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Andragogy Model to Improve Digital Technology Competence of High School Teachers

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ABSTRACT

This study aims to develop a competency-based andragogy training model to improve the digital technology competence of teachers at the Cianjur Regency Mover School. In the digital era, teachers' digital competence is very important, but initial observations show that many teachers still have difficulty in mastering learning technology. The competency-based training model with an andragogy approach is considered effective because it is tailored to the needs and experiences of adult participants. This study uses a qualitative approach with a systematic ADDIE (Analyze, Design, Development, Implementation, Evaluation) development model. Data collection was carried out through observation, interviews, questionnaires, and documentation studies. The results of the study showed that most teachers were aware of the importance of digital technology, but needed further support in mastering digital learning applications and media. The development of a competency-based training model is expected to accelerate digital transformation in education. This study provides theoretical and practical contributions to the development of competency-based and andragogy teacher training policies in the digital era.

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1. INTRODUCTION

In the rapidly developing digital era, the use of technology in education has become an inevitability that cannot be avoided. Digital technology presents various opportunities to improve the effectiveness, efficiency, and quality of the learning process. In this context, teachers as the spearhead of education are required to have adequate digital competence in order to be able to respond to developments in the era and the characteristics of students who are now increasingly familiar with

technology. As stated by Sitompul (2022), teachers must have optimal mastery of digital technology in order to be able to keep up with students who are already digitally literate with their various characteristics.

However, the reality on the ground shows that not all educators have adequate skills and knowledge in utilizing digital technology. Based on the statement of the Director General of Early Childhood Education, Elementary Education, and Secondary Education of the Ministry of Education and Culture, Dr. Jumeri, S.Tp., M.Si, in 2021, around 60 percent of educators still have limitations in mastering information and communication technology (ICT). Many teachers face challenges in integrating technology into the curriculum, designing technology-based learning, and facilitating effective interactions between students and digital media.

The paradigm shift in learning from a traditional approach to a competency-based approach has also encouraged the urgency of strengthening digital competencies for teachers. These competencies include the ability to design, implement, manage, and evaluate technology-based learning, as well as create an inclusive and participatory learning atmosphere. One solution that is considered effective in answering these problems is a competency-based training model with an andragogical approach. This model is oriented towards the learning needs of adults, so that training is tailored to the experience, readiness, and learning objectives of the participants. Through this training, teachers are expected to be able to acquire the skills and knowledge needed to design and implement digital learning optimally.

However, the implementation of competency-based training still faces several challenges, including limited infrastructure and access to digital technology, lack of understanding of the potential and benefits of technology in learning, and minimal ongoing mentoring. To explore these problems further, the author conducted initial data collection through a questionnaire at one of the Mover Schools in Cianjur Regency. Of the 68 respondents, 92% agreed that the use of digital technology needs to be applied in learning. However, around 10% stated that they did not master digital learning media, and 41% stated that they were not confident in their mastery. In addition, 35.3% of teachers were hesitant to say they liked the use of technology in learning, and 14.7% stated that they preferred learning without technology. Other data showed that 55.9% of teachers needed mentoring to develop technology-based learning, which indicated less than optimal competence. Based on these data, it can be concluded that teacher competence in digital learning is still low. Many teachers still use the lecture method and have not utilized the potential of technology to its full potential. In fact, teachers at the Mover School are expected to be role models and drivers of change in other schools, especially in the application of digital technology. Therefore, the author feels the need to develop a competency-based andragogy training model that can help teachers master digital learning. This training model will be designed based on the initial competencies of teachers, then trained gradually until they reach an advanced level. This training will be carried out at one of the Driving Schools as a case study of the application of the andragogy approach in digital training for teachers.

Based on the background above, this study aims to find and develop a competency-based training andragogy model that can improve the digital technology competence of teachers, especially at the Cianjur Regency Moving School. Specifically, this study aims to map the empirical conditions of teachers' digital technology capabilities at the Cianjur Regency Moving School; compile a competency-based training andragogy model design in improving teachers' digital technology competence; reconstruct the development of a competency-based training andragogy model; identify the implementation of a competency-based training model with an andragogy approach; and provide a constructive overview of the evaluation of training implementation.

