

# Development of Character Education Training Modules Based on Local Wisdom

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## ABSTRACT

The increasing moral challenges faced by students in the digital era highlight the need for effective character education that is culturally relevant and sustainable. Although teacher training programs are widely available, they often lack systematic instructional materials that integrate local wisdom and support consistent implementation within schools. This study aimed to develop and evaluate the feasibility and effectiveness of a local wisdom-based character education training module for teachers. This research employed a Research and Development (R&D) approach based on the Borg and Gall model, modified into seven stages. The module was validated by material experts, module experts, and practitioners before being implemented through an operational field test involving 11 principals, teachers, and staff at a junior high school in Surabaya, Indonesia. Data were analyzed using descriptive statistics, expert validation percentages, paired-sample analysis, and N-Gain scores to determine learning improvement. The module achieved a very high feasibility rating, with an average expert validation score of 84.38%. Operational testing demonstrated a significant improvement in participants' competence following the training ( $p < .001$ ), with a high average N-Gain score of 0.8083, indicating substantial learning gains. The module integrates local wisdom, school leadership, assessment instruments, and Follow-up Plans (RTL) into a comprehensive framework for teacher professional development. The developed module is feasible and effective for strengthening teachers' competence in implementing character education. It offers a culturally responsive and systematic professional development model that can support the sustainable institutionalization of character education in schools while providing a foundation for future implementation and evaluation in broader educational contexts.

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## 1. INTRODUCTION

Mechanical improvements in the 21st century are accelerating. However, there are many negative impacts such as; easy access to taboo matters, the development of social complexity, lack of interaction with the climate and learning time, the dissemination of personal information, and the prevalence of sensations of fixation (Zeva et al., 2023). The next generation of the nation is now experiencing a moral decline that has an impact on weak character (Widiani et al., 2024). Quoting from kekerasan.kemenppa.go.id data, over the last 5 years, perpetrators of violence with an age range of 13

– 17 years old in 2021 (13.1%), 2022 (13.7%), 2023 (14.3%), 2024 (14.2%), 2025 (13.7%). Although there is a decrease in 2025 from the previous year, the percentage of 13.7% remains higher than the initial figure in 2021 (13.1%). So this indicates that conditions have improved in the previous year, but the challenge of reducing the number of violence to below the level in 2021 is still the responsibility of related parties such as the educational environment, family, community, government institutions and so on. The national education system in Law No. 20 of 2003, Article 3 states the goals of education, such as helping students become knowledgeable, capable, creative, independent, and democratic citizens who believe and serve God Almighty. According to Hujaeri et al., in the face of the digital era and globalization flows, education that is able to foster wisdom in the use of technology and shape students' mental toughness is an important factor in determining the success of future generations (Hujaeri et al., 2024).

Character education is an educational process that has the goal of shaping individual ethics for the better. Therefore, character education is a conscious effort to form individuals who are beneficial to themselves and their environment, in harmony with the culture of the local community. According to Aisyah & Afandi, the world of education today upholds the existence of a character education that can help the realization of the form or basis of a good society (Aisyah & Afandi, 2021). Local wisdom is a cultural identity and community excellence that has important values and is always relevant to the development of the times. The values contained in it are the basis of people's lives because they are universal and reflect the character of the nobility (Fa'idah et al., 2024). Thus, local wisdom refers to thinking that has a positive and idealistic nature in the surrounding environment, especially regarding relationships between individuals. Educational methods that are based on ethical quality education for students to encourage a deeper feeling of being a true individual.

Character education should emphasize the importance of local wisdom as a foundation for empowering younger generations to address contemporary challenges and contribute to a better future (Nuraeni et al., 2024). Therefore, character education based on local wisdom needs to be implemented to shape young people who are ethical, authentic, and prepared to face the demands of the digital era. The integration of local wisdom into educational practices has been shown to significantly enhance students' ability to respond to challenges that are relevant to their lived contexts (Hanum et al., 2025). Similarly, Alfian et al. (2025) state that the implementation of local wisdom-based character education can be carried out through three main approaches: integration into subjects, extracurricular activities, and school culture. In this regard, the role and involvement of schools, particularly teachers, are essential in ensuring the effective implementation of character education (Lestari et al., 2024). Teachers serve as primary role models for students throughout the learning process. Thus, the relationship between teachers and students is not merely instructional but also psychological and moral, contributing to the continuous development of students' personalities.

