

Teacher Readiness and Digital Competence for Islamic Education in the 21st Century: Challenges and Opportunities

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ABSTRACT

The rapid advancement of technology has transformed the educational landscape, requiring teachers not only to master subject content but also to integrate digital resources effectively in their teaching practices. Islamic Religious Education (IRE) teachers face a double demand: they must become digitally competent while preserving the moral and spiritual mission of their subject. This study aims to examine the readiness and digital competence of IRE teachers in utilizing digital tools and to identify the challenges and opportunities that shape their practice. The study employed a qualitative descriptive design. Participants were IRE teachers at primary and secondary schools selected through purposive sampling until data saturation was reached. Data were collected using a semi-structured interview guide, a classroom observation sheet, and a document analysis checklist, and were analysed thematically following Braun and Clarke, with credibility ensured through triangulation, member checking, and peer debriefing. The findings show that teacher readiness is dynamic and shaped by personal confidence, generational differences, and institutional culture; digital competence is uneven, being strong in communication tools but weak in learning management systems and digital assessment; effective integration occurs when technology complements, rather than replaces, the teacher–student relationship (ta'dib); and the main barriers are infrastructure, uneven digital literacy, and the difficulty of curating authentic online Islamic content. This study contributes a value-integrated reading of TPACK and DigCompEdu for IRE that positions ethical-spiritual discernment as a core dimension of digital competence, and it offers a basis for designing continuous and differentiated professional development for IRE teachers.

Keywords: Digital Competence; Islamic Religious Education; Teacher Readiness; TPACK; 21st Century Learning

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INTRODUCTION

The 21st century has changed the way knowledge is produced, shared, and consumed, and schools are expected to follow this shift by integrating digital tools into teaching and learning.¹ In Indonesian schools and madrasahs, however, the use of technology in Islamic Religious Education (IRE) is still frequently limited to displaying slides, playing videos, or distributing assignments through messaging applications.² Many IRE teachers were trained in face-to-face, memorisation-oriented pedagogy, and the pandemic period showed that many of them were not ready when learning moved suddenly to online platforms.³ At the same time, students, as digital natives, increasingly access religious content from social media and unverified websites, so that the absence of competent digital guidance from IRE teachers creates a real risk that religious learning takes place outside the classroom and without teacher mediation.⁴

The author argues that this problem cannot be solved merely by supplying devices or conducting one-off technical workshops. The central issue is the readiness and competence of the teacher as the person who decides whether technology deepens or trivialises religious learning. Readiness refers to the willingness, confidence, and preparedness of teachers to adopt new tools, whereas competence refers to the actual ability to use them purposefully in pedagogy.⁵ Without both, digital tools become decorative, and IRE loses the opportunity to guide students ethically in digital spaces. Improving IRE through technology therefore requires continuous, value-oriented professional development supported by the institution.⁶

The focus of this study is unique because IRE is concerned not only with transmitting cognitive knowledge but also with character formation (*akhlak*), spiritual guidance, and the authenticity of sacred sources. Unlike teachers of other subjects, IRE teachers must judge whether a digital resource is accurate from the standpoint of Islamic scholarship and whether its use respects the sanctity of the Qur'an and the prophetic tradition. Digital readiness in IRE is therefore inseparable from religious authority, the teacher–student relationship, and the curation of online religious content.⁷

¹ A. P. Miagusttin and others, 'Penerapan Teknologi dalam Pembelajaran: Menghadapi Era Digital di Abad ke-21', (2024), pp. 1–15.

² Raharjo, Nasikhin and Widodo Supriyono, 'The Urgency of WhatsApp in Online Learning: Elaboration and Perception of Islamic Religious Education Teachers in Indonesia', *EDUPROF: Islamic Education Journal*, 2025, pp. 135–150 <<https://journal.ljpi.bbc.ac.id/eduprof/article/view/284>>.

³ Y. Fitriani, 'Analisa Pemanfaatan Learning Management System (LMS) sebagai Media Pembelajaran Online selama Pandemi Covid-19', *Journal of Information System, Informatics and Computing*, 4.2 (2020), 1 <<https://doi.org/10.52362/jisicom.v4i2.312>>.

⁴ D. R. Fadilla and others, 'Sosialisasi mengenai Teknologi Digital yang Berpengaruh terhadap Perilaku Peserta Didik', *Al-Umm: Jurnal Pengabdian dan Pengembangan Masyarakat*, 1 (2024).

