THE EFFECTIVENESS OF DIFFERENTIATED LEARNING IN MULTIMEDIA-BASED PANCASILA EDUCATION: A QUALITATIVE STUDY ON TEACHERS OF MUHAMMADIYAH 10 SURABAYA HIGH SCHOOL

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INFO ARTIKEL	ABSTRAK

Abstrak: Pendidikan Pancasila memegang peran penting dalam membentuk karakter dan nilai kebangsaan siswa, namun implementasinya masih menghadapi tantangan metode konvensional seperti ceramah satu arah yang kurang melibatkan partisipasi aktif. Penelitian ini bertujuan mengeksplorasi pengalaman guru dalam menerapkan pembelajaran berdiferensiasi berbasis multimedia di SMA Muhammadiyah 10 Surabaya, serta tantangan dan strategi penyelesaiannya. Metode kualitatif deskriptif dengan pendekatan studi kasus digunakan, melibatkan wawancara, observasi, dan analisis dokumen terhadap kepala sekolah, wakil kepala sekolah, guru, dan siswa. Hasil menunjukkan guru merancang modul ajar berbasis multimedia (presentasi PowerPoint, video) sesuai gaya belajar siswa, diintegrasikan dengan diferensiasi konten, proses, dan produk. Multimedia terbukti meningkatkan keterlibatan siswa, sejalan dengan teori Mayer (kognitif multimedia) dan Tomlinson (diferensiasi). Namun, tantangan utama berupa keterbatasan fasilitas (proyektor, internet tidak stabil) dan kompetensi guru beradaptasi teknologi menjadi penghambat. Penerapan pembelajaran berdiferensiasi berbasis multimedia guru Pendidikan Pancasila di SMA Muhammadiyah 10 Surabaya telah disusun secara terstruktur, mengakomodasi berbagai gaya belajar siswa melalui penggunaan multimedia. Pembelajaran ini tidak hanya efektif dan sesuai kurikulum merdeka serta kebijakan pemerintah, tetapi juga mendapat respons positif siswa karena mampu meningkatkan keterlibatan, motivasi serta mendorong kreativitas dan berpikir kritis walaupun masih menghadapi tantangan teknis.

Abstract: Pancasila education plays an important role in shaping students' character and national values, but its implementation still faces challenges from conventional methods such as one-way teachers that do not involve active participation. This study aims to explore the teachers' experience in implementing multimedia-based differentiated learning at SMA Muhammadiyah 10 Surabaya, as well as the challenges and strategies to solve them. A descriptive qualitative method with a case study approach was used, involving interviews, observations, and document analysis of principals, vice principals, teachers, and students. The results show that teachers design multimedia-based teaching modules (PowerPoint presentations, videos) according to students' learning styles, integrated with content differentiation, processes, and products. Multimedia has been shown to increase student engagement, in line with Mayer's theories (multimedia cognition) and Tomlinson (differentiation). However, the main challenges in the form of limited facilities (projectors, unstable internet) and teachers' competence in technology adaptation are obstacles. The application of multimedia-based differentiated learning for Pancasila Education teachers at SMA Muhammadiyah 10 Surabaya has been structured to accommodate various learning styles of students using multimedia. This learning is not only effective and in accordance with the independent curriculum and government policies but also receives a positive response from students because it is able to increase involvement, motivation and encourage creativity and critical thinking even though they still face technical challenges.

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A. BACKGROUND

Education has a role in shaping the character and intelligence of the nation's next generation. In education in Indonesia itself, Pancasila Education is one of the subjects that has a strategic role to build strong national awareness and moral values among students (Ruwaidah et al., 2024). However, in the form of its implementation, the Pancasila Education

teaching method still faces various challenges, especially in the effectiveness of delivering material to students. So far, Pancasila Education learning has been delivered by a one-way teacher method, where teachers only deliver material verbally without any innovative approaches involving student participation (Hermayanti et al., 2023). As a result, the appeal of learning is low, and students are less engaged in understanding the material being taught. This conventional learning approach still dominates due to the limitations of teachers' competence in designing more dynamic learning methods and the lack of available facilities to support the use of interactive media devices (Rivalina, 2014).