2. METHOD

The research method used in this study is a qualitative approach with the ADDIE model (Analyze, Design, Development, Implementation, and Evaluation). This model is a systematic guideline in designing training as explained by Branch (2009) as a learning system design. The first stage, Analyze, includes an analysis of training objectives, participant characteristics, training needs, and appropriate training methods and techniques. This stage aims to identify possible causes of performance gaps (Hidayat & Nizar, 2021). At the Design stage, conceptual design of training programs, training materials, and training evaluations is carried out. Furthermore, the Development stage realizes the concept that has been designed in the form of training materials, equipment preparation, and creation of evaluation instruments (Cahyadi, 2019). The Implementation stage is the implementation of training in accordance with the planning that has been made, including the use of training methods and materials. The Evaluation stage aims to assess the success of the training and its suitability to the initial objectives, as well as improvement materials for further training (Sugihartini & Yudiana, 2018). In the ADDIE model, each stage has a general procedure and summary such as gap validation, goal formulation, media development, and outcome assessment which are systematically explained by Branch (2009).

Number1 ADDIE model scheme according to (Branch, 2009)

The location of this research is in Cianjur Regency with a focus on schools with the status of Transferred Schools. The selection of this location was based on initial findings that teachers had not fully utilized digital technology in the learning process. This problem was identified through the distribution of initial questionnaires at one of the Transferred Schools in Cianjur. The respondents of this research were selected purposively and consisted of parties relevant to the focus of the research, namely: (1) educators as research subjects, as explained by Arikunto (2019) that subjects are people, objects, or things that attach research variables; and (2) five Vice Principals who provided information regarding the level of teacher ability in utilizing computers and digital technology during the learning process. The sample size was determined by referring to the opinions of Cohen et al. (2007) and Roscoe in Sugiyono (2015) which stated that the minimum sample size is 30 respondents, and for multivariate analysis a minimum of 10 times the number of variables is required. The data collection techniques used include four methods. First, direct observation was carried out at the research location to obtain information regarding the low digital competence of teachers, including through observation of the learning process in the classroom. Second, in-depth interviews were conducted with selected informants to obtain actual information related to the research problem. Third, questionnaires were distributed to predetermined respondents, using instruments compiled by the author based on the research focus. Fourth, documentation studies were conducted by reviewing related documents, including the Education Report published by the Ministry of Education, Culture, Research, and

Technology (Kemdikbud), which contains information on school conditions, competencies, and performance of teachers and education personnel.

3. FINDINGS AND DISCUSSION

Results

This study was conducted in several Schools in Cianjur Regency with the aim of determining the extent of the application of digital technology in the learning process by teachers. The selection of locations and research subjects was carried out purposively based on initial findings that showed low utilization of technology in teaching and learning activities. Data were collected through various techniques, namely direct observation, in-depth interviews, questionnaires, and documentation studies, which together provide a comprehensive picture of teachers' digital competence in the field. Respondents in this study consisted of educators who were the main subjects, as well as five vice principals who provided additional information regarding the level of technology utilization by teachers in their respective schools. The number of samples taken refers to the guidelines from Cohen et al. (2007) and Roscoe (in Sugiyono, 2015), namely a minimum of 30 respondents as a requirement for the eligibility of the research sample. The results obtained from the four data collection techniques were then analyzed to answer the focus of the research regarding the challenges and potential for improving teacher competence in integrating digital technology and produced the following:

a. Application of Andragogy Model in Teacher Training

The results of the study showed that the andragogy approach was effective in increasing teacher participation and motivation as training participants. Teachers showed high enthusiasm when actively involved in planning, implementing, and evaluating training. This is in line with the andragogy principle put forward by Knowles (1986) which emphasizes that adults learn more effectively when they are actively involved and learn based on their own experiences and needs. The need for teachers to improve their digital technology competencies is one of the main drivers of the success of the training. The materials provided are arranged based on real problems in the field, such as the use of online learning applications and virtual classroom management, making the training process relevant and meaningful. The learning methods applied, such as group discussions, case studies, and direct practice, support a more collaborative and contextual adult learning style. The conducive and open training atmosphere for sharing experiences between participants also strengthens the learning process and builds solidarity between teachers.

