**CHAPTER TWO**

**LITERATURE REVIEW**

**2.1 Introduction**

The literature review for this Hajj Guide System project examined scholarly works published between 2019 and 2025, focusing on four critical areas that align with the research objectives. These areas included sequential learning methodologies in Islamic education, interactive multimedia technologies for religious instruction, functional utility components in educational platforms, and religious authenticity considerations in digital Islamic applications. The review methodically examined recent research contributions from both international and Nigerian scholars to construct theoretical frameworks and pinpoint deficiencies in current knowledge.   
Recent academic work has shown that more people are interested in digitalizing Islamic education, especially since technology has improved and younger generations have different ways of learning. Fahm (2025) undertook comprehensive research on gender, marginalization, and digital technology in Islamic education within Nigeria, emphasising notable changes in the transmission of religious knowledge via digital platforms. In the same way, Ibrahim (2024) looked into the growth of Islamic cyber practices in Northern Nigeria and wrote about how Muslim communities used digital infrastructure to make real religious learning spaces.

The literature identified significant deficiencies in sequential learning methodologies for intricate religious rituals, especially concerning Hajj preparation and guidance. While many studies have looked at how to use technology in general Islamic education, not many have looked at the specific problems of teaching multi-day religious ceremonies that needed a clear understanding of time and how to use it in real life. This gap was especially important for the Nigerian Muslim community, which is one of the largest groups of international Hajj pilgrims each year.   
Interactive multimedia applications in religious education exhibited varied outcomes across diverse cultural settings. Studies consistently demonstrated increased engagement and retention rates when technology integrated culturally relevant design features while preserving religious authenticity. However, many current applications did not find the right balance between new technology and traditional Islamic teaching methods, which opened up new ways to combine the two.

The review also identified persistent challenges in developing functional utility components that served practical religious observance needs while maintaining spiritual significance. In contrast to digital platforms that sought to replicate these individualized guidance mechanisms through technological interfaces, traditional Islamic education placed a strong emphasis on experiential learning and direct mentorship.

**2.2 Historical Overview**

The historical evolution of technology-enhanced Islamic education originated from traditional manuscript preservation initiatives, which transformed into modern digital platforms catering to millions of Muslim learners globally. The first technological interventions were mostly about digitizing old Islamic texts and making searchable databases of religious literature. But the rise of interactive learning platforms was a big change from just passively consuming religious content to actively engaging with it.

Pratama and Anjaludin (2025) wrote about how the curriculum of Pesantren schools changed as they incorporated digital technology. This showed how traditional Islamic schools used new technologies while keeping their core teaching values. Their research showed the problems and opportunities that came up when traditional religious learning environments added digital infrastructure, especially when it came to keeping students interested and remembering what they learnt.

The historical trajectory revealed three distinct phases of technology adoption in Islamic education. The first phase, spanning 2010-2015, emphasized on the digitalization of religious content through simple websites and mobile applications. The second phase, covering 2016-2020, introduced interactive elements such as quiz systems and multimedia presentations. Starting in 2021, the third phase concentrated on comprehensive learning management systems that combined individualized assessment tools with a sequential curriculum delivery.   
In their study of innovation patterns in digital media-based Islamic instruction in senior secondary schools in Nigeria, Abdulkadir et al. (2025) demonstrated how adoption rates of technology were impacted by traditional teaching methods. Their results suggested that historical continuity helped rather than hampered technological advancement, as institutions with stronger traditional pedagogical foundations were more successful in integrating digital tools in a meaningful way.

The Significant differences in regional adoption patterns were also found by the historical analysis. Southeast Asian countries with sizable Muslim populations came after the Middle East in terms of the first advancements in Islamic educational technology. Nigeria and other African nations made up the third wave of adoption, which was distinguished by the modification of pre-existing technologies to fit regional linguistic and cultural contexts rather than the creation of new platforms.

Digital Hajj guidance applications emerged relatively recently within this historical timeline. Shambour et al. (2019) traced the development of mobile applications specifically designed for Hajj and Umrah services, noting that most applications appeared after 2015 when smartphone penetration reached sufficient levels in Muslim-majority countries. Their analytical study of Google Play applications revealed that 68.7% of Hajj-related applications focused on ritual guidance, with English serving as the primary language in 51.7% of available applications.

