicians.

support from some faculty and lecturers

2 of our modules are compulsory for all students



## What are the CHALLENGES or BARRIERS in practicing Teaching Librarian at your institution?

lack of resources, technology, sometimes not all faculty knows the value of this module from library and the importance of information literacy skills.

most of our classes are online, we encounter technical issues- network- we are not funny enough (this is from the survey at the end of classes)

Resource constraints (budget, staffing), rapid change of technology, communication barrier (how to be more interactive)

knowledge, skills in conducting the session, hardware and software, technical issues for online and how to get the crowd/audience

Develop new module and resources constraint( facilities to conduct teaching sessions)

we are lacking of creativity in attracting students' attention

The latest and advanced modules, demand of users, hard to get audiences



## How to overcome those CHALLENGES OR BARRIERS?

Upgrade knowledge and skill

training of course

convince the faculty or top management about the relevance of the module.

Training and collaboration with other institution / teaching librarian (maybe attachment for a few period of time), upgrade knowledge and be creative. And assessment after session (for improvement)

Promote during Mesyuarat JKP

Attending courses

Promoting modules



## What would be the components in Information Literacy program?

Identify the information needs and skills gaps of the audience, develop the module and instructional methods and assessment

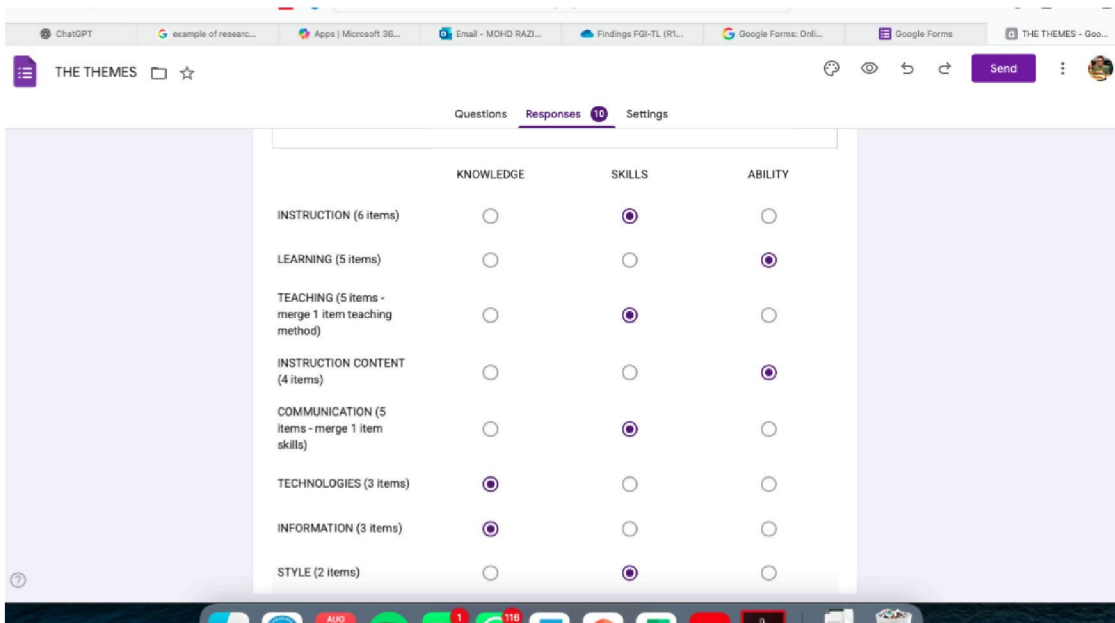
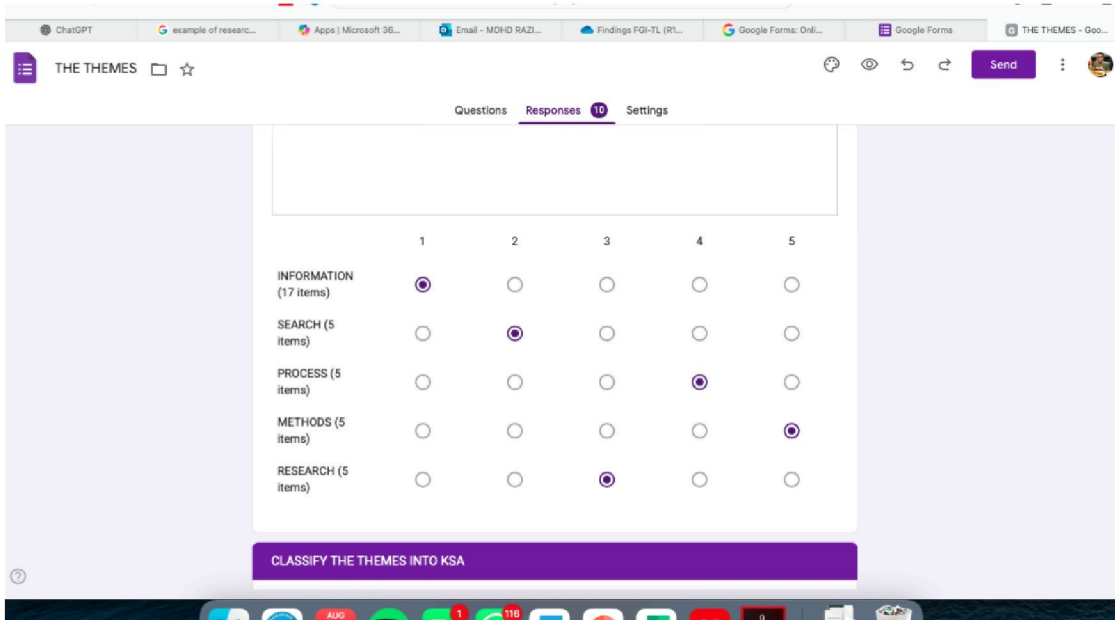
Research method/ systematic searching strategy/ AI for research / bibliography management tool / SLR

