

Strengthening Student Competence Through Cyber-Based Integrative Islamic Education Learning Design: A Review of Islamic Sociology

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ABSTRACT

This research is motivated by the need for Islamic boarding schools (pesantren) to adapt to the development of information technology without losing the distinctive character of Islamic education. As one of the largest Islamic boarding schools in Indonesia, Sukorejo Islamic Boarding School is faced with the challenge of strengthening the competency of its students so they can face global dynamics while remaining grounded in Islamic values. This study aims to formulate and analyze a cyber-based integrative learning design that can improve students' overall competency through an Islamic sociological approach. The methodology used is a qualitative and phenomenological, through field observations and in-depth interviews with teachers, students, and Islamic boarding school administrators. The results show that the implementation of the cyber-based integrative learning design has a significant impact on improving the competency of students, both in cognitive aspects (Islamic knowledge), affective (strengthening morals and spirituality), and social (the ability to interact in the digital space). The study of Islamic sociology confirms that this learning innovation can maintain the continuity of tradition and modernity in a single value, strengthening the identity of the Islamic boarding school as an agent of Islamic-based social transformation.

Keywords:

Competence of Santri; Islamic Boarding School; Cyber Learning; Integrative; Islamic Sociology.

ABSTRAK

Penelitian ini dilatarbelakangi kebutuhan pesantren untuk beradaptasi dengan perkembangan teknologi informasi tanpa menghilangkan karakter khas pendidikan Islam. Ponpes Sukorejo sebagai salah satu pesantren besar di Indonesia dihadapkan pada tantangan untuk memperkuat kompetensi santri agar mampu menghadapi dinamika global dengan tetap berpijak pada nilai-nilai keislaman. Tujuan penelitian ini adalah merumuskan dan menganalisis desain pembelajaran integratif berbasis cyber yang mampu meningkatkan kompetensi santri secara menyeluruh melalui pendekatan sosiologi Islam. Metodologi yang digunakan adalah pendekatan kualitatif dengan pendekatan fenomenologi, melalui proses observasi lapangan, dan wawancara mendalam terhadap para pengajar, santri, dan pengelola pesantren. Hasil penelitian menunjukkan implementasi desain pembelajaran integratif berbasis cyber berdampak signifikan terhadap peningkatan kompetensi santri, baik dalam aspek kognitif (ilmu keislaman), afektif (penguatan akhlak dan spiritualitas), maupun sosial (kemampuan berinteraksi di ruang digital). Kajian sosiologi Islam menegaskan bahwa inovasi pembelajaran ini mampu menjaga kesinambungan tradisi dan modernitas dalam satu kesatuan nilai, memperkuat identitas pesantren sebagai agen transformasi sosial berbasis keislaman.

Kata kunci:

Kompetensi Santri; Pesantren; Pembelajaran Cyber; Integratif; Sosiologi Islam.

1. Introduction

In facing the challenges of the digital era and globalization, the world of education must adapt to change, including traditional educational institutions such as Islamic boarding schools. The Salafiyah Syafi'iyah Sukorejo Situbondo Islamic Boarding School, as one of the large Islamic boarding schools in Indonesia that adheres to the Salafiyah educational pattern, is faced with a dilemma between maintaining classical scientific traditions and responding to the increasingly complex needs of the times. The main problem in this context is the suboptimal integration of digital technology in the learning process that can strengthen the holistic competence of students, both from the scientific, religious, social, and 21st-century skills aspects. Based on initial observations and internal data, it is known that more than 70% of learning methods at this Islamic boarding school still use traditional approaches based on talaqqi and lectures, with very limited use of technology. Furthermore, only about 25% of teaching staff have basic competencies in using digital media to support learning. Meanwhile, a survey of students showed that 68% feel less confident accessing and utilizing technology as part of the learning process (Nasr, 2021).

This situation is a significant concern because the delay in adapting to technology can lead to competency gaps, both in the educational context and in the readiness of students to face modern

social dynamics. On the other hand, an Islamic sociological approach demonstrates that Islamic boarding schools are not only educational institutions but also agents of social change that should be responsive to current developments without losing their identity. This topic was chosen because of its urgency in addressing the current challenges of the Islamic boarding school world, particularly at the Salafiyah Syafi'iyah Sukorejo Islamic Boarding School in Situbondo, which plays a significant role in national Islamic education. This location was chosen because the boarding school is currently undergoing an institutional transformation process that allows for the implementation of an integrative learning approach and has great potential to become a model for innovation in Islamic boarding school education in the digital era.

