



Madrasah Principal Leadership in Digital Transformation at Madrasah Ibtidaiyah: A Case Study

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Abstract

The rapid development of digital technology impacts the world of education. So, educational institutions need leader figures who can adapt to the development of digital technology. This article aims to explain the leadership of madrasah principals in digital transformation at MIN Blitar City. The method used is descriptive qualitative, collecting data using in-depth interviews, participant observation, and documentation, and data analysis using the Milles, Huberman, and Saldana's model, namely data collection, data condensation, data presentation, and verification/conclusion. The main issues in digital transformation are: building awareness or understanding of technology, developing strategies and action plans for a suitable technology to be used in the digital transformation process, choosing the right human resources to succeed in technological change is followed by a change in technology-based work culture, fostering a culture of innovation and collaboration with the digital community, and carrying out supervision as a form of controlling the use of digital technology.

Keywords: digital transformation, madrasah ibtidaiyah, principal leadership

A. Introduction

The transformation of technology and communication has been going fast. Expand reach, and reduce costs of various forms of communication. The exchange of information or trade that would generally take a long time can now take place quickly through the Internet, video conferencing, cell phones, and emerging technologies. Electronic and digital communications have overcome the constraints of time and geography. Interactions between humans and groups are now commonplace and often occur (Velsor et al., 2010).

Rapid change radically changes the industry, business models, and the world of Education (Collin et al., 2015). So, it has an impact on changing people's lifestyles who have to adapt to advances in information technology (Greenfield, 1980; Prince, 2017; Hensellek, 2019). A leader must constantly look for a practical and efficient style as a solution to carry out the transformation as needed (Husna, 2019). As a result, traditional leadership strategies are no longer suitable for managing and driving institutions to achieve organizational goals in this technological era. So, there is a need to use a new leadership style that is more creative, strong, and visionary (McLeod, 2015; Klein, 2020 Sholeh, 2021). The new leadership style is said to be digital leadership or virtual leader (Collin et al., 2015; Matt et al., 2015; Harris, 2020; Harris & Jones, 2020). With this background, not only communication but also the collection and dissemination of data between leaders and followers is carried out through electronic media.

Digital leaders are very appropriate to use in improving the quality of education because they can centralize people remotely to carry out work to achieve institutional goals. They use new technologies to improve their performance and create new models for building communication with their followers. Thus, traditional face-to-face interactions have been exchanged for electronic media (Munir, 2020). Leaders who master information technology in carrying out their primary tasks make it easier to provide speed, convenience, accuracy, and integration in providing performance services. This includes developing a digital risk mitigation model that may emerge in the future (Alatovic et al., 2020).

As a digital leader, you must be sensitive to developing situations and formulate various solutions to problems faced in improving quality in educational institutions (Elliott & Asghar, 2014). As happened during the Covid-19 pandemic, which had paralyzed the education system in various countries and resulted in the degradation of the quality of education (Cahyadi, 2020; Harris & Jones, 2020; Hargreaves & Fullan, 2020; Azorín, 2020; Alatovic et al., 2020; OrangeFiery, 2020; Hudson et al., 2021; Zaini, 2021). As a leader, don't stay away from the problem but instead look for a solution to the case. The position of the principal in educational institutions plays a significant role in every organizational development. So that the key to experiencing the change of this era is to prepare for technological advances. On the other hand, it is necessary to try to develop human energy sources, especially the leadership of the principal (Fitriyah & Santosa, 2020).

Digital leadership is the knowledge of a leader and potential leader to focus the organization he leads towards digitizing the institution. The qualities needed for digital

leadership are the first type of communication. Digital leaders must have communication and social networking skills, such as mastering YouTube, Instagram, Facebook, etc. Both digital leaders must have sensitivity to the mindset of their followers. Third, digital leaders must be able to operate or use ICT and have the qualifications to influence others about the benefits and functions of new technologies. Fourth, the need for a place, digital leaders must have an inclusive and multicultural mindset and monitor work virtually / online and effectively. Fifth, flexible, digital leaders can adapt and do not stutter in the face of the transformation of the world of education and technological change so that they can carry out work to achieve organizational goals (Munir, 2020). Digital leadership can be implemented by providing general and basic tasks that the leader wants to achieve, implementing a task-oriented leadership style, and delegating followers to take part in various activities virtually (Farunik, 2019).