Students' social and moral development is closely related to their learning so that the quality of their social development results is also influenced (Anisah et al., 2022). But in character development, the role of an educator is very important. So, a good teacher's character affects the success of students. Efforts such as training can develop teachers' professional competence. This is because teachers play an important role in the progress of education, so they are obliged to improve their performance, skills, and professionalism (Zainuddin & Yuliana, 2024).

Based on the explanation above, character education based on local wisdom is a strategic solution in equipping the young generation to face the challenges of the digital era, where the success of the teacher is highly dependent on the central role of teachers as the main role models through integration in the curriculum, extracurricular activities, and school culture. This is because character is understood as a set of behaviors consistently upheld as reflections of human goodness, virtue, and moral maturity (Fa'idah et al., 2024). The synergy between local values and the professionalism of educators not only shapes ethical and authentic student personalities, but also creates mental connections that support sustainable social-moral development. Therefore, improving teachers' competence and performance is a crucial investment in ensuring the progress of education and the quality of students' character in the future.

SMP Kristen 1 YBPK 1 Surabaya held an independent curriculum review workshop as part of the character education training program. The task in this activity aims to develop independent curriculum tools by integrating the principles of character education into the teaching given to teachers. However, there are shortcomings in the training discipline because teachers have not fully followed up on the training results due to limited understanding of the material. The results of the observation also showed that there were character problems such as student fights due to mocking each other and violations of rules such as excessive accessories, inappropriate uniforms, tardiness, and truancy during lessons. This is the reason for the need for character education training involving principals, teachers, and employees at YBPK 1 Christian Junior High School 1 Surabaya. Training is a process that is systematically designed to develop individual attitudes, knowledge, skills, and behaviors through learning experiences to improve performance effectiveness in various areas of activity (Simatupang et al., 2021).

Modules are planned or made devices, which are arranged in advance and then planned in such a way that they can assist individuals in achieving certain goals (Ramadan & Ain, 2022). Training modules are strategic media that have a great impact on shaping the mentality, knowledge, skills, and work mindset of participants to achieve certain competencies. Character education training is carried out using character education based on the culture and class of society. The researcher developed a character education training module based on local wisdom with the Borg & Gall model to help schools carry out training. The development of the module is a comprehensive solution that integrates the noble values of the region into the educational ecosystem which includes theoretical aspects, leadership management, and practical implementation in the classroom, school culture and society. This module also ensures that the strengthening of character education runs in a measurable and sustainable manner, the entire flow that ends with an assessment and follow-up plan not only aims to form a student identity rooted in local culture, but also creates an operational strategy that is applicable to all school stakeholders. Furthermore, Borg & Gall's development model consists of 10 steps, namely: research and information gathering, planning, development of initial forms of products, preliminary field testing, revision of main product test results, main field testing, operational field testing, operational field testing, final product revision, dissemination and implementation. In contrast to Jaziroh et al.'s research, which carried out a pedagogical reconstruction of folklore and local social norms into the form of validated training modules, in order to create character learning media that is more relevant to students (Jaziroh et al., 2025).

Based on the explanation above, the purpose of the research is to describe the teaching materials for character education training based on local wisdom for teachers, analyze the teaching materials for character education training for teachers and develop character education training modules based on local wisdom for teachers. Therefore, it can be concluded that the novelty of this research lies in a systematic managerial approach that integrates local wisdom into the entire school ecosystem, not just a reconstruction of learning content at the classroom level. In contrast to previous research, this module includes aspects of leadership governance and community synergy to ensure the value of institutional character structurally. In addition, the presence of assessment instruments and Follow-up Plans (RTL) ensures the sustainability of the program through a measurable and applicable operational strategy.