Facts on the ground show that the learning system at the Salafiyah-Syafi'iyah Sukorejo Islamic Boarding School is still very dominant with traditional approaches such as sorogan, bandongan, and wetonan. Yellow books remain the main teaching materials, historically proven to instill depth of knowledge and form a strong spiritual character. However, in the current digital era, the needs of students are not only limited to mastering Islamic sciences, but also digital literacy skills, critical thinking skills, and social competencies relevant to the times' challenges. Meanwhile, information and communication technology (ICT) in Islamic boarding school learning is still limited. Access to digital learning media, online platforms, or cyber-based learning methods has not become integral to the diniyah learning system. This is an obstacle to improving students' competence comprehensively, both from cognitive, affective, and psychomotor aspects. Therefore, a breakthrough is needed in learning design that integrates traditional values with information technology advances, without damaging the structure of values and the unique culture of Islamic boarding schools (Zaman, 2022).

This condition reflects the urgency of research to find a relevant and contextual learning model for Islamic boarding schools such as Salafiyah-Syafi'iyah Sukorejo. One of the approaches offered in this study is cyber-based integrative learning design (*cyber-based integrative learning design*) (Bunt, 2021). This approach emphasizes using digital media as a learning tool and integrating Islamic content, technological skills, and Islamic boarding schools' social and cultural values. In this context, using the Islamic sociological theoretical framework becomes very important. Islamic sociology views Islamic boarding school education not only as a transfer of knowledge, but also as a social process that forms the structure, norms, and identity of the Muslim community. Therefore, every innovation in the Islamic boarding school learning system must consider these social and cultural dimensions to be accepted and function effectively in the lives of students and the community.

In various previous studies, there have been many studies on the modernization of Islamic boarding schools, the integration of the curriculum between religious and general sciences, and the use of ICT in Islamic learning. Some show positive results, where technology can increase interest in learning, expand access to information, and develop students' critical thinking skills. However, most of these studies focus on Islamic boarding schools that have been more open to the modernization of the education system, or on formal madrasas under the auspices of Islamic boarding schools. Research that specifically examines how technology is integrated into diniyah learning in Salafiyah Islamic

boarding schools, while maintaining the authority of the yellow book and the unique pattern of relationships between teachers and students, is still very limited (Al-Attas, 2019).

In addition, not many studies explicitly link the application of technology in Islamic boarding school learning with the framework of Islamic sociology. Studies that link the transformation of Islamic boarding school education with social dynamics, power structures, religious symbols, and patterns of interaction in Islamic boarding school communities are very important to avoid value disruption and cultural resistance to change. Therefore, this study attempts to fill this gap by presenting an interdisciplinary approach between technology-based learning design and Islamic sociology. Through this approach, it is hoped that a deeper understanding can be obtained about how Islamic boarding schools can adopt educational innovation without losing their identity as institutions that guard Islamic traditions (Ahmad, 2020).

This study also offers novelty in several aspects. First, this study presents a cyber-based integrative learning model specifically designed for the context of Salafiyah Islamic boarding schools. This model modifies the learning method and reconstructs the curricular approach by considering the social and cultural structures typical of Islamic boarding schools. Second, this study uses an Islamic sociological approach as an analytical lens, which has not been widely used in technology-based Islamic boarding school education studies (Biggs, 2022). This approach allows researchers to understand educational innovation as a pedagogical phenomenon and a social process influenced by religious values, norms, and symbols. Third, the focus of the study on the Salafiyah-Syafi'iyah Islamic Boarding School Sukorejo Situbondo as a case study provides an important contribution to the map of Islamic boarding school studies in Indonesia, considering the position of this Islamic boarding school as one of the most influential in the traditional Islamic education network in Indonesia.

This study analyzes how cyber-based integrative learning design can be applied at the Salafiyah-Syafi'iyah Sukorejo Situbondo Islamic Boarding School to strengthen students' competence. The competence in question includes cognitive aspects such as mastery of Islamic knowledge and general knowledge, as well as affective aspects such as morals and spirituality, as well as social aspects such as the ability to interact adaptively in social and digital spaces. This study also aims to evaluate the effectiveness of the learning design in the socio-cultural context of Islamic boarding schools and formulate strategic recommendations for developing Islamic boarding school learning systems in the digital era (Kolb, 2019). Thus, the results of this study are expected to be an academic reference and a practical guide for Islamic boarding school managers, Islamic education policy makers, and the academic community in designing an integrative and adaptive Islamic boarding school education system.