In digital transformation in institutions, a school leader must actively involve internal and external stakeholders who is aware that digital transformation in institutions is the main program that must be done. Principals and educators can no longer delegate something to the school technology coordinator to get everything done (McLeod, 2015). School leaders must take a direct approach in terms of policy making and formulating strategic steps to improve the quality of teachers and students in supporting digital transformation in institutions.

Many research results discuss the similar topic to this current study; digital transformation related to learning (Santoso 2020; Muskania & Zulela MS, 2021; Howard et al., 2021; Muslim & Zaini, 2021), digital leadership with digital competence (Cahyarini, 2021), digital leadership with organizational culture (Martínez-Caro 2020), integration of digital leadership in educational supervision (Aldawood 2019), the principal's leadership strategy in the digital transformation of schools aims to measure the profile of actors (Ally 2019), and contextual factors perceived by the principal (Matt 2015; Navaridas-Nalda 2020). While this research is to explain the steps of the principal in carrying out digital transformation in his institution.

This research will focus on planning, implementing digital leadership, and controlling digital leadership. This research is expected to provide comprehensive information about the administration of madrasah principals in carrying out digital transformation in their institutions. This will answer the problem of education in adapting to the development of digital technology.

B. Literature Review

The COVID-19 pandemic has changed the world's education system. Schools that previously operated under normal conditions were faced with the necessity to carry out massive social distancing and, for a long time, were faced with the choice to utilize digital technology in their institutional operations. One of them is how to manage school activities effectively and efficiently in work from home (WFH) format and turn it back into limited face-to-face meetings (Saputra, 2021). Like it or not, the principle is to apply

remote leadership. They use digital technology to direct dispersed work team members to stay focused on achieving organizational goals efficiently and effectively:

Table 1. Indicators Digital Leadership

Zhong (2017)	<ol style="list-style-type: none"> 1. Visioner Leadership 2. Digital Age Learning Culture 3. Professional Development 4. Systemic Improvement 5. Digital Citizenship
Liu et al. (2018)	<ol style="list-style-type: none"> 1. Energy 2. Need for achievement 3. Responsibility 4. Flexibility 5. Analytical skills 6. Continual learning 6. Technical skills
Cortellazzo et al. (2019)	<ol style="list-style-type: none"> 1. Ability to communicate through digital media 2. Make decisions at high speed 3. Skills to manage collaboration or connectivity 4. Skills to handle disruptive change 5. Master certain technical skills
Hensellek (2019)	<ol style="list-style-type: none"> 1. Digital vision 2. Digital behavior 3. Digital skills 4. Digital mindset
Van Wart et al. (2019)	<ol style="list-style-type: none"> 1. Technological skill 2. Communcation skill 3. Social skill 4. Team building skill 5. Change management 6. Trustwortiness
Klein (2020)	<ol style="list-style-type: none"> 1. Innovative visionary 2. Networking intelligence 3. Digital intelligence 4. Digital talent scout 5. Complexity master

Digital leadership where superiors do not interact with their work teams directly. However, the institution's organization can still run optimally even though its leadership does not directly impact work productivity. To achieve this, madrasah principals must develop careful planning in implementing digital leadership and determine control management to minimize the misuse of digital media. Digital leadership developed by superiors must be directed at: (1) ensuring the availability of digital facilities for employees to work from home, (2) helping employees develop digital skills, and (3) encouraging employees to collaborate in completing their work (Saputra, 2021).

C. Research Methodology

This research design is descriptive qualitative with the problem that is the focus of the research entitled "Leadership of madrasah principals in digital transformation at Madrasah Ibtidaiyah". Descriptive qualitative is to examine the phenomena experienced directly by the research subjects. The research location was in MIN Blitar City. Data were collected from 2 -30 June 2020 through interviews with informants (the head of the Madrasah and three teachers), recorded and transcribed by the researchers in written form, supported by document data and from direct observations.

The data analysis technique uses the Milles, Huberman, and Saldana's model (2014): data collection, condensation, data display, and conclusion. First, data collection by triangulation consists of in-depth interviews, participant observation, and documentation according to the research focus. The next stage is coding, the codes used for the basis of the data unit. Second, data condensation: the researcher adjusted all the collected data by summarizing them. By summarizing the data, the results of the interviews, observations, and documentation, the researcher could understand better when analyzing data. Third, data display: the researcher aligned the data obtained according to the research focus. The researcher looked for a meaningful relationship from all the data obtained and allowed for conclusions. Fourth, concluding: the researcher synthesized all the data and drew meaningful patterns to make temporary findings. The researcher tested the validity of the data by triangulating the data, which included triangulation of sources, techniques, and theories.

