Empowerment of Junior High School Digital School Teachers in Kartasura on Making E-Modules

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Abstract: The use of unlimited computing power and data makes everything borderless and digital technology towards the era of reform 5.0. The purpose of the study was to find out how teacher empowerment at SMP Muhammadiyah Al-Kautsar Kartasura Special Program is in making E-modules for digital classes. This type of research is qualitative-descriptive. Research methods with documentation, interviews, and documentation. Data analysis with The results showed that the empowerment of teachers in the creation and development of E-modules carried out by SMP Muhammadiyah Al-Kautsar Kartasura Special Program is by providing workshops on making E-modules and using the Flip PDF Professional Application and forming a special team for ICT assisted by the curriculum section at school in coordinating the obstacles that occur in learning using E-modules for digital classes and ICT becomes an additional subject in digital classes. Efforts to empower teachers themselves are by holding discussions between subject-associated friends often held by teachers in filling out plotting, and creativity for the creation and development of E-modules so that the continuity of material from classes VII, VIII, IX.

Keywords: Digital Classroom, E-Modules, Teacher Empowerment

A. Introduction

The independent learning curriculum is now used by most educational units at all levels. One of the differentiations between the independent curriculum and the previous curriculum is the making of teaching modules or what is known as lesson plans (Learning Implementation Plans). The point of view of the independent curriculum teaching module is the existence of a Pancasila student profile which is designed to suit the needs of students, teachers, and schools (Maulinda, 2022). The 21st-century learning model also emphasizes students form their skills independently. Teachers can use the 21st-century learning model in implementing an independent curriculum for learning at school. Education in this era also demands knowledge and technology in the development of students who will become human resources in the future (Amalia, 2022).

Modernization and technological advances today cause many innovations that can be applied in the learning process, one of which is the use of electronic media in learning modules, known as e-modules (Purba et al., 2021); (Rohibni et al., 2022); (Roisatin et al., 2021). Digital learning resources in the form of e-modules can be studied more dynamically using various IT-based devices, as well as obtaining a practical learning experience because the content is following the times and 21st-century competencies that require students to have critical thinking skills (Anggaira & Sari, 2023), and solve problems (Nuryanto, 2021), creative and innovative (Purba et al., 2021), collaborative and communicative (Sutama et al., 2021; Fajar, A., et al., 2022). E-modules adapt the components that exist in printed (conventional) modules. The difference is only seen in terms of physical presentation. E-modules can be used as an alternative learning media that is efficient, effective, and interactive (Aprileny Hutahaean et al., 2019; Anggaira, A. S., & Sari, Y. A. (2023). One application for making e-modules that is currently in demand is the flip-book application. The use of the flip-book application will increase the teacher's knowledge about learning media applications that can be applied in the classroom (Wawan et al., 2022); (Mardiyah & Hanif, 2021). The development of e-modules and learning media is very much needed because its use is very helpful for educators in the classroom learning process and can help students in the learning process independently, understand the material, and can increase learning outcomes and interest in learning from students (Ali, 2022);(Islami et al., 2021).

Professional teachers are the core of implementing learning in the classroom today and are required to be able to use and utilize the development of information and communication technology in the learning process. The types of ICT-based learning resources and media that can be utilized by elementary school teachers in the learning process include (1). Computer (2). LCD (3). Internet (4). Learning CD, (5) e-mail (6) . PowerPoint presentation (7) Multimedia (Rizky, 2022). The learning process using media is very important to increase interest and understanding of the material (Sari et al., 2022). The fundamental thing is the development of Augmented Reality-based learning media. The need for ICT literacy empowerment for teachers to be able to use ICT-based learning media (Rini, 2022). Teacher empowerment can be done by participating in socialization, training, upgrading, seminars, and workshops on ICT. (Astini, 2019). Teachers are key in learning, therefore they must follow the learning trends that are relevant to current conditions, namely 21st-century learning. To develop 21st-century learning based on independent learning, teachers must implement student-centered learning. The learning tools developed must have the principles of efficiency, effectiveness, and learner-oriented. This is done by considering the readiness, interest, and learning needs of students in the classroom so that they can maximally achieve learning objectives and national education goals (Ahmal et al., 2020).