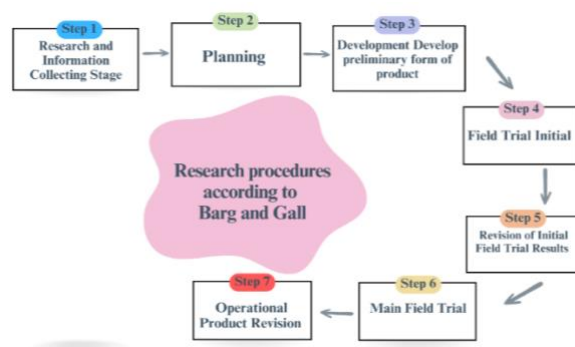
## 2. METHODS

This research is research and development (R&D) to produce viable and effective products. The design of this study used quasi-experimental validity with a one-group pretest – posttest model to compare pre- and post-treatment conditions. The research is located at YBPK 1 SMP Kristen 1 Surabaya with 11 subjects involving among others; principals, teachers and staff who are active and willing to participate in the entire training series. This subject is intensive in one school unit as an operational field trial. All participants have expressed their willingness to participate and the data collected through interviews and questionnaires are kept confidential for the sake of educational development. The development model used refers to Borg & Gall which consists of 10 (ten) steps. However, the researcher

limited it to the 7th (seventh) step, namely: research and information gathering, planning, initial product development, preliminary field testing, revision of initial field test results (main product revision), main field testing, operational product revision (operational field testing). This is because the focus of the research is to produce a final module that has been expertly validated and operationally tested for feasibility at the research site. The module developed in this study is the Local Wisdom-Based Character Education Training Module as an effort to improve teachers' competence in local wisdom-based character education through a research and improvement process so that it is feasible and effective to use.

## 2.1 Development Procedure

The following stages consist of a modified research and development procedure of the Borg & Gall development model, as described above.



**Figure 1.** Research Procedure according to Borg & Gall

(Khairunnisa et al., 2023, p. 72)

The following steps will be taken, including:

### 2.1.1 Research and Information Gathering Stage

At this stage, the researcher identified the need for training through literature studies, field studies, and improvements based on the collected data.

### 2.1.2 Planning Stage

At this stage, the researcher designs a research plan that includes objectives, design steps, competency needs, and limited trials.

### 2.1.3 Early Product Development

At this stage, the researcher develops the product as planned, then validates it by module experts, materials experts, and potential users, then revises it based on the suggestions provided.

### 2.1.4 Initial Field Trials

At this stage, the researcher tested the revised product by conducting initial field trials on 11 subjects at YBPK 1 Christian Junior High School 1 Surabaya to obtain assessments and inputs through distributed instruments.

### 2.1.5 Revision of Initial Field Trial Results

At this stage, the researcher conducts revisions based on the initial field tests. This aims to get a good media before conducting the main field trial.

### 2.1.6 Main Field Trials

The trial was carried out on 11 teachers and staff at YBPK 1 Christian Junior High School 1 Surabaya, and data were collected and analyzed. Trials were conducted to assess the feasibility of the module through the planning, implementation, and data analysis stages.

### 2.1.7 Revision of Operational Products

At this stage, the researcher conducts revisions based on the results of field tests to obtain a final module that is ready to be used.

## 2.2 Product Validation and Testing

### 2.2.1 Product Validation

Product validation is carried out by material experts, module experts, and potential users. Then it is analyzed and refined based on the criticism and suggestions given.

### 2.2.2 Trial Design

Product trial design in research and development involves periodic field trials. The trial stage involves researchers observing training, providing pretests and posttests. The results were then analyzed, showing that the training modules effectively improved teachers' understanding of character education based on local wisdom.

### 2.2.3 Test Subject

The subjects of the experiment in this study were principals, teachers, and staff at YBPK 1 Christian Junior High School, Surabaya.

## 2.3 Data Collection Techniques and Instruments

Techniques and Instruments in this study use interviews, observations, documentation, expert validation questionnaires, and participant responses. Data validation and analysis techniques in this study were carried out through triangulation of triangulation (interviews, observations, and questionnaires) and data triangulation across various sources (module experts, material experts, and potential users) to ensure the accuracy and relevance of the data. Furthermore, there is a data analysis technique related to the analysis of information from the results of the validity test using descriptive techniques of percentages and categories in an effort to provide an overview of the module. The following formula is used to obtain a total score from the assessment data obtained through the use of a closed-ended questionnaire:

$$PN = \frac{\text{Actual Score}}{\text{Ideal Score}} \times 100\%$$

Information:

PN : Total Percentage

Actual Score : The number of scores given by validators

Ideal Score : The maximum score result with the number of items.

