

Developing a Digital Module for Integrating Islamic and Muhammadiyah Values with Pancasila in Vocational Education: A Sadiman Method Approach

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Abstract

This research aims to produce a module that is relevant to the character of Muhammadiyah Vocational School, namely integrating Islamic and Muhammadiyah values with the Pancasila student profile. This research was a type of development research by applying the Sadiman Development Method. Analysis of the result quality of the developed module was carried out using a validation test from the material aspect and media aspect as well as a trial by respondents to the developed module. The evaluation was conducted by media professionals using a 20-item questionnaire, yielded an average score of 84, indicating a high level of appropriateness. Similarly, material experts assessed the validators using a 30-item questionnaire and found the performance to be highly appropriate, resulting in a score of 89. Based on these findings, it can be stated that the developed digital module has relevant validity values and is suitable to be used in vocational learning which can be integrated with Islamic and Muhammadiyah values. The use of this module has an impact on cultivating Islamic character and Pancasila students for Muhammadiyah Vocational School students. This distinctive character is a provision for alumni to be able to compete in the work world in today's digital era.

Keywords: e-module, independent curriculum, integrated Islamic, pancasila value, vocational education

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1. Introduction

In 2021 the Government of the Republic of Indonesia through the Ministry of Education, Culture, Research and Technology (Kemendikbudristek) carried out curriculum reform at the primary and secondary education levels. The curriculum was given the theme "Merdeka Belajar/Independent Learning" or "Kurikulum Merdeka/Independent Curriculum" (Kemendikbudristek, 2022).

Kurikulum Merdeka is designed to offer diverse intra-curricular learning opportunities, aiming for more effective content delivery to provide students with ample time for concept exploration and competency enhancement (Arung et al., 2023). Educators are granted the freedom to select from a range of teaching tools, enabling them to tailor instruction to meet the unique learning requirements and interests of their students. In addition to

freedom, the content, an important point in the independent curriculum, is the formation of a Pancasila student profile by the mandate of the law. There are at least 6 profiles of Pancasila students formulated by the Ministry of Education and Culture namely Faith, Global Diversity, Cooperative collaboration, Self-reliance, as well as Analytical and Imaginative thinking (Irawati et al., 2022; Rachmawati et al., 2022; Widyastuti, 2023).

Changes to the curriculum that have been formulated certainly have an impact on the direction of learning development because the teachers have to adjust to the direction of the curriculum as a reference for implementing education (Rohmah et al., 2023). The Government of Indonesia has initiated the *kurikulum merdeka* Policy to support Indonesia's educational vision and learning recovery (Dwiputra et al., 2023). Curriculum content that has changed requires teachers to be able to adapt both in terms of teaching competence and the development of learning content which requires them to be able to manifest the values of Pancasila student profiles which are expected to be achieved through the learning process (Irawati et al., 2022). One form of teaching material that can be a means for teachers to realize learning by the demands of the curriculum is teaching modules (Wijayanti, Jamilah, Herawati, 2022). The implementation of the *Merdeka Learning* curriculum at least increases the position of the need for modules to be improved according to the needs of the Independent Learning curriculum.

Modules are educational resources utilized for learning, encompassing subject matter, methodologies, constraints, and systematic and engaging assessment methods, all structured to attain the desired learning outcomes in alignment with objectives (Utomo

et al., 2020). E-module is an electronic-based learning media which consists of text, images, animation, graphics, and video (Suanto, 2023).

E-Module is a form of teaching device that is used by teachers to carry out learning to achieve Pancasila Student Profile and the Learning Outcomes. E-module is an elaboration of the Learning Objectives Flow and is arranged according to the phases or stages of students' development (Sumarmi et al., 2021). The characteristic of the module is to provide learning on the material directly to students in the form of the form activities or students' worksheets (Arlika et al., 2021; Rahmadhani & Efronia, 2021). The followings are characteristics of electronic-based teaching modules:

Electronic-based teaching modules at the vocational education level are used as learning media for students to be able to carry out vocational practicum (Pamungkas et al., 2021; Susilawati et al., 2022) activities by the competencies in the specific fields occupied (Karnando et al., 2021). The implementation of the independent learning curriculum at vocational education level requires teachers' capability to compile teaching modules that have integration with the profile of Pancasila students (Wijayanti et al., 2022). This profile can be implemented from the material aspect, students' activities as well as aspects of assessing the students' learning outcomes.