Improving the quality of education can be done through enriching and strengthening pedagogical, personality, social, and professional competencies by using empowerment strategies. This inspires teachers to empower themselves continuously through self-taught and independent efforts and active participation in

various educational and teaching activities (Widodo & Sriyono Program Studi Bimbingan Konseling Fakultas Ilmu Pendidikan dan Pengetahuan Sosial, 2020). Education and training are important elements in development, especially the development of Human Resources (HR). Training can also be interpreted as a method that is carried out systematically to change the systems and attitudes of Human Resources (HR) (Ramadhani P & et alll, 2021). The role of Teacher Working Groups and Subject Teacher Deliberations needs to be maximized and efforts to empower them continue to create a collaboration that is oriented towards teacher self-development. The Continuous Professional Improvement Program and lesson study are also optimized with the support of e-literacy as a means for teachers to expand their knowledge and insights so that they can create various learning innovations (Royani, 2020).

In practice, the implementation of an independent learning curriculum requires teachers with qualified, trained, professional human resources, and good motivators. Such is the importance of the teacher factor, that quality education systems and practices in almost all nations in the world always develop policies that encourage the improvement of competent and professional teachers. Competence is a combination of knowledge, skills, values, and attitudes that are reflected in habits of thought and action (Republik Indonesia, 2005).

B. Methods

This research uses a descriptive qualitative approach, meaning that the data collected is not in the form of numbers, but the data comes from interview scripts, field notes, personal documents, memo notes, and other official documents. So that the purpose of this qualitative research is to describe the empirical reality behind the phenomenon in depth, detail, and thoroughly (Sutama, 2019). Therefore, the use of a qualitative approach in this study is to match the empirical reality of teacher empowerment in making e-modules. In presenting the results of this study will use descriptive methods. According to Arikunto in the research procedure for a practical approach (Suharsimi Arikunto, 2009) the descriptive method is a research method intended to collect information about the status of existing symptoms, namely the state of symptoms according to what it is at the time the research is conducted. Later in this study, researchers will record all events related to teacher empowerment in making e-modules at Muhammadiyah Junior High School Al-Kautsar Kartasura Special Program Data collection is carried out directly at the location of Muhammadiyah Junior High School Al-Kautsar Kartasura Special Program. Data collection methods were carried out through interviews, documentation studies, and direct observation in the field both during the learning process and activities. Data triangulation was carried out on various data sources in the field.

Qualitative data analysis techniques according to Creswell (2015) provide raw data in the form of transcripts, field notes, and researchers' views, organize and store data to be analyzed, read all data, do coding, compile themes and data descriptions, construct between themes, interpret and give meaning to the themes that have been compiled. The steps of qualitative data analysis, according to Creswell 2014, are

organizing and preparing data for analysis, Read or Look at All the Data, Start Coding All Tea Data, Using Coding Process to Generate Descriptions, Interrelating themes, and Interpreting the Meaning of Theme. Validity o obtain accurate data, it uses a validity test which aims to determine that the observed research is following reality. The technique for testing validity uses triangulation techniques. Sugiyono (2020: 369) states that checking data from various sources is done in various ways and times to get credibility testing. According to Sugiyono (2020), triangulation is interpreted as checking from multiple sources at various points in time and in diverse ways.

C. Results and Discussion

In this section, the researcher would like to explain the findings presented to reflect the structure of the research questions as listed in chapter one, namely: teachers' empowerment in using computing in learning approaches, teaching methods, and teacher-student interactions in the era of industrial revolution 5.0, teachers' understanding and skills in computing in the context of industrial revolution 5.0. the impact of teachers' use of computing on students' learning outcomes, engagement, and comprehension of computing ideas during the industrial revolution 5.0, and creating and implementing computing as a component of education in the post-industrial Age 5.0.