⁵ A. Suhid and others, 'Challenges and Readiness of Islamic Education Teachers in Innovative Teaching and Learning', *Jurnal Ilmiah Peuradeun*, 9.2 (2021), 293–308 <<https://doi.org/10.26811/peuradeun.v9i2.588>>.

⁶ L. Anggraini and others, 'Strategi Peningkatan Kompetensi Guru Pendidikan Agama Islam melalui Program Pengembangan Profesional Berkelanjutan', *Khazanah Akademia*, 9.1 (2025), 1–8 <<https://doi.org/10.52434/jurnalkhazanahakademia.v9i01.428>>.

⁷ Rina Farbriani, Sri Murhayati and Z., 'Inovasi Pembelajaran Pendidikan Agama Islam pada Abad 21', *Indonesian Research Journal on Education*, 4 (2024), 2426–31.

Theoretically, this study draws on the Technological Pedagogical Content Knowledge (TPACK) framework, which conceptualises effective teaching with technology as the integration of content, pedagogical, and technological knowledge,⁸ and on the European Framework for the Digital Competence of Educators (DigCompEdu), which describes educators' digital competence across professional engagement, digital resources, teaching and learning, assessment, empowering learners, and facilitating learners' digital competence.⁹ Teacher readiness is further read through Rogers' Diffusion of Innovations, which explains that adoption depends on perceived advantage, compatibility with existing values, and social support.¹⁰ These frameworks are combined with the Islamic concept of *ta'dib*, in which the teacher is both a transmitter of knowledge and a moral guide, so that technology is positioned as a means (*wasilah*) rather than an end.

The initial argument of this study is that the digital competence of IRE teachers must be understood as a value-integrated competence: technical skill and pedagogical design are necessary but insufficient unless accompanied by ethical-spiritual discernment in selecting, curating, and mediating digital religious content. Based on this argument, the study aims to (1) describe the readiness of IRE teachers to embrace digital tools, (2) map the levels of their digital competence, (3) analyse how digital tools are integrated into Islamic pedagogy, and (4) identify the challenges and institutional conditions that support or hinder this integration.

Several recent studies are relevant to this focus. Azman, Hamzah, and Baharudin found that Islamic Education teachers in Malaysian primary schools used five groups of digital teaching strategies (game-based, web-based, metaverse, social media, and interactive visual) and recommended further digital-competence training.¹¹ Saputro, Inayati, and Ali reported that IRE teachers in a Muhammadiyah junior high school were able to use TPACK to develop IT-based teaching materials,¹² whereas Hidayati and Choiriyah found that teachers at the Madrasah Aliyah level did not yet fully understand TPACK in *Akidah Akhlak* lessons.¹³ Ikhwan and colleagues

⁸ Punya Mishra and Matthew J. Koehler, 'Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge', *Teachers College Record*, 108.6 (2006), 1017–54 <<https://doi.org/10.1111/j.1467-9620.2006.00684.x>>.

⁹ Christine Redecker, *European Framework for the Digital Competence of Educators: DigCompEdu*, ed. by Yves Punie (Publications Office of the European Union, 2017) <<https://doi.org/10.2760/159770>>.

¹⁰ Everett M. Rogers, *Diffusion of Innovations*, 5th edn (Free Press, 2003).

¹¹ N. A. Azman, M. I. Hamzah and H. Baharudin, 'Digital Teaching Strategies of Islamic Education Teachers: A Case Study in Primary Schools', *International Journal of Learning, Teaching and Educational Research*, 24.3 (2025) <<https://doi.org/10.26803/ijlter.24.3.27>>.

¹² Y. M. Saputro, N. L. Inayati and M. Ali, 'Analysis of Pedagogical and Professional Competence in Utilizing TPACK of Islamic Education Teachers', in *Proceedings of the International Conference on Islamic and Muhammadiyah Studies (ICIMS 2023)* (Atlantis Press, 2023), pp. 749–64 <https://doi.org/10.2991/978-2-38476-102-9_65>.

