



Digital Transformation of *Pesantren* in the VUCA Era: Learning Technological Adaptation from *Pesantren*

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Abstract

The digital era, marked by the VUCA phenomenon (Volatility, Uncertainty, Complexity, Ambiguity), demands that Islamic boarding schools (*pesantren*) formulate adaptive and innovative strategies to remain relevant and produce students (*santri*) prepared to face contemporary challenges. This study aims to explore the strategies of Pondok Pesantren Darul Fiqhi and Pondok Pesantren Matholi'ul Anwar Lamongan in responding to the VUCA phenomenon and to identify forms of Islamic education transformation in the digital age. This research uses a qualitative case study approach with a multisite design. Data were collected through observation, interviews, and documentation, and analyzed through data reduction, data presentation, and conclusion drawing. The findings reveal that Pondok Pesantren Darul Fiqhi responds to VUCA by developing students' critical thinking skills, equipping them with practical competencies, and maintaining a curriculum grounded in classical Islamic texts (*kitab kuning*). Meanwhile, Pondok Pesantren Matholi'ul Anwar emphasizes the development of critical thinking, the strengthening of students' practical skills, and the prioritization of character building and the preservation of traditional *kitab kuning* studies. A key form of digital transformation implemented by both *pesantren* is the use of YouTube live streaming for *kitab kuning* learning. This study contributes to the discourse on how *pesantren* can adapt to the digital era without abandoning traditional Islamic values.

Keywords: Islamic Education; *Pesantren* Studies; VUCA Phenomenon.

Abstrak

Era digital yang ditandai dengan fenomena VUCA (Volatility, Uncertainty, Complexity, Ambiguity) menuntut pesantren untuk merumuskan strategi adaptif dan inovatif agar tetap relevan serta mampu mencetak santri yang siap menghadapi tantangan zaman. Penelitian ini bertujuan untuk menggali strategi Pondok Pesantren Darul Fiqhi dan Pondok Pesantren Matholi'ul Anwar Lamongan dalam merespons fenomena VUCA serta mengidentifikasi bentuk transformasi pendidikan Islam di era digital. Penelitian ini menggunakan pendekatan kualitatif jenis studi kasus dengan rancangan multisitus. Data dikumpulkan melalui observasi, wawancara, dan dokumentasi, kemudian dianalisis melalui reduksi data, penyajian data, dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa Pondok Pesantren Darul Fiqhi merespons VUCA dengan melatih kemampuan berpikir kritis santri, membekali keterampilan praktis, serta mempertahankan kurikulum berbasis kitab kuning. Sementara itu, Pondok Pesantren Matholi'ul Anwar menekankan pada mengembangkan kemampuan berpikir kritis santri, penguatan keterampilan santri, dan memprioritaskan pembinaan akhlak serta pelestarian ngaji kitab kuning. Adapun bentuk transformasi digital yang dilakukan kedua pesantren adalah pemanfaatan fitur live streaming YouTube untuk pengajian kitab kuning. Penelitian ini memberikan kontribusi dalam memperkaya wacana tentang adaptasi pesantren di era digital tanpa meninggalkan nilai-nilai tradisi keislaman.

Kata Kunci: Fenomena VUCA; Kajian Pesantren, Pendidikan Islam.

INTRODUCTION

Rapid, complex, and unpredictable changes, commonly conceptualized through the VUCA framework (Volatility, Uncertainty, Complexity, and Ambiguity), have emerged as <https://ejournal.lppdjatim.org/index.php/jpds>

tangible challenges across multiple domains of life, including education. Volatility refers to conditions characterized by instability and rapid change. Uncertainty refers to limited or incomplete information that generates unpredictability. Complexity highlights the intricate interconnections among multiple interacting factors, while ambiguity points to the obscurity or multiplicity of meanings inherent in available information.¹ In the educational context, particularly in *pesantren* (Islamic boarding schools), the VUCA phenomenon necessitates comprehensive transformation across pedagogical practices and institutional management to ensure continued relevance amid contemporary dynamics.²

As traditional Islamic educational institutions, *pesantrens* not only preserve Islamic values but are also increasingly expected to prepare students (*santri*) to navigate digital and global realities.³ Several *pesantren* have demonstrated adaptive responses to these challenges. Pondok Pesantren Darul Fiqhi, for instance, has integrated digital technology into its religious activities, including the live-streaming of the study of *Bidayatul Hidayah* led by *Kiai* Abdul Adziem Mujib via YouTube. Similarly, Pondok Pesantren Matholi'ul Anwar Lamongan actively uses digital platforms for the study of *Mukhtarul Abadits* and other scholarly activities. These initiatives reflect an ongoing transformation of Islamic education through the constructive integration of long-standing traditions and digital innovation. Digital technology not only reshapes modes of information dissemination but also creates opportunities for educational systems that are more flexible, efficient, and accessible.⁴