The results showed that teacher empowerment in conducting computer-based learning using the internet is relevant to the results of research (Fitria et al., 2021) Website-based school digitization in developing competencies and school quality levels is a very appropriate thing to do because the website is an information technology media that is classifying as highly interactive and dynamic to add insight and also self-existence. Agree with (Nurfalah, 2019) that virtual class-based e-learning with google classroom is an internet-based service that can be utilized as an efficient, effective, and interactive learning media to support technology-based learning. The results of the study differ from the opinion (Dan & Pelajar, 2019) that the integration and implementation of ICT into the teaching and learning process of Islamic education in the cottage provides new opportunities and alternatives for the institution, teachers, and students use new technology-based learning styles and ensure more effective learning. Supported by the flow of the theoretical framework as follows:
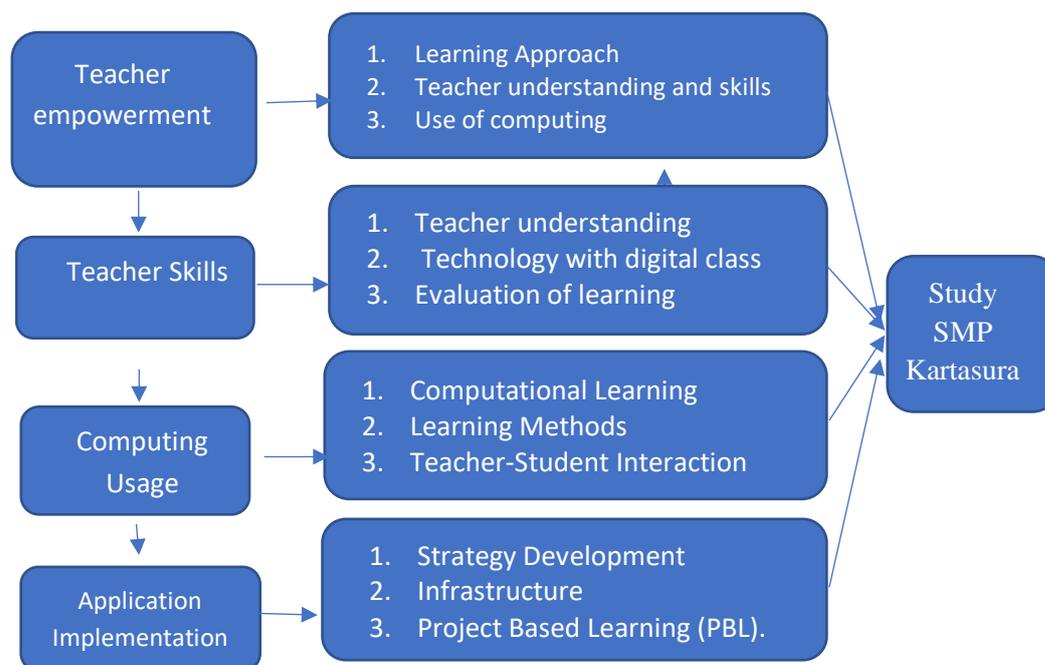
Figure 1 Theoretical framework of teacher empowerment
in implementing the application

Teachers can use laptops/computers to implement application development at the theoretical stages of teacher empowerment. Teacher empowerment necessitates a learning and comprehension method for teachers. Teachers' technology abilities are enhanced by digital classes and learning evaluation. Learning methods and instructor engagement with pupils are required when using computers. Furthermore, developing apps necessitates the establishment of a strategy, infrastructure, and Project Based Learning (PBL).

The findings revealed that teacher empowerment Teaching methods using PDF flip applications, Web, E-Modules LMS teaching materials, Website, Google classroom are relevant to the results of the research (Hafid & Barnoto, 2022) and (Ismaniati & Iskhamdhanah, 2023) that the digital classroom learning management system based on Google workspace for education at SMP Negeri 1 Kedungpring is complete and in accordance with the good curriculum structure established by the government. The findings of this study are backed by research (Astini, 2019) indicating that the following categories of ICT-based learning materials and media can be used by primary school teachers in the learning process: (1). (2) Computer. LCD (3). (4) Internet. A learning CD, (5) e-mails, and (6) letters. (7) Powerpoint slideshow Multimedia. The learning process using media is very important to increase interest and understanding of the material. Accordance by research (Assidiqi & Sumarni, 2020) that of the digital platforms that can support online learning, there are four digital platforms that are often used, namely WhatsApp groups, google facilities (google classroom, google form, google meet), and zoom cloud meetings. And in

research (Hanifah Salsabila et al., n.d.) that learning media technologies that are widely used in Indonesia are YouTube, Edmodo, and Zoom. In contrast to research (Apriliani et al., 2021) that using LMS Schoology to increase effectiveness in the learning process is the teacher's ability to innovate in designing, and concocting materials, learning methods, and what applications are in accordance with these materials and methods. Using a varied learning model so that there is no boredom in the learning process.