Along with the development of digital technology, the use of multimedia in education has begun to become an alternative solution that is widely applied in various subjects, including in Pancasila Education lessons. Multimedia provides flexibility for teachers to deliver material in a more interactive, visual, and contextual manner, so that these students can more easily understand concepts related to national ideology and values. The use of multimedia can increase student engagement in the learning process because the material is presented in an engaging way through a combination of text, images, animations, and videos (Muljo et al., 2024). The use of multimedia in learning can provide convenience and meet the learning needs of students in the learning process (Rofiq et al., 2019). However, the effectiveness of the use of multimedia in Pancasila Education learning does not only depend on the existence of multimedia technology, but also how teachers manage and adapt the existing technology into learning strategies that suit the needs of their students.

In differentiated learning, teachers also have additional challenges in ensuring that the use of multimedia can reach the diversity of character and learning interests of students (Susiloningtyas et al., 2024). Differentiated learning aims to accommodate differences in students' learning styles and interests so that they have a meaningful learning experience (Azizah et al., 2023). This model requires teachers to understand the characteristics of their students well to be able to adjust learning strategies that suit their respective learning needs. In the differentiated learning process, the use of multimedia is important because it provides flexibility for students to learn according to their learning style, either through text,

audio, visual or physical (Gymnastiar, 2024). The success of the implementation of the multimedia-based learning process does not only depend on the application of technology, but also on teachers in using it effectively according to the principle of differentiated learning (Wafa et al., 2024).

Cognitive Theory of Multimedia Learning presented (Mayer, 2002), which explains that the use of multimedia that combines text, image, and sound elements can realize the student learning process, especially when the information received is presented simultaneously through various sensory channels. In this differentiated learning, it means that teachers can adapt the material to meet different learning styles, by giving students access to learning using various forms of media, both visual, audio and kinesthetic according to their needs and preferences (Trisna et al., 2024). In line with these theories and opinions, research by (Rehi et al., 2021) which shows that the application of multimedia in PPKn learning at SMK Negeri Sikka Regency has proven to be effective to increase the participation of students, contributing to the success of more interactive and interesting learning through multimedia applied in learning.

However, the reality in the field shows that not all teachers have adequate self-readiness and skills in integrating multimedia in differentiated learning (Ayunda et al., 2024). Usually, teachers face obstacles in terms of multimedia-based learning design, where they have difficulty developing materials that are interactive and in accordance with various student needs and technology integration. In addition, the limitations of technological facilities in schools are also one of the significant inhibiting factors in the application of this method. Not all classrooms are equipped with devices that support optimal use of multimedia, so teachers often must look for alternatives in implementing this strategy. Another challenge is limited access to training that can increase the competence of teachers in using multimedia effectively (Aprianto & Wahyudi, 2023). Although various training is organized by various educational institutions and the government.

In addition to technical obstacles, other factors that also affect the effectiveness of multimedia implementation in differentiated learning are mental readiness and the professionalism of the teachers themselves. Some teachers still tend to be more comfortable using conventional methods than

adopting new technology (Dariyadi et al., 2024; Musbaing, 2024). In differentiated learning, (Tomlinson & Strickland, 2005), which provides direction for teachers or teachers to be able to adjust to the content, processes, and learning products to meet the needs of students based on their learning preferences. This research is also supported by research by (Agustiana et al., 2023) Multimedia-based learning strongly supports differentiation in processes and products, where students can receive material in a variety of formats according to their interests. So that there is a need for systematic efforts in providing training to teachers so that they have better skills and confidence in integrating multimedia in learning (T. E. Siregar & Konten, 2024). In addition, there is still a need for support from schools and education policy makers in providing adequate facilities and policies that encourage the use of the latest technology (Lahagu et al., 2024).