The historical progression demonstrated clear evolution from static information presentation towards interactive guidance systems. Early applications primarily functioned as digital versions of traditional guidebooks, offering text-based ritual descriptions without interactive elements. Later developments incorporated multimedia content, including audio recitations and visual demonstrations, though few achieved true sequential learning integration.

Binsawad (2022) provided comprehensive historical analysis of IoT research technologies serving Hajj and Umrah, documenting how Internet of Things applications evolved to address crowd management and pilgrim guidance challenges. The historical development showed increasing sophistication in technological approaches, progressing from simple location tracking systems to comprehensive integrated platforms combining multiple service elements.

The historical overview revealed recurring patterns in technology adoption within Islamic educational contexts. Successful implementations typically began with pilot programmes in technologically advanced institutions before expanding to broader community adoption. Failed implementations often resulted from insufficient consultation with religious authorities or inadequate attention to cultural appropriateness considerations.

Nigerian contributions to Islamic educational technology development emerged prominently after 2020, coinciding with increased government emphasis on digital literacy initiatives. The National Digital Learning Policy of 2023 specifically encouraged integration of technology across all educational sectors, including religious education programmes. This policy framework created supportive environments for innovative Islamic educational technology projects.

Historical analysis also identified persistent challenges that contemporary developments continued addressing. These challenges included ensuring religious content accuracy, maintaining cultural sensitivity, accommodating diverse technological literacy levels, and creating sustainable funding models for ongoing platform maintenance and development.

**2.3 Related Work**

The related work section examined contemporary research contributions across four thematic areas aligned with the project objectives: sequential learning methodologies, interactive multimedia integration, functional utility development, and religious authenticity preservation. Each thematic area revealed distinct research trends and identified opportunities for innovative contributions.

**Sequential Learning Methodologies in Islamic Education**

Contemporary research on sequential learning approaches in Islamic education demonstrated growing recognition of systematic instruction benefits, particularly for complex religious practices requiring precise procedural knowledge. Sapiudin (2025) developed a digitally integrated critical-contextual learning model for Ushul Fiqh instruction among prospective Islamic education teachers, emphasising the importance of systematic progression through legal reasoning concepts. The study revealed significant improvements in student comprehension when learning materials followed carefully structured sequences that built upon previous knowledge systematically.

The research identified eight systematic steps for effective Islamic education classroom instruction, emphasising pedagogical factors that supported sequential knowledge acquisition. These steps included preparation and motivation, content presentation, guided practice, independent application, assessment and feedback, reflection and consolidation, extension activities, and review and reinforcement. The systematic approach demonstrated superior outcomes compared to traditional random-access learning methods.

Nigerian research contributions to sequential learning methodologies proved particularly relevant to this project's context. Research conducted across multiple northern Nigerian states examined how sequential instruction approaches affected Islamic studies learning outcomes in secondary schools. The findings consistently showed that students who experienced systematically structured learning sequences achieved higher retention rates and demonstrated superior practical application skills.

Sequential learning research also addressed cognitive load theory applications in Islamic education contexts. Studies demonstrated that complex religious ceremonies like Hajj required careful information sequencing to prevent cognitive overload among learners. Research showed that presenting ritual information in chronological order corresponding to actual performance sequences significantly improved learner comprehension and confidence levels.

The literature revealed gaps in digital implementation of sequential learning principles specifically for Hajj education. While traditional classroom instruction benefited from sequential approaches, few digital platforms successfully translated these pedagogical principles into interactive technology environments. This gap represented a significant opportunity for innovative platform development.

**Interactive Multimedia Integration in Religious Education**

Research on interactive multimedia integration in religious education contexts revealed complex relationships between technological sophistication and learning effectiveness. Multiple studies demonstrated that multimedia elements enhanced engagement and retention rates when appropriately designed and culturally contextualized. However, inappropriate implementation often created distractions that hindered rather than supported learning objectives.

Yuliati et al. (2024) examined Islamic education management strategies in the digital era, focusing on how multimedia integration affected teaching effectiveness and student accessibility. Their research identified critical factors for successful multimedia implementation, including teacher preparation, technological infrastructure adequacy, and alignment with traditional pedagogical values. The study emphasized the importance of viewing multimedia tools as supplements to rather than replacements for traditional Islamic educational methods.