b. Effectiveness of Needs-Based Education and Training

Teacher training activities designed based on real needs have been proven to improve participants' understanding and technical skills in facing the challenges of digital transformation in the world of education. This strengthens Simamora's (2010) view that systematically designed training can improve knowledge, skills, and work attitudes effectively. Unlike formal education which tends to be general, this training is practical and focuses on developing specific competencies, such as the use of digital platforms and virtual classroom management strategies. This needs-based training increases the relevance and usefulness of training materials, so that participants are better prepared to implement learning outcomes in the workplace. The suitability of training materials to teachers' daily tasks strengthens the effectiveness of the program and has the potential to encourage positive changes in work behavior.

c. The Role of Community Education in Supporting Digital Transformation

Teacher training activities in this context can also be categorized as a form of community education, namely non-formal education that aims to improve individual capacity outside the school system. Based on Law No. 20 of 2003 concerning the National Education System, community education

allows for the development of competencies through a more flexible and responsive approach to local needs. Community education plays an important role in supporting digital transformation, especially in the education sector. Through this training, teachers gain access to new knowledge and skills that are relevant to the development of information technology. Community education is a strategic means of forming superior human resources that are adaptive to changes in the times, especially in producing a competent and highly competitive digital generation.

d. The Purpose of Education and the Role of Formal and Non-formal Education

The purpose of education is basically the direction and values to be achieved in the learning process. According to Moore in Sumitro (1998), education must begin with a clear purpose so that the process is meaningful. Formal education is an educational path that is structured in levels and follows the structure and provisions of the government, starting from basic education to higher education (Tirtarahardja & La Sulo, 1994). Formal education has systematic and standard characteristics, such as levels, a structured curriculum, and a strict evaluation process. On the other hand, non-formal education—which includes training such as that conducted in this study—is more flexible and adaptive. According to Gunawan (1995), non-formal education is a conscious effort outside the school system to develop individual abilities, using various media and methods such as courses, training, counseling, and others. In the context of the ever-changing world of work, non-formal education has proven to be more effective in bridging the gap between the world of education and the world of work. This non-formal-based training allows individuals to adapt to technological developments, increase work efficiency, and adapt to modern work systems. Therefore, non-formal education is an important complement to formal education in improving the competence and productivity of the workforce, including teachers.

e. Competency Based Training

Competency-Based Training (CBT) is an approach that emphasizes real results in the form of improving individual work capabilities according to organizational needs. Unlike traditional training that focuses on content and duration, CBT emphasizes output, impact on performance (outcome), and specific needs of participants. CBT is designed to be relevant, targeted, and have a direct impact on work performance through identifying competency gaps. Conceptually, CBT includes mastery of knowledge, skills, and attitudes that can be applied directly in the workplace. The main characteristics of CBT include: determining competencies based on job roles, performance-based assessments, progress determined by competencies mastered, and modular and flexible programs. The implication is that this system requires individual learning, integration of field training, and the active role of facilitators as companions. Evaluation is based on real performance criteria, not just attendance. CBT differs from traditional training in terms of personal approach, focus on real work results, and a "competent" or "not yet competent" assessment system. To be successful, support from organizational infrastructure, staff management, information technology, and a continuous evaluation system is needed. CBT is more appropriate for organizations that want to bridge the gap between capacity and job demands.