This research offers a significant form of novelty compared to previous research. Research conducted by (Rehi et al., 2021) which only focuses on the application of multimedia as a tool in PPKn learning to increase student motivation and interaction but does not integrate the use of multimedia in differentiated learning. Meanwhile, the research conducted by (Agustiana et al., 2023) related to differentiated learning in PPKn, but has not studied how to use multimedia as a tool to be able to support differentiation in the learning process. This research makes a more recent contribution by connecting multimedia theory by Mayer which combines various sensory channels in providing learning materials to students, with the differentiation theory by Tomlinson which meets their learning needs according to their respective preferences and explores the challenges of implementing multimedia in differentiated learning. This study aims to explore how teachers' experiences in implementing multimedia-based learning differentiated Pancasila Education at SMA Muhammadiyah 10 Surabaya. Based on the identification of the problems presented, this research is expected to contribute to the development of more effective learning methods in Pancasila Education, especially with multimedia-based differentiated learning.

B. RESEARCH METHODS

The research uses a qualitative approach in a descriptive manner with a case study method (Sugiyono, 2021) to explore the teacher's experience in designing and implementing multimedia based on differentiated learning in Pancasila Education at SMA Muhammadiyah 10 Surabaya. The qualitative approach was chosen to understand the context, process, and challenges in technology-based differentiated learning. Case studies allow analysis of this phenomenon in a specific context: differentiated multimedia-based learning. The research subjects consisted of one principal, one deputy principal in the field of infrastructure, two Pancasila Education teachers, and two students who participated in Pancasila Education learning. Meanwhile, teachers were chosen because of their direct involvement in designing and implementing the Pancasila Education learning process in a differentiated manner by utilizing multimedia devices. The sampling technique used by convenience sampling, respondents were selected based on their ease of access and direct involvement in the relevant.

Data collection in this study was carried out through three main techniques: interviews, observations, documentation, and document analysis (Sugiyono, 2021). Interviews were used to explore experiences in implementing differentiated multimedia learning. The interview guidelines are prepared semi-structured with a focus on several key themes such as learning design, challenges faced in multimedia implementation, and existing support and obstacles in implementing differentiated methods. Interviews with students were conducted to get their views on the use of multimedia in the learning process of Pancasila Education and how this can affect their learning experience. Observations made during the learning process to be able to see how teachers use multimedia and how the interaction between students and the integration of the implemented technology is carried out. Document analysis carried out to explore information about the reference for the implementation of teacher learning in accordance with the learning tools.

The data obtained from these interviews and observations were analyzed using the data analysis approach developed by Miles and Huberman (Hartono, 2018), which includes four stages, including: data collection, data reduction, data presentation, and conclusion drawn. Information obtained from interviews, observations, and document analysis are carefully recorded. In the data

reduction stage, the collected data is selected and will be grouped based on the main themes relevant to the research objectives, both teacher experience, challenges in the use of multimedia, supporting factors or inhibiting factors in the application of differentiated learning. The presentation of data is carried out by summarizing interviews and observations in the form of descriptive narratives, tables, or images showing patterns that emerge from the data. Conclusions are drawn by analyzing patterns that have been found in the data and verifying the results through data triangulation, which compares information obtained from various sources, both and techniques. To ensure the validity of the data, the researcher uses triangulation (Sugiyono, 2021), Comparing data from various sources and methods to ensure consistency and accuracy of findings. Subject triangulation involves various informants who have different perspectives, such as school principals, deputy principals for curriculum and infrastructure, teachers, and students. In addition, triangulation methods by interview data, observation, and documentation.

C. RESULTS AND DISCUSSION

1. Multimedia-Based Differentiated Learning Design Designed by Pancasila Education Teachers

Pancasila Education teachers at this school have designed multimedia-based differentiated learning by adjusting materials, processes, and assessments according to the needs and characteristics of their students. The learning design refers to the teaching module developed by the teacher and according to the applicable curriculum, namely using the Independent Curriculum. In the form of a teaching module, the teacher inserts a multimedia component to be used in the implementation of class XII IIS 2 Female's learning, as shown in Figure 1.