In the context of Islamic education, digitalization should be fully integrated into the curriculum, not merely as a supplementary tool but as an integral component of the learning process. Such integration enhances educational quality without constraining students' creativity and innovation. Furthermore, the transformation of Islamic education must sustain a balance among spiritual, intellectual, and moral dimensions.⁵ In this way, learners are expected not only to master scientific and religious knowledge but also to develop strong character and a profound understanding of Islamic teachings. This model of Islamic education is anticipated to equip future generations with essential twenty-first-century competencies, such as critical thinking, creativity, communication, and collaboration, while remaining firmly grounded in the values of moderation and noble character (*akhlak mulia*).⁶

¹ Alief Budiyo, "Urgensi Nilai Religius Pada Generasi Z Di Era Vuca," *Prosiding SNBK (Seminar Nasional Bimbingan Dan Konseling)* 7, no. 1 (2023): 4–10; Maimunatun Habibah and Edi Nurhidin, "Profil Pelajar Dalam Kurikulum Merdeka Madrasah Di Era VUCA," *Intelektual: Jurnal Pendidikan Dan Studi Keislaman* 13, no. 2 (September 2023): 211–30, <https://doi.org/10.33367/ji.v13i2.4061>.

² Sofyan Rofi, Dahani Kusumawati, and Bahar Agus Setiawan, "The Influence of the VUCA Era on the Competitiveness of Islamic Educational Institutions," *Ulum Islamiyyah* 37, no. 03 (December 2025): 134–42, <https://doi.org/10.33102/uij.vol37no03.737>.

³ Sugito Sugito, "Hybrid Learning in Pesantren: Integrating Digital Pedagogy and Islamic Values to Enhance 21st-Century Competencies," *Tafkir: Interdisciplinary Journal of Islamic Education* 5, no. 4 (December 2024): 749–64, <https://doi.org/10.31538/tijie.v5i4.2207>.

⁴ Abid Haleem et al., "Understanding the Role of Digital Technologies in Education: A Review," *Sustainable Operations and Computers* 3 (January 2022): 275–85, <https://doi.org/10.1016/j.susoc.2022.05.004>; Zoia Sharlovych et al., "Digital Technologies as a Means of Improving the Efficiency of Higher Education," *International Journal of Information and Education Technology* 13, no. 8 (2023): 1214–21, <https://doi.org/10.18178/ijiet.2023.13.8.1923>.

⁵ Yunita Aristyasari, "Synergizing Progressive Values and Social, Emotional, Spiritual Intelligence in Islamic Education in The Digital Era," October 2019, 437–43, <https://doi.org/10.2991/icosihess-19.2019.75>; Abdullah Sahin, "Critical Issues in Islamic Education Studies: Rethinking Islamic and Western Liberal Secular Values of Education," *Religions* 9, no. 11 (November 2018): 335, <https://doi.org/10.3390/rel9110335>.

⁶ Winarto Eka Wahyudi, *Ilmu Pendidikan Islam: Teori Dan Kontekstualisasinya Di Era Refolusi 4.0 Dan Society 5.0* (Malang: Madani, 2023), 116.

Building on this background, the present study focuses on the adaptive strategies implemented by Islamic educational institutions to address the challenges of the VUCA era. Specifically, this research examines the strategies adopted by Pondok Pesantren Darul Fiqhi and Pondok Pesantren Matholi'ul Anwar Lamongan to address VUCA-related challenges. It explores forms of transformation in Islamic education facilitated by digital technology. The primary objective of this study is to obtain a comprehensive understanding of the adaptive strategies developed by these two *pesantren* in responding to the VUCA context and to describe how digitalization has become an integral component of the transformation of Islamic education within the *pesantren* environment.

Several previous studies have addressed related issues, emphasizing the importance of holistic approaches and the reinforcement of spiritual values in confronting the VUCA era.⁷ Research by Ridho examines the digitalization of *pesantren salaf* and identifies a shift in learning methods from *sorogan* to digitally based classical instruction.⁸ Bahri's study highlights the critical role of human resource development, enabled by adaptive leadership, in responding to VUCA challenges.⁹ Meanwhile, Sukmawati's research demonstrates that enhancing knowledge, skills, and attitudes is a crucial aspect of preparing prospective teachers for the VUCA era.¹⁰ Harmathilda's study finds that the transformation of *pesantren* education in the modern era has successfully integrated general and religious subjects, maintained a balance between tradition and innovation through the incorporation of Islamic values and modern thought, and begun to implement technology. However, challenges related to infrastructure and digital media training persist.¹¹

Nevertheless, the majority of these studies remain general or theoretical in nature and have not specifically examined the concrete strategies employed by *pesantren* as traditional Islamic institutions in responding to the VUCA era through a digital approach. Accordingly, this article seeks to address this gap by presenting a contextual, fieldwork-based analysis of adaptive strategies and the transformation of Islamic education in two *pesantren*. Particular emphasis is placed on integrating technology into educational practices while remaining firmly grounded in Islam's foundational values.