¹³ N. Hidayati and S. Choiriyah, 'Application of the TPACK Approach Based on HOTS in Islamic Religious Education Learning at the Madrasah Aliyah Level', *al-Afkar, Journal for Islamic Studies*, 7.3 (2024) <https://al-afkar.com/index.php/Afkar_Journal/article/view/1287>.

showed that information technology supports the professional development of IRE teachers in Indonesia, although its use remains uneven.¹⁴

Studies published in EDUPROF have also highlighted this issue. Raharjo, Nasikhin, and Supriyono described IRE teachers' perception of WhatsApp as the most practical medium for online learning,¹⁵ Mustoip and colleagues examined the implementation of artificial intelligence in IRE learning at Madrasah Ibtidaiyah,¹⁶ and Hartati, Hamdanah, and Wahdarohmah emphasised the teacher's role in building students' learning readiness in madrasah.¹⁷ Other studies stress that teacher competence depends on leadership and institutional support,¹⁸ on field-based training for prospective IRE teachers,¹⁹ and on the independence of teachers in the Industrial Revolution 4.0 era.²⁰ Earlier, Suhid and colleagues found that Islamic education teachers were ready for innovative teaching but were constrained by skills and facilities.²¹

Compared with these studies, which tend to examine a single tool, a single framework, or teachers' general competence, this study examines readiness, competence, pedagogical integration, and institutional support together and interprets them through a combined TPACK–DigCompEdu–*ta'dib* lens. Theoretically, the study is urgent because it proposes ethical-spiritual discernment as a dimension of digital competence that is not explicitly addressed in general frameworks. Practically, its findings are needed by schools, madrasahs, and educational authorities to design differentiated and continuous professional development instead of uniform technical training.

RESEARCH METHODOLOGY

This study used a qualitative descriptive design because the aim was to understand teachers' perceptions, experiences, and practices in depth rather than to measure them statistically. Participants were IRE teachers at primary and secondary schools, selected through purposive

¹⁴ M. Ikhwan and others, 'The Utilization of Information Technology for the Professional Development of Islamic Education Teachers in Indonesia', *Progresiva: Jurnal Pemikiran dan Pendidikan Islam*, 12.2 (2023), 209–22 <<https://doi.org/10.22219/progresiva.v12i02.31169>>.

¹⁵ Raharjo, Nasikhin and Supriyono, pp. 135–50.

¹⁶ S. Mustoip and others, 'Implementation of Artificial Intelligence in Islamic Religious Education Learning at Madrasah Ibtidaiyah', *EDUPROF: Islamic Education Journal*, 6.1 (2024), 72–77 <<https://journal.ljpi.bbc.ac.id/eduprof/article/view/268>>.

¹⁷ Z. Hartati, Hamdanah and N. K. Wahdarohmah, 'Teachers' Ability in Building Students' Learning Readiness in Madrasah', *EDUPROF: Islamic Education Journal*, 2025, pp. 45–62 <<https://journal.ljpi.bbc.ac.id/eduprof/article/view/280>>.

¹⁸ Sahrudin, 'Implementation of Islamic Leadership Values by School Principals in Enhancing Teacher Competence in Public Junior High Schools in Indramayu', *EDUPROF: Islamic Education Journal*, 2025, pp. 140–61 <<https://journal.ljpi.bbc.ac.id/eduprof/article/view/348>>.

¹⁹ S. F. Azzahra and others, 'Strengthening the Basic Skills of Prospective Teachers of Islamic Religious Education through Integrated Field Practices at Sirojul Falah Islamic College', *EDUPROF: Islamic Education Journal*, 2025, pp. 76–89 <<https://journal.ljpi.bbc.ac.id/eduprof/article/view/282>>.

²⁰ N. Haryono, 'Guru Berdikari di Era Revolusi Industri 4.0', *EDUPROF: Islamic Education Journal*, 2021, pp. 57–70 <<https://journal.ljpi.bbc.ac.id/eduprof/article/view/42>>.

²¹ Suhid and others, pp. 293–308.

sampling to represent variation in age, teaching experience, and institutional context; recruitment continued until data saturation was reached. Three instruments were used, each for a specific reason: (1) a semi-structured interview guide covering attitudes toward digital tools, confidence, frequently used technologies, obstacles, and integration strategies, chosen because it allows the researcher to probe teachers' reasoning; (2) a classroom observation sheet recording the type of tool, its pedagogical function, and student engagement, chosen to compare self-reports with actual practice; and (3) a document analysis checklist applied to school policies, teacher-training guidelines, and curriculum documents, chosen to capture the institutional environment in which teachers work.

Data were analysed thematically following the six phases of Braun and Clarke: familiarisation, initial coding, searching for themes, reviewing themes, defining themes, and reporting.²² The codes were grouped into five themes (readiness, digital competence, pedagogical integration, challenges, and institutional support), which structure the results section. Trustworthiness was established following Lincoln and Guba through triangulation of sources and techniques, member checking of interview summaries, peer debriefing, and thick description.²³ All participants gave informed consent, their identities were anonymised, and the religious sensitivity of the topic was respected throughout data collection and reporting.

