

Knowledge Transfer in Constructing a Teaching Librarian's Competence Index: Modified Delphi Study

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Abstract: This study aims to develop a competence index for teaching librarians in Malaysian higher education academic libraries. Teaching librarians continue to face structural, professional, and pedagogical challenges in delivering effective instructional information literacy, particularly within evolving digital and institutional contexts. Addressing these challenges requires not only identifying relevant competencies but also understanding how professional knowledge is generated, shared, and validated within the librarian community. This qualitative study employed a modified Delphi method as the research design, utilising a structured, double-round process of expert consultation to elicit, evaluate, and refine professional judgements. Beyond consensus building, the Delphi process functioned as a systematic mechanism for knowledge transfer, enabling the exchange of experiential, contextual, and tacit knowledge among experts. Through controlled feedback across successive rounds, panellists were encouraged to reflect on aggregated responses, reassess their positions, and externalise their implicit professional understandings of instructional information literacy practice. Data generated across the Delphi rounds were analysed using thematic analysis to identify recurring patterns, shared meanings, and knowledge structures emerging from expert interactions. The findings resulted in the development of three interrelated constructs: a core competency index, human attributes, and information literacy modules. These constructs reflect not only agreed-upon competencies but also the cumulative professional knowledge that has been transferred and stabilised through the Delphi process. This study offers both practical and theoretical contributions to librarianship and information management. Practically, it provides an empirically grounded competency framework to guide the training, professional development, and performance enhancement of teaching librarians involved in instructional activities. Theoretically, it extends Delphi-based research by demonstrating how the method supports structured knowledge transfer, expert knowledge codification, and the operationalisation of information literacy competencies. By situating the study within a non-Western higher education context, it further broadens the epistemological and contextual scope of information literacy and competency research in academic libraries.

Keywords: Academic librarian, Competence index, Delphi method, Knowledge transfer, Teaching librarian

1. Introduction

The term teaching librarian is not familiar in the context of Malaysian librarianship, where teaching librarian functions were placed in the reference department or division and were called reference librarians (Dzulkpli, Abu and Shaifuddin, 2024). A preliminary study done to verify on how teaching librarians in Malaysia's academic libraries were given the responsibility of teaching instructional information literacy, findings stated over 55% teaching librarians based on rotation basis, 25% is top management's decision or organisational structure and only 20% from the overall sampling were selected fitting to education background (Dzulkpli, Abu and Shaifuddin, 2025b). In the Malaysian context, teaching librarians are responsible for teaching and learning in information finding, course enrolment, evaluation, assignment assessment, and answering questions within their institution's undergraduates and postgraduates, as well as for external clients (Mohd Hanafi & Ismail, 2020). While information is now accessible 24/7 online, librarian roles remain relevant as advisors and mediators to help users find accurate information. Librarians are not only curators and cataloguers of knowledge, but also active creators of knowledge (Abdul Karim, 2022). Challenges faced by teaching librarians contributed to their inability to perform the instructional task effectively, as evidenced by research showing that teaching librarians in Malaysia are facing five main issues in delivering instructional information literacy. There are modules on information literacy, teaching, information, and technical issues (Dzulkpli, Abu and Shaifuddin, 2025a). There is also little research on the topic in Malaysia, except for teacher librarians, who focus on school librarians; therefore, higher education needs a specific competence index for teaching librarians to deliver instructional information literacy to produce information-literate graduates in the future. Meanwhile, a teacher Librarian is a schoolteacher who manages the school library, aiding the school admin in ratifying the roles of the school library (Abdullah, 1999). Clear gaps in current research on teaching librarians' competency include the geographical factor, and research only highlights certain traits, such as the technological factor, but does not discuss specific human attributes, including knowledge, skills, and abilities.

This research contributes to librarianship, especially in the Malaysian context, by addressing the lack of a standard framework for teaching librarians to deliver instruction in information literacy.