D. Findings and Discussion

1. Digital Transformation Planning

School quality can be seen from the performance of the madrasah by looking at the achievements produced by the school process/behavior. School quality can be measured by effectiveness, efficiency, productivity, innovation, quality of work-life, and morale (Munajat, 2016: 159). Independent madrasah must focus on supporting technology integration in improving the quality of education (Sholeh, Jannah, et al., 2021). The head of the madrasah must pay attention to the development of digital technology to facilitate the bureaucracy, as evidenced by the implementation of digital technology in various fields of education, both in terms of planning, organizing, and controlling institutions.

A leader in digital transformation manages his institution by optimizing the relationship between individuals and technology and increasing the probability for renewal across the entire spectrum of institutional fields (Sheninger, 2014). Digital leadership requires support from all stakeholders. Carrying out organizational management and digital learning is an impossible task without the consent of all stakeholders. All stakeholders are required to attend joint meetings to share the perception of the importance of technology in supporting the quality of madrasah. The head of the madrasah shows how vital the role of parents and teachers is to create quality and

technology-based madrasah. Parents and teachers play an essential role in creating a digital learning environment.

The head of the madrasah in digital transformation in educational institutions must prepare an implementation. The plan is started by holding a joint working meeting consisting of all sector coordinators and teachers to socialize the concept of technology-based work in administrative services, communication, and learning. The next stage is to analyze the need for infrastructure facilities such as internet networks from various corners of the room in the madrasah environment that are used to support the administrative, communication, and learning service processes; to formulate technology or applications used in school administration services, learning techniques, and communication; to prepare hardware equipped with software supporting services, learning strategies, and communication that are fast and easy to use (R1,R2,R3/MIN/02-06-2020).

Offline and online systems combine administrative services, learning processes, and communication. As supporters of digital transformation, teachers and students bring their own devices such as laptops to school for instructional purposes, such as presenting the results of their assignments. The library is equipped with computers, and students use them for school purposes. The library also provides an online service process or digital literacy by providing various kinds of e-books that can be accessed online by parents and students when studying at home. In addition, the principal of the madrasah provides a computer laboratory that teachers use for online learning (R1,R2, R4/MIN/08-06-2020).

Decision-making by the head of the madrasah reflects the leader's attitude, who pays attention to the needs of school residents and guardians of students. This leadership ability is a form of knowledge to organize all school resources to provide the best service for parents and students (Brett, 2019). Administrative officers and educators are required to have the ability to adapt quickly to technological developments.

2. The Implementation of Digital Transformation

Implementing principal madrasah leadership in digital transformation in educational institutions is done by integrating human resources with technology, having competent personnel, strengthening personnel, collaborating with work colleagues, maximizing social media and school websites, and maximizing online and offline learning.

a. Integrating Human Resources with Technology

Improving the quality of education in madrasah ibtidaiyah is done by integrating human resources and technology by making various normative and verbal policies. Digital leaders provide support and set the activities carried out by teachers and staff in the Ibtidaiyah madrasah environment so that they are carried out by optimizing the use of digital technology. Integrating human resources with digital technology is the basic foundation made by the head of the madrasah so that the educational atmosphere can run effectively, efficiently, and comfortably. This is a tangible form of the principal's commitment to realizing the improvement of the quality of his institution. In terms of implementing leadership and managerial functions with the use of digital technology in

coordinating, communicating, managing, mobilizing, and evaluating all elements of the citizens carried out by the head of the madrasah, through WhatsApp, google meet. Zoom, google classroom (R1,R2,R3/MIN/02-06-2020).