Meanwhile, digital technology in education plays an important role in improving the quality of learning. This technology is not only a tool, but also a medium that enriches learning interactions and expands access to education. The use of digital technology in education aims to improve students' learning experiences through interactive and multimedia media, improve academic achievement by providing access to various sources and evaluation tools, facilitate collaboration and creativity by encouraging students to interact and innovate, and develop digital skills and information literacy that are relevant to the demands of the times. In terms of benefits, this technology provides accessibility and flexibility of learning that is not bound by space and time, creates interactive learning experiences that can improve retention and understanding, and supports collaboration and communication through

digital platforms such as forums or virtual classes. In addition, students can access wider learning resources including scientific journals and multimedia content, and gain a more personalized learning experience through an adaptive system that is tailored to the needs of each individual.

In practice, digital technology is used in the form of e-learning and distance learning which have proven effective, especially during the COVID-19 pandemic. In addition, adaptive learning allows the delivery of materials according to students' abilities, simulations and virtual reality support the understanding of abstract concepts visually and interactively, and online collaboration encourages social interaction and broader exchange of knowledge. Overall, the results of this discussion show that digital technology plays an important role in the transformation of modern education. Its existence enriches teaching methods and increases the effectiveness, efficiency, and relevance of learning in the digital era. To optimize its use, adequate infrastructure support, training for educators, and education policies that support digital innovation are needed.

The School Mover Program is one of the strategic initiatives of the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) to realize the vision of Indonesian Education, namely to realize an advanced, sovereign, independent, and personality-based Indonesia through strengthening the Pancasila Student Profile. This program functions as a catalyst for educational transformation and is implemented through close cooperation between the Ministry of Education and Culture and local governments. One of the main characteristics of the School Mover is its broad reach, covering all school conditions, not limited to superior schools, both public and private. In addition, interventions are carried out comprehensively, including strengthening school human resources (HR), improving the quality of learning, data-based planning, digitalization, and mentoring carried out for three academic years. After the mentoring period, schools are expected to be able to independently continue the transformation that has been started.

In its implementation, Sekolah Penggerak focuses on developing student learning outcomes holistically, both in cognitive aspects such as literacy and numeracy, as well as non-cognitive aspects such as character building. This is achieved through strengthening superior human resources, especially principals as instructional leaders and teachers as drivers of change. The Ministry of Education, Culture, Research, and Technology provides intensive assistance through expert trainers, and encourages collaboration between teachers based on reflection on teaching practices carried out. The ultimate goal is to create continuous improvement in the quality of learning, with principals and teachers as the main drivers. This program is based on formal regulations, namely Permendikbud Number 162 of 2021, and is strengthened by the determination of educational units implementing the program through the Decree of the Director General of Education, one of which is in Cianjur Regency which has determined seven schools as the first wave implementers. The School Mover Program has five main interventions, namely: (1) consultative and asymmetric assistance between the Ministry of Education and Culture and local governments, (2) strengthening school human resources through training and coaching, (3) implementing learning with a new paradigm that focuses on strengthening character and competency according to Pancasila values, (4) digitalizing schools to support the efficiency and effectiveness of school management, and (5) data-based planning with a reflective approach.

Discussion

The Andragogy Model is an approach to educating adults that is significantly different from educating children or adolescents. Adults tend to learn effectively when they are directly involved in the learning process, especially when the material being learned is relevant to their work or life. Some challenges in adult learning include boredom with inconsistent material, difficulty in applying theories that are too abstract, and resistance to change. Knowles (1986) put forward important principles in

adult education, namely active involvement in planning and setting learning objectives, utilizing experience as the main source of learning, focusing on material that is directly related to life and work, and learning based on problem solving and motivation. Meanwhile, Miller (1904) emphasized the importance of motivation in changing behavior, opportunities to try new behaviors, and providing learning materials that are appropriate to the needs of learners.