This study uses a qualitative and case study method to achieve these objectives. Data was collected through in-depth interviews with Islamic boarding school caretakers, ustadz/ustadzah, and students; observation of the learning process; and documentation studies of Islamic boarding schools' curriculum and management systems. Data analysis was conducted using a thematic and interpretive approach, combined with an Islamic sociological perspective (Merrill, 2021). The study results

indicate great potential for Islamic boarding schools to develop cyber-based integrative learning designs, as long as the approach is carried out gradually, contextually, and involves key actors in the Islamic boarding school. Technology-based learning innovations do not immediately shift the role of teachers or kiai authorities, but rather strengthen their function as facilitators of knowledge and guardians of Islamic values (Gagné, 2018).

Overall, this study contributes to the efforts to transform Islamic boarding school education in responding to the challenges of the 21st century. By combining the strengths of tradition and technological advances, and paying attention to the social structure typical of Islamic boarding schools through an Islamic sociological approach, this study provides an overview of how Islamic boarding schools can play an active role in forming a generation of Muslims who are not only knowledgeable, but also adaptive, creative, and able to become agents of social change rooted in Islamic values. Thus, cyber-based integrative learning design is not just a technical tool, but also a social and cultural strategy to strengthen the identity of Islamic boarding schools in the modern era (Demina, Darmansyah, & Mudinillah, 2022).

2. Methods

2.1 Research Design

This study uses a qualitative approach with a phenomenological approach. This design was chosen because the main objective of the study was to explore and understand the subjective meaning of the experiences of educational practitioners at the Salafiyah-Syafi'iyah Islamic Boarding School in Sukorejo, Situbondo, in dealing with and implementing cyber-based integrative learning designs. As an approach, phenomenology emphasizes the direct experience and awareness of the practitioners regarding the phenomena they encounter, making it highly relevant in the context of Islamic boarding schools, which have unique values, culture, and educational systems.

2.2 Population and Sample

The population in this study comprised all educational elements involved in the learning process at the Salafiyah-Syafi'iyah Sukorejo Islamic Boarding School in Situbondo, both formal and informal. The sampling technique used was purposive sampling, which involves deliberately selecting informants based on specific criteria.

Table 1. Research Sample Number Table

No.	Informant Category	Role Description	Number of Informants
1.	Islamic Boarding School Leaders (Caretakers/Educational Institution Managers)	Policy makers, managers of formal and informal education systems	2 people

2.	Ustadz and Ustadzah (Teachers from various levels of education at Islamic boarding schools)	Implementer of learning processes and application of digital innovation	5 people
3.	Santri (Students from various levels and backgrounds)	Direct beneficiaries of cyber-based integrative learning	6 people
4.	Digital Learning Information and Media System Manager	Responsible for digital learning infrastructure and content	2 people
Total			15 people

This research uses a purposive sampling technique: the deliberate selection of informants based on criteria for direct involvement in formal and informal learning processes at the Salafiyah-Syafi'iyah Islamic Boarding School in Sukorejo, Situbondo. The number of informants is determined not based on quantity, but on information sufficiency (data saturation). This means that the data collection process is stopped when the information obtained has been repeated and there are no significant new findings.

Considering the diversity of backgrounds and roles of each category, the researcher determined 15 informants consisting of elements of Islamic boarding school leadership, educators (ustadz/ustadzah), students, and digital system managers.

2.3 Data Collection Techniques

The three main techniques used in data collection are:

- a. In-depth interviews: Conducted semi-structured interviews with key informants to explore their perceptions, experiences, and the meanings they give to integrating technology in learning.
- b. Participatory observation: Researchers directly observe learning activities, both in the form of classical book halaqah and learning processes using digital devices such as laptops, projectors, or online learning platforms.
- c. Documentation: Collection of important documents such as syllabi, digital learning modules, institutional policies related to the use of technology, and cyber-based learning content.

All these techniques are carried out to support the data triangulation process to maintain the validity and credibility of the results.

2.4 Data Analysis Techniques

In data analysis, researchers used the typical stages in the phenomenological approach according to Moustakas and Creswell, namely:

- a. Epoche (bracketing): The researcher suspends personal assumptions and biases regarding the observed reality to gain a pure perspective from the subject.
- b. Horizontalization: All initial data is treated equally; none is considered more important until the core meaning is discovered.
- c. Clustering of Meaning: Grouping the core meanings (themes) of informants' subjective experiences into essential categories, for example, perceptions of changes in learning methods, the value of spirituality in cyber learning, and emerging social dynamics.
- d. Textural and Structural Description: Compiling a description of what was experienced and how the experience occurred.