METHODS

This study employs a qualitative, multisite case study design conducted at Pondok Pesantren Darul Fiqhi and Pondok Pesantren Matholi'ul Anwar Lamongan. This methodological choice was intended to facilitate an in-depth understanding of the transformation of Islamic education in the digital era and of the adaptive strategies adopted by

⁷ M. Yusuf, M. Shohibul Aziz, and Muhamad Mustafid Hamdi, "Pendidikan Islam Sebagai Agen Transformasi Di Era Vuca," *Jurnal Pikir: Jurnal Studi Pendidikan Dan Hukum Islam* 10, no. 1 (January 2024): 12–27.

⁸ Ali Ridho, "Digitalisasi Pondok Pesantren Salaf: Studi Multi Kasus Di Pondok Pesantren Al Fithrah Surabaya Dan Mambaul Ulum Bata-Bata Pamekasan" (phd, Pascasarjana UIN Sunan Ampel Surabaya, 2023), 178–79, <http://digilib.uinsa.ac.id/64067/>.

⁹ Syamsul Bahri, "Implementasi Manajemen Sumber Daya Manusia Dalam Menghadapi Era Bercirikan Vuca," *Jurnal Hurriah: Jurnal Evaluasi Pendidikan Dan Penelitian* 3, no. 2 (June 2022): 37–51, <https://doi.org/10.56806/jh.v3i2.82>.

¹⁰ Aprilia Dian Sukmawati, "Strategi Jurusan PAI Dalam Menyiapkan Kompetensi Mahasiswa Calon Guru Di Era VUCA" (Institut Agama Islam Ponorogo, 2023), 88.

¹¹ Harmathilda Harmathilda et al., "Transformasi Pendidikan Pesantren Di Era Modern : Antara Tradisi Dan Inovasi," *Karimiyah* 4, no. 1 (2024): 33–50, <https://doi.org/10.59623/karimiyah.v4i1.51>.

pesantren in responding to the challenges of the VUCA context.¹² Data were collected through three primary techniques. First, an observation was conducted to directly examine teaching and learning processes and the utilization of digital technology within the *pesantren* environment. Second, in-depth interviews were conducted with institutional leaders, teachers, media teams, and students (*santri*) to obtain detailed information on adaptive strategies and forms of educational transformation. Third, documentation analysis was undertaken, encompassing institutional profiles, curricula, vision and mission statements, and relevant records of *pesantren* activities.

All collected data were analyzed using the Miles and Huberman interactive model, which consists of three interrelated stages: data condensation through the selection and organization of information aligned with the research focus; data display in the form of descriptive narratives; and inductive conclusion drawing based on emerging patterns.¹³ To ensure data trustworthiness, triangulation was applied in several forms, including source triangulation through comparisons of information from different informants, methodological triangulation by integrating observations, interviews, and documentation, and time triangulation through data collection at different points in time to enhance the consistency and credibility of the findings.¹⁴

RESULTS AND DISCUSSION

Adaptive Strategies of Pondok Pesantren Darul Fiqhi

Amid the intense wave of global disruption characterized by uncertainty and ambiguity, Pondok Pesantren Darul Fiqhi faces significant challenges in maintaining its relevance. These challenges extend beyond preserving distinctive Islamic values to addressing contemporary demands that require flexibility, innovation, and technological adaptability. Located not far from Lamongan's urban center, Pondok Pesantren Darul Fiqhi is an institution that has not remained passive in responding to these realities. By integrating classical educational principles with visionary adaptive strategies, Darul Fiqhi has begun to use digital technology to strengthen its learning system, institutional governance, and students' capacity development. This transformation reflects not only institutional resilience but also the *pesantren's* readiness to actively contribute in the digital era without losing its scholarly identity. The adaptive strategies implemented by Darul Fiqhi thus illustrate emerging dynamics within the landscape of contemporary Islamic education. Among the key initiatives undertaken are the following:

Strengthening Critical Thinking

Through *musyawarah* and *muhadzarah* activities, students are trained to think logically, articulate opinions, and construct rational arguments. These competencies are particularly crucial in responding to the ambiguity of the digital era. In addressing the ambiguity dimension of the VUCA phenomenon, particularly the proliferation of false and unverified information in digital media, Pondok Pesantren Darul Fiqhi emphasises the development of critical thinking skills. *Musyawarah* activities, which involve discussions and peer presentations, are designed to cultivate reasoning abilities, evaluate diverse viewpoints, and engage in collective decision-making. This process encourages students to examine information reflectively and analytically, to express their perspectives openly, to contribute ideas toward shared problem-solving, and to select or formulate decisions from multiple possible alternatives.

¹² Zucri Abdussamad, *Metode Penelitian Kualitatif* (Sulawesi: Syakir Media Press, 2021), 80.

¹³ Ali Sodik Sandu Suyoto, *Dasar Metodologi Penelitian* (Yogyakarta: Literasi Media Publishing, 2015), 123.

¹⁴ Sugiono, *Metode Penelitian Kuantitatif, Kualitatif Dan R&D* (Bandung: CV Alfabeta, 2013), 249.