The School Mover Program is an effort to realize the vision of Indonesian Education in realizing an advanced, sovereign, independent, and personality-based Indonesia through the creation of Pancasila Students. School Mover acts as a catalyst to achieve this vision (Ministry of Education and Culture, 2021). There are five main characteristics that distinguish school movers, namely collaboration between the Ministry of Education and Culture and the Regional Government with the commitment of the Regional Government as the main key, coverage that includes all schools regardless of their status, integration with the education ecosystem that involves all schools in Indonesia, interventions carried out holistically, and mentoring that lasts for three academic years, with schools continuing the transformation independently. In its implementation, School Mover focuses on developing student learning outcomes holistically by developing the Pancasila Student Profile which includes cognitive and non-cognitive competencies, starting from strengthening the human resources of school principals and teachers. The mentoring program implemented by the Ministry of Education and Culture aims to improve the quality of learning, which includes improving the leadership of school principals as learning leaders and the quality of teacher teaching through collaboration and reflection between teachers (Hamzah, 2023). This program also emphasizes the importance of the willingness of principals and teachers to continue learning and improve their professionalism, in order to maintain sustainable transformation and create competitive advantages in the world of education. Regulation of the Minister of Education and Culture Number 162 of 2021 regulates the implementation of School Mover in Elementary Schools, Junior High Schools, and Senior High Schools, with the aim of improving the leadership skills of principals and facilitating school digitalization (Ristiana et al., 2023). This is in line with Patilima's view (2021) which states that School Mover focuses on cognitive (literacy and numeracy) and non-cognitive (character) competencies, starting from strengthening the human resources of principals and teachers. This program is expected to have an impact on other schools through socialization carried out by principals and teachers.

In Cianjur Regency, several schools have been designated as implementers of the School Mover Program, including SMAN 1 Cianjur, SMAN 2 Cianjur, SMAN 1 Ciranjang, SMAN 1 Pagelaran, SMAN 1 Pasirkuda, Al-Mashum Mardiyah Integrated High School, and Bahrul. Ulum Plus High School. The School Mover Program includes five interrelated interventions, namely consultative and asymmetric assistance, strengthening school human resources, learning with a new paradigm, school digitalization, and data-based planning. However, Marmoah et al. (2022) stated that realizing this program is not easy, especially related to the acceleration of digitalization expected from school movers. Therefore, to optimize this program, training is needed for educators to improve their digital technology competencies. This study will empirically discuss the effectiveness of the competency-based training andragogy model in improving teachers' digital technology competencies, which is one of the important aspects to support the success of the School Mover program.

Education and training are two interrelated concepts in efforts to improve the knowledge, skills, and attitudes of individuals or groups. Although both focus on the learning process, there are fundamental differences in the objectives, approaches, and contexts of their application. Education is a formal and structured process that aims to transfer general knowledge, values, and skills to individuals. According to Law Number 20 of 2003 concerning the National Education System, education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential. Education usually takes place in an academic context, such as schools

and universities, with the main goal of developing a broader understanding of the world, forming insights, and improving critical and analytical thinking skills. On the other hand, training focuses more on developing specific skills that are relevant to a particular job or field. Training is usually conducted in the workplace or in an organizational context, with the aim of improving a person's technical, practical, or professional skills so that they can carry out their work duties more effectively.

Training often has a more practical purpose and focuses on the direct application of learned skills. According to Simamora (2010), training is a series of activities designed to improve a person's skills, knowledge, experience, or change attitudes. Although there are differences between education and training, both contribute to individual development and provide benefits in various aspects of life. Education provides a broad foundation of knowledge and understanding, while training provides the practical skills needed to perform certain tasks. The combination of the two is important to prepare individuals to succeed in academic, professional, and social environments. In the context of adult learning, the andragogical approach proposed by Knowles (1980) emphasizes the importance of autonomy, prior experience, internal motivation, and direct relevance to real life. This approach is considered effective because it actively involves learners in the learning process and allows them to relate the material to personal experiences. Recent research also supports the importance of integrating knowledge, skills, and attitudes (KSAs) in the learning process. According to Andavar et al. (2020), effective training should include the development of all three aspects to improve individual performance. This shows that education and training must be designed by considering the holistic development of KSA to achieve optimal results (Zhang., et.al. 2024)