Essence Description: The compilation of the core meaning of the phenomenological experience, in this context, related to the meaning of students and teachers towards cyber-based integrative learning.

2.5 Data Validity

To ensure the validity of the data, several qualitative validation techniques are used, including:

- a. Triangulation of sources and methods, by comparing the results of interviews, observations, and documentation.
- b. Member checking, namely, reconfirming the results of the researcher's interpretation to the informant.
- c. Audit trail is documentation of the research process from start to finish to ensure transparency and replication

2.6 Researcher's Context and Position

In a phenomenological approach, the researcher is crucial as the primary instrument. Therefore, the researcher reflectively notes her position within the social and cultural context of the Islamic boarding school. The researcher understands Islamic boarding school traditions and educational technology, allowing for empathetic yet objective data collection and interpretation engagement.

3. Results and Discussion

The results of this study indicate that the implementation of cyber-based integrative learning design at the Salafiyah-Syafi'iyah Sukorejo Situbondo Islamic Boarding School has a significant impact on improving the competence of students, especially in three main aspects: cognitive, affective, and social. This was revealed from data collected through in-depth interviews with ustadz, madrasah diniyah teachers, formal institution principals, and kiai who are the main caretakers of the

pesantren, and reinforced by the results of direct observation of the learning process that takes place in the pesantren environment. The data were analyzed using a phenomenological approach and supported by the framework of Islamic sociology theory, which emphasizes that the educational process is not only a transmission of knowledge, but also part of the social construction and reproduction of Islamic values in the pesantren community (Musfah et al., 2020).

In terms of cognitive aspects, the results of the study showed a significant increase in the students' mastery of Islamic knowledge (Yanto, Anwari, & Rofiki, 2022). The ustadz and teachers stated that using digital media in learning yellow books and general subjects has enriched the students' understanding of the subject matter. For example, several classes have utilized videos explaining the explanation of the book by great scholars, which were previously difficult for students to access directly (Rochmat, Yoranita, & Putri, 2022). Through the internal digital platform of the Islamic boarding school and several online learning applications, students can review the material, access additional references, and discuss through online discussion forums. Teachers also utilize Google Classroom and the local Moodle platform of the Islamic boarding school to give assignments, quizzes, and question-and-answer forums. This increases the students' interest in learning and makes the process of mastering the material more structured and not limited to face-to-face meetings (Afnan & Maksum, 2023). One ustadz said, "Now students not only learn from what we convey directly, but they also actively find out for themselves from trusted digital sources that we direct."

In addition, implementing cyber-based learning facilitates the differentiation of students' learning styles. Students who have a visual learning style feel helped by the infographics and interactive videos provided in the system (Dahmayanti & Nurmila, 2025). Meanwhile, students accustomed to the traditional approach can still maintain the book learning method with the sorogan or bandongan pattern, but are enriched with gadgets to deepen understanding independently. Observations in several classes show that digital book reader applications, such as Maktabah Syamilah and the Quran-Hadith application, have helped students trace evidence and understand the context of verses or hadiths more quickly. This integration between tradition and technology forms a new learning pattern that is more critical and analytical, without having to let go of the traditional roots of Islamic boarding school education (Muddin & Septiawan, 2021).

In the affective aspect, cyber-based integrative learning also positively influences strengthening students' moral and spiritual values. Although initially it was feared that the presence of technology would distance students from spiritual values, the results of the interviews showed otherwise (Junaidi, Hitami, & Zaitun, 2024). The kiai and madrasah teachers assessed that technology-based learning could be directed to strengthen the spiritual dimension if managed wisely and controlled with the right system. In practice, Islamic boarding schools develop learning modules based on the values of akhlakul karimah, and display online content of da'wah, lectures, and spiritual motivation from the pesantren masyayikh. Students can access evening studies, Friday sermons, and book studies from the kiai in the form of audio and video recordings, which previously could only be followed directly (Widodo, 2023).

Most of the students interviewed stated that they felt more emotionally and spiritually connected because they could repeat the advice of their teachers through the study recordings. This also strengthens the internalization of the values of Sufism, which are the hallmark of Islamic boarding schools (Herawati, 2025). In addition, the control and guidance from the Islamic boarding school in the use of technology also helps maintain students' morality so that they remain within the corridor of Islamic values. One of the heads of the madrasah said that "we are not just introducing technology, but we are building a valuable digital learning ecosystem, where digital content and activities still breathe Islamic morality." That way, Islamic boarding schools are not only places to learn, but also become spaces for modern and contextual spiritual development (Rukmana, Syawaludin, & Savitri, 2020).