Meanwhile, to publish activities carried out by utilizing social media such as Facebook, Instagram, Youtube, and madrasa webs. The role of the leader is to provide direct examples in delivering work instructions by utilizing digital technology in various activities and supported by the participation of all stakeholders. It will become a habit and the formation of digital culture in institutions (Kholis et al., 2014; Sholeh, Aziz, et al., 2021). With an integrated system, various service and learning processes can run efficiently, especially optimizing resources. The productivity of teachers and education personnel increases because they can focus on the actual task instead of providing conventional learning and make it easier for services to enter data manually in each subsystem. System integration helps simplify routine tasks. Teachers and education staff are also satisfied with their work.

b. Preparing Competent Personnel

Competencies that madrasah Ibtidaiyah teachers must possess are professional, social, pedagogic, personality, spiritual, and leadership competencies (KMA 211 year 2011 Pedoman Standar Nasional Pendidikan Agama Islam Di Sekolah, 2011). The madrasah principal takes concrete steps in a digital organization, so that teacher competence continues to increase. Both related to human resources and non-human resources (Sterrett & Richardson, 2020). Digital organizations in the context of human resources strengthen the competence of their personnel through pre-service education, including the policies made by the head of the madrasah, beginning with the procurement of educators and staff in the madrasah environment who have basic IT operational skills. The madrasah principal also maintains competent personnel to advance the institution (R1,R2,R3/MIN/02-06-2020).

The basic skills of teachers in using digital technology in learning include: being involved in the development of technology-based learning media, using social media for professional and personal branding needs, operating applications and digital learning resources, and sending electronic mail to communicate with coworkers and students (Saroni, 2011; Sholeh, Aziz, et al., 2021; Karsono et al., 2021; Saleh et al., 2021). Classification of 21st-century teacher skills into five categories: a) Facilitating and inspiring students' learning and creativity, b) Designing learning experiences and assessments of the digital era, c) Developing models of learning and working in the digital age, d) Encouraging and being a model of responsibility in digital society, and e) Participating in professional development and leadership (ISTE, 2009; Zhong, 2017). Teachers continue to strive to improve digital skills and literacy, namely by learning a lot through training, discussions, reading books, or viewing tutorials in cyberspace.

c. Strengthening Personnel

Technological change in schools is not about devices. It is about solid and visionary instructional leadership. Leaders must be able to move their followers and be directly

involved in various activities to strengthen the use of technology (McLeod, 2015). The head of the madrasah strengthens its personnel by seeking to increase human resources, especially teachers, to take part in various trainings held internally and externally (Dewi & Khotimah, 2020). Madrasah principal participates in developing human resources in their institutions by holding various forms of training to strengthen skills in using digital technology to improve the quality of the learning process, as well as enhancing technology-based competencies for madrasah principal, educators, and education staff.

Madrasah principal, teachers, and education staff actively participate in various virtual activities in multiple forms: seminars, workshops, training, and webinars. By participating in virtual activities, you can share knowledge about lesson plans, class activities, teaching strategies, implementation ideas, online resources, technology integration tips, and many other practices (W1,W2,W3,O/MIN/15-06-2020). Digital training is a means for leaders to shape teacher professionalism (Santosa, 2010). By participating in and holding training, seminars, workshops, and webinars, the use of digital technology in learning has an impact on increasing teachers' pedagogical competence (Sholeh, Aziz, et al., 2021). Also, the results of research (Navaridas-Nalda et al., 2020) shows that training activities will enable principals to improve their digital competencies from both a pedagogical and leadership perspective, thereby allowing them to address possible gaps between leaders, teachers, and education personnel.

d. Carrying out Collaboration between Colleagues

In digital leadership, openness and collaboration are needed, as well as the ability to comply with regulations, not only from digital capabilities (Agung et al., 2020). Principal must cultivate a professional work ethic in groups and individuals (Sterrett & Richardson, 2020). The principal builds a conducive learning climate to support systemic improvement. Teachers proficient in technology will be used as role models to transfer their knowledge with internal training. The madrasah principal has a teacher working group where teachers can share techniques for using technology in learning with each other. Teachers study groups are built to promote communication and collaboration (R1,R3,R4/MIN/15-06-2020).

Collaboration between colleagues supports leaders in digital transformation in organizations by building trusting relationships between colleagues, encouraging teacher, and education participation, and supporting risk-taking and the learning process (Goodyear & Mark R. Nelson, 2007; Cahyadi, 2020). By collaborating with friends, you can solve the problems you face and draw your conclusions in innovation (Husna, 2019; Sari, 2021). Principal collaborates by conducting supervision. Principal guides and directs teachers who have not mastered technology but principal is also ready to accept positive follower arguments (Noor, 2018). This creates a close relationship between leaders, teachers, and education staff. Of course, this will bring positive value in carrying out digital transformation in institutions.

e. Maximizing Social Media and School Website

The principal of the madrasah publishes his institution on social media such as Facebook, WhatsApp, Youtube, and Instagram to share information between teachers and

guardians of students. The madrasah website has all information on teachers, curriculum, work of teachers and students, various activities and achievements of principal, teachers, students, and their institutions. The information provided is also related to student attendance, learning evaluation information, registration, and other information sharing. Besides that, it is also to provide information to the public that madrasah a good quality, whether it is shown by the principal, teachers, students, and their institutions (R1,R2,R4/MIN/22-06-2020).