1.1 Problem Statements

The issue is not merely the absence of guidance, but the absence of a clearly defined, standardised competence index that delineates the required capabilities of teaching librarians. The lack of such a framework constitutes a critical gap in professional practice and development. Although librarians across divisions are expected to possess advanced and specialised knowledge beyond core librarianship competencies (American Library Association, 2021), there remains no consolidated competence index that specifically articulates the pedagogical, technological, and instructional competencies required for teaching librarians in academic libraries contexts that has significant implications. Competency frameworks are essential for guiding curriculum design, structuring targeted professional development, evaluating educational programmes, and informing strategic human resource planning (Naveed, Siddique and Mahmood, 2022). In the absence of a standardised competence index, the preparation and performance of teaching librarians remain inconsistent and largely dependent on individual experience rather than systematically defined standards. A key manifestation of this gap is the insufficient pedagogical preparation among librarians. Many enter the profession without formal training in teaching and learning, resulting in limited readiness to deliver information literacy instruction effectively (Moser and Abramovich, 2023). This concern is reinforced by prior literature indicating persistent weaknesses in pedagogical knowledge and instructional practice, as librarians are often required to teach despite lacking formal instructional training (Caffrey et al., 2022; Peacock, 2022). The absence of pedagogical components within library and information science curricula further exacerbates this issue. Additionally, the evolving instructional landscape, particularly the integration of digital and online learning environments accelerated by the COVID-19 pandemic, has intensified the need for clearly defined technological competencies. Teaching librarians are now expected to demonstrate proficiency in hybrid and online instruction; however, without a competency index that explicitly incorporates these skills, their readiness remains uneven (Paliwal and Singh, 2021; Ramos Eclevia, 2022). Collectively, the lack of a standardised competency index results in fragmented competency development, inadequate pedagogical preparedness, and inconsistent technological adaptability among teaching librarians. This, in turn, undermines the quality and effectiveness of instructional information literacy programmes and limits their impact on student learning outcomes and continuous instructional improvement (Diao, 2021).

1.2 Research Objectives

Aligned with the problem statement, the research objectives are to explore the required competencies of teaching librarians in academic libraries in Malaysian higher education and to develop a competence index for teaching librarians in delivering instructional information literacy.

2. Literature Review

The literature on academic librarianship establishes a strong foundation for understanding the evolving roles and expectations of teaching librarians. It also reveals a critical gap that aligns directly with the objectives of this study, the need to identify required competencies and to develop a contextually relevant competence index for teaching librarians in Malaysian higher education. Academic librarians play a central role in supporting the information needs of students, faculty, and researchers within higher education institutions (Nakitare et al., 2020). However, their function has expanded beyond traditional information provision to include leadership, instructional engagement, and collaborative academic roles (Rabasa and Abrizah, 2024; Wong, 2021). Within this broader professional scope, teaching librarians emerge as a specialised group of academic librarians who are directly involved in delivering instructional information literacy, often in collaboration with disciplinary faculty (McCartin and Wright-Mair, 2022). This instructional role underscores the necessity of clearly defined competencies specific to teaching and learning contexts. Despite the recognised importance of information literacy in higher education, existing practices often remain narrowly focused on supporting immediate academic tasks, such as research assignments, rather than fostering long-term, transferable competencies among students (Diekema et al., 2020). At the same time, the increasing complexity of the information landscape particularly with the emergence of digital literacy and the challenges of information overload demands that teaching librarians possess a broader and more sophisticated set of competencies to guide students in accessing, evaluating, and using information effectively and ethically (Azik and Steinerov, 2021; Bernard, 2024). This reinforces the first research objective, which seeks to explore the required competencies of teaching librarians in delivering effective instructional information literacy. The concept of competency itself has long been a focal point in library and information science, encompassing the

integration of knowledge, skills, and attitudes necessary for effective professional performance (Khan and Parveen, 2020; Tang et al., 2024). Existing competency frameworks, including those developed by professional associations, identify a wide range of competencies related to traditional library functions such as cataloguing, reference services, systems management, and collection development (Luo and Tang, 2024). However, these frameworks tend to generalise across roles and are predominantly developed within Western academic contexts. As such, they do not sufficiently capture the specific pedagogical, instructional, and contextual competencies required of teaching librarians, particularly within Malaysian higher education institutions.