Meanwhile, *muhadlarah* activities engage students in preparing and delivering speeches, training as masters of ceremonies, and conducting public communication exercises. Self-confidence is considered a crucial attribute for students, as it enables them to optimize their potential across various domains, particularly in conveying Islamic teachings to public audiences. Confidence empowers students to express opinions more courageously, speak effectively in public settings, and defend their arguments on a sound scholarly basis.¹⁵ These activities not only enhance public speaking skills but also encourage students to critically evaluate information from diverse sources, construct logical arguments, and present ideas coherently and structurally. Consequently, students become accustomed to reflective, selective thinking when engaging with information, especially when navigating the ambiguous, complex flows of digital content.

Development of Practical Skills

Students are equipped with practical skills such as cooking, sewing, performing funeral rites (*fardhu kifayah*), and delivering Friday sermons (*kebutbah Jumat*). These competencies prepare them to confront future uncertainty, particularly amid continuous, unpredictable change. This initiative is not solely aimed at enhancing students' independence, but also at providing them with functional capacities to navigate social transformation and economic challenges. Such skills function both as adaptive tools and as mechanisms for strengthening social values and community engagement. Training in sermon delivery and *fardhu kifayah* fosters social responsibility and religious leadership, while skills such as sewing and cooking promote economic self-reliance and entrepreneurial potential. In the VUCA context, these competencies constitute strategic assets for responding to rapid, unforeseen change.

Preservation of the Diniyah Curriculum

Madrasah Diniyah Al-Falahiyah remains the central pillar of the *pesantren's* educational structure, reflecting an institutional strategy to preserve traditional values amid the rapid pace of modernization. In the context of the VUCA phenomenon, particularly the dimension of complexity, which manifests in the challenge of aligning inherited values with contemporary demands, the *pesantren* demonstrates a firm commitment by prioritizing the Madrasah Diniyah Al-Falahiyah curriculum. This curriculum emphasizes the study of *kitab kuning*, a core intellectual legacy within the Islamic scholarly tradition, as the principal pillar for maintaining the continuity of tradition amid ongoing change.

Accordingly, *kitab kuning* are positioned not merely as primary sources of religious knowledge but also as the main references guiding the overall learning process within the *pesantren* environment.¹⁶ By reinforcing a *kitab kuning*-based curriculum, the *pesantren* not only sustains its scholarly identity but also preserves the cohesion of *pesantren* values amid accelerating digitalization. This strategy underscores that adaptation to change does not necessarily require

¹⁵ Misiranton Misiranton, "Membangun Sikap Percaya Diri Santriwati Melalui Kegiatan Muhadlroh Di Pondok Pesantren Al-Iman Putri Babadan Ponorogo" (Undergraduate Thesis, IAIN Ponorogo, 2022), <https://etheses.iainponorogo.ac.id/19963/>.

¹⁶ Muhammad Ardiansyah, "Kitab Kuning Dan Konstruksi Nalar Pesantren," *Al'adalah* 22, no. 2 (2021): 146–57, <https://doi.org/10.35719/aladalah.v22i2.18>; Nisrina Nur Chiari and Reza Ahmad Zahid, "Rekonstruksi Pembelajaran Kitab Kuning Untuk Mewujudkan Kemahiran Santri Dalam Memahami Kitab Kuning Di Lembaga Lajnah Bahtsul Masa-II (LBM) Al-Mahrusiyah Putri," *Indonesian Journal of Islamic Education Studies (IJIES)* 2, no. 2 (December 2019): 183–92, <https://doi.org/10.33367/ijies.v2i2.1010>; Edi Nurhidin, "Pesantren-Based School Culture Development: The Practice Of 'Kitab Kuning' Learning In School," *Jurnal At-Tarbiyat :Jurnal Pendidikan Islam* 5, no. 2 (September 2022): 2, <https://doi.org/10.37758/jat.v5i2.470>.

abandoning tradition; rather, it can be pursued simultaneously through a selective, value-oriented approach to curriculum design.

Adaptive Strategies of Pondok Pesantren Matholi'ul Anwar

Pondok Pesantren Matholi'ul Anwar Lamongan demonstrates that tradition and innovation are not mutually exclusive poles but rather complementary forces that can be synergistically integrated to address contemporary challenges. Amid the evolving complexity of the digital world, this *pesantren* positions itself as an institution that not only preserves the rich legacy of classical Islamic scholarship but also actively responds to change through adaptive and contextual approaches.

By developing a technology-based learning ecosystem, strengthening educators' digital competencies, and harmoniously integrating general and *diniyah* curricula, Matholi'ul Anwar creates new spaces for transforming Islamic education. The strategies adopted reflect institutional courage to innovate without compromising deeply rooted values within the *pesantren* community. Several key strategies are outlined below:

Development of Critical Thinking

In a digital era characterized by an overwhelming flow of information, critical reasoning skills are essential, particularly in interpreting Islamic texts. Pondok Pesantren Matholi'ul Anwar cultivates students' critical thinking through the *sorogan* method of studying *kitab kuning*, with a specific emphasis on *i'rab* analysis. *Sorogan* activities focus on *i'rab* training students to engage in critical thinking and to develop a profound understanding of texts. This practice extends beyond surface-level reading to a detailed examination of Arabic grammar. Students are required to analyze the syntactic positions of words and sentences within a text, thereby fostering systematic, analytical thinking. This approach strengthens students' critical capacities, particularly in confronting the ambiguity of information in the digital era. When encountering religious content on social media, students become accustomed to assessing the validity and contextual relevance of such information, reducing their susceptibility to hoaxes and misleading narratives.