Providing services through social media and school websites is part of the strategy to increase the institution's branding to the community (Karsono et al., 2021). Socialization carried out by educational institutions related to services, learning, and information makes social media and school websites an effective means of public testing without physically interacting with educational institutions and the community. That is why the role of social media is considered necessary in supporting the activities of educational institutions related to public information disclosure (Müller et al., 2011; Jabbar, 2016).

f. Optimizing the Online and Offline Learning

Leaders must be sensitive to any changes by building a vision and strategic plan to create digital learning (Sheninger, 2014). Madrasah principal instills a collaborative ethos that deepens learning, student and teacher engagement (Sterrett & Richardson, 2020). The principal of the madrasah intentionally carries out offline and online learning using appropriate technology. The principal ensures that students and teachers are involved in digital education.

In offline learning, teachers maximize the facilities provided, such as LED TVs and book scan barcode applications to support classroom learning. Meanwhile, in online learning, madrasah principal maximizes E-Learning provided by the ministry of religious affair. These applications are used to manage attendance, minimum passing grade, lesson plans, online classes, teaching materials, journals, CBT exams, PAS, report cards, and monitoring. The teachers also optimize digital applications in learning, such as using digital media such as zoom, google meet and google classroom. Using digital technology can strengthen excellent teaching (R1,R2/MIN/30-06-2020). Through blended learning, it encourages positive attitudes in class (McLeod, 2015; Saleh et al., 2021). In its implementation, teachers must pay attention to how teachers transfer self-motivation, self-management, self-monitoring, and self-modification. Self-motivation to students are done by providing educational sites and using educational applications as learning resources (Hanik, 2020).

From the description above, the madrasah principal in organizing the institution masters the 4C formula; critical thinking, creativity, communication, and collaboration, to improve the institution's quality. Critical thinking requires continuously adaptation and be ready to face changing times. Creativity leaders must be able to create new and unique innovations according to the needs of the times. Communication, a leader, must be good at communicating both verbally and using digital technology. Collaboration is the ability of leaders to work well with teachers and the wider community.

3. Digital Transformation Control

The head of the madrasah has made various efforts to control and integrate the development of digital technology. This can be seen from multiple policies and activities and fulfill different needs that can support improving the quality of learning and services through supervision through digital technology. With the control of education, knowledge and services are more efficient (Aldawood et al., 2019). agreeing with the results of research from Masrur (2020) who describes a leader demonstrates dedication in carrying out supervision that significantly impacts pedagogical competence.

The control over digital technology carried out by the head of the madrasah is by keeping abreast of developments in digital technology trends and selecting technology trends following the development needs of education at the institution—controlling the daily aspects of teachers and employees at the madrasah to keep it running normally. The madrasah principal supervises from a cellphone using WhatsApp group, google meet or zoom application and provides work instructions direct and indirectly (R1,R2,R3/MIN/30-06-2020).

With this integration, the principal can still supervise and organize his institution even though the madrasah principal has activities outside the school. The principal of the madrasah develops technology according to the needs of the madrasah. Digital technology development requires personnel to review technology according to personnel needs (Velsor et al., 2010). To develop digital report applications, the Ministry of Religious affair has made it according to the institution's needs by inviting application creators to develop some application facilities.

The head of the madrasah explained that every school member and stakeholder had the same internet access. Students also have access to the computer lab and computer library. Teachers have access to computers and laptops in their classrooms. The principal also provides a free internet access for parents who do not have any access at home. The principal of the madrasah makes a policy that all students and teachers must adhere to, not to do anything unlawful with technology. In addition, filters are installed in all schools to ensure that students do not access inappropriate websites (O/MIN/30-6-2020). Avoiding the adverse effects on children from accessing the internet at the age of under 12 years old, can be done by installing digital filters as a form of understanding social, ethical, and legal issues and responsibilities related to digital use (ISTE, 2009; Kurnia & Rohmah, 2020)