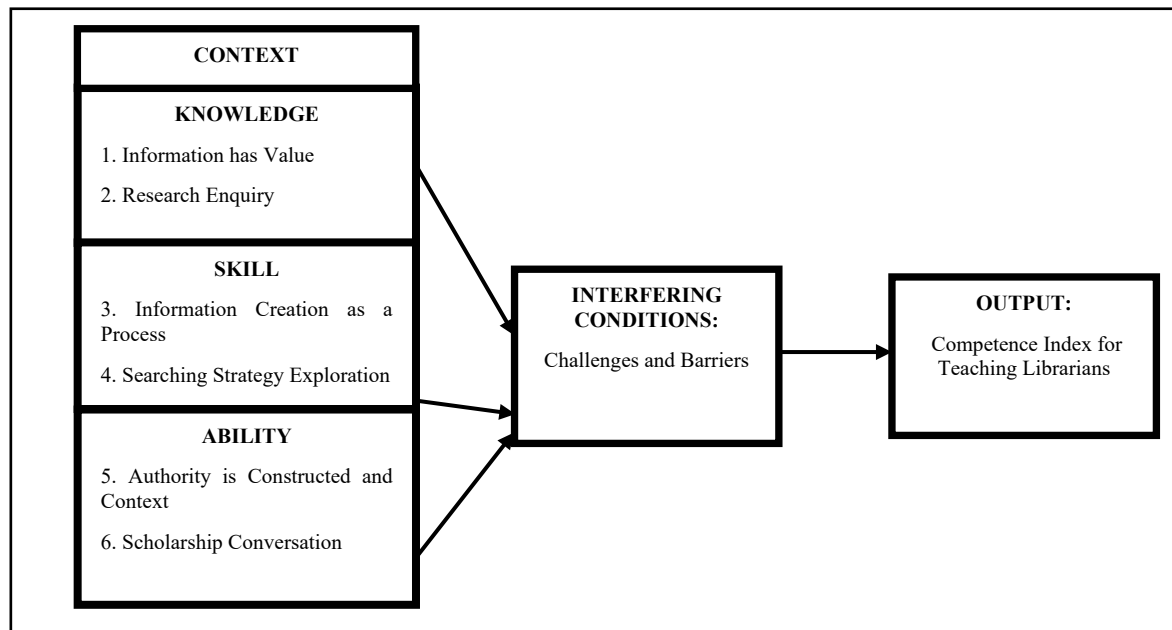


Figure 1: Competence Index for Teaching Librarians in Delivering Instructional Information Literacy Conceptual Framework

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 1. This limitation highlights a significant research gap and directly informs the second objective of this study, the development of a competence index tailored to teaching librarians. There is a clear need for a structured, standardised framework that not only identifies relevant competencies but also organises them systematically and contextually. In addressing this gap, the present study adopts the Knowledge, Skills, and Abilities (KSA) model as an analytical lens to categorise and synthesise the competencies required for instructional practice. The KSA model provides a robust conceptual foundation for competency development, recognising that effective performance is shaped by a combination of cognitive, technical, and behavioural attributes (Nguyen, 2022). By integrating insights from existing librarianship competency frameworks with the KSA model, this study aims to develop a comprehensive, contextually grounded competence index that reflects the realities of teaching librarians in Malaysian academic libraries. Such an index is expected to contribute not only to the standardisation of competencies but also to the enhancement of instructional quality, professional development, and strategic workforce planning in the domain of instructional information literacy. 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 (Väljataga et al., 2020), pedagogical challenges (Caffrey et al., 2022; Cooke, 2020; Peacock, 2022), or technological barriers (Paliwal & Singh, 2021; Peacock, 2022; Ramos Eclevia, 2022) may hinder the translation of knowledge, skills, and abilities into effective teaching practices.

3. Research Methodology

This research aims to construct a novel competency index with embedded knowledge-transfer elements that facilitate the systematic dissemination and application of expertise among panellists. A qualitative approach is adopted to explore and understand the meanings individuals or groups attribute to a social or human problem

(Creswell, 2009). The study employs a modified Delphi method, incorporating two iterative rounds to enable structured knowledge exchange, consensus-building, and validation among domain experts.

3.1 Methodology Procedures

This section outlines the data collection procedures, 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.