The total percentage (PN) obtained is classified into five categories, including,

81% - 100 % : Very high

61 % - 80 % : Height

40% - 60% : Enough

21% - 40% : Low

1% - 20% : Very low

The training module is declared feasible if the score is more than 61% ('High' Category), with the analysis of trial data in the form of tests (quantitative descriptive analysis and differential tests) and non-tests. Furthermore, quantitative descriptive analysis deciphers the quantitative data systematically and factually, with the help of a Likert scale instrument to measure the variables. The scores obtained were then divided into four categories of module eligibility, which are shown in the following table (Zulmiyetri, 2019).

**Table 1.** Likert Scale

| Score | Categories  |
|-------|-------------|
| 4     | Very Good   |
| 3     | Good/Decent |
| 2     | Good enough |
| 1     | Not Good    |

The module is concluded to be feasible if the results of the feasibility test research meet the "Decent/Good" standard.

This study uses a pre-experimental design, which is a pretest-posttest design model for one group where there is only one group that is the subject of the study (Muhandis & Riyadi, 2023). In addition, it has been pre-tested and post-tested with the aim of comparing pre- and post-treatment conditions. The assessment of pretest and posttest results was analyzed using normality tests because the purpose of normality tests is to ascertain whether the data is distributed normally or not (Jannah & Ghozali, 2020). The normality test in this study used Kolmogorov-Smirnov with the help of SPSS software version 31. The t-test (Paired sample T-Test) aims to find out whether there is a significant level of understanding of participants before and after training with the t-test (Paired sample T-Test). Hypothesis tests are used to prove the existence of results after training. The hypothesis in this study is that if  $t_{\alpha} = 0,05_{\text{calculates}} > \text{table}$ , it can be stated that  $H_a$  is accepted, and vice versa. Statement  $H_0$  states that the training module based on local wisdom is not effective on the results of the trainees' understanding, while  $H_a$  states that the training module based on local wisdom is effective on the results of the trainees' understanding.

The formula used to calculate the results of the trainees' comprehension:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r\left(\frac{s_1}{\sqrt{n_1}}\right)\left(\frac{s_2}{\sqrt{n_2}}\right)}}$$

The following data was interpreted using the N-Gain score to derive the effectiveness category. Here is the N-Gain formula (Kumalasari, et al., 2023)

$$N - Gain = \frac{\text{posttest score} - \text{pretest score}}{\text{ideal score} - \text{pretest score}}$$

The results of the N-Gain calculation are then interpreted based on the effectiveness category table. The module is categorized as effective if the percentage of N-Gain reaches a value of more than 76%.

**Table 2.** N – Category Distribution of N-Gain Score

| Product Effectiveness Categories |        |
|----------------------------------|--------|
| $g \geq 0,7$                     | High   |
| $0,3 \leq g < 0,7$               | Medium |
| $g < 0,3$                        | Low    |

**Table 3.** Categories of Interpretation of N-Gain Effectiveness

| Present (%) | Categories      |
|-------------|-----------------|
| $> 76$      | Effective       |
| $56 - 75$   | Quite effective |
| $40 - 55$   | Less effective  |
| $40$        | Effective       |

### 3. FINDINGS AND DISCUSSION

#### 3.1 Findings

The study was limited to Borg & Gall's 7th phase, with results covering stages 1 through 7 and an in-depth discussion of the findings.

##### 3.1.1 Research and information gathering

The initial stage of the research was carried out to map the real conditions at YBPK 1 Christian Junior High School 1 Surabaya through interview techniques and direct observation. The data collected

included the mechanism of teacher professional development, obstacles in the availability of teaching materials, and the condition of students' character in the school environment. The results of this information collection are the main basis for determining the product specifications of the training modules developed. Based on these activities, the findings were found, including;