The findings indicated that empowering teachers through discussions and workshops is relevant to research (Syafryadin et al., 2020) that digital training can be an advanced way of developing education, improving teacher professionalism, innovating teachers' knowledge and skills for using digital learning, and improving the quality of learning outcomes. According to (Marmoah et al., 2023), improving digital literacy through a sustainable form of literacy programs that have previously been running must be supported by increasing teacher competency to promote professionalism by engaging in various training or technical guidance. This differs from the perspective of (McCarthy et al., 2019), who believe that professional development should still be supported by individual coaching to increase teachers' technical pedagogical competence. In addition, teachers also have the opportunity to collaborate in professional learning communities to implement, support and improve learning.

The Digital Class at SMP Muhammadiyah Al-Kautsar Kartasura Special Program has been running for 3 semesters, the evaluation results from 2 semesters using the 2013 curriculum that has been running are not optimal, so in the 3rd semester the independent curriculum is scheduled for an ICT class that is coordinated and guided by staff for class development. All students are required to use laptops in their learning activities. Teaching teachers are required to understand and be able to use laptops, be capable and skilled in digital learning, understand digital technology, be able to make E-Modules including the development of the subject material they teach, and be able to use the Flip PDF Professional application. subject matter they teach, and can use the Flip PDF Professional app. Supported with flip PDF Professional application:

Figure 2 Flip Books

The support of the teachers' creativity, because the average age is still young and technologically proficient, is very supportive of the holding of digital classes at SMP Muhammadiyah Al-Kautsar Kartasura Special Program. Digital classes can be

used as a solution to overcome various problems faced by teachers in the learning process so that learning can be more flexible and not bound by time and place. Teacher competence in mastering ICT is still very limited, so it is necessary to design digital class training for teachers and lecturers. This training aims to introduce and train teachers and lecturers in using virtual class learning or digital class in the learning process (Yakin, 2019).

Electronic modules (E-Modules) are modules that are developed under current technological developments. Interactive flipbook-based e-modules developed using the Flip PDF Professional application can help teachers in the learning process and increase student interest (Hamid & Alberida, 2021)(Simaremare & Thesalonika, 2022). The developed interactive module includes video, image, graphic, sound, animation and simulation elements that support to achieve maximum learning and can foster critical thinking skills (Thahir et al., 2022). Learning media in the form of e-modules is fully supported by Government Regulation No. 19 Article 19 (1) of 2005 concerning National Education Standards which states that learning in schools is carried out interactively, inspiring, fun, challenging, and motivating students to actively participate. There are several stages in making E-modules: the needs analysis phase must be done before designing the media. Activities in this phase are to determine and define the needs of learners. Educators should develop material for the needs of the module, the defining stages include: selecting theories, determining topics, conceptualizing, text readability, and images/illustrations that are following the KD. (Supriadi et al., 2019).

Guidelines for the preparation and development of E-modules have been determined by the school, among others; plotting (planning the number) of E-modules based on the education calendar, Module preparation is made for each chapter, each chapter consists of a minimum of 16 pages (8 sheets, including the cover), A4 size with Narrow Margin, Font used: Tahoma, Size 18, E-module Structure; Chapter Cover, which contains chapters and learning objectives, Table of Contents, Materials, Activities/Student Worksheets, Learning video links (teacher learning videos/explaining material/supporting videos/references/other videos), End of chapter exercises (google Form, Flip PDF quiz/quiziz, etc.)(Ulya, 2021), Enrichment questions (HOTS type) 2-3 questions, Including supporting and interesting images or illustrations, paying attention to the colors used, especially the relationship with the readability of the writing, the E-module is stored in 2 files, namely the project (.flb) and the fli book application (.exe), the form of the module that must be collected; finished file / FlipBook application(.exe), Ms.Word file. E-module guidelines can be used optimally to produce e-modules as online-based learning applications that can be disseminated through various aspects of material, appearance, more attractive design, and a combination of learning strategies used. The utilization of e-module guidelines should be supported by theoretical studies and sources that are relevant to the material (Kuncahyono & Aini, 2020).