3.2 Characteristics of Delphi Method

The Delphi Method comprises four characteristics: anonymity, iteration, controlled feedback, and statistical group response (Chedi, 2017; Landeta & Barrutia, 2011; von der Gracht, 2012). Panellist and experts in Delphi was chosen because of their knowledge and experience related to the research, capacity and willingness to participate, enough time to participate in the Delphi, having effective communication skills as recommended by Chedi (2017), Adler and Ziglio, (1996) and J. Skulmoski, T. Hartman and Krahn (2007) and additional requirements set by the researcher.

3.3 Sampling Size of Panellist and Experts

For Delphi research, the recommended sampling size ranges from 5 to 10 (minimum) to 20 to 30 (maximum) (Nguyen, 2022). Hence, this study selected 18 panellists and experts with experience ranging from 5 to 30 years. Details of panels and experts involved in the study are in Table 1.

Table 1: Sampling Years of Experience

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

3.4 Data Analysis

Consensus is determined by the percentage of participants who achieve 90-100% acceptance (Rajhans et al., 2020; Filippone, 2022). Data analysis for this study is thematic analysis which to form a repetition or pattern of words which identifies the essential themes through reading the transcript of findings (Fereday et al., 2006) using six steps of thematic analysis, data transcription and familiarisations, coding, generating themes, reviewing themes, defining themes and writing and reporting the analysis (Clarke and Braun, 2013).

3.5 Validity and Reliability in Data Analysis

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). In this study, 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. As for this study, several strategies have been implemented in the data collection and analysis: 1) triangulation, 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, 2) member checking, 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 and 3) clarifying bias, 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. 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. This study 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. 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 study, the cross-check was conducted using the Content Validity Index (CVI) to validate the findings, rather than the codes themselves.

4. Findings

This chapter presents the findings derived from a two-round data collection process. Round 1 employed focus group interviews to establish consensus on three constructs, while Round 2 involved individual interviews to validate and rank the identified themes. Round 1 comprised structured and semi-structured discussions involving three primary constructs: (i) Core Competence Index, (ii) Human Attributes, and (iii) Instructional Information Literacy Modules. The session utilised items adapted from the Framework for Information Literacy for Higher Education, alongside Knowledge, Skills, and Abilities (KSA) attributes and open-ended questions. A total of 85 items across six frames were presented to the expert panels. Based on the predefined consensus criteria, 77 items were accepted. Eight items were removed, 12 items were refined, and 24 items were merged due to conceptual overlap. For the human attributes construct, 48 items representing KSA components were evaluated. Of these, 46 were accepted, with only 2 removed. This construct examined existing instructional practices across 20 public academic libraries in Malaysia. The analysis identified several gaps and emerging components not consistently addressed in current instructional modules. The six new components were identified:

- Ethics in information sharing
- Identifying information needs
- Application of Bloom's Taxonomy
- Digital literacy skills
- Case study-based learning
- Systematic literature review

These components represent critical areas for enhancing instructional information literacy programmes and provide new insights for academic library practices. A comprehensive competence index for teaching librarians in Malaysian higher education academic libraries is illustrated in Figure 2 below.

