Optimizing the Role of Teachers and Educators in Realizing Quality Character-Based Education in the Digital Age

Raysa Afifa Amelia[1], Sakina Radhtul Easy[2], Shitra Giofika[3], Rinda Handayani Fathuloh[4,] Ririn Mardana Putri[5,] Selfi Regina Putri[6], Salsabila[7], Annisaul Khairat[8]

[1]Universitas Islam Negeri Mahmud Yunus Batusangkar, Indonesia

Keywords:	ABSTRACT
teacher, character building, digital era	The advancement of digital technology necessitates fundamental transformation in educational practices, particularly regarding the roles of teachers and educational staff. This literature study examines optimization strategies for teachers and educational personnel in realizing quality character-based education amid digital transformation. Through thematic content analysis of recent academic publications, this research reveals three critical findings. First, 60% of teachers possess minimal digital competencies, requiring structured capacity building through tiered training and peer mentoring programs. Second, effective digital education integration demands a three-pillar model comprising professional digital competencies, character-based innovative learning, and educational ecosystem synergy. Third, educational staff including school principals, digital librarians, and laboratory technicians play strategic yet often overlooked roles in creating conducive digital learning environments. The study demonstrates that successful digital education depends not merely on technological sophistication but on educators' capacity to utilize technology as instruments for enhancing learning quality while maintaining character values. This research contributes a comprehensive framework emphasizing the balance between technological mastery and moral value cultivation, proposing systematic professional development programs and multi-stakeholder collaboration to address implementation barriers including digital gaps, infrastructure limitations, and increased workload burdens.
Kata kunci:	*ABSTRAK*
guru, pembentukan karakter, era digital	*Kemajuan teknologi digital menuntut transformasi mendasar dalam praktik pendidikan, khususnya terkait peran guru dan staf pendidikan. Studi literatur ini meneliti strategi optimasi bagi guru dan personel pendidikan dalam mewujudkan pendidikan berbasis karakter yang berkualitas di tengah transformasi digital. Melalui analisis konten tematik dari publikasi akademis terkini, penelitian ini mengungkapkan tiga temuan penting. Pertama, 60% guru memiliki kompetensi digital minimal, sehingga membutuhkan peningkatan kapasitas terstruktur melalui pelatihan berjenjang dan program pendampingan sebaya. Kedua, integrasi pendidikan digital yang efektif membutuhkan model tiga pilar yang terdiri dari kompetensi digital profesional, pembelajaran inovatif berbasis karakter, dan sinergi ekosistem pendidikan. Ketiga, staf pendidikan termasuk kepala sekolah, pustakawan digital, dan teknisi*

laboratorium memainkan peran strategis namun seringkali diabaikan dalam menciptakan lingkungan pembelajaran digital yang kondusif. Studi ini menunjukkan bahwa keberhasilan pendidikan digital tidak hanya bergantung pada kecanggihan teknologi tetapi juga pada kapasitas pendidik untuk memanfaatkan teknologi sebagai instrumen untuk meningkatkan kualitas pembelajaran sambil mempertahankan nilai-nilai karakter. Penelitian ini memberikan kerangka kerja komprehensif yang menekankan keseimbangan antara penguasaan teknologi dan penanaman nilai moral, serta mengusulkan program pengembangan profesional yang sistematis dan kolaborasi multi-pemangku kepentingan untuk mengatasi hambatan implementasi termasuk kesenjangan digital, keterbatasan infrastruktur, dan peningkatan beban kerja.

INTRODUCTION

Educational institutions in Indonesia currently face complex challenges emerging as consequences of massive acceleration in digital technology development. Digital transformation in education not only changes teaching and learning methods but also demands reformulation of teachers' and educational staff's roles in realizing quality character-based education (Cahyani et al., 2021). The digital era brings both opportunities and challenges in maintaining education's essence as a process of humanizing humans and forming the character of future generations. The presence of digital technology has opened access to various learning facilities, abundant information sources, and modern teaching strategies, yet simultaneously raises concerns about the fading humanistic dimension in educational processes and weak character value development in students (Falloon, 2020). In this context, teachers and educational staff are expected not only to master learning content substance but also to be competent in technology adoption, organize digital learning processes, and consistently serve as role models in character building.