From the description above, the concept of *madrasah* principal leadership in digital transformation at *Madrasah Ibtidaiyah* can be described as follows:

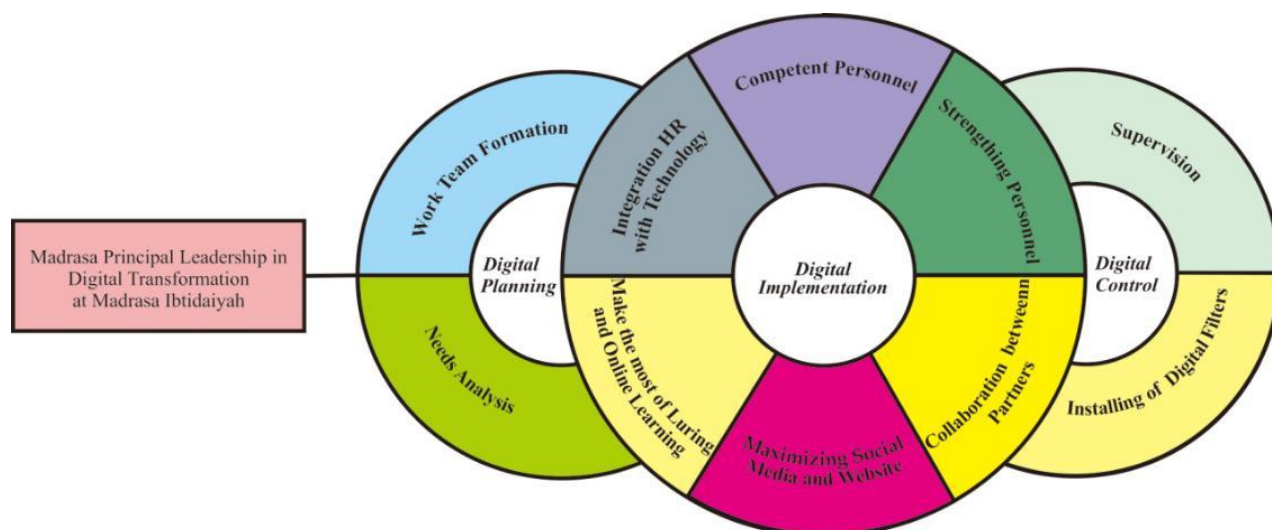


Figure 1. *Madrasah* Principal Leadership Model in digital transformation

The above model complements the digital transformation model offered by Matt et al. (2015). It explains the importance of balancing the four dimensions of digital transformation: use of technologies, changes in value creation, structural changes, and financial aspects. However, in implementing it, a leader can use a situational approach to carry out digital transformation. It starts with a) measuring the level of readiness by providing general and basic tasks that the leader wants to achieve, b) applying a task-oriented or relationship-oriented leadership style with followers according to their level of readiness, and c) delegating followers with high levels of readiness to help supervise followers with low readiness if the work group grows large (Farunik, 2019).

The main challenges of leaders in digital transformation are: a) coordinating and integrating digital technology according to the needs of the institution, b) integrating technology-based teaching and service systems over a more extended period, and c) managing institutionalized cultural change when replacing traditional systems with new technologies that force changes in work patterns, and e) managing multiple stakeholders in a protracted process of change (Sanchez, 2016; Liu et al., 2018; Aldawood et al., 2019; Martínez-Caro et al., 2020; Song, 2021).

Leaders' success in solving problems faced in digital transformation in educational institutions will reduce the costs of future development, increase the speed of digital innovation in services and pedagogy, and reconstruct the role of leaders by incorporating new leadership abilities and digital management skills to produce quality institutions that can adapt to changing times. This digital transformation will contribute to a faster and more effective educational development by building coordination among stakeholders and integrating new processes and technologies. Over time, the culture of educational institutions can shift to be more flexible and responsive to a dynamic environment.

E. Conclusion

The digital leadership of the Ibtidaiyah madrasah principal in digital transformation develops a planning, implementation, and control strategy, that is, can be done by 1) planning digital transformation by: forming a work team and conducting a needs analysis 2) implementing a digital transformation by: integrating human resources with technology, preparing competent personnel, strengthening personnel, carrying out collaboration between colleagues, maximizing social media and school websites, and optimizing online and offline learning, and 3) controlling institutionalized digital transformation by: supervising the direct transformation, carrying out technology-based monitoring, and installing filters to inappropriate sites.

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