Nigerian research on multimedia integration revealed unique challenges related to technological infrastructure limitations and digital literacy variations among target populations. Studies conducted across multiple states showed that successful multimedia implementation required careful consideration of local technological capabilities and user experience levels. Research consistently demonstrated that simple, intuitive interfaces achieved better adoption rates than complex sophisticated systems.

Interactive elements within multimedia religious education platforms showed particular promise for engagement enhancement. Research documented successful implementations of quiz systems, interactive timelines, and multimedia demonstrations that increased student participation rates and improved knowledge retention. However, studies also revealed that interactive elements required careful balance to maintain religious appropriateness and avoid trivializing sacred content.

The literature revealed significant variations in multimedia effectiveness across different demographic groups. Older learners often preferred traditional text and audio combinations, while younger users responded positively to visual animations and interactive elements. Research suggested that effective platforms needed to accommodate these varied preferences through customizable interface options.

Studies of existing Hajj guidance applications revealed limited multimedia integration sophistication. Most applications incorporated basic audio and visual elements without true interactivity. Few applications achieved seamless integration of multimedia components that enhanced rather than complicated the learning experience. This limitation represented an opportunity for innovative multimedia implementation approaches.

**Functional Utility Development in Educational Platforms**

Research on functional utility components in educational technology platforms demonstrated the importance of practical tools that supported real-world application of learned concepts. Studies consistently showed that platforms incorporating functional utilities achieved higher user satisfaction rates and demonstrated superior learning outcome achievement compared to purely theoretical educational systems.

Investigation of Islamic educational platforms revealed several categories of functional utilities that proved particularly valuable. These categories included prayer time calculators, Qibla direction indicators, Islamic calendar systems, Arabic text readers, and progress tracking mechanisms. Research showed that these utilities enhanced platform value by providing ongoing practical benefits beyond initial learning activities.

Hajj-specific functional utilities represented a specialized subset of Islamic educational tools with unique requirements and constraints. Research identified key functional components including Tawaf counters, Jamarat stoning trackers, group coordination tools, and location guidance systems. Studies showed that pilgrims who used applications incorporating these utilities reported higher confidence levels and fewer ritual performance errors.

Nigerian research on educational platform utilities revealed particular emphasis on offline functionality requirements due to internet connectivity challenges in many regions. Studies consistently demonstrated that platforms with robust offline capabilities achieved higher adoption rates and user satisfaction scores compared to systems requiring constant internet connectivity.

Research also examined user interface design principles for functional utilities within religious contexts. Studies showed that utilities required careful design attention to maintain religious appropriateness while providing practical functionality. Successful implementations balanced aesthetic considerations with spiritual sensitivity, avoiding designs that trivialized religious practices.

The literature revealed significant gaps in integrated utility development for comprehensive Hajj guidance platforms. Most existing applications incorporated individual utilities without systematic integration that supported complete pilgrimage preparation and performance processes. This fragmentation limited user experience effectiveness and created opportunities for comprehensive platform development approaches.

**Religious Authenticity and Cultural Appropriateness**

Contemporary research on religious authenticity in digital Islamic platforms revealed complex tensions between technological innovation and traditional Islamic values preservation. Studies consistently emphasized the critical importance of religious authority consultation and scholarly validation in digital platform development processes.

Research conducted across multiple Islamic educational contexts demonstrated that platforms developed without adequate religious consultation often contained theological inaccuracies or culturally inappropriate presentations that undermined user trust and educational effectiveness. Successful platforms typically involved qualified Islamic scholars throughout development processes, from initial concept design through final content validation.

Nigerian research on religious authenticity in digital platforms revealed particular sensitivity to cultural contextualisation requirements. Studies showed that platforms developed in Middle Eastern contexts often required significant adaptation for effective Nigerian implementation due to different cultural practices and linguistic preferences within Islamic observance traditions.

The literature revealed ongoing debates regarding the appropriateness of certain technological approaches within Islamic educational contexts. Some scholars expressed concern about gamification elements or entertainment-oriented features that might diminish the spiritual significance of religious learning. Research showed that successful platforms carefully balanced engagement enhancement with religious reverence maintenance.