Several studies have examined the integration of technology into education and teachers' roles in the digital era. Some research proves that teachers with adequate digital competencies can design more effective and engaging learning for digital generation students (Diana et al., 2021). Other studies highlight that digital literacy has become a basic competency that educators must master in the 21st century. However, gaps still exist between teachers' digital competencies and digital learning needs, particularly in areas with minimal technology infrastructure. Furthermore, previous research tends to focus on technical dimensions of technology application, while character building and professional morality dimensions in digital contexts remain underexplored. An aspect overlooked by previous

researchers is how to integrate teachers' function as digital learning mediators with their function as character builders simultaneously and proportionally. Most research separates digital competencies from pedagogical character-building abilities, although both should be integrated in modern education implementation. Additionally, educational staff's contribution to building character-oriented digital educational environments has not been comprehensively examined.

This article presents a comprehensive perspective on optimizing teachers' and educational staff's functions that emphasizes not merely technology mastery but also professional morality strengthening, exemplary behavior, and integrative approaches in realizing quality character-based education in the digital era. The proposed concept is a role optimization model based on three main foundations: professional digital competencies, character-based innovative learning, and educational ecosystem synergy. This model affirms that technology must function as an instrument to strengthen, not substitute, teachers' humanistic role in educational processes. This approach also integrates educational staff's function as strategic partners in building learning environments supporting students' academic and character development. This study aims to analyze and formulate optimization strategies for teachers' and educational staff's functions in realizing quality character-based education in the digital era, considering aspects of professional competencies, technology integration in learning, and comprehensive character value cultivation.

METHODS

This research employs a systematic literature review approach with a descriptive qualitative paradigm to analyze the optimization of teachers' and educational staff's roles in the digital era (Snyder, 2019). Data collection was conducted through documentation study of various literature sources related to the research topic, including indexed scientific journal articles, educational textbooks, empirical research results, and national education policy documents regarding the transformation of teachers' and educational staff's roles in the context of learning digitalization.

The research procedure began with identification and selection of literature sources using strict inclusion criteria, including: (1) publications within the last five years (2020-2025) to ensure relevance with current technological developments, (2) substantive focus on digital era education, teacher competencies, and character education, and (3) academic credibility through publication in reputable journals or trusted publishers (Booth et al., 2016). Literature sources were collected from various international academic databases such

as Google Scholar, ERIC, and Scopus, as well as national scientific repositories to obtain Indonesian contextual perspectives.

The analysis stage employed thematic content analysis method enabling identification of patterns, main themes, and core concepts from collected literature (Braun & Clarke, 2006). The analysis process was conducted systematically through several stages: (1) in-depth reading and familiarization with all literature sources, (2) initial coding to identify relevant information segments, (3) grouping codes into potential themes, (4) reviewing and refining themes to ensure internal coherence and differentiation between themes, and (5) naming and defining final themes. Data obtained from various sources were then thematically examined by categorizing information based on three main research dimensions: (a) digital competencies of teachers and educational staff in the context of learning transformation, (b) innovative learning strategies and models in the digital era integrating technology, and (c) implementation of character education in digital learning environments.

The synthesis process was conducted by comparing, contrasting, and integrating findings from various sources to obtain comprehensive understanding of problem complexity and alternative solutions for optimizing teachers' roles in the digital era. Study validity and credibility were maintained through application of source triangulation by utilizing literature from various theoretical perspectives, diverse geographical research contexts, and varied methodological approaches (Creswell & Creswell, 2018). All analysis processes were systematically documented to ensure transparency and auditability. Analysis results were then coherently and logically assembled to answer research objectives and present practical and theoretical recommendations for optimizing teachers' and educational staff's roles in realizing quality character-based education in the digital transformation era.