Strengthening Students' Capacities

Uncertainty in an increasingly dynamic world compels *pesantren* to equip students with relevant skills that enable them to adapt and achieve independence after graduation. Rapid and unpredictable change demands individuals who are not only spiritually grounded but also possess practical competencies for adaptation and resilience. Accordingly, Pondok Pesantren Matholi'ul Anwar provides students with a wide range of skills, including culinary arts, fashion and garment production, multimedia, electronics, and entrepreneurship, which are offered through formal education as part of the *pesantren's* strategy to cultivate adaptability in the face of future uncertainty. Through integration with formal madrasah education, students acquire practical skills that support self-reliance and readiness for the challenges of the modern labor market. This initiative is directed toward producing graduates who excel not only in Islamic scholarship but also demonstrate strong professional competitiveness.

Through these practical skill programs, the *pesantren* seeks to produce graduates who achieve a balance between mastery of Islamic knowledge and employable competencies. This approach is increasingly relevant in the contemporary context, where workforce competence is determined not solely by theoretical understanding but also by applicable, practice-oriented

skills.¹⁷ Consequently, students are shaped into independent, adaptive individuals capable of competing in dynamic professional environments while remaining firmly anchored in the Islamic values that constitute the *pesantren*'s identity.

Strengthening Self-Efficacy

In responding to rapid change, self-confidence constitutes a critical dimension in navigating dynamic conditions. *Pesantren* organizes *mubadharah* activities and creative events, such as *Got Talent* programs, as platforms for developing students' potential, creativity, and public-speaking skills. These activities not only train students in rhetorical skills and self-expression but also enhance self-confidence and peer collaboration. Self-efficacy plays a vital role in individual development, particularly in enabling self-expression and the cultivation of interests and talents. This demonstrates the *pesantren*'s commitment to fostering an environment conducive to character development and the strengthening of students' soft skills, thereby preparing them to engage confidently with an increasingly competitive external world.

Strengthening Character Formation and Ngaji

The study of *kitab kuning* continues to be conducted through the *wetonan* method, balancing innovation and tradition. In confronting the complexity of modern life, marked by rapid social, cultural, and technological change, Pondok *Pesantren* Matholi'ul Anwar consistently prioritizes moral formation (*akhlak*) and the reinforcement of Islamic traditions. Character development is cultivated through the exemplary conduct of the *kiai*, the habituation to religious practices, and daily interactions that embed Islamic values in practical, lived forms. Moral education thus becomes a central component in shaping students' character, ensuring that they remain firmly grounded in Islamic values and demonstrate ethical conduct in everyday life. Students are guided to uphold proper manners and ethical behavior in their attitudes and interactions.

This emphasis on *akhlak* serves as a strategic mechanism through which the *pesantren* enables students to exercise discernment in engaging with information, while maintaining decorum and propriety (*adab*) in social relations, both in physical and digital spaces. Concurrently, the continued practice of *ngaji wetonan*, centered on the *kiai*'s reading and explanation of *kitab kuning*, serves to preserve the intellectual heritage of classical Islamic scholarship. Through this approach, the *pesantren* not only ensures the continuity of tradition but also safeguards students from the potentially adverse effects of digitalization and globalization, which may erode ethical values and moral discipline.

Model of Islamic Education Transformation in the Digital Era

Islamic education in Indonesia has undergone three major phases of transformation.¹⁸ The first is the traditional phase, beginning in the seventh century, characterized by informal educational practices conducted in *pesantren*, mosques, and *surau*, with a strong emphasis on the study of classical texts and foundational Islamic values. The second is the reformist phase of

¹⁷ Nur Zakia Zahra and Wahyuni Fitri, "Peran Metode Demonstrasi Dalam Pengembangan Keterampilan Praktis Siswa Di Bidang Teknologi," *Jurnal Ilmiah Dan Karya Mahasiswa* 2, no. 6 (December 2024): 42–48, <https://doi.org/10.54066/jikma.v2i6.2793>.