Figure 1. The Multimedia in the Teaching Module

The teaching module of Pancasila Education teachers includes various learning strategies that integrate multimedia, such as the use of PowerPoint presentations and interactive learning videos through the YouTube platform. In this teaching module scenario, teachers adjust the delivery of materials and assignment models based on students' learning needs and interests, either through text, images, or hands-on practice, so that they can accommodate the diversity of their learning styles. The previously prepared teaching modules are adjusted to learning style data from schools, one of which is in grade XII IIS 2 Female in Figure 2.
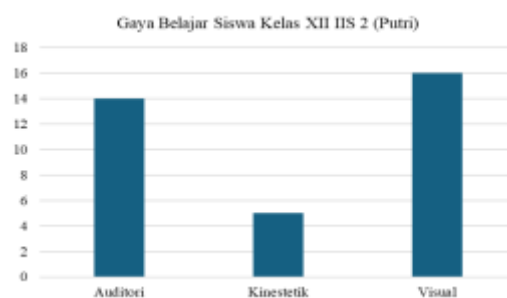

Figure 2. Dominant Visual Learning Style

Based on data from the school, which shows that students in grade XII IIS 2 Female are dominated by students with learning preferences that tend to visual learning styles (someone who relies on vision as a recipient of information and knowledge (Bire et al., 2016)). The learning design prepared by the Pancasila Education Teacher which applies multimedia with PowerPoint presentations and the use of YouTube learning videos is in line with the learning preferences of students who use their sense of sight more. Even so, the teacher is also not solely inclined to use visual multimedia but is also balanced with teachers for auditory students and assignments to make works to trigger students who tend to be kinesthetic to be creative in their learning process. Based on interviews with Pancasila Education teachers (I.D.L) who explained that *"When I compile a teaching module, I usually look at the assessment data from the school first so later I just have to improvise during the actual learning implementation process in the classroom. But when compiling, I don't lean towards one learning style, optimizing various learning styles, it can be in assignments or in other materials."*

In line with the analysis of the documents and interview data, Pancasila Education teachers have optimized the best application of the use of multimedia in the form of presentations and videos. The teacher also balances the different preferences of his students in the process of designing teaching modules. This is in line with the principles of the differentiated learning aspect, namely there is differentiation in content, products, and processes. Content differentiation (the content of what material the teacher will teach to students, can be textual such as the chronology of the formation of Pancasila or contextual such as a documentary video of the history of the formulation of Pancasila). Process differentiation (a process that refers to students in understanding what they are learning, be it through teachers, observing videos, or doing work). Product differentiation (results that students work on after studying the subject matter, in the form of notes, reports, posters or mading works). The differentiated approach indirectly provides flexibility to students in expressing their desire to learn what and how, express their creativity, and be able to develop critical thinking skills (Kurniawati & Sapriati, 2024).

This is in line with the interview data of the principal represented by the deputy principal for curriculum (A.N.S.M), that *"The implementation of the current independent curriculum allows teachers to have flexibility in choosing innovative learning methods."* This opinion is strengthened by policies regulated by the Ministry of Education, Culture, Research, and Technology in (Peraturan Menteri Pendidikan, Kebudayaan, Riset, dan Teknologi Nomor 16 Tahun 2022 tentang Standar Proses Pada Pendidikan Anak Usia Dini, Jenjang Pendidikan Dasar, dan Jenjang Pendidikan Menengah, 2022) which states that *"In Chapter II about Learning Planning in the section on Ways to Achieve Learning Goals in Article 7, Number 2 which is related to learning strategies designed to provide a quality learning experience, it must be implemented by, namely in point d. Using information and communication technology devices."* The purpose of the regulation is to make learning planning that is expected to be able to achieve learning goals by using effective strategies, namely the use of information and communication

technology. From here, a teacher can apply information and communication technology that is integrated with learning materials and student needs and is arranged systematically and effectively to support better.