Meanwhile, in the social aspect, the study's results also showed that integrating cyber-based learning improved students' ability to interact in digital spaces and develop relevant social skills in the modern era. Teachers assessed that the participation of students in digital discussion forums, online training, and community-based project-based learning had trained them to communicate more actively, critically, and openly about new ideas (Wulan, Gunawan, Fauziah, & Kratz, 2022). Students also began to understand the importance of ethics in communicating in cyberspace, maintaining manners, and being wise in expressing opinions through digital media. Through several digital literacy trainings organized by the Islamic boarding school ICT team, students were trained to use social media productively, create digital da'wah content, and write articles and opinions on the Islamic boarding school blog (A'yuni & Habibi, 2023).

This activity not only improves the students' writing and speaking skills, but also strengthens the image of the Islamic boarding school as an institution that can play an active role in contemporary Islamic discourse. Some students have even succeeded in becoming da'wah content creators, online discussion moderators, and digital literacy community coordinators in the Islamic boarding school environment (Fahruroji, 2024). In observations of online discussion forums, researchers saw an increase in students' self-confidence in conveying ideas, analyzing socio-religious issues, and responding to various current issues from an Islamic perspective. This shows that cyber-based learning forms academic skills and social competencies relevant in the digital networks and collaboration era.

The approach of Islamic sociological theory strengthens the findings of this study, especially the theory of structure and agency from Anthony Giddens, which explains how individuals (in this case, students and teachers) are not only shaped by social structures (boarding school culture), but also can change and shape structures through reflective actions and digital awareness. In this context, the use of information technology is not just a technical tool, but also becomes a new medium in the construction of values, social relations, and the formation of the Islamic identity of students. Boarding schools as a social structure are not passive towards change, but are instead active in reformulating their values so that they remain alive amid modernity (Ulfah, 2024). Giddens emphasizes the importance of "modern reflexivity," namely the ability of society to consciously reorganize institutions and life practices based on new understandings and experiences (Afnan, 2025).

This is reflected in the policy of the Salafiyah-Syafi'iyah Sukorejo Islamic Boarding School, which strategically encourages the development of a digital learning system, teacher training in technological literacy, and the establishment of an Islamic media laboratory as a center for producing digital-based Islamic content. This Islamic boarding school has formed an integrative curriculum team that designs a learning syllabus based on Islamic boarding school values, with the support of digital media. This effort shows that digital transformation in Islamic boarding schools is not a form of westernization or secularization, but rather a creative adaptation in maintaining the continuity of Islamic values while responding to the dynamics of the times.

On the other hand, the Islamic sociological approach also highlights the importance of sustainability and social cohesion in educational innovation. Technology-based innovations implemented in Islamic boarding schools do not run by eliminating traditional elements. Still, they are carried out gradually and adjusted to the level of acceptance of the Islamic boarding school community. The results of interviews with the kiai show that changes are made while maintaining the beliefs, manners, and scientific hierarchies that apply in the Islamic boarding school tradition. In other words, technology becomes a servant of values, not a ruler of values. This is the key to the success of Islamic boarding schools in building a learning system that is not only technically modern, but also ideologically and culturally strong (Mette, Range, Anderson, & Hvidston, 2015).

In general, the results of this study conclude that the cyber-based integrative learning design implemented at the Salafiyah-Syafi'iyah Sukorejo Situbondo Islamic Boarding School has made a major contribution to holistically strengthening students' competence. This approach has proven to bridge the needs of the times with the values of Islamic boarding schools and strengthen the position of Islamic boarding schools as Islamic educational institutions that can actively adapt amidst global social change. Students' competence is not only limited to mastery of knowledge, but also extends to reflective abilities, spirituality, and social skills that are ready to face the digital era while still adhering to Islamic values (Mukhlis, 2024).