RESULT AND DISCUSSION

Teacher Readiness in Embracing Digital Tools

The findings show that the readiness of IRE teachers to embrace digital tools is highly contextual and is shaped by individual attitudes, institutional culture, and broader educational expectations. Many teachers view technology positively and associate it with opportunities to make lessons more engaging and closer to students' digital lifestyles. For these teachers, readiness is not only a willingness to use tools but a mindset open to change and continuous learning, motivated by the awareness that ignoring students' digital world widens the gap between what they learn at school and what they experience outside it. They therefore experiment with online Qur'an platforms, digital storytelling applications, and multimedia presentations. Other teachers, however, show hesitation. Their hesitation stems from insecurity about their own digital skills or from concern that technology might trivialise sacred texts or distract students with entertainment-oriented applications. This is not a rejection of technology but a cautious stance rooted in the desire to preserve the sanctity of Islamic teaching.

Generational and institutional factors further differentiate readiness. Younger teachers display greater ease in using technology, whereas older teachers require more structured support and reassurance, although they are not unwilling. Teachers in schools whose leaders promote digital integration, provide infrastructure, and value innovation feel more prepared, whereas teachers in under-resourced schools perceive readiness as an individual burden. Readiness also

²² Virginia Braun and Victoria Clarke, 'Using Thematic Analysis in Psychology', *Qualitative Research in Psychology*, 3.2 (2006), 77–101 <<https://doi.org/10.1191/1478088706qp0630a>>.

²³ Yvonna S. Lincoln and Egon G. Guba, *Naturalistic Inquiry* (Sage, 1985).

changes over time: teachers who were initially reluctant became more open after experiencing successful lessons or observing colleagues' positive results.

These findings confirm Rogers' argument that adoption depends on perceived compatibility with existing values and on observable results in one's social environment.²⁴ In IRE, compatibility has a distinctly religious meaning: teachers adopt technology when they are convinced that it serves, rather than threatens, the purpose of *ta'dib*. This position extends the finding of Suhid and colleagues, who described readiness mainly in terms of skills and facilities,²⁵ by showing that value-compatibility is an equally decisive factor. The finding that readiness grows through observed success also supports Hartati and colleagues, who emphasise that readiness in madrasah is built through a supportive learning climate,²⁶ and it is consistent with Fauzan and colleagues, who argue that the transformation of IRE in madrasah must be holistic and relevant to the demands of the time.²⁷ The author's position is therefore that readiness should be treated as a developmental process rather than a fixed trait, so that professional development must be continuous rather than delivered as one-off events.

Levels of Teacher Digital Competence

The competence of IRE teachers in using digital tools varies widely. Teachers with high competence combine technical skill with pedagogical creativity: they use multimedia to explain abstract Islamic concepts, design interactive quizzes to check understanding, and guide collaborative online projects that encourage reflection on moral values. Teachers with limited competence restrict technology to displaying slides or playing pre-recorded videos, so that students remain passive recipients and technology reinforces teacher-centred methods. Competence is also uneven across domains. Most teachers are comfortable with communication tools such as messaging applications, but fewer are skilled in learning management systems or digital assessment. Teachers who had participated in workshops, online courses, or peer-learning sessions showed higher competence, and confidence emerged as a key factor: confident teachers were more willing to experiment, whereas less confident teachers stayed with familiar tools for fear of failure.

Read through DigCompEdu, this pattern indicates that IRE teachers are relatively strong in the professional engagement and communication area but weak in the teaching and learning, assessment, and empowering learners areas.²⁸ Read through TPACK, many teachers possess sound content knowledge but have not yet integrated it with technological and pedagogical knowledge, which is consistent with the findings of Hidayati and Choiriyah at the Madrasah

²⁴ Rogers.

²⁵ Suhid and others.

²⁶ Hartati, Hamdanah and Wahdarohmah, pp. 45–62.

²⁷ M. Fauzan, W. Aprison and R. Rahmadhani, 'Transformasi Pendidikan Agama Islam di Madrasah menuju Pendidikan yang Holistik dan Relevan dengan tuntutan Zaman', *Innovative: Journal of Social Science Research*, 4.6 (2024), 3421–32.