Searching skills



# APPENDIX J

## Round 2: Individual Interview



# APPENDIX K

## Preliminary Study 1

MAKLUMAT BERKAITAN <i>TEACHING LIBRARIAN</i> DI PERPUSTAKAAN AKADEMIK UNIVERSITI AWAM							
Universiti	Jumlah Teaching Librarian	Kelayakan Akademik Teaching Librarian	Senarai Information Literacy Module	Jabatan/Bahagian/Unit Menguruskan Information Literacy	Pengalaman Mengajar (purata)	Pemilihan/Penempatan Teaching Librarian	Nyatakan sekiranya lain-lain
CONTOH: UUU	4	Degree (1 orang) Master (2 orang) PhD (1 orang)	Thesis Webpac	Bahagian Rujukan	5 tahun	Kelayakan Akademik	
USM							
UM							
UKM							

# APPENDIX L

## Preliminary Study 2

PROMINENT LIBRARY ADMINISTRATOR PERSPECTIVE ON COMPETENCE INDEX FOR TEACHING LIBRARIAN

19/08/2025, 11:24 AM

### PROMINENT LIBRARY ADMINISTRATOR PERSPECTIVE ON COMPETENCE INDEX FOR TEACHING LIBRARIAN

Teaching librarian is an academic librarian who is teaching information literacy in disciplinary and general learning outcome and in a well-position to support student learning and success in higher education environment. This research objectives are to develop competence index for teaching librarian, a well-structured information literacy documented pedagogical practices and for profession credibility and career development.

Your response/opinion will contribute to support evidence in current state (academic libraries in higher education) towards the research area from the perspective of Malaysian context.

Any enquiries,  
Mohd Razif bin Dzulkpli  
2022424992  
019-3697001  
[mohdrazif@utem.edu.my](mailto:mohdrazif@utem.edu.my)

\* Required

#### 1. Institution \*

Select your answer



#### 2. Years of experience as academic librarian \*

#### 3. Do you well-versed the roles/position of teaching librarian? \*

- Yes  
 No

#### 4. How teaching librarian is assigned in your institution? \*

- Rotation basis  
 Academic Qualification (Masters Degree/PhD)  
 Competency-based

#### 5. Do you aware librarian has never been taught formal pedagogy and trained as an educator during academic years/studies? \*

- Yes  
 No

#### 6. Are there any training given to librarian BEFORE assigned as teaching librarian? (pedagogy skills, research classes, information retrieval etc.) \*

- Yes  
 No

#### 7. Are there any related training to teaching librarian? (pedagogy skills, research classes, information retrieval etc.) \*

- Yes  
 No

#### 8. Do you familiar with the Framework for Information Literacy for Higher Education by Association of College & Research Libraries (ACRL)? \*

- Yes  
 No

#### 9. Do you agree that competency is a specific range of knowledge, skills and ability that qualify teaching librarian to carry out particular responsibilities and form the very foundation of a profession? \*

- Yes  
 No

#### 10. Do you agree that teaching librarian need a specific competence index so that they can successfully perform the roles/job? \*

- Yes  
 No

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## APPENDIX M

### Consensus on the Core Competence Index and Human Attributes

Frame 1: Authority is Constructed and Contextual: Session 1 and 2

Code	Items	Panel 1	Panel 2	Panel 3	Panel 4	Panel 5	Panel 6	Panel 7	Panel 8	Panel 9	Panel 10	Consensus %
F1A1	Define different types of authority	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Edit	Accept	100%
F1A2	Use research tools & indicators of authority to determine credible sources	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Combine	100%
F1A3	Understand the elements that might temper this credibility	Remove	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Combine	Accept	80%
F1A4	Understand many disciplines have acknowledge authorities	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Combine	Accept	100%

<b>F1A5</b>	Understand one scholar would challenge the authority of those sources	Accept	Accept	Accept	Combine	Accept	Edit	Accept	Accept	Combine	Accept	100%
<b>F1A6</b>	Acknowledge they are developing their own authoritative voices in particular area	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Edit	Accept	100%
<b>F1A7</b>	Acknowledge in seeking accuracy and reliability, respect intellectual property & participate in communities' practices	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Combine	100%
<b>F1A8</b>	Understand the increase of social nature in	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%

	information ecosystem where authorities connect to each other & sources develop overtime												
<b>F1B1</b>	Develop & maintain open mind when encounter conflict	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F1B2</b>	Motivate to find authoritative sources in unexpected ways	Remove	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	90%
<b>F1B3</b>	Develop awareness of importance of accessing content with sceptical & own biases & worldview	Accept	Accept	Accept	Accept	Edit	Remove	Accept	Accept	Accept	Accept	Accept	90%
<b>F1B4</b>	Follow the	Accept	Accept	Accept	Accept	Edit	Remove	Accept	Accept	Edit	Remove	Remove	80%