3.1 Cyber-based integrative learning model at the Salafiyah-Syafi'iyah Islamic Boarding School, Sukorejo, Situbondo

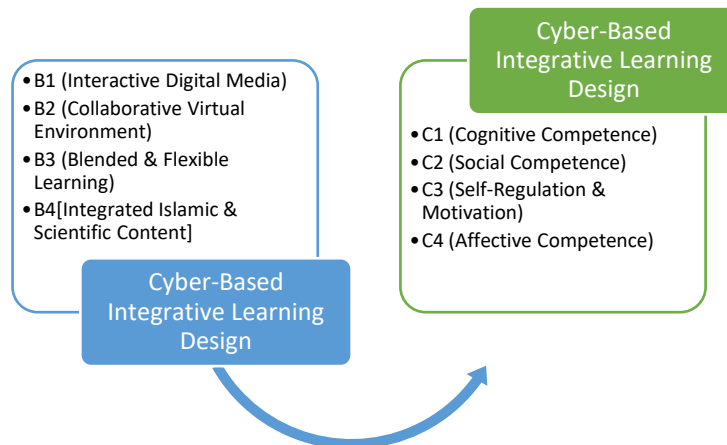
The implementation of cyber-based integrative learning design at the Salafiyah-Syafi'iyah Sukorejo Situbondo Islamic Boarding School has a significant impact on strengthening the competence of students. Through a qualitative approach and phenomenological analysis based on the perspective of Islamic sociology, it was found that integrating technology in learning improves students' cognitive quality and positively influences their affective and social dimensions. Data obtained from in-depth interviews with ustadz, madrasah teachers, formal institution principals, and kiai, as well as observations of learning activities, show that the transformation of Islamic boarding school learning methods towards digital is not only possible, but also contributes significantly to the sustainability of Islamic boarding school values in the modern landscape (Afnan & Maksum, 2023).

In terms of cognitive aspects, the ustadz and teachers reported that the use of digital learning media such as Al-Qur'an interpretation applications, digital yellow books, video explanations of

books, and online classes via the Zoom platform or local pesantren applications has expanded students' access to more varied and contextual learning resources. Students not only understand the book's text literally, but can also explore contextual understanding through online discussion forums and project-based learning assignments that are integrated into learning. The principal of a formal institution said that this method has improved students' academic achievement in subjects such as Fiqh, Tafsir, and Hadith. Through direct observation, researchers found that students were more active in discussions and showed high enthusiasm when given the task of making da'wah videos or making digital presentations on contemporary Islamic themes.

In the affective aspect, the kiai and teachers emphasized that the spiritual values of Islamic boarding schools can actually be strengthened with digital media that is directed properly. One senior kiai said, "If the content is advice, wisdom, and dhikr, then technology is a tool to expand blessings." Teachers integrate spiritual content such as digital muhasabah, video-based Sufism learning, and recordings of Islamic boarding school kiai's religious studies into the online learning system. Students also have access to lectures full of wisdom that can be repeated independently, helping them internalize values and strengthen morals. This approach strengthens Islamic moral values such as humility, patience, honesty, and responsibility in the context of modern learning. The observations also show that using digital platforms does not reduce students' discipline or respect for teachers; with the supervision and policies of Islamic boarding schools, technology is managed to expand values, not destroy them.

Meanwhile, regarding social aspects, cyber-based learning has helped students develop their ability to interact in digital spaces politely and adaptively. ICT teachers and madrasah principals stated that students have been given training on digital literacy, social media ethics, and online presentation skills. Students are invited to create da'wah podcasts, write articles for the pesantren's digital magazine, and collaborate with students from other pesantren through online forums. As a result, they understand the importance of digital communication and develop soft skills such as leadership, collaboration, and public speaking skills. An important note from the observation shows that students who were initially shy in class are more confident in expressing their opinions in online discussion forums. This shows that digital space provides a new channel for students' expression and participation, so their social competence develops naturally.



Picture 1. Diagram Impact of Cyber-Based Integrative Learning Design on Students' Competence

Picture 1 this diagram explains that Cyber-based integrative learning design is an innovative approach that utilizes digital technology to integrate Islamic studies, science, and 21st-century skills into the learning process. This model places students at the center of learning through interactive media, online collaborative learning, and a contextual and adaptive curriculum (Alwiputri & Noor, 2024). First, use *interactive digital media* such as learning videos, e-modules, and educational applications to improve cognitive competence. Students grasp concepts more quickly, think critically, and apply knowledge in real-world contexts because they have access to extensive and easily understood visual information.

Second, *collaborative virtual environments* as online forums, discussion groups, and collaborative projects, encourage students to interact with each other. This develops social competence, such as effective communication, tolerance, and cross-cultural teamwork. Third, *blended & flexible learning* provides students flexibility in time and place to learn. This strengthens their self-regulation (self-regulation), increasing learning motivation, and forming a responsible attitude (Hasan, 2023). Fourth, integrating Islamic values and modern scientific content helps foster effective competence, such as spirituality, positive attitudes towards knowledge, and sensitivity to moral values.