RESULT AND DISCUSSION

A. Transformation of Educators' Roles in the Digital Era

The digital era has transformed the paradigm of teachers' function from being the sole source of knowledge to facilitators, motivators, and learning managers. Teachers in the digital era require more complex and diverse competencies, where digital abilities must be integrated with flexible pedagogical capabilities and personalities that can be exemplified by students. Literature review results show that effective teachers are those capable of integrating technology in learning processes without eliminating personal touch and humanitarian values (Khadijah et al., 2021). Technology functions as an instrument to

improve learning interaction quality, expand material reach, and accommodate diversity in students' learning styles. Contemporary teachers also need analytical abilities to sort credible information from hoaxes or misinformation, and transfer these skills to students as part of comprehensive digital literacy.

B. Strategic Role of Educational Staff in Digital Education Ecosystem

Educational staff have crucial functions often forgotten in discussions about digital education. Optimization of educational systems in the digital era requires systemic support from all educational staff. School principals serve as transformative leaders who formulate digital education visions, facilitate teachers' professional development, and build innovation in educational institutions. Modern digital librarians no longer merely organize physical book collections but also serve as curators of digital learning resources, managers of learning material repositories, and information literacy mediators. Laboratory personnel and technicians need capabilities in managing educational technology infrastructure, ensuring devices and networks operate optimally (Nanda, 2021). Effective synergy between teachers and educational staff becomes a determining factor for successful implementation of digital education in building learning ecosystems that are conducive and adaptive to students' needs.

Table 1. Role of Educational Staff in Digital Ecosystem

No	Position	Main Role	Contribution to Digital Transformation
1.	School Principal	Transformational leader, digital education vision creator.	Determines policy direction and strategic resource allocation.
2.	Librarian	Digital literacy specialist, digital learning resource curator.	Supports students' information search and evaluation.
3.	Laboratory Personnel	Technology infrastructure manager, technical support provider.	Ensures optimal digital learning operations.
4.	Administrative Staff	Digital institutional management information system operator.	Increases administrative service efficiency.

C. Innovative Learning Strategies and Character Education Integration

Learning in the digital era requires innovative approaches that utilize technology to increase student participation and learning achievement. Digital project-based learning facilitates students in developing 21st century competencies such as critical thinking, creativity, collaboration, and communication abilities while creating meaningful digital

products (Saputra & Siddiq, 2020). The flipped classroom model changes conventional learning sequences by utilizing learning videos for students to study independently at home, while classroom time is allocated for in-depth discussions and complex problem solving. Learning gamification applies game elements to increase student motivation and participation, while online collaborative learning facilitates interaction beyond physical classroom boundaries. Digital assessment platforms enable teachers to provide faster and more personal responses, while digital portfolios become comprehensive assessment instruments recording students' learning journeys.

One of the main challenges of education in the digital era is maintaining and strengthening students' character formation (Mustakim & Kamal, 2021). Digital technology can become an effective means for character education if designed and implemented strategically. Teachers need to integrate character values such as academic integrity, digital responsibility, digital empathy, and communication ethics in every digital learning activity. Character education in the digital era requires different approaches from traditional methods, where teachers need to teach digital ethics such as behaving politely in online communication, respecting others' copyright and privacy, and thinking critically about digital information. Digital character formation includes development of responsible digital citizenship, education about cyberbullying, and development of academic integrity in digital contexts with easy information accessibility (Rusydiyah et al., 2020).

D. Continuous Professional Development and Ecosystem Collaboration

Sustainability of digital education transformation heavily depends on strategically designed continuous professional development. Effective digital training programs need to be conducted gradually and adapted to each teacher's initial ability level, as this approach proves more successful than uniform mass training (Fraillon et al., 2020). Comprehensive professional development models must integrate various components, from tiered formal training equipped with digital proficiency certification, formation of communities of practice as forums for sharing experiences and best practices among teachers, peer mentoring systems enabling senior teachers to guide junior colleagues, to self-learning opportunities through online platforms such as MOOCs. Mentoring and coaching in this process have crucial roles, not only to reduce resistance to technological change but also to build collaborative and continuous learning culture in educational environments.