Various types of media that can be used in digital modules are an advantage that makes this type of module an option in the process of developing vocational learning. Using multimedia can increase students' motivation and learning activities (Adegoke, 2010). The continuity nature of the material contained in the digital module also has an impact on the students' learning outcomes at the vocational level (Herlandy & Novalia, 2019; Parlindungan et al., 2020). Based on

this explanation, the characteristics of a good digital module are such as owning learning material that is direct, student-centered, consisting of various types of learning media, and presenting repeated learning to improve students' achievement in Vocational High Schools.

The Muhammadiyah educational institution, apart from integrating the values of the Pancasila student profile, also has a special profile, namely Al Islam and Kemuhammadiyah (Ismail, 2020; Zulfarno, Mursal, 2019). Based on observations made at Muhammadiyah Vocational Schools in Pekanbaru City which consisted of three (3) schools, it was found that teachers designed no modules to integrate Pancasila and Al Islam and Kemuhammadiyah student profiles (Akso et al., 2022). The reason verbally was said by the vocational teachers that they had not received the appropriate format and did not fully understand how to compile integrative modules.

Based on this explanation, a research was needed related to the development of integrative teaching modules so that later it could become a reference for teachers in developing teaching modules. Based on this opinion, the researchers were interested in carrying out a study entitled "Developing Digital Teaching Modules Integrated with Pancasila and Al-Islam Kemuhammadiyah Student Profiles on Vocational Fundamentals Material at Muhammadiyah Vocational High School Pekanbaru City". This research was conducted in order to contribute to educational quality improvement, especially vocational learning at Vocational High School (henceforth; SMK). The results of further development will be implemented in the teaching and learning process in the classroom by information technology vocational teachers at Muhammadiyah Vocational School in Pekanbaru City. The digital mod-

ule that will be developed will later become a prototype for teachers in schools, especially at the SMK level (Mertayasa et al., 2022; Setiyani et al., 2020) in developing integrated vocational learning and by the demands of independent learning curriculum.

Module development with the spirit of integration is important to bridge the dimension of Pancasila student profile as character content in the independent curriculum with the specification of Islamic character learning which has been owned for a long time by Muhammadiyah charities through schools and universities (Rahayuningsih, 2021; Rusnaini et al., 2021). The integration between Pancasila student profiles and Al Islam and Kemuhammadiyah (henceforth; AIK) character values can produce holistic and comprehensive learning for the formation of students' character through the implementation of an independent curriculum (Irawati et al., 2022).

In addition to implementing independent learning and integrating Pancasila student profiles, the modules developed were also equipped with various learning visualization innovations that align with the development of Industrial Revolution 4.0 (Herlandy & Purwanto, 2022). The modules developed align with the characteristics of Industry 4.0 and their implications for vocational schools. The modules were developed by using the Integration of digital technologies (Engeness, 2021), focusing on interdisciplinary skills, emphasizing on lifelong learning, and adopting smart manufacturing practices (Hussin, 2018). Overall, the module development in vocational education is closely aligned with the principles and characteristics of Industry 4.0. As vocational schools adapt their curriculum to reflect the changing needs of the workforce, students are better equipped to thrive in the era of digital transformation and

contribute to the success of the industries they serve.

This visualization is the main attraction of the modules developed to make students comfortable and have the motivation to learn using these digital modules. The types of visuals displayed are in the form of hypertext media, video tutorials, and learning animations. Integrating these visual innovations into digital modules, educators can create dynamic and interactive learning experiences that capture students' attention (Samah et al., 2022), foster curiosity (Rifai et al., 2020), and enhance their overall learning outcomes (Lau & Agius, 2021). These visual enhancements do not only increase students' motivation but also promote a deeper understanding and retention of the course material.