¹⁸ Umi Muzayanah et al., "Utilization of Digital Space in Strengthening Religious Moderation Education of Generation Z in Indonesia," *Pertanika Journal of Social Sciences and Humanities* 33, no. 2 (April 2025), <https://doi.org/10.47836/pjssh.33.2.11>; Abdulloh Hamid et al., "Literasi Digital Santri Milenial: Studi Kasus Pondok Pesantren Tahfidzul Quran Al-Jihadul Chakim Mojokerto," *TADRIS: Jurnal Pendidikan Islam* 19, no. 1 (June 2024): 89–100, <https://doi.org/10.19105/tjpi.v19i1.9920>.

the nineteenth century, during which Islamic education began to integrate general sciences and foreign languages in response to colonial pressures and the influence of modernization from the Middle East. The third is the integrative phase, marked by formal recognition through Law No. 20 of 2003, which positioned Islamic education as an integral component of the national education system and opened greater space for adaptation to social change.¹⁹ This trajectory underscores Islamic education as deeply rooted in traditional values while also open to social transformation and the demands of changing times.

With the advent of the digital era, the transformation of Islamic education has taken on a new, more complex, and multidimensional direction. Change now extends beyond curricular substance and institutional structures to encompass modes of teaching and learning. Advances in information and communication technologies have brought profound shifts to the landscape of Islamic education. Access to Islamic learning materials is no longer constrained by time and space, as various digital platforms, such as educational applications, online classes, and Islamic websites, enable learning processes that are more flexible, inclusive, and innovative. This phenomenon is evident in the educational practices of *pesantren* such as Darul Fiqhi and Matholi'ul Anwar. Both institutions demonstrate adaptive responses to contemporary challenges through reforms across multiple dimensions, including administration, instructional processes, and da'wah strategies that leverage digital media. These transformations do not displace the traditional values of the *pesantren*; rather, they integrate them selectively and strategically with technological innovation. As a result, a form of harmony emerges between the normative heritage of the *pesantren* and the demands of the digital era, which call for flexibility, efficiency, and high levels of connectivity.

Digitalization of Administration and Data Management

Both *pesantrens* have used digital tools such as computers, printers, and specialized applications to support administrative functions. At Pondok Pesantren Darul Fiqhi, word-processing software is used to record students' academic achievements. At the same time, at Pondok Pesantren Matholi'ul Anwar, the Rose App is employed for assessment, teaching schedules, and attendance records. This transformation reflects a shift from manual systems to more efficient, digitally structured administrative practices. Such digitalization accelerates decision-making processes, reporting mechanisms, and the real-time monitoring of students' and teachers' performance. It also indicates that administrative digitalization is not merely a matter of technological adoption but is closely linked to reforming work culture in *pesantren* environments that have traditionally relied on oral practices and physical documentation.

Integration of Technology in Learning Processes

In the instructional domain, both *pesantrens* have begun using digital media such as projectors, digital televisions, and interactive visual content to support teaching and learning. Although the use of digital learning media at Pondok Pesantren Darul Fiqhi remains relatively limited, this initiative reflects an initial phase of transformation toward more engaging and adaptive approaches to formal education within the *pesantren* framework. In contrast, Pondok Pesantren Matholi'ul Anwar demonstrates a more advanced level of adoption, indicating greater institutional readiness to integrate technology systematically. This variation suggests that levels

¹⁹ Haidar Putra Daulay, *Pendidikan Islam Dalam Sistem Pendidikan Nasional Di Indonesia* (Jakarta: Prenada Media Group, 2012); Achmad Maulidi et al., "Techno-Humanistic Learning: A New Paradigm for Human-Centered Digital Pedagogy on Islamic Education," *EDUKASIA Jurnal Pendidikan Dan Pembelajaran* 6, no. 2 (September 2025): 831–52, <https://doi.org/10.62775/edukasia.v6i2.1498.>, 5-16.

of technological readiness and adaptation patterns within *pesantren* are context-specific, shaped by internal factors such as leadership, infrastructure, and institutional culture toward innovation. These initiatives are believed to enhance students' motivation to learn and their comprehension of instructional materials. The findings indicate that *pesantren* no longer perceives technology as a threat to traditional values, but rather as a strategic tool for enhancing educational effectiveness and relevance in the digital reality students experience. This transformation signals a paradigm shift in learning from predominantly oral, traditional approaches toward visual-digital models better aligned with the characteristics of digital-native generations. In this context, technological integration is understood not merely as the modernization of instructional tools but as a response to emerging pedagogical needs that prioritize interactivity, accessibility, and multisensory learning experiences.

Digitalization of *Kitab Kuning* Instruction

One of the most prominent transformations is the digitalization of *kitab kuning* instruction through live streaming on YouTube. Pondok Pesantren Darul Fiqhi broadcasts the study of *Bidayatul Hidayah* led by KH. Abdul Adziem Mujib, while Pondok Pesantren Matholi'ul Anwar streams the study of *Mukhtarul Abadits* conducted by KH. Ahmad Taufiq. This innovation initially emerged as a response to the COVID-19 pandemic but has since evolved into a permanent component of the *pesantren*'s instructional strategy. It enables broader access for students, alumni, and the general public to participate in *ngaji* despite physical distance. The transformations undertaken by both *pesantren* can be interpreted through the lens of the Double Movement theory. Fazlur Rahman's Double Movement theory, originally developed as an approach to Qur'anic interpretation, emphasizes uncovering the substantive meanings of revealed texts to maintain their relevance amid evolving social dynamics.²⁰ Within the context of Islamic education in the digital era, this framework provides a conceptual basis for understanding how fundamental Islamic principles can be preserved while responding to contemporary change, including the integration of technology into educational systems and the dissemination of Islamic knowledge through digital media.