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	traditions & recognize the value of diverse idea & worldviews											
<b>F1B5</b>	Maintaining attitudes & action required frequent self-evaluation	Accept	Accept	Accept	Accept	Edit	Accept	Accept	Accept	Accept	Accept	100%

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Frame 2: Information Creation as a Process: Session 1 and 2

<b>Code</b>	<b>Items</b>	<b>Panel 1</b>	<b>Panel 2</b>	<b>Panel 3</b>	<b>Panel 4</b>	<b>Panel 5</b>	<b>Panel 6</b>	<b>Panel 7</b>	<b>Panel 8</b>	<b>Panel 9</b>	<b>Panel 10</b>	<b>Consensus %</b>
<b>F2A1</b>	Articulate the capabilities & constraints of information developed through various creation process	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F2A2</b>	Fit between an information	Accept	Accept	Accept	Accept	Accept	Edit	Accept	Accept	Accept	Accept	100%

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	product creation process & particular information need											
<b>F2A3</b>	Articulate traditional & emerging process of information creation & dissemination in a particular discipline	Accept	Combine	Accept	Accept	Remove	Edit	Accept	Accept	Edit	Accept	90%
<b>F2A4</b>	Recognize information may be perceived differently based on format packaged	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	90%
<b>F2A5</b>	Recognize the implication of information	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	90%

	formats that contain static or dynamic information											
<b>F2A6</b>	Monitor the value is placed upon different types of information product in varying contexts	Remove	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	90%
<b>F2A7</b>	Transfer knowledge of capabilities & constraints to new types of information products	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	90%
<b>F2A8</b>	Develop own creation process, understand the impact of purpose	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	90%

	information being used & message conveyed											
<b>F2B1</b>	Seek out characteristics of information products that indicate the underlying creation process	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F2B2</b>	Value the process of matching information need to appropriate product	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F2B3</b>	information creation may begin through communicating in range of format or	Accept	Accept	Accept	Combine	Edit	Accept	Accept	Accept	Accept	Accept	100%

	modes											
<b>F2B4</b>	Accept the ambiguity surrounding the potential value of information creation expressed in emerging formats or modes	Accept	Accept	Accept	Combine	Edit	Accept	Accept	Accept	Edit	Accept	100%
<b>F2B5</b>	Resist the tendency to equate format with the underlying creation process	Remove	Accept	Accept	Remove	Edit	Edit	Accept	Accept	Remove	Accept	70%
<b>F2B6</b>	Understand different methods of information dissemination with different purposes are	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%

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available for their  
use

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Frame 3: Information has Value: Session 1 and 2

Code	Items	Panel 1	Panel 2	Panel 3	Panel 4	Panel 5	Panel 6	Panel 7	Panel 8	Panel 9	Panel 10	Consensus %
F3A1	To give credit to the original ideas through proper attribution & citation	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Accept	100%
F3A2	Understand that intellectual property is a legal & social construct	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Combine	100%
F3A3	Articulate the purpose & distinguishing characteristics of copyright, fair use, open access	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%

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	& public domain											
<b>F3A4</b>	Understand how & why individuals/group s may underrepresented/ systematically within system that produced & disseminate information	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	90%
<b>F3A5</b>	Recognize issue of access or lack to information sources	Accept	Accept	Accept	Accept	Edit	Accept	Accept	Accept	Accept	Combine	100%
<b>F3A6</b>	Decide where & how information is published	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F3A7</b>	Understand how personal information as	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%

	commodity & online interaction affects information received, produced or disseminate												
<b>F3A8</b>	Make informed choices to online action & awareness to privacy and commodity of personal information	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F3B1</b>	Respects the original ideas of others	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F3B2</b>	Value skills, time & effort to produce	Accept	Remove	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	90%

	knowledge											
<b>F3B3</b>	See as contributors to the information rather than consumer	Accept	Remove	Edit	Accept	Accept	Accept	Accept	Accept	Accept	Remove	80%
<b>F3B4</b>	Inclined to examine their own information privilege	Accept	Remove	Accept	Accept	Accept	Accept	Accept	Accept	Edit	Accept	90%

Frame 4: Research as Enquiry: Session 1 and 2

Code	Items	Panel 1	Panel 2	Panel 3	Panel 4	Panel 5	Panel 6	Panel 7	Panel 8	Panel 9	Panel 10	Consensus %
<b>F4A1</b>	Formulate questions for research based on information gaps/re-examination of existing/possible conflicting	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F4A2</b>	Determined scope of	Accept	Combine	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	90%

	investigation											
<b>F4A3</b>	Deal complex research by breaking complex into simple questions & limit scope of investigation	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Remove	Accept	Combine	90%
<b>F4A4</b>	Use various research method based on need/circumstance/type of inquiry	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F4A5</b>	Monitor gathered information & assess for gaps/weaknesses	Accept	Combine	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	90%
<b>F4A6</b>	Organize information in meaningful ways	Accept	Combine	Accept	Accept	Remove	Accept	Accept	Combine	Accept	Remove	80%
<b>F4A7</b>	Synthesize idea gathered from multiple sources	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Combine	Accept	Remove	80%
<b>F4A8</b>	Draw reasonable conclusions based on analysis & interpretation	Accept	Remove	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	80%

	of information												
<b>F4B1</b>	Consider research as open-ended question & engagement with information	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%
<b>F4B2</b>	Appreciate question appear to be simple but still disruptive & important to research	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F4B3</b>	Value intellectual curiosity in developing questions & learn new investigation methods	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F4B4</b>	Maintain open mind & critical stance	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%
<b>F4B5</b>	Value persistence, adaptability & flexibility & recognize ambiguity benefit the research process	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F4B6</b>	Seek multiple	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%

	perspectives during information gathering & assessment											
<b>F4B7</b>	Seek appropriate help when needed	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Remove	90%
<b>F4B8</b>	Follow ethical & legal guidelines in gathering & using information	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F4B9</b>	Demonstrate intellectual humility	Accept	Accept	Accept	Accept	Remove	Accept	Edit	Accept	Combine	Accept	90%