2. Method

To achieve the objectives of the research carried out, it was necessary to describe the research design that would be applied. The research was conducted by applying the type of development research. Development research is a method used to make products and test the effectiveness of the results of these products (Sugiyono, 2017). In this research, the product developed was a digital module for vocational basics which was integrated with Pancasila student profiles and AIK scores. To achieve the intended module

development, a development design stage was needed. The design applied to this research was the Sadiman development (Sadiman, 2012). The development design adapted from the Sadiman model could be illustrated as follows.

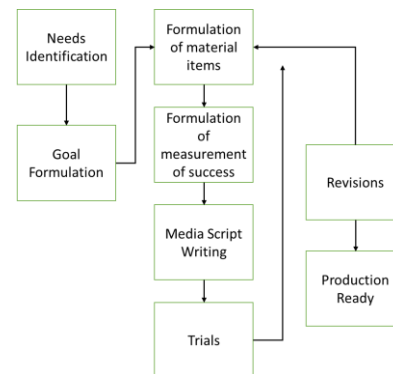


Figure 1. Sadiman's Development

The selection of the Sadiman's development method compared to other development methods was because from the details of the Sadiman development method, there were steps that match the characteristics of module development (Sari et al., 2020; Wibawa et al., 2021). These steps included developing material points and then writing media scripts that could be applied in developing digital modules (Maldini et al., 2021). Activities at each stage of Sadiman's development carried out in this study are described in the following table.

Table 1. Research Stages

| Stages | Activities |
|------------------------------------|--|
| Needs Analysis | <ul style="list-style-type: none"> Analyzing the structure of the Kurikulum Merdeka at SMK level Identifying the characteristics of Pancasila student profiles Identifying the characteristics of AIK learning at SMK. Identifying module needs according to the students' characteristics |
| Goal Formulation | Formulating learning objectives according to the curriculum. |
| Formulation of material items | <ul style="list-style-type: none"> Developing of a concept map of the basics of information technology vocational materials. Integrating the learning visualization design of Pancasila and AIK student profiles. Multimedia principle-based material design. |
| Formulation of success measurement | <ul style="list-style-type: none"> Preparing the students' activities. Preparing the practice questions and evaluation. |

| Stages | Activities |
|----------------------|--|
| Media Script Writing | <ul style="list-style-type: none"> • Preparing the rubrics for assessing questions and students' activities • Digital module layout design • Selecting the type of font and typography used • Programming the digital module • Implementation of material, visualization, and evaluation questions on digital modules |
| Trials | <ul style="list-style-type: none"> • Trial of digital modules was limited to the scope of the development team • Module validation by media experts • Module validation by Pancasila and AIK Student Profile experts • Module validation by material experts • Testing the students' responses |
| Product Revision | <ul style="list-style-type: none"> • Analysis of validation results • Revision of validation results • Revision of students' response trial results • Preparation of Progress Reports |
| Production Ready | <ul style="list-style-type: none"> • ISBN registration • Intellectual Property Rights Registration • Publication of development results in accredited national scientific journals. • Dissemination of digital modules to Muhammadiyah Vocational Schools in Pekanbaru City |

This research was conducted at several locations according to the development function carried out. The development of digital modules is carried out at the Microteaching Laboratory of FKIP (Faculty of Teacher Training and Educational Science) Muhammadiyah University of Riau. The module trial was carried out at all Muhammadiyah Vocational Schools in Pekanbaru City, namely Muhammadiyah 1 Vocational School, Muhammadiyah 2 Vocational School, and Muhammadiyah 3 Vocational School, Pekanbaru City. The consideration for choosing these schools is because all Muhammadiyah Vocational Schools in Pekanbaru City have expertise

programs in the field of information technology.

Primary and secondary data in this study were obtained through research tools or instruments. The research instrument is a set of tools that can be used to measure something, especially in this research to measure the results of the module development that has been done. Data in this study were collected using non-test instruments. These instruments included observation sheets, validation questionnaires, and test questionnaires to find out the responses of SMK students. The item details of each research instrument used could be formulated as follows.