The transformations implemented by the two *pesantren* reflect the application of the two core dimensions of the Double Movement: the historical and the normative. In the historical movement dimension, the *pesantren* continue to safeguard traditional identities through the teaching of *kitab kuning* using classical methods such as *sorogan*, *wetonan*, *halaqah*, and *bahtsul masail*, as well as through the cultivation of students' character based on values of independence, simplicity, respect for the *kiai*, and the preservation of scholarly lineages (*sanad*). These values constitute the foundational pillars that remain firmly embedded within the *pesantren* educational system. Conversely, in the normative movement dimension, the *pesantren* demonstrate active engagement with technological developments by integrating digital media into educational processes.²¹ The use of social media, learning applications, and live broadcasts of religious

²⁰ Mahmud Yunus Mustofa et al., *Teori Gerakan Ganda Dalam Pendidikan Islam: Wawasan Dan Aplikasinya Dari Perspektif Progresif Fazlur Rahman*, 2, no. 1 (2023): 39–53, <https://doi.org/10.5281/zenodo.8111930>.

²¹ Ansori Ansori et al., "Digital Innovation in Pesantren Education: Prediction to Welcome Global Islam Awakening," *Nazhruna: Jurnal Pendidikan Islam* 5, no. 2 (May 2022): 645–61, <https://doi.org/10.31538/nzh.v5i2.2222>; Anik Faridah, "Pesantren, Sejarah dan Metode Pembelajarannya di Indonesia," *Al-Mabsut: Jurnal Studi Islam dan Sosial* 13, no. 2 (September 2019): 78–90, <https://doi.org/10.56997/almabsut.v13i2.361>; Muhammad Najihul Huda et al., "Pesantren Technology-Friendly: Enhancing Learning Effectiveness in The Modern Era," *Nadwa: Jurnal Pendidikan Islam* 19, no. 1 (July 2025): 1–22, 2025, <https://doi.org/10.21580/nw.2025.19.1.26173>.

activities serves not merely as a technical innovation but also as a reinterpretation of traditional values in a contemporary context. This transformation reflects the *pesantren*'s efforts to bridge the legacy of the past with present-day needs, maintaining authenticity while ensuring relevance amid ongoing change.

In addition, this transformation also corresponds to the confirmation stage within Everett Rogers' Diffusion of Innovations theory, which offers an analytical framework for understanding the *pesantren*'s process of adaptation to the digital era. The diffusion of innovation involves stages of knowledge, persuasion, decision, and confirmation, all of which are reflected in the *pesantren*'s processes of accepting, integrating, or rejecting digital technology.²² In this context, the *pesantren* have entered the confirmation stage. After experimenting with and experiencing the benefits of live streaming, they have increasingly consolidated their commitment to using technology as a medium for disseminating knowledge. This development further demonstrates the adaptive capacity of *pesantren* in responding to volatility within the VUCA era.

Utilization of Social Media as a Medium for Digital Da'wah

Social media platforms such as Instagram, Facebook, YouTube, and TikTok are utilized by both *pesantren* as channels for *da'wah* and information dissemination. Content, including promotional materials for new student admissions, *Kiai*'s moral advice, and documentation of *pesantren* activities, is produced consistently to attract public attention, particularly among younger generations. Pondok Pesantren Matholi'ul Anwar, in particular, adopted this strategy after drawing inspiration from well-established *pesantren* such as Sidogiri, Langitan, and Al-Fitrah. From the perspective of the Diffusion of Innovations theory, this reflects the persuasion stage, in which institutions adopt innovations after observing others' successful experiences.

The transformations observed in both *pesantren* demonstrate adaptive responses to VUCA conditions. The volatility of technological development and the complexity of contemporary educational demands have compelled *pesantren* to act dynamically in the domains of instruction, management, and *da'wah*. The resilience displayed by *pesantren* in navigating uncertainty indicates that they are not rigidly conservative institutions, but rather possess flexibility and creativity in sustaining their relevance in the digital era. Fundamentally, the transformation of Islamic education in the digital age represents an ongoing process aimed at preserving the relevance of Islamic teachings amid changing social realities.

This process extends beyond technical adjustments to encompass the recontextualization of Islamic values within modern life. Transformation, therefore, should not be viewed as an endpoint, but as part of a long-term process that ensures Islamic education remains dynamic, contextual, and capable of addressing global challenges. To enhance the readability of the research findings, the author presents them in Table 1. The table illustrates the distinctive characteristics of each *pesantren* in responding to the VUCA phenomenon, as implemented within its respective educational institution.