Frame 5: Scholarship as Conversation: Session 1 and 2

Code	Items	Panel 1	Panel 2	Panel 3	Panel 4	Panel 5	Panel 6	Panel 7	Panel 8	Panel 9	Panel 10	Consensus %
<b>F5A1</b>	Cite the contributing work of others in their own information production	Accept	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Accept	100%
<b>F5A2</b>	Contribute to scholarly conversation	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%

	at appropriate level											
<b>F5A3</b>	Identify barriers to enter scholarly conversation via various venues	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Combine	Accept	100%
<b>F5A4</b>	Critically evaluate contributions made by others in participatory information environments	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%
<b>F5A5</b>	Identify contribution particular articles/books & other scholarly pieces make to disciplinary knowledge	Accept	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Accept	100%
<b>F5A6</b>	Summarize changes in scholarly perspective over time on particular topic within specific discipline	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	90%

<b>F5A7</b>	Recognize given scholarly work may not represent the only or even the majority perspective on issue	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	90%
<b>F5B1</b>	Recognize enter on ongoing scholarly conversation & not a finished conversation	Accept	Accept	Accept	Remove	Remove	Accept	Accept	Accept	Accept	Remove	70%
<b>F5B2</b>	Seek out conversation taking place in research area	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%
<b>F5B3</b>	See as contributor to scholarship rather than only consumers	Accept	Accept	Accept	Accept	Edit	Accept	Edit	Accept	Accept	Accept	100%
<b>F5B4</b>	Recognize that scholarly conversation take place in various venues	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	90%
<b>F5B5</b>	Suspend judgement on value of particular	Accept	Accept	Accept	Accept	Remove	Edit	Accept	Accept	Accept	Accept	90%

	piece of scholarship until larger context for the scholarly conversation is better understood												
<b>F5B6</b>	Understand the responsibility comes with entering the conversation through participatory channels	Accept	Accept	Accept	Accept	Edit	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F5B7</b>	Value user generated content & evaluate contribution made by others	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F5B8</b>	Recognize system privilege authorities & not having fluency in the language & process of a discipline disempowers their ability to participate &	Accept	Accept	Accept	Accept	Remove	Accept	Edit	Accept	Accept	Accept	Accept	90%

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engage

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Frame 6: Searching as Strategic Exploration: Session 1 and 2

Code	Items	Panel 1	Panel 2	Panel 3	Panel 4	Panel 5	Panel 6	Panel 7	Panel 8	Panel 9	Panel 10	Consensus %
F6A1	Determine the initial scope task required to meet information needs	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%
F6A2	Identify interested parties might produce information about topic & determine how to access that information	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
F6A3	Utilize brainstorming & select best source thinking when searching	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
F6A4	Match information	Combine	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Remove	90%

	needs & search strategies to appropriate search tools											
<b>F6A5</b>	Design & refine needs & search strategies as necessary based on search results	Combine	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Accept	100%
<b>F6A6</b>	Understand how information systems are organized in order to access relevant information	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%
<b>F6A7</b>	Use different types of searching language	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F6A8</b>	Manage searching process & results effectively	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F6B1</b>	Exhibit mental flexibility & creativity	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%

<b>F6B2</b>	Understand first attempts searching do not always produce adequate results	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F6B3</b>	Realize information sources vary in content/format & vary in relevance/ value / need/ nature of search	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F6B4</b>	Seek guidance from experts	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%
<b>F6B5</b>	Recognize the value of browsing & other serendipitous methods of information gathering	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>F6B6</b>	Persist the search challenges, know when to have enough information to complete information	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%

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task

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### Knowledge

Code	Items	Panel 1	Panel 2	Panel 3	Panel 4	Panel 5	Panel 6	Panel 7	Panel 8	Panel 9	Panel 10	Consensus %
<b>K1</b>	Assess the needed information effectively and efficiently	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>K2</b>	Determine the extent of information needed	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>K3</b>	Evaluate the information and its sources critically	Remove	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	80%

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<b>K4</b>	Use information effectively to accomplish a specific purpose	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%
<b>K5</b>	Understand the economic, legal & social issues surrounding the use of information & access & use information ethically & legally	Accept	Accept	Accept	Accept	Accept	Accept	Edit	Accept	Accept	Accept	Accept	100%
<b>K6</b>	Incorporate selected	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%

	information into one's knowledge base											
<b>K7</b>	Analyse curriculum in assigned subject area	Remove	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Accept	Accept	90%
<b>K8</b>	Aware student assignment & library role in completing assignments	Accept	Accept	Accept	Combine	Accept	Accept	Edit	Accept	Accept	Remove	90%