Competency-based training systems are designed to provide the right training at the right time to the right individual, with a focus on relevance, timeliness, and availability of training. This system ensures that training resources are used to meet service needs (Rycus, 2000). One of the important factors that influence the quality and effectiveness of training is the ability to accurately identify individual learning needs. This contributes to successful training that has a positive impact on job performance and organizational outcomes. Competency-based training refers to the concept of education and training that focuses on meeting existing service needs. The determination of competencies that are the goal of training is based on the needs and competency gaps that exist in the world of work. Training aims to improve competencies that have not been achieved. In general, competency-based training is a training approach that focuses on the abilities that a person acquires as a result of training. Competencies include relevant insights, attitudes, abilities, and skills (Haris, 1995). Competency-based education and training systems emphasize the achievement of individual competencies rather than simply completing courses or training programs on time.

Hatton (1997) argues that education and training must be relevant to the work faced by students, where the curriculum is designed to support the needs of students related to work, and help them acquire skills that are in accordance with the demands of the world of work in the future. According to Elam & Burke (1989), competence comes from roles that are determined by behavior that is valued by society, with assessment criteria based on competence to assess the level of mastery. Assessment requires evidence of performance and knowledge, as well as individual progress that depends on the competence demonstrated. Training programs also support the development and evaluation of more specific competencies. Competency-based training has characteristics such as more individualized learning, feedback for students, and an emphasis on outcomes that are relevant to individual needs and not just program entry requirements.

The training program is designed systematically using flexible modules and units, and prioritizing program accountability. The implementation of the competency-based training model requires several steps, such as field settings for learning, student participation in decision-making, and the provision of relevant and research-based training materials. By combining self-study approaches, work modules,

and work-based learning, competency-based training focuses on improving employee performance and achieving expected competencies. A comparison between traditional and competency-based training shows significant differences, especially in terms of focusing on results (competencies) and a more flexible and individual performance-based approach. In competency-based training, there is the use of relevant competency standards, required expertise, and assessments that assess whether participants are competent or not. This training also pays more attention to the development of skills needed in the world of work and provides recognition for the achievement of actual competencies. The competency-based training system aims to obtain the required competencies in a timely and appropriate manner. Key elements in this system include formal infrastructure, centralized and decentralized management, technology, training needs data, planning mechanisms, and evaluation systems (Bjørndal et al., 2018; Mertens, 2019).

Key activities in this system include defining target participants and job task analysis. Skills-based training focuses on the application of best practices defined by performance standards and implemented by the organization (Cedefop , 2017). Competencies consist of the knowledge and skills needed to fulfill job responsibilities. A set of competencies is built for each work group targeted for training, with knowledge and skills distilled for specific job tasks. Individual training needs assessment (ITNA) includes curriculum identification, planning, training delivery, learning transfer, and evaluation (Schreuder & Coetzee, 2019). Teacher competency involves three aspects: knowledge and skills needed for the task, manifestation of competency in real actions, and performance outcomes that meet quality standards. Competency-based training focuses on developing individual competencies by designing effective and specific training programs to achieve specific goals (Guskey , 2016 ; Darling-Ha)

Digital technologies in education refer to the use of information and communication technology (ICT)-based hardware, software, and applications to support teaching and learning processes. These technologies include devices such as computers, mobile devices, the internet, and related applications that are used to improve the quality of learning and teaching in various educational institutions (OECD, 2021; Johnson et al., 2022). The use of digital technologies in education aims to enhance students' learning experiences, facilitate better academic achievement, and prepare students for life in an increasingly digitally connected world. Some of the main goals of using digital technologies in education are to enhance students' learning experiences by creating more engaging and interactive learning, as well as increasing their motivation and engagement (Kay & Lauricella, 2012). In addition, digital technologies also aim to improve academic achievement by providing a variety of abundant learning resources and more targeted feedback, which have been shown to have a positive impact on student learning outcomes (Hattie, 2021). Technology also facilitates collaborative and creative learning through online platforms, where students can work together on projects and share ideas (Johnson et al., 2021). Furthermore, digital technologies play a vital role in developing students' digital skills needed to achieve success in an increasingly digital world (Lai & Bower, 2020).