The workshop was held as initial training in the development of teacher computing in making E-modules held at the beginning of the semester of the school year. The workshop was supported and facilitated by the school to empower teachers

in making and developing E-modules. This workshop activity is constrained by the difficulty of finding presenters because there are not many schools with digital classes that use E-modules around Sukoharjo and Solo. E-modules can transfer the role and function of content in teaching and learning (Simaremare & Thesalonika, 2022), and it can to be flexible (Rufii, 2023). The real benefit is that students have easier access to study guides and are motivated to learn better. The use of e-modules in learning will make it easier for teachers to deliver teaching materials to students, students can read anytime and anywhere using the help of applications or the web (Erviyenni et al., 2018).

The E-module Preparation Guidelines that have been determined become a reference for subject teachers to hold regular discussions between subject colleagues, both VII, VIII, and IX grade teachers to develop E-Modules in the subjects they teach freely according to their creativity in making E-modules as interesting as possible, the continuity and integration of E-module material is the main material to be discussed. ICT staff are tasked with monitoring and assisting with difficulties in the field related to digitization in learning activities. The flexibility of a teacher is to be dynamic in the learning process, both in determining strategies, models, methods, and media used in learning. In facing the changes that occur, teachers should upgrade their knowledge regarding policies, or the order of life (Moh abdul fattah, 2023).

Komputasi oleh guru terhadap hasil belajar siswa di Era Revolusi Industri 5.0 dengan diskusi, workshop, hasil belajar sebelum dan sesudah adanya komputasi Hasil luaran d(Suyono et al., 2021). ari pelatihan berhasil meningkatkan pemahaman guru terkait berpikir secara komputasi dan meningkatkan motivasi partisipasi siswa dalam perlombaan nasional berpikir secara komputasi Hasilnya dari platform digital yang dapat mendukung pembelajaran daring terdapat empat platform digital yang sering digunakan yaitu whatsapp group, fasilitas google (google classroom, google form, google meet), dan zoom cloud meeting.

D. Conclusion

Teacher empowerment programs based on research results, developing computing towards the era of the industrial revolution 5.0, a) Learning Approaches with computer-based learning using the internet, b) Teaching Methods with professional PDF flip applications are applications for E-Modules, E-Modules LMS teaching materials are used for learning and evaluation, Website is a web address for finding school information using a computer, Google classroom is an application used for learning through computing on the internet.

Teachers' understanding and skills in computing and related technology in the context of the industrial revolution 5.0, including a) teacher understanding with discussions conducted by several teachers to solve learning problems, workshops are teacher training to develop competencies in information and technology, b) Technology with digital classrooms is used for learning each student using a computer, c) Evaluation of learning in the era of the industrial revolution 5.0 with the collaboration of computing experts, motivating, supervising program implementation and supervising teachers.

The characteristics of the independent learning curriculum that focus on essential material and flexible learning provide flexibility for educators to create quality learning that suits the needs and learning environment of students. The digital classroom that uses E-modules in its learning is one of the educators' innovations in implementing the independent learning curriculum. Making E-modules as learning materials is inseparable from the creativity of educators, this is the basis for continuing to carry out self-development both from the educator himself and the agency that oversees him.

Empowerment of human resources for the provision of digital classes at SMP Muhammadiyah Al-Kautsar Kartasura Special Program gets support from the school in the form of providing training workshops in making E-modules, workshops on the use of Flip PDF Professional applications that support the making of E-modules, and evaluations that continue to be carried out by the school so that a special team for ICT is formed assisted by the curriculum section at school in coordinating obstacles that occur in learning using digital class E-modules and ICT becomes an additional subject in digital classes.

Discussions between subject colleagues are often held by teachers in filling out plotting, and being creative for the creation and development of E-modules so that the continuity of material from classes VII, VIII, IX. This is a self-empowerment activity carried out by subject teachers at SMP Muhammadiyah Al-Kautsar Kartasura Special Program.

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