Studies of user acceptance patterns for Islamic educational technology revealed that religious authenticity perceptions significantly affected adoption rates and sustained usage patterns. Platforms perceived as religiously authentic achieved higher user trust levels and demonstrated superior long-term engagement metrics compared to systems viewed as culturally inappropriate or theologically questionable.

Research also examined the role of visual design elements in communicating religious authenticity. Studies showed that appropriate use of Islamic geometric patterns, calligraphy, and colour schemes enhanced user perception of platform legitimacy and religious appropriateness. However, inappropriate or stereotypical use of Islamic visual elements often produced negative user reactions.

The literature revealed particular challenges in maintaining religious authenticity while incorporating innovative technological features. Research suggested that successful platforms required careful balance between technological sophistication and traditional Islamic aesthetic principles, avoiding approaches that prioritized technological novelty over cultural sensitivity.

**Technology Acceptance in Islamic Education Contexts**

Research on technology acceptance within Islamic educational environments revealed unique factors that influenced adoption patterns beyond traditional technology acceptance models. Studies consistently showed that religious perspective on technology utilisation significantly affected behavioral intentions and actual usage patterns among Muslim learners.

Multiple studies developed modified Technology Acceptance Models specifically adapted for Islamic education contexts. These modified models incorporated religious compatibility assessments and Islamic education values considerations as additional factors affecting technology acceptance decisions. Research showed that these Islamic-specific factors often proved more significant than traditional technology acceptance predictors.

Nigerian research on Islamic educational technology acceptance revealed particular emphasis on community authority endorsement as a critical adoption factor. Studies showed that technology platforms endorsed by respected religious leaders achieved significantly higher acceptance rates compared to systems lacking such endorsements, regardless of technological sophistication levels.

The literature revealed generational differences in Islamic educational technology acceptance patterns. Younger users typically demonstrated greater willingness to adopt innovative technological approaches, while older users prioritized religious authenticity and traditional pedagogical continuity. Successful platforms required design approaches that accommodated both generational perspectives.

Research also examined the influence of technological self-efficacy on Islamic educational platform adoption. Studies showed that users with higher technological confidence demonstrated greater willingness to engage with sophisticated platform features, while users with limited technological experience preferred simpler interface designs and more extensive tutorial support.

Studies of gender differences in Islamic educational technology adoption revealed complex patterns influenced by both technological and cultural factors. Research showed that successful platforms required careful consideration of cultural appropriateness regarding gender-specific content presentation and interaction mechanisms.

**Gaps in Existing Literature**

The comprehensive literature review revealed several significant gaps that this Hajj Guide System project addressed through innovative technological and pedagogical approaches. The most prominent gap concerned the absence of truly sequential learning systems specifically designed for complex multi-day religious ceremonies like Hajj pilgrimage.

While numerous studies examined general Islamic education technology and some research addressed Hajj guidance applications separately, no existing research combined systematic sequential learning principles with comprehensive Hajj ritual instruction in integrated web-based platforms. This gap represented a significant opportunity for original scholarly contribution and practical impact.

The literature also revealed insufficient attention to comprehensive utility integration within Islamic educational platforms. Most existing research examined individual functional components without addressing systematic integration approaches that supported complete learning and application processes. This limitation created opportunities for innovative platform development that combined educational and practical utility elements seamlessly.

Research gaps also appeared in cultural contextualisation studies specifically addressing Nigerian Muslim communities' technological needs and preferences. While general studies addressed Islamic educational technology adoption patterns, few examined the specific cultural and technological factors affecting Nigerian Hajj preparation approaches. This gap highlighted the need for contextually appropriate platform development informed by local community requirements.

The literature revealed limited research on balanced multimedia integration approaches that maintained religious authenticity while maximizing educational effectiveness. Most existing studies examined either multimedia effectiveness or religious appropriateness separately, without addressing optimal integration strategies that achieved both objectives simultaneously.

Finally, the literature showed insufficient attention to comprehensive evaluation frameworks for Islamic educational technology platforms. Most studies employed traditional educational technology assessment approaches without incorporating Islamic educational effectiveness criteria or cultural appropriateness measures. This gap indicated the need for more sophisticated evaluation methodologies that addressed religious as well as educational objectives.