²⁸ Redecker; Francesca Caena and Christine Redecker, 'Aligning Teacher Competence Frameworks to 21st Century Challenges: The Case for the European Digital Competence Framework for Educators (DigCompEdu)', *European Journal of Education*, 54.3 (2019), 356–69 <<https://doi.org/10.1111/ejed.12345>>.

Aliyah level.²⁹ The dominance of messaging applications mirrors the EDUPROF study by Raharjo and colleagues, who found that WhatsApp was perceived as the most practical medium for IRE teachers,³⁰ and the uneven use of learning management systems echoes Fitriani's analysis of LMS use during the pandemic.³¹ Unlike Saputro and colleagues, who reported effective TPACK use in a single well-resourced school,³² this study shows that such competence is not yet general across institutions. The author's position is that competence should be developed through targeted, domain-specific training that responds to each teacher's actual gaps, in line with Ikhwan and colleagues' finding that technology-based professional development is effective but unevenly accessed.³³

Integration of Digital Tools in Islamic Pedagogy

Teachers who are both ready and competent align digital resources with the goals of IRE. Three integration patterns were observed. First, multimedia and digital storytelling were used to revitalise the traditional method of *qasas* (storytelling) in narrating the lives of the prophets and moral lessons from Islamic history. Second, digital Qur'an and *tafsir* applications were used to guide students in listening to recitations, comparing translations, analysing word meanings, and reflecting on the relevance of verses to contemporary issues. Third, collaborative online activities were used for discussing ethical dilemmas and sharing reflections through the lens of Islamic teachings. Integration was most successful when teachers treated technology as complementary rather than substitutive: online discussion was combined with face-to-face mentoring and moral guidance so that the spiritual essence of the lesson was preserved. Some teachers nonetheless worried that students might focus on the medium rather than the message or encounter unverified interpretations online.

This complementary pattern represents the core of what this study calls value-integrated TPACK: technological and pedagogical knowledge are selected and bounded by the moral-spiritual aims of the content.³⁴ It extends the strategies documented by Azman and colleagues in Malaysia by showing that the decisive factor is not the variety of tools but the teacher's judgement about how each tool serves *ta'dib*.³⁵ The finding also resonates with Mustoip and colleagues, who show that artificial intelligence can support IRE only when teachers control its pedagogical use,³⁶ and with Farbriani and colleagues, who argue that innovation in IRE in the 21st century must remain grounded in Islamic values.³⁷ The author's position is that the teacher's role as a moral

²⁹ Hidayati and Choiriyah.

³⁰ Raharjo, Nasikhin and Supriyono.

³¹ Fitriani.

³² Saputro, Inayati and Ali, pp. 749–64.

³³ Ikhwan and others, pp. 209–22.

³⁴ Mishra and Koehler, pp. 1017–54.

³⁵ Azman, Hamzah and Baharudin.

³⁶ Mustoip and others, pp. 72–77.

³⁷ Farbriani, Murhayati and Z..

guide becomes more, not less, important in digital learning, because students need guidance in interpreting abundant religious content.

Challenges in Implementing Digital Tools

Four main challenges were identified. The first is inadequate infrastructure, especially in rural and underfunded schools, where unreliable internet and outdated devices frustrate even motivated teachers. The second is uneven digital literacy among teachers, which produces inconsistent learning experiences and adds to the workload of digitally competent teachers, who are often asked to assist their colleagues. The third is a cultural and pedagogical concern that over-reliance on technology may erode the close teacher–student relationship historically central to moral and spiritual formation. The fourth is the difficulty of curating reliable online Islamic content, because the internet contains interpretations that do not align with mainstream scholarship and may expose students to misleading or even radical views.

The first two challenges are consistent with international and Indonesian studies that identify infrastructure and digital literacy as the main barriers to digital religious education,³⁸ and with Rohiem and Sari's analysis of the strengths and weaknesses of digital learning platforms.³⁹ The third and fourth challenges, however, are specific to IRE and are not captured by general frameworks such as DigCompEdu, which treat resource selection mainly as a matter of quality and copyright.⁴⁰ Here the author's position is clear: for IRE teachers, curating digital resources is also an act of religious authority, and digital competence must therefore include the ability to verify the scholarly authenticity of content. This finding supports Fadilla and colleagues' concern about the influence of digital technology on learners' behaviour.⁴¹

Institutional Support and Professional Development

Institutional support emerged as the decisive factor bridging readiness and competence. Teachers in schools that provide reliable infrastructure, sustained training, mentoring, and recognition for innovation were more confident in exploring digital tools, whereas teachers without such support adopted technology inconsistently or superficially. Document analysis showed that school policies and training guidelines generally encourage the use of technology, but they rarely provide concrete guidance on aligning digital tools with the objectives of IRE. Teachers valued continuous and collaborative forms of development, such as peer learning and mentoring, more than one-off workshops.