The benefits of digital technology in education are also quite significant, including enabling wider accessibility and flexibility in learning, especially for those who cannot be physically present (Cavanaugh et al., 2010). The use of multimedia in the learning process helps improve information retention and student understanding (Clark & Mayer, 2020). Digital technology also strengthens collaboration and communication between students, teachers, and educational institutions, thereby increasing student engagement in learning (Dennen & Burner, 2009). In addition, with the internet, learning resources can be expanded, so that students and teachers can access the latest information in various subjects (Lai & Bower, 2020). Technology also enables personalized learning that is tailored to the needs and level of understanding of each student, which can ultimately improve academic outcomes (Kulik, 2021).

In practice, digital technology has introduced various innovations in learning. E-learning and distance learning, which are increasingly being developed thanks to digital technology, allow education to continue, even in emergency situations such as the COVID-19 pandemic (UNESCO, 2021). Technology also allows the development of adaptive learning systems that adapt content to students' needs, which has been shown to increase motivation and learning effectiveness (Kebritchi et al., 2011). In addition, the use of simulations and virtual reality in learning allows students to more easily understand complex concepts (Akçayır & Akçayır , 2020), while online collaboration facilitates more effective interactions between students and teachers, as well as between students in virtual learning environments (An, 2015).

The characteristics of adult learners reflect a shift from dependence to independence, having rich experiences as a source of learning, learning orientation based on social roles, and a learning approach oriented towards solving real problems. Adults tend to learn effectively if they understand the reasons for the importance of learning, can relate the material to personal experiences, and use a problem-solving approach in solving problems. They also understand the material more quickly if it is considered useful and has practical value in everyday life. Learning motivation in adults is influenced by intrinsic factors such as personal satisfaction and quality of life, although extrinsic factors such as job promotions or salary increases also play a role. Effective adult learning models include group discussions, problem solving, and sharing experiences. In the learning process, the active involvement of adults in planning, evaluating, and implementing learning is very important so that the results obtained are more optimal. In the context of the development of modern education, digital learning is one of the significant innovations. Knowles even predicted that technology would be a major force in shaping adult learning in the 21st century. Therefore, the andragogy model is very relevant to be applied to teachers as adult learners to improve their competence in mastering digital technology, while still paying attention to their needs, experiences, and learning motivation.

However, the implementation of the Sekolah Penggerak program is not without challenges. One of the main challenges is the acceleration in the field of digitalization which requires teacher readiness and competence in managing learning technology. Therefore, it is important to optimize the program by strengthening supporting aspects, one of which is competency-based training for educators. In this context, the andragogy competency-based training model is considered to have the potential to improve teachers' ability to utilize digital technology effectively in learning. With the right training, teachers can adapt quickly to technological developments and are able to play a strategic role in the transformation of education towards the digital era.

4. CONCLUSION

The results of the study indicate that the andragogy approach is very effective in teacher training. Teachers are more motivated when they are actively involved in the training process designed based on real needs, such as the use of digital applications and virtual classroom management. The open and participatory training atmosphere strengthens solidarity and collaboration between teachers. This real-needs-based training has been shown to improve teachers' skills in facing digital challenges, and is more relevant and practical than formal education, because it can facilitate positive changes in work behavior. The theoretical implications of these findings confirm the validity of the principles of andragogy as stated by Knowles, especially that adult learning is more effective when it is contextual, relevant, and experience-oriented. In addition, this approach supports social constructivist theory, which emphasizes the importance of social interaction in the formation of professional knowledge. Further research directions can be focused on developing andragogy-based training models that are integrated with digital technology more systematically.

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