Table 1. Research Findings

Aspect	PP. Darul Fiqhi	PP. Matholi'ul Anwar
Volatility	Adopting digital technology and transforming Islamic education through	Adopting digital technology and transforming Islamic education in the

²² Iis Mulyati et al., "Proses Difusi Inovasi Dalam Penerapan Metode Pengajaran Baru," *Edukatif: Jurnal Ilmu Pendidikan* 5, no. 6 (2023): 2425–33, <https://doi.org/10.31004/edukatif.v5i6.5769>.

Aspect	PP. Darul Fiqhi	PP. Matholi'ul Anwar
	the use of the YouTube live streaming feature for the recitation of the yellow book.	form of utilizing the YouTube live streaming feature for the recitation of the yellow book.
Uncertainty	Development of practical skills such as cooking, sewing, bathing, and Friday sermons.	Strengthening students' capacity with modern skills available in formal education and building confidence through <i>Muhadlarah</i> and Got Talent.
Complexity	Conservation of the Curriculum by Al Falahiyah in Strengthening the Tradition of the <i>Kitab Kuning</i> .	Strengthening the character and the <i>kitab kuning</i> studies.
Ambiguity	Strengthening Critical Thinking through <i>musyawarah</i> and <i>muhadlarah</i> activities.	Development of Critical thinking through the activity of reading the <i>kitab kuning</i> , accompanied by <i>i'rab</i> analysis.

Table 1 shows that both similarities and differences can be identified in how each *pesantren* responds to the challenges of the VUCA context. The similarity between Pondok Pesantren Darul Fiqhi and Pondok Pesantren Matholi'ul Anwar lies in their adaptive patterns in addressing the VUCA phenomenon. Both institutions have undertaken digital transformation, notably through YouTube live streaming for *kitab kuning* instruction. In addition, both *pesantren* equip their students with practical skills. Pondok Pesantren Darul Fiqhi provides training in areas such as cooking, sewing, conducting funeral rites, and delivering Friday sermons. At the same time, Pondok Pesantren Matholi'ul Anwar offers practical competencies in culinary arts, fashion design, information technology, electrical engineering, motorcycle business technology, and multimedia.

Differences emerge in each *pesantren's* approach to developing critical thinking skills and preserving tradition. Pondok Pesantren Darul Fiqhi employs *muhadlarah* and *musyawarah* forums as platforms for cultivating critical thinking. In contrast, Pondok Pesantren Matholi'ul Anwar develops these capacities through the *sorogan* method accompanied by *i'rab* analysis in the study of *kitab kuning*. Furthermore, Matholi'ul Anwar places greater emphasis on strengthening students' self-confidence and talents through *muhadlarah* activities and *Got Talent* programs. In preserving tradition and *pesantren* identity, Darul Fiqhi focuses on the Madrasah Diniyah Al-Falahiyah curriculum to reinforce mastery of the *kitab kuning*.

In contrast, Matholi'ul Anwar emphasizes moral formation (*akhlak*) and the preservation of the *ngaji wetonan* method grounded in *kitab kuning* studies. Overall, both *pesantren* demonstrate similar adaptive patterns in their use of technology, skill development, and preservation of scholarly traditions. However, their differing emphases and approaches highlight the distinctive characteristics of each institution in responding to the challenges of the VUCA era.

CONCLUSION

Based on the research findings, the strategies implemented by Pondok Pesantren Darul Fiqhi and Pondok Pesantren Matholi'ul Anwar Lamongan in responding to the challenges of the VUCA era demonstrate adaptive efforts grounded in a balance between preserving tradition and developing educational innovation. Pondok Pesantren Darul Fiqhi cultivates students' critical thinking skills through *musyawarah* and *muhadlarah* activities, while also equipping them with essential life skills, including cooking, sewing, performing funeral rites, and delivering

Friday sermons. In addition, the *pesantren* maintains the Madrasah Diniyah Al-Falahiyah curriculum as the foundation of Islamic education. These strategies reflect a deliberate effort to form students who are independent, adaptive, and firmly rooted in the *pesantren's* scholarly values.

Meanwhile, Pondok Pesantren Matholi'ul Anwar develops students' analytical abilities through the *sorogan* method of *kitab* study and in-depth Arabic grammatical analysis (*i'rab*), thereby strengthening critical thinking competencies and textual understanding of Islamic sources. Skills training is oriented toward the demands of the industrial and digital eras, including culinary arts, fashion design, multimedia, electrical engineering, business, and motorcycle technology. Activities such as *Muhadlarah* and *Got Talent* serve as platforms for building self-confidence and developing students' soft skills. At the same time, the preservation of traditional values is sustained through moral formation (*akhlak*) and the study of *kitab kuning* using the *wetonan* method under the direct guidance of the *kiai*.

The transformation of Islamic education in both *pesantrens* is also evident in the use of digital technology, particularly the live streaming of *kitab kuning* studies on YouTube. This innovation expands access to Islamic learning, reaches audiences beyond the *pesantren* community, and reinforces the *pesantren's* role as centers of knowledge dissemination in the digital era. Overall, the strategies and forms of transformation observed indicate that *pesantren* are capable of dynamically adapting to the complexities of contemporary change without losing their distinctive scholarly identity.

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