This finding supports Anggraini and colleagues, who show that continuous professional development is the main strategy for improving IRE teacher competence,⁴² and Aziz and Zakir,

³⁸ Ikhwan and others; Suhid and others; Azman, Hamzah and Baharudin.

³⁹ A. F. Rohiem and J. Sari, 'Analisis SWOT Sarana Pembelajaran Digital Massive Open Online Course (MOOC) Ruang Guru', *Dirasat: Jurnal Manajemen dan Pendidikan Islam*, 9.2 (2023), 126–36 <<https://doi.org/10.26594/dirasat.v9i2.3684>>.

⁴⁰ Redecker.

⁴¹ Fadilla and others.

⁴² Anggraini and others, pp. 1–8.

who emphasise human resource management in improving teacher professionalism.⁴³ It is also consistent with Sahrudin, who found in EDUPROF that the Islamic leadership values of school principals enhance teacher competence,⁴⁴ and with Azzahra and colleagues, who show that integrated field practice strengthens the basic skills of prospective IRE teachers.⁴⁵ The author's position is that professional development for IRE teachers must be differentiated by age and competence level, continuous, and explicitly oriented to integrating Islamic values with digital pedagogy, in line with the holistic transformation agenda proposed by Fauzan and colleagues.⁴⁶

Future Prospects for Islamic Education in the Digital Age

Teachers see hybrid learning, global connectivity, personalised learning through adaptive and AI-based applications, and immersive methods such as virtual reality and gamification as promising future directions. AI-assisted Qur'an applications that give feedback on pronunciation, and interactive scenarios for teaching Islamic ethics, were mentioned as examples. Teachers also warned of the risks of commercialisation, distraction, and exposure to unverified content. These prospects show that the teacher's role will shift toward that of an innovator and a guardian at once: someone who adopts new tools while safeguarding the authenticity of Islamic teaching. This dual role corresponds to Haryono's idea of the independent teacher (*guru berdikari*) in the Industrial Revolution 4.0 era⁴⁷ and to the broader call by Caena and Redecker to rethink teacher competence frameworks for 21st-century learners.⁴⁸

CONCLUSION

This study concludes that the readiness and digital competence of IRE teachers in the 21st century are dynamic, uneven, and strongly dependent on institutional context. Readiness grows through confidence, observed success, and value-compatibility, and it differs across generations and schools. Digital competence is relatively strong in communication tools but weak in learning management systems, digital assessment, and learner empowerment. Integration is most meaningful when technology complements the teacher–student relationship through digital storytelling, Qur'an and *tafsir* applications, and collaborative reflection, whereas the main obstacles are limited infrastructure, uneven digital literacy, concern about eroding traditional pedagogy, and the difficulty of curating authentic online Islamic content; continuous institutional support is the factor that bridges readiness and competence.

Theoretically, this study extends TPACK and DigCompEdu by proposing a value-integrated digital competence for IRE in which ethical-spiritual discernment and the curation of authentic religious content are core dimensions, and by showing that value-compatibility is a key

⁴³ A. Aziz and S. Zakir, 'Manajemen Sumber Daya Manusia dalam Pendidikan Islam: Upaya Meningkatkan Profesionalisme Guru', *Indonesian Research Journal on Education*, 2.3 (2022), 1030–37.

⁴⁴ Sahrudin, pp. 140–61.

⁴⁵ Azzahra and others, pp. 76–89.

⁴⁶ Fauzan, Aprison and Rahmadhani, pp. 3421–32.

⁴⁷ Haryono, pp. 57–70.

⁴⁸ Caena and Redecker, pp. 356–69.

determinant of readiness in Rogers' sense. Practically, schools, madrasahs, and educational authorities are recommended to provide reliable infrastructure and to design continuous, differentiated professional development that combines technical skills with guidance on aligning digital tools with the goals of IRE. This study is limited by its qualitative design and purposive sample, so its findings are not statistically generalisable. Future research should test the proposed value-integrated competence model through larger quantitative or mixed-methods surveys across regions and types of institutions, and should examine the impact of teachers' digital competence on students' religious understanding and character.

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