Overall, this design builds student competencies holistically—knowledge, attitudes, and skills. With this approach, Islamic boarding school students can develop into intellectually intelligent, emotionally mature, and socially and spiritually strong individuals in the digital age.

3.2 Discussion

This study reveals that implementing a cyber-based integrative learning design at the Salafiyah-Syafi'iyah Sukorejo Situbondo Islamic Boarding School has significantly improved students' holistic competencies, encompassing cognitive, affective, and social aspects. The study found that students improved their understanding of Islamic material, mastery of information technology, and

communication and collaboration skills. Specifically, students could access and understand teaching materials with flexibility of space and time through digital platforms provided by the Islamic boarding school. Furthermore, using digital media such as the Learning Management System (LMS), WhatsApp learning groups, and interactive videos enabled students to engage in a dialogic and reflective learning process actively (Fahrurroji, 2024).

These findings indicate that integrating technology into learning design in Islamic boarding schools is instrumental and transformative, meaning it transforms conventional learning patterns into ones more adaptive to the challenges of the times. This aligns with the research findings conducted by Anderson & Dron which stated that technology-based learning can create a more personalized, collaborative, and distributed learning environment (Rahmat & Azra, 2023). However, this study goes further by integrating Islamic sociological principles as the basis for its learning approach. Concepts such as Islamic *brotherhood*, *the plague*, and *modesty* are used to form social values that support students' competence in community life.

Unlike previous research emphasizing the technical aspects of using information technology in learning, this study emphasizes the importance of building an inclusive and contextual social learning structure. The importance of global and social competencies in 21st-century education. Still, the context of Islamic boarding schools as social and spiritual spaces provides a new dimension in integrating cyber-based learning. At the Salafiyah-Syafi'iyah Islamic Boarding School, the resulting learning design includes the development of a digital curriculum and reconstructing Islamic values in a digital format easily accessible and understood by students from various backgrounds.

This research also confirms that the transformation of cyber-based learning in Islamic boarding schools requires repositioning the role of teachers or ustadz. They no longer act merely as material providers, but as facilitators and companions in a more participatory learning process. This reinforces the findings of Siemens (2005) through his theory. *Connectivism* states that learning is a process of building networks internally (within individuals) and externally (through communities or technological media) in the digital world (Siemens, 2005). Teachers at Islamic boarding schools who participated in technology training demonstrated a paradigm shift in knowledge transfer, were more open to innovation, and were willing to adopt a more interactive and collaborative learning approach (Zahraini, Akib, Rosidin, & Sulaeman, 2025).

From an Islamic sociological perspective, this learning design demonstrates that the social relations between teachers and students and between students are experiencing new dynamics. These relations remain framed within traditional Islamic boarding school values, such as birth, service, and good luck, but are packaged with more modern media. The cyber-based learning implemented does not sever these values but expands the space for interaction and deepens the internalization of Islamic values in digital life. In this regard, the approach of social *constructivism* was initiated by Vygotsky, is relevant as a theoretical basis, where social interaction is the main key in forming individual knowledge and competence (A'yuni & Habibi, 2023).

One of the novelties of this research lies in how the integrative learning design focuses not only on the pedagogical dimension but also links it to the socio-religious dynamics unique to Islamic boarding schools. An Islamic sociological approach is used to analyze how social structures, religious values, and the dynamics of social relations influence learning effectiveness (Rukmana, Syawaludin, & Savitri, 2024). This expands previous literature, which tends to separate pedagogical and social aspects in the context of Islamic boarding school education. This research fills this gap by presenting a contextual, values-based, and future-oriented learning model.

Furthermore, the cyber-integrative approach also incorporates blended learning elements with Islamic boarding schools' distinctive characteristics, such as halaqah, sorogan, and bandongan. Digitalization does not eliminate traditional methods but makes them more flexible and in-depth. For example, halaqah continues, but is supplemented with online post-activity discussions to strengthen reflection on the material. Sorogan, usually limited to one-on-one interactions, can now be expanded through private digital forums. Bandongan, usually only accessible to those who attend in person, can now be accessed through video recordings with subtitles and explanations (Hasan, 2024).