Table 2. Research Instruments

| No | Instruments | Number of Items |
|----|---|-----------------|
| 1 | Observation Sheet | 20 |
| 2 | Media Expert Validation | 20 |
| 3 | Material Expert Validation | 20 |
| 4 | Expert Validation of Pancasila and AIK Profiles | 20 |
| 5 | Module Practicality Test by Educators | 20 |
| 6 | Module Effectiveness Test Instrument | 15 |

The data analysis used in this study was descriptive quantitative. Data that had been obtained through alpha and beta testing were analyzed using descriptive statistics.

The quantitative data in the surveys for assessing media validation, material evaluation, software design experts, and learner feedback were represented on a

Likert scale ranging from 1 to 4. The score data that had been obtained were then converted into the form of a scale of 4 which can then be interpreted and described as in Table 3.

Table 3. The Category For The Scale Feasibility

| Score Interval | Category |
|--------------------------|-------------------|
| $X > Mi + 1.5(SDi)$ | Very Feasible |
| $Mi < X < Mi + 1.5(SDi)$ | Feasible |
| $Mi - 1.5(SDi) < X < Mi$ | Not Feasible |
| $X < Mi - 1.5(SDi)$ | Very Not Feasible |

3. Result and Discussion

a. Needs Analysis

The research stages were carried out by the established research flow and process. The first stage was to carry out a needs analysis. The needs analysis activity was carried out by observing the independent curriculum documents and the learning process that took place at Muhammadiyah Vocational School in Pekanbaru City. Based on the needs analysis data, then the digital learning module was designed for the subject as the basics of visual communication design which was at

once also a basic vocational subject in the visual communication design expertise program (Bernik et al., 2022). Learning needs which were the focus on the subject of the basics of visual design could be analyzed through the formulation of learning outcomes for each of its elements (Firmansyah & Zalilludin, 2022; Madani et al., 2017). The details of the elements and learning outcomes in the structure of the visual communication design material can be described in Table 4 as follows.

Table 4. Basic Learning Elements and Achievements of Visual Communication Design

| Learning Elements | Learning Outcomes |
|---|--|
| Technopreneur profiles, business opportunities, and jobs/professions in Visual Communication Design | At the end of phase E, students can understand a job or profession in the field of Visual Communication Design, and entrepreneurship in the creative economy sector who can read market and business opportunities, build vision and passion, and carry out real project-based learning as a simulation of an entrepreneurial project. |
| Business processes for various industries in the field of Visual Communication Design | At the end of phase E, students can understand production management in the field of design as a whole in various other creative economy industries, including K3LH, creativity in the basic design creation process, and apply it to the basic elements of design and production processes in the execution of visual communication design work as a whole independently. |
| Technological developments in industry and the world of work as well as global issues in the field | At the end of phase E, students can understand the development of Visual Communication Design industrial production process starting from conventional technology to modern technology, Industry 4.0, the Internet of Things, digital technology in the industrial world, issues of global warming, climate change, aspects of |

| Learning Elements | Learning Outcomes |
|--------------------------------|--|
| of Visual Communication Design | employment, Life cycle of industrial products up to reuse, and recycling. |
| Sketches and illustrations | At the end of phase E, through creativity and critical thinking, students can explain the basic concepts of work with sketches and illustrations, prepare sketching equipment materials, manifest sketches, refine sketches, and make illustrations in the design and production process to be developed in the execution of Visual Communication Design work. |
| Typography composition | At the end of the phase E, students can understand types, functions, characters, anatomy, the scope of letters, and basic typography (hierarchy, leading, tracking, and kerning) which are commonly used in design and apply them in the design and production process in the execution of Visual Communication Design work. |
| Basic photography | At the end of phase E, students can understand the type of camera, determine the composition of the shoot and adjust the lighting, take pictures, store data, and do the final work in editing on photography and apply it with creativity and discipline in the design and production process in the execution of Visual Communication Design work. |
| Computer Graphics | At the end of phase E, students understand the operation of design software by selecting the type of software specifying bitmap and vector-based software and using it in the design and production process in the execution of Visual Communication Design work. |