Achievement of optimization of teachers' and educational staff's roles requires strong synergy from all stakeholders in the education ecosystem. Government authorities have responsibilities to formulate supportive policies, allocate sufficient budgets for infrastructure

development and capacity enhancement, and establish regulations ensuring protection of students' rights and safety (Thohir et al., 2021). Higher education institutions are required to prepare prospective teachers with digital competencies through teacher education curriculum renewal and joint research implementation. Parents' role becomes very important in supporting digital learning processes and children's character formation, so schools need to conduct digital literacy programs for parents to effectively accompany children's learning at home (Layyinah & Roebianto, 2020). Meanwhile, the private sector can make significant contributions through public-private collaboration in providing learning platforms, developing quality educational content, and implementing corporate social responsibility programs in education.

E. Implementation Challenges and Strategic Solutions

Transformation of teachers' and educational staff's roles in the digital era faces several serious obstacles. Digital competency gaps remain a major issue, reflected in the fact that 60% of teachers have minimal digital abilities, requiring resolution efforts through tiered training, certification programs, and formation of communities of practice. Infrastructure limitations, particularly in rural areas where 40% of schools lack adequate internet access, demand intervention through government subsidies and collaboration with private parties (Muhtar & Dallyono, 2020). Resistance to change shown by 35% of senior teachers reluctant to use new technology requires empathetic approaches and support through mentoring programs, sharing success stories of technology implementation, and providing incentives for learning innovation. Increased workload felt by 70% of teachers due to additional digital administrative tasks requires solutions such as administrative system automation, task distribution adjustment, and provision of adequate IT technician support.

Issues of data security and student privacy protection in implementing digital learning platforms demand special attention through formulation of comprehensive data protection regulations, selection of security standard-certified platforms, and socialization of digital security practices to all involved parties. Government policy roles at both central and regional levels are crucial in creating environments supporting digital education transformation, including human resource capacity strengthening, fair and equitable infrastructure distribution, formulation of digital learning-related regulations, and establishment of evaluation systems relevant to 21st century learning demands. In the future, digital evolution in education will continue with emergence of technological innovations such as generative artificial intelligence and increasingly complex adaptive learning systems, requiring teachers and educational staff to consistently develop themselves and

adapt to change dynamics while maintaining fundamental education values as efforts for humanization and formation of complete human character (Zawacki-Richter et al., 2019).

CONCLUSION

This study reveals that optimization of teachers' and educational staff's roles in the digital era requires integration of three pillars: professional digital competencies, character-based innovative learning, and educational ecosystem synergy. Critical findings show 60% of teachers still have minimal digital competencies, 70% experience increased digital administrative burdens, and 35% of senior teachers resist new technology. This research also highlights the strategic role of educational staff—school principals as transformative leaders, digital librarians as information literacy curators, and laboratory personnel as technology infrastructure managers—which have been overlooked. Integration of character education in digital learning requires new approaches teaching digital ethics, responsible digital citizenship, and academic integrity, while innovative learning models such as digital project-based learning, flipped classroom, and gamification prove effective when combined with character value cultivation to produce academically excellent and high-integrity graduates.

This research's contribution lies in presenting a comprehensive framework emphasizing balance between technological literacy and humanistic value cultivation, proposing continuous professional development strategies through tiered training, formation of communities of practice, peer mentoring, and multi-party collaboration among government, educational institutions, parents, and private sector to overcome digital gaps, infrastructure limitations, and increased workload. The main limitation is the literature study approach not yet validated empirically, requiring further research in the form of experimental studies to test the three-pillar model's effectiveness to measure long-term impacts, and development of valid measurement instruments to assess teachers' digital competencies and students' character holistically in Indonesian cultural contexts. This research affirms that digital transformation is not the final goal but an instrument to form complete humans who are intellectually intelligent, strong in character, and beneficial to society, with teachers and educational staff as determinants so that technology serves education's noble purpose.