The multimedia-based differentiated learning design of Pancasila Education was designed by the teacher of Pancasila Education at SMA Muhammadiyah 10 Surabaya which shows its highly structured efforts to be able to accommodate various learning styles of students. Teachers here have made use of various multimedia components, such as PowerPoint presentations and interactive videos through the YouTube platform, to convey the material in an engaging and easy-to-understand way for their students, especially those with visual learning preferences. In addition, this approach also involves delivering material in teachers for auditory students and assignments that encourage creativity for students who have kinesthetic preferences, to ensure the active involvement of all students in the learning process. This design not only facilitates a diversity of learning styles but also provides flexibility for students to express themselves through various types of learning products, such as written articles, posters, 3D Wall Magazine or group presentations, which are in line with the principles of differentiated learning. With the support of government policies and the support of the Independent Curriculum model which provides freedom for teachers to choose innovative methods, as well as the use of more integrated information technology, this learning design has succeeded in creating a learning atmosphere that is more efficient and effective for the needs of the students. This underscores the commitment of teachers in creating learning that not only follows the applicable curriculum standards and policies but also optimizes the potential of their students.

2. The Use of Multimedia in the Differentiated Learning Process and Challenges Faced by Pancasila Education Teachers

Pancasila Education teachers in this school have implemented the use of multimedia based on differentiated learning well and effectively. This is in line with the observations made by researchers in class XII IIS 2 Female where Pancasila Education

(I.D.L) teachers use multimedia, one of which is by using a projector to be able to display learning materials that will be delivered to their students in the classroom as shown in Figure 3.

Figure 3. (I.D.L) Use Projector Devices

This Pancasila Education teacher uses a projector device to display PowerPoint presentation materials, which strongly supports students with visual learning styles. It can be seen how the combination of text and images presented in the presentation of learning materials can enrich the understanding of the material, making the lesson more interesting and easier to digest by the students of the class who tend to rely on visuals. The teacher process is also delivered with complete and diverse explanations, providing space for students with auditory learning styles to absorb information verbally. But at some other time, the teacher also conducts an evaluation process on students which is not only to measure student understanding in the learning process, but also to realize thinking skills using digital quizzes with the Quizizz platform that can be accessed by students and teachers through their respective devices such as PCs and personal cell phones. Students will usually be directed by the teacher to use their cell phone devices to do quizzes provided as a means of games and learning evaluations. Cell phones became a device that almost all students accessed, technology-based learning became more flexible as shown in Figure 4.

Figure 4. Students Work on Digital Assignments

Based on an interview with a Pancasila Education teacher (I.D.L) " *I know that students now can't get away with their cell phones, so that they are not addicted to technology and direct it to more useful things, so I invite them to play and learn by doing digital quizzes or also making works with their cell phone devices."* From here, teachers can utilize multimedia devices around them to support the learning process. In addition to the textual learning process, Pancasila Education teachers at this school implement the learning process contextually through the learning outcome work festival program. The SMAMX Festival has a concept to determine student learning evaluations, by carrying out festival-based exams through the title of work (*Media Ekspresi Siswa SMAMX Surabaya Gelar Festival Tengah Semester*, 2022), as shown in Figure 5.

Figure 5. Students who Display Their Work

In this SMAMX Festival activity, students are given the opportunity to create works that suit their learning style preferences and preferences, such as making digital and physical posters, three-dimensional posters, products along with reports of their work, as an activity that not only challenges their creativity but also integrates various learning styles here. This activity involves the visual aspect where students design their work, auditory where students present or convey information about their work, and for kinesthetics where students try to process their work. Students are also required to write reports of their work, which allows students with kinesthetic, visual, and auditory learning styles to all be actively involved in the process of making reports of their work. This activity is indirectly in line with the aspects of the differentiated learning process (Suprayogi & Ianah, 2022). Process differentiation (a form of activity used by students to master the content). Product differentiation (the method that students

use to demonstrate their learning process). From here, it illustrates how multimedia and differentiation approaches can be applied in real situations, creating holistic. In addition, the results of the principal's interview were represented by the deputy principal of the curriculum (A.N.S.M.) that *"Schools have provided flexibility in the learning process through the SMAMX Festival. In this festival, students are given the freedom to choose how they will complete the final work."* In this way, students not only learn about the subject matter but are also able to develop critical thinking skills and creativity (Apandi, 2018).