b. Goal Formulation

Based on the data above, it could be formulated that there were 7 elements that become the topics of discussion during Phase E as the basic subject of visual communication design (Grade X). Phase E was used as a term for grouping competencies in the implementation of the independent curriculum, in contrast to the previous curriculum which used classes to differentiate age groups. After the elements and learning outcomes had been formulated, then based on the results of discussions with productive teachers, the elements that became samples in the development of the module in this study were determined, namely Typographical Composition. Based on the elements that had been formulated, then the learning objectives that

were used as a reference in module development could be described as follows.

1. Describing the types, functions, characters, anatomy, and scope of letters.
2. Implementing basic typography (hierarchy, leading, tracking, and kerning) commonly used in design
3. Applying the concept of typography in design
4. Implementing the production process in the work execution of Visual Communication Design.

c. Formulation of Material Items

Based on the formulation of learning objectives that had been designed, then details of the material developed in learning can be formulated (Liu et al., 2020). The formula could be described as follows.

Table 5. Formulation for Material in e-Module

| Element | Material | Dimensions of Pancasila Student Profile | AIK Dimensions |
|------------------------|---|---|--|
| | Type, function, character, anatomy, and scope of letters. | Have faith and piety to God Almighty and have a noble character | Religious attitude |
| Typography Composition | Basic typography (hierarchical, leading, tracking, and kerning) that is commonly used in design | Global Diversity | Moderate Attitude |
| | The concept of typography in design | Cooperation | Attitude to cooperate with colleagues |
| | The production process in the work execution of Visual Communication Design. | Independent Critical Reasoning Creative | Independent Attitude Smart and knowledgeable attitude |

d. Digital module layout design

After the material and scope of integration have been determined, the next step was to design the appearance of the digital module that would be developed (Setiyani et al., 2020). The module design was carried out at the storyboard, layout design, material, learning, and visualization stages (Menrisal et al., 2019; Rahmadhani & Efronia, 2021). The cover display that had been designed in this study can be displayed as follows.

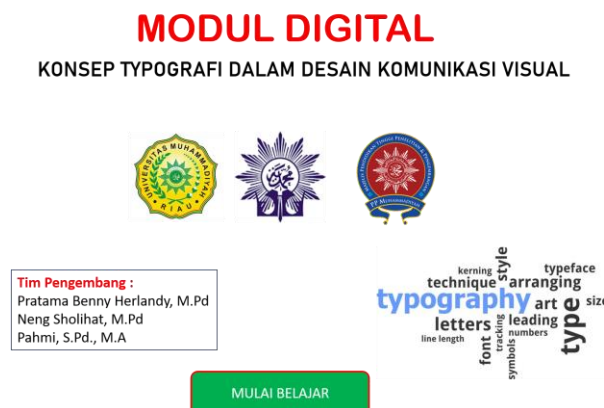


Figure 2. Cover design of Digital Module

The design of module display was carried out using the Figma application. The appearance of the material that had been

designed using Figma can be seen in the following figure.



Figure 3. Material Design in Module

Based on the display design that had been done, all designs were arranged in sequence and then compiled into a digital module using the Flip Builder pdf application. The display of the design and compilation process carried out can be seen in the following figure.