**Skills**

<b>Code</b>	<b>Items</b>	<b>Panel 1</b>	<b>Panel 2</b>	<b>Panel 3</b>	<b>Panel 4</b>	<b>Panel 5</b>	<b>Panel 6</b>	<b>Panel 7</b>	<b>Panel 8</b>	<b>Panel 9</b>	<b>Panel 10</b>	<b>Consensus %</b>
<b>S1</b>	Communicate with coordinator for instruction activities	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%

<b>S2</b>	Work in team with knowledge, skill & time to improve instructions	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S3</b>	Maintain & regularly report accurate statistics	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S4</b>	Design effective assessment of student learning	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%
<b>S5</b>	Maintains awareness of communication needs of different learning, communication style & methods accordingly	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S6</b>	Facilitates discussion of unexpected issues in a skilful, non-judgmental manner	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%
<b>S7</b>	Uses common communication technologies to provide assistance to students in	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%

	& out classroom											
<b>S8</b>	Requests feedback from peers on communication skills for improvement	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	90%
<b>S9</b>	Describes the role of information literacy to academia/users	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%
<b>S10</b>	Collaborates with faculty to integrate information literacy competencies, concepts & skills	Accept	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Accept	100%
<b>S11</b>	Implement integration of information literacy competencies & concepts within subject discipline curriculum	Accept	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Accept	100%
<b>S12</b>	Collaborates with faculty by defining expectations and desired learning outcomes	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S13</b>	Sequences information in	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%

	a lesson plan to guide the instruction session											
<b>S14</b>	Creates learner-centred course content and incorporates activities directly tied to learning outcomes	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	90%
<b>S15</b>	Assists learners to assess information needs, differentiate sources of information, and help develop skills to effectively identify, locate, and evaluate sources	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S16</b>	Scales presentation content to the amount of time and space	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S17</b>	Designs instruction to best meet the common learning characteristics of	Accept	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Accept	100%

	learners											
<b>S18</b>	Integrates appropriate technology into instruction	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S19</b>	Actively seeking out instruction opportunities within the library, institution, or national organizations	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S20</b>	Encourages librarians and faculty to participate in discussions, ask questions, and share ideas on instructions	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S21</b>	Plans presentation content and delivery in advance & preparation time for instruction	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S22</b>	Promotes library instruction opportunities and services	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%

<b>S23</b>	Maintains relationship with assigned academic departments	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S24</b>	Represents library and instruction program in an effective and positive manner	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S25</b>	Creates a learner-centred teaching environment by using active, collaborative, and other appropriate learning activities	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S26</b>	Modifies teaching methods and delivery to different groups of users	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Remove	80%
<b>S27</b>	Participates in constructive student-teacher exchanges by encouraging students to ask and answer questions	Accept	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Remove	90%

<b>S28</b>	Modifies teaching methods to match the class style and setting	Accept	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Remove	90%
<b>S29</b>	Encourages teaching faculty to participate in discussion	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S30</b>	Reflects practice to improve teaching skills and acquires new knowledge of teaching methods and learning theories	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	90%
<b>S31</b>	Shares teaching skills and knowledge with other instructional staff	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S32</b>	Makes the best possible use of voice, eye contact, and gestures to keep class lively and students engaged	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%
<b>S33</b>	Presents instructional	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%

	content in diverse ways											
<b>S34</b>	Uses classroom instructional technologies	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S35</b>	Seeks to clarify confusing terminology, avoids excessive jargon, and uses vocabulary appropriately	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S36</b>	Practices instruction content to achieve familiarity and confidence	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Remove	90%
<b>S37</b>	Keeps current basic precepts, theories, methodologies, and related subject areas when planning instruction	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%
<b>S38</b>	Identifies primary and secondary sources within subject area and promotes the use of resources	Accept	Accept	Accept	Accept	Combine	Accept	Accept	Accept	Accept	Accept	100%

<b>S39</b>	Uses vocabulary for the subject and related disciplines in the classroom	Accept	Accept	Accept	Accept	Remove	Accept	Accept	Accept	Accept	Accept	Accept	90%
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Ability

<b>Code</b>	<b>Items</b>	<b>Panel 1</b>	<b>Panel 2</b>	<b>Panel 3</b>	<b>Panel 4</b>	<b>Panel 5</b>	<b>Panel 6</b>	<b>Panel 7</b>	<b>Panel 8</b>	<b>Panel 9</b>	<b>Panel 10</b>	<b>Consensus %</b>
<b>A1</b>	Communicate with coordinator for instruction activities	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	100%

## APPENDIX N

### Content Validity Index (CVI) Relevance Rating

#### Relevance Rating by Experts for Information Literacy for Higher Education

Items	E1	E2	E3	E4	E5	E6	E7	E8	Expert In Agreement	I-CVI	UA
Understand that while many disciplines have acknowledged authorities, one scholar would challenge the authority of those sources, yet acknowledge they are developing their own authoritative voices in a particular area, all while acknowledging the importance of seeking accuracy and reliability, respecting intellectual property, and participating in communities' practices.	1	1	1	1	1	1	1	1	8	1	1
Understand the increase of social nature in information ecosystem where authorities connect to each other and sources develop overtime	1	1	1	1	1	1	1	1	8	1	1
Recognize information may be perceived differently based on format packaged	1	1	1	1	1	1	1	1	8	1	1