- a. **Teacher Training Mechanism**  
The school utilizes the Independent Learning Platform (PMM) as an independent means for professional development and access to the latest information. In addition, the school schedules face-to-face training by bringing in outside resource persons to strengthen the competence of educators.
- b. **Identify Weaknesses**  
The results of the interview revealed that there are limitations in the aspect of teacher training, teaching materials that are not optimal. In addition, the management of training is considered less transparent and has not been supported by systematic accountability reports.
- c. **Student Character Condition**  
Through observation, several problems with student behavior were found, such as mutual taunts that triggered fights, as well as disciplinary violations related to the use of accessories, uniform suitability, tardiness, and truancy during class hours.
- d. **Implementation of Character Education**  
The school has integrated character education through intracurricular (teaching modules), extracurriculars, school culture (smiles, greetings), and the Pancasila Student Profile Strengthening Project (P5).
- e. **The Importance of Local Knowledge**  
There are efforts to strengthen character through understanding local culture, where students learn to appreciate Surabaya's unique arts and culinary
- f. **The Need for Stakeholder Synergy**  
The data shows that there is a need to strengthen collaboration between schools, parents, and the community, because awareness of the importance of character education in the family environment is still considered to need to be improved.
- g. **Follow-up Plan**  
As a solution to these findings, it was decided to develop a Character Education Training Module based on Local Wisdom to strengthen teachers' personality competence and involve parental participation through workshops.

### 3.1.2 Planning Stage

At this stage, the researcher designs product development according to the results in the previous stage. Based on the results of the research and data collection, the researcher prepared a Character Education Training Module based on Local Wisdom, including the development of teaching materials, learning processes, and evaluation instruments.

### 3.1.3 Early development of the product

At this stage, the researcher developed an initial product in the form of a character education training module based on local wisdom with validation from material experts, module experts and prospective users (school principals). Important parts of the module include; (1) Introductory section, which explains the importance of character education in the context of education in Indonesia, introduction to the concept of local wisdom and its relevance to character education as well as the purpose of the training module, objectives, and expected benefits. (2) The content section contains 7 parts of the material including; Basic concepts of character education based on local wisdom, school management & leadership, classroom-based PPK, school culture-based PPK, community-based PPK, assessment, monitoring & evaluation of PPK, designing & presenting follow-up plans. Each part of the material has a goal to be achieved after the training, time allocation, subject matter, steps in training activities, evaluation and reflection as a tool to measure the success of each part of the material. In

addition, for use this module is designed in such a way that it can be effectively applied by trainers in a variety of situations. The following are the steps in using the module, including;

a. Training Preparation

Self-study by facilitators/trainers: facilitators are required to study the modules thoroughly in order to understand the content and strategies of the training and be ready to facilitate the activities well.

Training Schedule Preparation: the facilitator delivers the material according to the module session and arranges the time so that it is sufficient for discussion, reflection, and hands-on practice.

b. Training Implementation

Opening and introduction: the training begins with an introduction to the importance of character education that is relevant to local wisdom, accompanied by an explanation and expectations of the results to be achieved.

Material delivery: facilitators deliver material by presentation methods, group discussions and case studies to make it more interesting and relevant

Practice and Practice: the facilitator provides an opportunity for participants to practice the learning strategies taught in the module

Discussion and reflection: the facilitator leads a reflective discussion after the session to assess understanding and identify areas for improvement.

The design of the training module based on the character of Local Wisdom has been validated by a). Dr. Sophia Tri Setyawati, M.Pd as a material expert, b). Dr. Yari Dwikurnaningsih, M.Pd as a module expert and c) Erwin Darmogo, S.Pd., M.M as a prospective user at school.

Based on the validation results, the percentage obtained by subject matter experts was 81.90% (very high). The validator provides input so that the concept of the character value of local wisdom in PPK training is explained in more detail, the formulation of training objectives is at least 90% HOTS-based and in harmony with the evaluation instrument, and each evaluation is equipped with instruments, answer keys, and scores. Furthermore, the percentage obtained by module experts is 86.02% (very high). Validators suggest checking for plagiarism, formulating goals with operational and specific verbs (operational verbs), and using more innovative training methods. Then, the percentage obtained by potential users is 85.22% (very high). The validator provides input so that the values of local wisdom in PPK training are explained more clearly. The following is a table of the assessment results of the three validators, namely, material experts, module experts, and practitioners at the school.