Experience of Pancasila Education teachers (I.D.L) that balances students' learning styles in an adaptive way, so that no student feels left behind. With a contextual and relevant approach to students' lives, she creates a more in-depth and meaningful learning experience. Experiences from other Pancasila Education teachers' other teachers (A.J.A) who teach using the inquiry method, giving students the freedom to investigate topics of interest. In addition, Project-Based Learning and Focus Group Discussion (FGD) methods are applied to provide space for students to choose how they want to learn.

However, although the implementation of multimedia has been going well in this school, there are several challenges that need to be considered, especially related to limited resources and teacher training. Based on an interview with the principal, represented by the deputy principal for curriculum (A.N.S.M) This school has provided some technology training, but there are still teachers who are not fully tech-literate. She explained that this is a problem that must be overcome immediately to improve the competence of teachers. On the other hand, more experienced teachers have played an active role in providing peer training, as shown in Figure 6.

Figure 6. Observation to Evaluate Teachers

SMA Muhammadiyah 10 Surabaya itself periodically holds observations for teachers; to evaluate their teaching methods and strengthen their ability to utilize the latest technology, usually more experienced teachers teach their colleagues in using learning technology. In addition, the school also invited experts in the field of education from the foundation and collaborated with MGMP. In addition, the Deputy Principal of Infrastructure (A.N.) confirmed that although some classrooms are still not equipped with projector devices, the school has made efforts to provide a backup of three projectors that can be borrowed by teachers who need them, as well as PC devices that can also be borrowed from the multimedia facility lending room. The available borrowing schedule record board also makes it easier to manage the use of the tool, so that the problem of tool limitations can be minimized properly. It also makes teachers know if projectors and learning PCs are being used. This school strives to provide full access for students and teachers by fulfilling learning tools. From the results of interviews with the two students of Class XII IIS 2 Females (B.U.A.) dan (N.W.), Those who admit that although the use of multimedia is quite adequate, there are still obstacles related to the availability of projectors that do not yet exist in some classes. They also mentioned that the internet connection, especially in the female' class. Pancasila Education Teacher (I.D.L) who stated that to overcome this obstacle, *"I usually borrow a spare classroom or give assignments textually, such as by dictating or taking notes (making summaries or doing LKPD). Students are also directed to use a personal internet plan to take quizzes."*

The efforts that have been made by schools, teachers, and students show significant progress in creating differentiated learning. In the future, it is hoped that there will be alternative solutions and efforts to improve infrastructure and further training for teachers. With the collaboration that continues to be improved between the school, teachers, and students, it is hoped that learning will continue to develop (Hendarsah, 2024).

3. **Students' Perception of the Integration of Differentiated Learning with the Use of Multimedia Carried out by Pancasila Education Teachers**

The perception of students towards the integration of differentiated learning with the use of multimedia in the subject of Pancasila Education at SMA Muhammadiyah 10 Surabaya shows a positive response and enthusiasm. Students feel more involved in learning where Pancasila Education teachers do not only rely on traditional teacher methods, but also utilize various forms of media, such as PowerPoint presentations, learning videos, and digital quizzes. Various student works are usually attached by teachers, in the SMAMX e-library as shown in Figure 7.

Figure 7. Means of Displaying Students' Works

Based on the results of interviews with both students (B.U.A.), A student who tends to a visual learning style. She stated, *"Images and videos that I think make the explanation from the teacher clearer and also concrete, make the material that I initially thought difficult to understand easier to understand."* This is in line with the views of other students who feel more interested and active when learning using multimedia. Opinions (N.H.) who tend to have an auditory learning style, also feel interested in the existence of multimedia because *"In my opinion, the conventional teacher method alone makes me bored faster, while the use of multimedia makes this learning more fun and easier to follow well."*