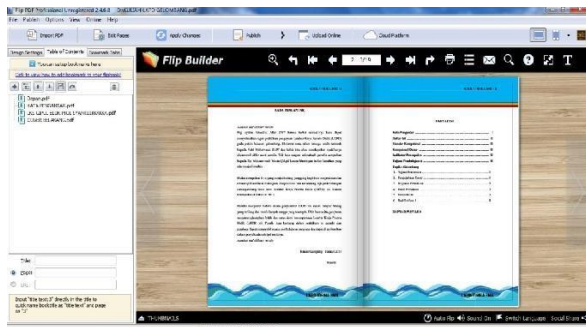


Figure 4. E-Module Compilation by Using Flip-book

e. Trial Phase

The device testing was done after the application had been designed and put into use by the established processes. Alpha testing and beta testing were used during the testing process. Testing was done in the alpha testing stage by confirming the produced applications. Application validity was measured to learn more about the functionality and visual appeal of the application. The media and material-related parts of this application had been validated. Validation was done by professionals who were knowledgeable in their respective disciplines. Two lecturers in the fields of multimedia programming and design served as the validators in the media validation process. The chosen validators for the content validation were computer and network engineering instructor and a lecturer.

Table 6. Determined Value Category

| No | Score Interval | Category |
|----|-----------------|-------------------|
| 1 | 75,00 ≤ x ≤ 100 | Very Feasible |
| 2 | 50,00 ≤ x ≤ 75 | Feasible |
| 3 | 25,00 ≤ x ≤ 50 | Not Feasible |
| 4 | 0,00 ≤ x ≤ 25 | Very Not Feasible |

The validation assessment by each expert was tailored to match the criteria specified in the evaluation tool. In the case of media experts, these evaluation criteria comprised 32 statement items. A breakdown of each aspect can be outlined in the following table:

Table 7. Aspects for Media Validation

| No | Aspect | Code | Indicator Item |
|----|----------------------|------|----------------|
| 1 | Application Design | A1 | 10 |
| 2 | Software Engineering | A2 | 10 |
| 3 | Media Integrity | A3 | 5 |
| 4 | Media Practicality | A4 | 7 |

The results of the final validation provided by media experts for each aspect can be seen in the following table.

Table 8. Result of Media Validation

| Code Aspect | Media Expert | | Average | Score | Category |
|----------------|--------------|----|---------|-------|---------------|
| | 1 | 2 | | | |
| A1 | 32 | 34 | 33 | 82.5 | Very Feasible |
| A2 | 30 | 32 | 31 | 77.5 | Very Feasible |
| A3 | 18 | 16 | 17 | 85 | Very Feasible |
| A4 | 25 | 26 | 25.5 | 91 | Very Feasible |
| Average | | | | 84 | Very Feasible |

For assessment by material experts, the assessment indicator items consisted of 25 statement items. The details of each aspect can be described in Table 9.

Table 9. Aspects for Materials Validation

| No | Aspect | Code | Indicator Item |
|----|-----------------------------|------|----------------|
| 1 | Cognitive Content | B1 | 7 |
| 2 | Vocational Competence | B2 | 8 |
| 3 | Presentation of Information | B3 | 5 |
| 4 | Evaluation Technique | B4 | 5 |

The final results of a total of two validation activities on the material design that had been carried out by media experts for each aspect can be seen in Table 9.

From the results of the validation by the learning material experts, it can be indicated that the presentation and development of learning materials were categorized as valid. In the development of a learning media application, the materials developed must be able to provide improvement of students' enthusiasm.

The development of electronic modules can be an option for teachers to develop better and more efficient learning in the use of technology (Arlika et al., 2021; Herlandy & Purwanto, 2022; Perry, 2019). Integrated modules with character values are advantages that can be presented by teachers in the teaching and learning process, in the implementation of the Independent Curriculum. Integration in learning is carried out between the core material and the character values of Pancasila students. In addition to Pancasila student profile, in Muhammadiyah educational institutions Al-Islam values can also be carried out in the form of integration to produce holistic and constructive learning.

4. Conclusion

Based on the outcomes of the validity assessment conducted by media experts, all elements are deemed highly suitable and exhibit a very high level of validity. As for the validation findings from material experts, it can be deduced that the overall aspects of crafting learning materials are well-suited to meet the requirements of productive learning. Nevertheless, the development phase has not undergone user testing to evaluate its practical effectiveness.

It is advisable to conduct further research to assess the efficacy of media within the vocational learning process. The suggested approach for productive learning trials involves employing either a quasi-experimental method or conducting classroom action research.

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