**2.4 Summary**

The literature review examination revealed substantial scholarly attention to Islamic educational technology development, with particular growth in research output between 2019 and 2025. Nigerian scholars made increasingly significant contributions to this field, addressing unique cultural and technological challenges within the Nigerian Islamic education context.

Sequential learning methodology research demonstrated clear benefits for complex religious instruction, though few studies addressed digital implementation approaches specifically for Hajj education. The literature consistently supported systematic progression approaches that built knowledge systematically while accommodating diverse learner capabilities and preferences.

Interactive multimedia integration research revealed promising opportunities for engagement enhancement, provided that implementations maintained appropriate cultural sensitivity and religious authenticity. Studies consistently emphasized the importance of balanced approaches that enhanced rather than replaced traditional Islamic pedagogical methods.

Functional utility development research highlighted the significance of practical tools that supported real-world application of learned concepts. The literature demonstrated that successful educational platforms required integration of theoretical instruction with practical application support mechanisms.

Religious authenticity research emphasized the critical importance of scholarly consultation and cultural appropriateness considerations in Islamic educational technology development. Studies consistently showed that platforms perceived as religiously authentic achieved superior adoption rates and learning outcomes compared to culturally inappropriate systems.

The comprehensive literature analysis identified significant gaps in existing research, particularly regarding sequential learning implementation for complex religious ceremonies, comprehensive utility integration approaches, and Nigerian-specific cultural contextualisation requirements. These gaps provided clear justification for this Hajj Guide System project's innovative approach and original contributions to Islamic educational technology scholarship.

The literature review established theoretical foundations for the four research objectives while identifying opportunities for meaningful scholarly contribution through innovative platform development that addresses existing research limitations and practical community needs.

**Table 2.1: Summary of Reviewed Literature**

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| --- | --- | --- | --- | --- |
| **Author(s) & Year** | **Study Focus** | **Methodology** | **Key Findings** | **Relevance to Study** |
| Fahm (2025) | Gender, marginalization, and digital technology in Islamic learning in Nigeria | Qualitative (interviews) | Digital technologies transform Islamic education accessibility while reinforcing socio-cultural disparities | Provides Nigerian context for Islamic educational technology adoption |
| Ibrahim (2024) | Islamic cyber practices in Northern Nigeria | Ethnographic and netnographic | Muslims appropriated digital technology into Islamic infrastructure for religious practices | Demonstrates successful technology integration in Nigerian Islamic contexts |
| Sapiudin (2025) | Digitally integrated learning model for Ushul Fiqh | Mixed methods | Critical-contextual digital integration enhances legal reasoning comprehension | Supports sequential learning approach for complex Islamic concepts |
| Shambour et al. (2019) | Analytical study of Hajj mobile applications | Quantitative analysis | 68.7% of Hajj apps focus on ritual guidance; English predominates in 51.7% of applications | Identifies gaps in existing Hajj guidance applications |
| Binsawad (2022) | IoT applications in Hajj and Umrah | Literature survey | IoT technologies provide compatible platforms for crowd management and service enhancement | Demonstrates technological possibilities for Hajj guidance systems |
| Abdulkadir et al. (2025) | Digital media innovation in Nigerian Islamic education | Survey research | Digital infrastructure investment and teacher training essential for effective implementation | Provides evidence for multimedia integration benefits in Nigerian context |
| Yuliati et al. (2024) | Islamic education management in digital era | Case study analysis | Technology shifts learning from teacher-centered to student-centered approaches | Supports interactive learning approach development |
| Pratama & Anjaludin (2025) | Pesantren curriculum integration with digital technology | Literature review | Digital integration requires balance between technological advancement and traditional values | Emphasises religious authenticity importance in platform development |
| Basalamah & Rehman (2020) | Survey on Hajj mobile applications | Systematic review | Limited interactive functionality in existing Hajj applications | Identifies need for enhanced interactivity in Hajj guidance systems |
| Felemban & Rehman (2019) | Crowd movement optimization during pilgrimage | Algorithmic analysis | Effective crowd management requires pilgrims to understand ritual procedures beforehand | Supports educational preparation importance for Hajj performance |

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