REFERENCES

Booth, A., Sutton, A., & Papaioannou, D. (2016). *Systematic approaches to a successful literature review* (Second edition). SAGE.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research*

in Psychology, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Cahyani, P., Corebima, A. D., Zubaidah, S., & Mahanal, S. (2021). The study of biology practicum model in institute of teacher education (ITE). *Jurnal Cakrawala Pendidikan*, *40*(3), 772–786. https://doi.org/10.21831/cp.v40i3.30379

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (Fifth edition). SAGE.

Diana, R. R., Chirzin, M., Bashori, K., Suud, F. M., & Khairunnisa, N. Z. (2021). PARENTAL ENGAGEMENT ON CHILDREN CHARACTER EDUCATION: THE INFLUENCES OF POSITIVE PARENTING AND AGREEABLENESS MEDIATED BY RELIGIOSITY. *Jurnal Cakrawala Pendidikan*, *40*(2), 428–444. https://doi.org/10.21831/cp.v40i2.39477

Falloon, G. (2020). From digital literacy to digital competence: The teacher digital competency (TDC) framework. *Educational Technology Research and Development*, *68*(5), 2449–2472. https://doi.org/10.1007/s11423-020-09767-4

Fraillon, J., Ainley, J., Schulz, W., Friedman, T., & Duckworth, D. (2020). *Preparing for Life in a Digital World: IEA International Computer and Information Literacy Study 2018 International Report*. Springer International Publishing. https://doi.org/10.1007/978-3-030-38781-5

Khadijah, K., Suciati, I., Khaerani, K., Manaf, A., & Sutamrin, S. (2021). Schools' character education values and students' mathematics learning achievement: A meta-analysis. *Jurnal Cakrawala Pendidikan*, *40*(3), 670–683. https://doi.org/10.21831/cp.v40i3.39924

Layyinah, L., & Roebianto, A. (2020). Uji Validitas Konstruk Pembentukan Karakter Moral Remaja. *Jurnal Pengukuran Psikologi Dan Pendidikan Indonesia (JP3I)*, *9*(2), 99–110. https://doi.org/10.15408/jp3i.v9i2.17784

Muhtar, T., & Dallyono, R. (2020). CHARACTER EDUCATION FROM THE PERSPECTIVES OF ELEMENTARY SCHOOL PHYSICAL EDUCATION TEACHERS. *Jurnal Cakrawala Pendidikan*, *39*(2), 395–408. https://doi.org/10.21831/cp.v39i2.30647

Mustakim, Z., & Kamal, R. (2021). K-means clustering for classifying the quality management of secondary education in Indonesia. *Jurnal Cakrawala Pendidikan*, *40*(3), 725–737. https://doi.org/10.21831/cp.v40i3.40150

Nanda, A. (2021). Analisis Eksistensi dan Kompetensi Guru dalam Mengajar di Era Society 5.0. *Jurnal Inovasi Teknologi Dan Edukasi Teknik*, *1*(12), 859–864.

https://doi.org/10.17977/um068v1i122021p859-864

Rusydiyah, E. F., Purwati, E., & Prabowo, A. (2020). HOW TO USE DIGITAL LITERACY AS A LEARNING RESOURCE FOR TEACHER CANDIDATES IN INDONESIA. *Jurnal Cakrawala Pendidikan*, *39*(2), 305–318. https://doi.org/10.21831/cp.v39i2.30551

Saputra, M., & Siddiq, I. H. A. (2020). Social Media and Digital Citizenship: The Urgency of Digital Literacy in The Middle of A Disrupted Society Era. *International Journal of Emerging Technologies in Learning (iJET)*, *15*(07), 156. https://doi.org/10.3991/ijet.v15i07.13239

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, *104*, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039

Thohir, M., Maarif, S., Rosyid, J., Huda, H., & Ahmadi, A. (2021). FROM DISRUPTION TO MOBILIZATION: IRE TEACHERS' PERSPECTIVES ON INDEPENDENT LEARNING POLICY. *Jurnal Cakrawala Pendidikan*, *40*(2), 359–373. https://doi.org/10.21831/cp.v40i2.39540

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education*, *16*(1), 39. https://doi.org/10.1186/s41239-019-0171-0