Recognize the implication of information formats that contain static or dynamic information	1	0	1	1	1	1	1	1	7	0.875	0
Monitor the value is placed upon different types of information product in varying contexts	1	0	1	1	1	1	1	1	7	0.875	0
Transfer knowledge of capabilities & constraints to new types of information products	1	1	1	1	1	1	1	1	8	1	1
Value the process of matching information need to appropriate product	1	1	1	1	1	1	1	1	8	1	1
Accept that information creation may begin through communicating in a range of formats or modes, and acknowledge the ambiguity surrounding the potential value of information creation expressed in emerging formats or modes.	1	1	1	1	1	1	1	1	8	1	1
To give credit to the original ideas through proper attribution and citation, it is important to understand that intellectual property is a legal and social construct, while also	1	1	1	1	1	1	1	1	8	1	1

recognizing the issue of access or lack of access to information sources												
Understand how & why individuals/groups may underrepresented/systematically within system that produced & disseminate information	1	1	1	1	1	1	1	1	0	7	0.875	0
Decide where & how information is published	1	1	1	1	1	1	1	1	1	8	1	1
Understand how personal information as commodity & online interaction affects information received, produced or disseminate	1	1	1	1	1	1	1	1	1	8	1	1
Make informed choices to online action & awareness to privacy and commodity of personal information	1	1	1	1	1	1	1	1	1	8	1	1
Value skills, time & effort to produce knowledge	1	1	1	1	1	1	1	1	1	8	1	1
Inclined to examine their own information privilege	1	0	1	1	1	1	1	1	1	7	0.875	0
Monitor gathered information & assess for gaps/weaknesses	1	1	1	1	1	1	1	1	1	8	1	1

Seek multiple perspectives during information gathering and assessment, and seek appropriate help when needed.	1	1	1	1	1	1	1	1	8	1	1
Follow ethical & legal guidelines in gathering & using information	1	1	1	1	1	1	1	1	8	1	1
Cite the contributing work of others in their own information production, contribute to scholarly conversation at an appropriate level, identify barriers to enter scholarly conversation via various venues, and recognize the contribution that particular articles, books, and other scholarly pieces make to disciplinary knowledge.	1	1	1	1	1	1	1	1	8	1	1
Critically evaluate contributions made by others in participatory information environments	1	0	0	1	1	1	1	1	6	0.75	0
Determine the initial scope task required to meet information needs	1	1	1	1	1	1	1	1	8	1	1
Identify interested parties might produce information about topic & determine how to access that information	1	1	1	1	1	1	1	1	8	1	1

Understand how information systems are organized in order to access relevant information	1	1	1	1	1	1	1	1	8	1	1
Understand that first attempts at searching do not always produce adequate results and realize that information sources vary in content, format, relevance, value, need, and nature of the search.	1	1	1	1	1	1	1	1	8	1	1
Develop & maintain open mind when encounter conflict	1	1	1	1	1	1	1	1	8	1	1
Motivate to find authoritative sources in unexpected ways	1	1	1	1	1	1	1	1	8	1	1
Develop awareness of importance of accessing content with sceptical, own biases and worldview	1	0	0	1	1	1	1	1	6	0.75	0
Maintaining attitudes & action required frequent self-evaluation	1	1	0	1	1	1	1	1	7	0.875	0
Fit between an information product creation process & particular information need	1	0	1	1	1	1	1	1	7	0.875	0
Develop own creation process, understand the impact of purpose information being used &	1	1	1	1	1	1	1	1	8	1	1

message conveyed												
Seek out characteristics of information products that indicate the underlying creation process	1	0	1	1	1	1	1	1	1	7	0.875	0
Articulate the purpose & distinguishing characteristics of copyright, fair use, open access & public domain	1	1	1	1	1	1	1	1	1	8	1	1
Respects the original ideas of others	1	1	1	1	1	1	1	1	1	8	1	1
Maintain open mind & critical stance	1	1	1	1	1	1	1	1	1	8	1	1
Recognize system privilege authorities & not having fluency in the language & process of a discipline disempowers their ability to participate & engage	1	1	1	1	1	1	1	1	1	8	1	1
Articulate both the capabilities and constraints of information developed through various creation processes, including traditional and emerging methods of information creation and dissemination in a particular discipline.	1	1	1	1	1	1	1	1	1	8	1	1
Understand different methods of information dissemination with different purposes are	1	1	1	1	1	1	1	1	1	8	1	1

available for their use												
Formulate questions for research based on information gaps or re-examination of existing or possible conflicting data, determine the scope of investigation, handle complex research by breaking it down into simpler questions and limiting the scope of investigation, utilize various research methods based on need, circumstance, or type of inquiry, all while demonstrating intellectual humility.	1	1	1	1	1	1	1	1	1	8	1	1
Value intellectual curiosity in developing questions & learn new investigation methods	1	1	1	1	1	1	1	1	1	8	1	1
Exhibit mental flexibility and creativity, recognize the value of browsing and other serendipitous methods of information gathering, and persist through search challenges, knowing when to have enough information to complete the information task.	1	1	1	1	1	1	1	1	1	8	1	1
Utilize brainstorming & select best source thinking when searching	1	0	1	1	1	1	1	1	1	7	0.875	0