Although students feel the benefits of using multimedia, they also reveal that there are still obstacles. Nevertheless, they still appreciate teachers' efforts in overcoming these obstacles, for example by providing alternative tasks that can be done without having to rely on access to technological devices. Opinion (B.U.A.) added that *"Multimedia facilities at this school are actually adequate, even though the projectors sometimes still have to alternate with other classes because the number is limited."* It is also supported by (N.H.) explained, *"Students here are still allowed to use personal devices such as cell phones to support learning."* From this, students assessed that the multimedia-based differentiated learning applied by Pancasila Education teachers at SMA Muhammadiyah 10 Surabaya had a positive impact on their learning experience. The use of multimedia and differentiated approaches makes students feel more motivated and more interested in following the material because the learning is less monotonous and more adaptable to their various learning styles (Oka, 2022; Shihab, 2021). In addition, the flexible approach provides space for them to be able to express their creativity and critical thinking skills through the learning products they create. SMAMX Festival is a place for them to show their understanding of Pancasila values in a more applicable form. This shows that the use of multimedia, if properly integrated in differentiated learning, can create a more inclusive, and meaningful learning experience for students, which ultimately helps them in internalizing the material and applying Pancasila values.

D. FINDINGS OR DISCUSSIONS

Based on the findings of this study, the use of multimedia-based differentiated learning carried out by Pancasila Education teachers at SMA Muhammadiyah 10 Surabaya shows success in accommodating various learning styles of students, as explained by Tomlinson in his theory, differentiated learning theory. Teachers effectively apply content, process, and product differentiation in the preparation of teaching modules tailored to students' learning styles (Walling, 2006). This is in line with the cognitive theory of multimedia learning proposed by Mayer stating that the use of multimedia in learning can help students be actively engaged and more complex by optimizing visual and auditory channels that are simultaneously, which supports a better learning process (B. H. Siregar, 2024). In this study, the use of multimedia has been proven to be effective in realizing student engagement and clarifying their understanding of Pancasila values in their daily lives. Teachers also show flexibility in adjusting methods and tasks that can accommodate the diversity of students' learning styles, in accordance with the principles of the Independent Curriculum which encourages the freedom of teachers (Lailiyah & Imami, 2023).

Although the application of multimedia in differentiated learning has a positive impact, there are challenges related to limited facilities that can affect the effectiveness of learning. This is also in line with the findings in the study conducted (Agustiana et al., 2023), revealed that facility constraints, such as limited projector devices and unstable internet connections, can hinder the multimedia-based learning process. Therefore, although can provide many benefits, efforts to improve infrastructure and further training for teachers are needed (Sutiyatmi, 2024). Related to policies Minister of Education, namely the need for the use of information and communication technology that aims to achieve learning goals, so this policy needs to be balanced with the provision of adequate facilities to support the integration of technology in learning more effectively (Rehi et al., 2021). The integration of the use of information technology and differentiated learning approaches is the latest solution that can be applied by Pancasila Education teachers in carrying out the Pancasila Education learning process that is not monotonous but student-centered-learning.

In addition, the results of interviews with students showed a positive perception of the integration of multimedia in the differentiated learning process of Pancasila Education, where students felt more active and involved in learning. This confirms that the differentiated learning approach, which gives students the freedom to choose how they learn, is in line with the idea of the Independent Curriculum. Thus, the integration of multimedia in differentiated learning not only improves material comprehension but also develops students' critical thinking skills and creativity. Therefore, even though there are still some existing obstacles, the implementation of multimedia-based learning carried out at SMA Muhammadiyah 10 Surabaya can be used as a model for other schools in implementing learning that is more inclusive and relevant to the needs of students in this digital era.

E. CONCLUSIONS AND SUGGESTIONS

The application of multimedia-based differentiated learning carried out by Pancasila Education teachers at SMA Muhammadiyah 10 Surabaya has succeeded in creating an inclusive, effective, and interesting learning experience for students with various learning styles. The use of various types of media, such as PowerPoint presentations, interactive learning videos, and digital quizzes, has realized the involvement of students in the learning process and strengthened their understanding. For this reason, it is recommended that schools continue to make efforts to improve technological infrastructure, provide further training for teachers, especially Pancasila Education teachers, and ensure the provision of more adequate devices. In addition, although it has been going well, further development is needed in the integration of technology and policies that better support teaching flexibility which is expected to further maximize the potential of students in their learning process. With the improvement of facilities and collaboration between schools, teachers, and students, as well as the government, it is hoped that multimedia-based learning with a differentiated approach can continue to develop and have a positive impact on the development of students' creativity and critical thinking skills.

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