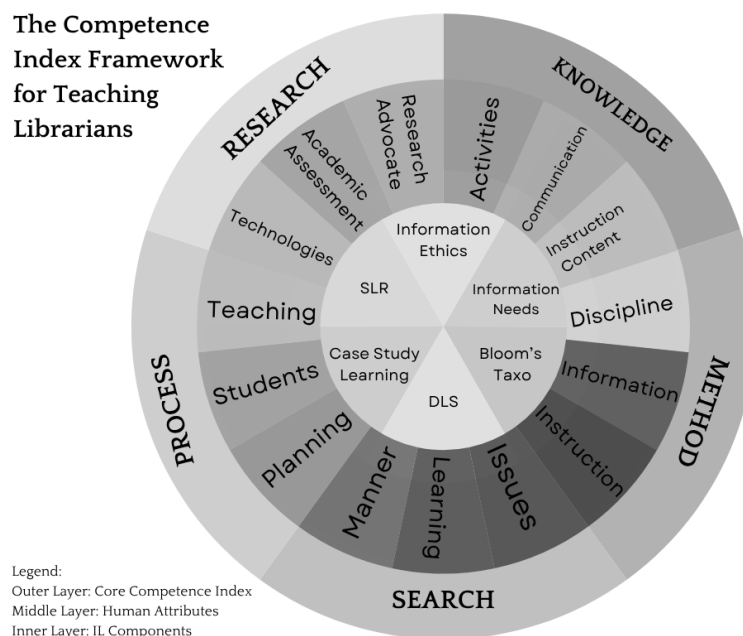


Figure 2: The Three Layers of Competence Index for Teaching

5. Discussion

The proposed competence index for teaching librarians in academic libraries within Malaysian higher education institutions was validated by eight experts using the Content Validity Index (CVI). The results indicate that the acceptance threshold of 0.83 for item-level CVI (I-CVI) was achieved, with 105 items meeting this criterion. At the scale level, the S-CVI (Average) and S-CVI (Universal Agreement) yielded values of 0.97 and 0.80, respectively, indicating high content validity (Dzulkipli, Abu and Shaifuddin, 2025c). The discussion emphasised the critical elements of knowledge, process, method, search, and research as the cycle of seeking information. By understanding the privilege associated with accessing certain types of knowledge, the importance of gathering relevant, specific data, and the role of systems in managing information effectively were also highlighted. The key findings of this study include the new themes identified during data analysis and the components of instructional information literacy modules. Research advocacy is one of the new themes that emerged during the discussion, and it seems that teaching librarians need to familiarise themselves with research, as they need to provide research support (Anna, Kiran and Idaya, 2023), possess research skills, assist with research activities, and understand the standard research process and research methodology. There has been a hike in the need to maximise academic librarians' involvement in research with faculty members (Rabasa and Abrizah, 2024). Malaysian academic librarians have begun to support open science and, through involvement in the Data Stewardship for Open Science Training, have been empowering their roles within librarianship, as the environment of librarianship is evolving (Zainal et al., 2023). This can also reflect teaching librarians as part of research processes. One of the most important parts of a teaching librarian who delivers instructional information literacy is the assessment of the session by students and student learning outcomes. The new modules in instructional information literacy focus on finding and emphasising understanding the audience's needs, digital literacy, and educational strategies, which add value to the competence index and make this study unique and stand out from the previous framework. It provides a new perspective on the information literacy modules in Malaysian academic libraries, offering a standardised set of modules across the higher education system. 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. This shows the value and trust placed in the faculty when information literacy is embedded in a multidisciplinary university syllabus that supports the learning outcomes of higher education students (Ford-Baxter, Faulkner and Masunaga, 2022). The changing needs of users for information are leading teaching librarians to use instructional methods to attract and engage them in information literacy content (Mashiyane, Bangani and Van Deventer, 2020). To support users' needs, academic librarians or teaching librarians were tested to respond quickly to ongoing research needs within their academic surroundings and communities online, such as the use of online platforms during the COVID-19 pandemic (Keeran, 2022).

6. Conclusion

This new competence index for teaching librarians in academic libraries in higher education serves as a guideline and standard for practising teaching libraries in delivering instructional information literacy in future professional development for teaching librarians' careers. The three main constructs in the competence index are to cater for the basic proficiency of teaching librarians in delivering instructional information literacy in academic libraries, the functionality of human attributes in the competence index is to add value to the knowledge, skills and ability for teaching librarians since these human attributes chatter to the Malaysian need's environment with the newly added themes to the human attributes. The final construct consists of components of instructional information literacy modules, developed to guide the development of module information literacy that meets current needs and students' learning outcomes. A collaboration with several parties, such as stakeholders, the Malaysian Librarian Association, and *Majlis Ketua Pustakawan Universiti Awam (MKPUA)*, will help promote this new competence index for implementation in all public academic libraries and serve as the main framework for academic librarians to practise teaching librarianship in delivering instructional information literacy. The knowledge contribution of this study is beneficial to librarianship and information science in the Malaysian landscape. This study is limited to information professionals within the scope of public higher education, not in private practice. Future research should include a private practise perspective for a wider locality, audiences and findings.

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Ethical Considerations: The UiTM Research Committee approved this study on 15 December 2023 with approval code REC/12/2023/(PG/MR/475). Participants were assured that this study was voluntary and that their data would be kept secret and confidential.

AI Declaration: Artificial Intelligence (AI) tools were used solely to improve the readability and language quality of this manuscript, including sentence restructuring and grammatical correction. The authors take full responsibility for the content of the work, including the accuracy, integrity, and originality of the research.

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