Match information needs and search strategies to appropriate search tools, and design and refine needs and search strategies as necessary based on search results.	1	1	1	1	1	1	1	1	1	8	1	1
Use different types of searching language	1	0	1	1	1	1	1	1	0	6	0.75	0
Manage searching process & results effectively	1	1	1	1	1	1	1	1	1	8	1	1
Define different types of authority and utilize research tools and indicators to determine credible sources	1	1	1	1	1	1	1	1	1	8	1	1
Consider research as open-ended question & engagement with information	1	1	1	1	1	1	1	1	1	8	1	1
Appreciate question appear to be simple but still disruptive & important to research	1	0	1	1	1	1	1	1	1	7	0.875	0
Value persistence, adaptability & flexibility & recognize ambiguity benefit the research process	1	0	1	1	1	1	1	1	1	7	0.875	0
Summarize changes in scholarly perspective over time on particular topic within specific discipline	1	1	1	1	1	1	1	1	1	8	1	1
Recognize given scholarly work may not	1	0	1	1	1	1	1	1	1	7	0.875	0

represent the only or even the majority perspective on issue												
Seek out conversation taking place in research area in various venues	1	1	1	1	1	1	1	1	1	8	1	1
See as contributor to scholarship rather than only consumers	1	1	1	1	1	1	1	1	1	8	1	1
Suspend judgement on value of particular piece of scholarship until larger context for the scholarly conversation is better understood	1	0	1	1	1	1	1	1	1	7	0.875	0
Understand the responsibility comes with entering the conversation through participatory channels	1	0	1	1	1	1	1	1	1	7	0.875	0
Value user generated content & evaluate contribution made by others	1	1	1	1	1	1	1	1	1	8	1	1
Seek guidance from experts	1	1	1	1	1	1	1	1	1	8	1	1
Analyse curriculum in the assigned subject area while being aware of student assignments and the role of the library in completing them.	1	1	1	1	1	1	1	1	1	8	1	1

Participates in constructive student-teacher exchanges by encouraging students to ask and answer questions	1	0	1	1	1	1	1	1	7	0.875	0
Presents instructional content in diverse ways	1	1	1	1	1	1	1	1	8	1	1
Uses vocabulary for the subject and related disciplines in the classroom	1	1	1	1	1	1	1	1	8	1	1
Collaborates with faculty to integrate information literacy competencies, concepts & skill within subject discipline curriculum	1	1	1	1	1	1	1	1	8	1	1
Identifies primary and secondary sources within subject area and promotes the use of resources	1	1	1	1	1	1	1	1	8	1	1
Sequences information in a lesson plan to guide the instruction session	1	1	1	1	1	1	1	1	8	1	1
Plans presentation content and	1	1	1	1	1	1	1	1	8	1	1

delivery in advance & preparation time for instruction												
Maintains relationship with assigned academic departments	1	1	1	1	1	1	1	1	1	8	1	1
Encourages teaching faculty to participate in discussion	1	1	1	1	1	1	1	1	1	8	1	1
Creates a learner-centred teaching environment by using active, collaborative, and other appropriate learning activities	1	1	1	1	1	1	1	1	1	8	1	1
Modifies teaching methods to match the class style and setting	1	1	1	1	1	1	1	1	1	8	1	1
Reflects practice to improve teaching skills and acquires new knowledge of teaching methods and learning theories	1	1	1	1	1	1	1	1	1	8	1	1
Shares teaching skills and knowledge with other instructional staff	1	1	1	1	1	1	1	1	1	8	1	1
Makes the best possible use of voice, eye contact, and gestures to	1	1	1	1	1	1	1	1	1	8	1	1

keep class lively and students engaged												
Creates learner-centred course content and incorporates activities directly tied to learning outcomes	1	0	1	1	1	1	1	1		7	0.875	0
Design instruction and scales presentation content to the amount of time and space to meet the common learning characteristics of learners	1	1	1	1	1	1	1	1		8	1	1
Encourages librarians and faculty to participate in discussions, ask questions, and share ideas on instructions	1	1	1	1	1	1	1	1		8	1	1
Maintains awareness of communication needs of different learning, communication style & methods accordingly	1	1	1	1	1	1	1	1		8	1	1
Requests feedback from peers on communication skills for improvement	1	1	1	1	1	1	1	1		8	1	1

Seeks to clarify confusing terminology, avoids excessive jargon, and uses vocabulary appropriately	1	1	1	1	1	1	1	1	1	8	1	1
Actively seeking out instruction opportunities within the library, institution, or national organizations	1	1	1	1	1	1	1	1	1	8	1	1
Promotes library instruction opportunities and services	1	1	1	1	1	1	1	1	1	8	1	1
Practices instruction content to achieve familiarity and confidence	1	0	1	1	1	1	1	1	1	7	0.875	0
Keeps current basic precepts, theories, methodologies, and related subject areas when planning instruction	1	0	1	1	1	1	1	1	1	7	0.875	1
Work in team with knowledge, skill & time to improve instructions	1	1	1	1	1	1	1	1	1	8	1	1
Describes the role of information	1	0	1	1	1	1	1	1	1	7	0.875	0

literacy to academia/users												
Use information effectively to accomplish a specific purpose	1	1	1	1	1	1	1	1	1	8	1	1
Determine the extent of information needed	1	1	1	1	1	1	1	1	1	8	1	1
Assess the needed information effectively and efficiently	1	1	1	1	1	1	1	1	1	8	1	1
Communicate with coordinator for instruction activities	1	1	1	1	1	1	1	1	1	8	1	1
Understand the economic, legal & social issues surrounding the use of information & access & use information ethically & legally	1	1	1	1	1	1	1	1	1	8	1	1
Integrates appropriate technology into instruction	1	1	1	1	1	1	1	1	1	8	1	1
Uses classroom instructional technologies	1	1	1	1	1	1	1	1	1	8	1	1
Uses common communication technologies to provide assistance to students in & out classroom	1	1	1	1	1	1	1	1	1	8	1	1
Facilitates discussion of	1	1	1	1	1	1	1	1	1	8	1	1