Another novelty discovered is how technology expands access to classical and contemporary learning resources. By utilizing digital libraries, students can access yellow books anytime and anywhere, and are paired with thematic interpretations and contemporary references to build contextual understanding. In this case, technological *pedagogical content knowledge (TPACK)* is highly relevant, as this research explores how technology is used and how technology, pedagogy, and content are harmoniously combined (Zarkasyi, 2023). In terms of student competency, this design has been proven to improve three main competency dimensions: cognitive competency, demonstrated through improved analytical skills regarding teaching materials and understanding of contemporary issues in Islam; affective competency, demonstrated through increased awareness of values, tolerance, and digital ethics in interactions; and social competency, demonstrated through collaborative skills, digital leadership, and the ability to build value-based social networks. All of this aligns with the theory. *Multiple intelligences* from Howard Gardner, that human intelligence is not only limited to intellectual aspects, but also includes interpersonal and intrapersonal intelligence.

From the perspective of institutional transformation, this study also shows that Islamic boarding schools, as social and religious institutions, can adapt to changing times without losing their scholarly identity. This addresses long-standing criticisms of Islamic boarding schools as stagnant and unresponsive to technological advances (Lubis, Suryani, Syahputra, & Sahila, 2023). In fact, with this design, Islamic boarding schools demonstrate their flexibility and innovative capabilities in designing curricula and learning relevant to the times' needs. As Berger and Luckmann argue in *The Social Construction of Reality*, the reality of education in Islamic boarding schools can be reconstructed according to its social context (Ali & Zainal, 2020).

Furthermore, the key contribution of the Islamic sociological approach to this design is how Islamic boarding schools' social and cultural structures are positioned not as barriers but as driving forces. Students are educated not to be mere users of technology, but also as agents of *change* which

brings Islamic values into the digital space. Values such as amar *ma'ruf nahi denkar*, *brotherhood*, and *ijtihad* are guidelines for using technology wisely and productively. Thus, cyber learning is not a value-free space but a space for preaching and social transformation (Bayu, Hermawan, Sidharta, & Andayani, 2023).

This research also has practical implications for Islamic boarding school education policy and teacher training. First, it highlights the importance of developing a digital-based Islamic boarding school curriculum rooted in Islamic values. Second, it highlights the need for teacher training that combines digital literacy with socio-religious understanding (Zahraini et al., 2025). Third, it highlights the importance of building affordable and sustainable digital infrastructure in Islamic boarding schools. And fourth, it highlights the need to strengthen collaborative learning ecosystems involving students, teachers, caregivers, and the surrounding community.

Methodologically, this study also proposes an Islamic sociological analysis approach as an evaluative framework for technology-based Islamic boarding school learning designs. This represents an innovation in Islamic education research, where the dominance of purely pedagogical methodologies often ignores traditional Islamic educational institutions' social and cultural context. Researchers can capture Islamic boarding schools' local dynamics with this approach while encouraging global transformation through technology.

Overall, this discussion confirms that the cyber-based integrative learning design developed in the context of Islamic boarding schools (pesantren) offers pedagogical innovation and serves as an alternative model for responsive, contextual, and transformative Islamic education. The strength of this model lies in its ability to combine the legacy of Islamic scholarly tradition with the power of modern technology within a vibrant learning ecosystem. Thus, this research provides theoretical, practical, and methodological contributions to the development of Islamic boarding school education and Islamic education in general in facing the challenges of the digital era and globalization.

4. Conclusion

This study concludes that the implementation of cyber-based integrative learning design at the Salafiyah-Syafi'iyah Sukorejo Situbondo Islamic Boarding School has a significant impact on strengthening the holistic competence of students. Integrating traditional Islamic education values with modern technology-based learning approaches has created an adaptive, contextual education model that remains strongly rooted in the distinctive character of Salafiyah Islamic boarding schools. The study results obtained through in-depth interviews with ustadz, teachers, principals, and kiai, as well as direct observation of learning activities, show that students' competence has increased in three main aspects: cognitive, affective, and social. In the cognitive aspect, students showed an increased understanding of Islamic sciences through access to digital sources, independent re-learning, and interactive media.

The affective aspect also experienced strengthening, especially in terms of moral formation, spiritual appreciation, and internalization of Islamic values through digital content with nuances of da'wah and morality. Meanwhile, in the social aspect, students became more active, participatory, and reflective in the digital space, able to interact ethically, and demonstrate collaborative skills through online forums and da'wah media projects. The phenomenological approach in this study shows that the transformation process does not occur unilaterally. Still, it results from the collective awareness of the pesantren community in responding to social and technological changes. From the perspective of Islamic sociology, this shows that the structure of the pesantren is dynamic and able to reconstruct itself through the reflective actions of its agents. Thus, cyber-based integrative learning design can be a strategic alternative in developing the quality of pesantren education that is superior in knowledge and strong in character and values. This model is relevant to be developed more widely as a form of Islamic education innovation that answers the challenges of the times without losing its identity.

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