unexpected issues in a skilful, non-judgmental manner												
Represents library and instruction program in an effective and positive manner	1	1	1	1	1	1	1	1	1	8	1	1
Design effective assessment of student learning	1	1	1	1	1	1	1	1	1	8	1	1
Collaborates with faculty by defining expectations and desired learning outcomes	1	1	1	1	1	1	1	1	1	8	1	1
Maintain & regularly report accurate statistics	1	1	1	1	1	1	1	1	1	8	1	1
Handling information literacy and setting up modules for institution	1	1	1	1	1	1	1	1	1	8	1	1
Planning, organizing, implementing & evaluating information literacy session	1	1	1	1	1	1	1	1	1	8	1	1
Provide research support to users	1	1	1	1	1	1	1	1	1	8	1	1
Having research skills to give research support	1	1	1	1	1	1	1	1	1	8	1	1
Assisting in research process	1	1	1	1	1	1	1	1	1	8	1	1

Responsible for guiding and assisting research for the researchers	1	1	1	1	1	1	1	1	1	8	1	1
Teach standard research process and methodology in information literacy with collaborative plan	1	1	1	1	1	1	1	1	1	8	1	1
Ethics in Information Sharing	1	1	1	1	1	1	1	1	1	8	1	1
Identifying Information Needs	1	1	1	1	1	1	1	1	1	8	1	1
Bloom's taxonomy	1	0	1	1	1	1	1	1	1	7	0.875	0
Digital Literacy Skills	1	1	1	1	1	1	1	1	1	8	1	1
Case Study-Based Learning	1	1	1	1	1	1	1	1	1	8	1	1
Literature Review/Systematic Literature Review	1	1	1	1	1	1	1	1	1	8	1	1
										<b>Sum I-CVI</b>	<b>104.87</b>	<b>87</b>
<b>Proportion Relevance</b>	<b>1</b>	<b>0.81</b>	<b>0.97</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0.98</b>			
										<b>S-CVI/Ave</b>	<b>0.97</b>	
<b>Average Proportion of Relevance Items by 8 Experts</b>									<b>0.97</b>	<b>S-CVI/UA</b>		<b>0.80</b>

\*E=Expert

## AUTHOR'S PROFILE



Mohd Razif Dzulkpli holds a Bachelor of Science in Information Studies (Honours), with a specialisation in Library Management (2009), and a Master of Science in Information Management (2011) from Universiti Teknologi MARA (UiTM), Malaysia. He began his professional career as an academic librarian in 2011 at Universiti Teknikal Malaysia Melaka (UTeM), where he has since served in various functional divisions of the academic library, including the Reference, Circulation, and Acquisitions Departments. He is currently a Senior Librarian with over 14 years of professional experience in academic librarianship. His work has primarily focused on supporting teaching, learning, and research activities within higher education through library services and information literacy initiatives. His doctoral research aims to develop a competence index for teaching librarians in Malaysian higher education, with a special emphasis on the competencies needed for the effective delivery of instructional information literacy. His research interests include librarianship, information management, teaching librarian competencies, instructional information literacy, and professional development in academic libraries. focuses on developing a competency index for teaching librarians in Malaysian higher education, with a particular emphasis on the competencies required for the effective delivery of instructional information literacy. His research interests include librarianship, information management, teaching librarian competencies, instructional information literacy, and professional development in academic libraries.

### **LIST OF PUBLICATIONS:**

- Dzulkipli, M. R., Abu, R., & Shaifuddin, N. (2024). Practicing teaching librarian in public higher education: what is lacking in the profession? *Journal of Technology Management and Technopreneurship*, 12(1), 24–33.
- Dzulkipli, M. R., Abu, R., & Shaifuddin, N. (2025). Challenges and barriers in delivering instructional information literacy in Malaysian Higher Education: insights from knowledge professionals. *Journal of Islamic, Social, Economics and Development*, 10(71), 636–642. <https://doi.org/10.55573/JISED.107149>
- Dzulkipli, M. R., Abu, R., & Shaifuddin, N. (2025). Competency need assessment for academic teaching librarians in Malaysian higher education. *Journal of Information and Knowledge Management*, 15(1), 121-130. <https://doi.org/10.24191/jikm.v15i1.5466>
- Dzulkipli, M. R., Abu, R., & Shaifuddin, N. (2025). Experts validation on competence index for teaching librarians in academic libraries in Malaysian higher education: content validity index (CVI) approach. *Environment-Behaviour Proceeding Journal*, 10(SI27). <https://doi.org/10.21834/e-bpj.v10iSI27>

### **LIST OF CONFERENCES:**

The International Conference on Business and Social Sustainability (ICOBSS 2024), Kota Bahru, Kelantan, 27 – 28 November 2024.

The 6<sup>th</sup> International Conference of Information Science (ICIS 2025), Port Dickson, Negeri Sembilan, 27 – 28 January 2025

### **LIST OF INNOVATION:**

IndeLib 2025 (Silver Medal)



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**Tarikh (Date):**

04 April 2026

Prof. Madya Ts. Dr. Roziya Abu  
Timbalan Dekan Penyelidikan & Jaringan Industri  
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