**Table 4.** Validator Assessment Results

| Validator       | Percentage |
|-----------------|------------|
| Material Expert | 81.90%     |
| Module Members  | 86.02%     |
| Practitioner    | 85.22%     |
| Correspondence  | 84.38%     |

After discussing with validators, it is known that there are shortcomings and differences in ideas for product development. Based on these findings, changes were made by the researcher which included: training materials containing the values of local wisdom characters, the purpose of the module was formulated with Operational Verbs based on Higher Order Thinking Skills (HOTS), and was equipped with evaluation instruments along with answer keys and scores. After completing product repairs, the next stage is the implementation which will be carried out on a limited basis at YBPK 1 Christian Junior High School 1 Surabaya which consists of 11 teachers.

### 3.1.4 Initial Field Testing

At this stage, the researcher distributes a questionnaire to the research subjects to assess the feasibility of the upgraded module after validation by experts. Based on the results of the initial field

test, an average of 3.32 (feasible) was obtained. So it can be concluded that the module is considered suitable for use by training participants, with suggestions for improvement in the form of adding images to make them more attractive and easy to understand.

### 3.1.5 Revision of Initial Field Trial Results (major product revision)

At this stage, the researcher revises the product based on the input of the trainees to prepare a module that is ready to be tested in the main field test.

### 3.1.6 Main Field Testing

This stage is the implementation of the main trial of the character education training module based on local wisdom, through five (5) steps: planning, organizing, implementing, data collection, and data analysis.

- a. Planning  
At this stage, the researcher determines the subject of the exam, namely, teachers and staff at YBPK 1 Christian Junior High School 1 Surabaya. Furthermore, the researcher selects the material in the module to conduct a field test.
- b. Organizing  
At this stage, the researcher sets the implementation date and coordinates with the relevant parties (subjects) involved. Furthermore, from the results of the coordination, the researcher draws up a joint agreement with the parties involved (subjects).
- c. Implementation  
At this stage, the researcher registers the trainees to ensure their presence. At this stage, there are also 3 main activities, namely pretest, peer teaching, and post-test.
- d. Data Collection  
At this stage, the researcher will use test questions in the form of pretest and posttest that have been prepared at the planning stage. During data collection, the researcher ensures that the implementation of data collection goes according to plan by monitoring activities in the field directly.
- e. Analysis data  
The data that had been collected in the previous stage were analyzed to evaluate the program through a quantitative descriptive pretest and a posttest score difference test using a parametric normality test using the Kolmogorov – Smirnov formula with the help of SPSS Version 31.

The following is a recapitulation of the results of the pretest and posttest calculations by the training participants;

**Table 5.** Recapitulation of Pretest and Posttest Score Results

| Activities | Lowest Score | Highest Score | Correspondence | Number of trainees completed | Completeness (%) |
|------------|--------------|---------------|----------------|------------------------------|------------------|
| Pretest    | 20           | 90            | 66             | 4                            | 36.3%            |
| Posttest   | 70           | 100           | 90.9           | 10                           | 90.9%            |

Based on Table 5 of the pretest and posttest assessment recapitulation, the results of the trainees' understanding are calculated using the percentage of item scores. Assessment before using the character education module based on local wisdom, with the lowest score of 20 and the highest score of 90, with an average of 66, and the number of complete training participants was only 4. So that most of the training participants can be declared incomplete. Meanwhile, the results of understanding after using the character education module based on local wisdom were obtained with the lowest score of 70 and the highest score of 100 with an average of 90.9 and the number of complete training participants as many as 10 participants. So that after the use of character education modules based on local wisdom, it can be said that most of the training participants have acquired

completeness. Therefore, it can be concluded that there has been an increase from before and after the use of character education modules based on local wisdom with scores obtained greater than the Minimum Graduation Criteria of 75 so that the completeness of completeness is in the good category.

The normality test is used to find out whether the data obtained is distributed normally or not. To test the normality, the researchers used a parametric statistical normality test using the Kolmogorov-Smirnov formula, assisted by SPSS software version 31 to calculate it. The following are the results of the normality test in the research.

**Table 6.** Normality Test Results

|                 | Test of Normality     |    |       |                |    |       |
|-----------------|-----------------------|----|-------|----------------|----|-------|
|                 | Kolmogorov – Smirnova |    |       | Shapiro - Wilk |    |       |
|                 | Statistic.            | df | Sig.  | Statistic.     | df | Sig.  |
| <b>Pretest</b>  | 0.194                 | 11 | 0.200 | 0.904          | 11 | 0.207 |
| <b>Posttest</b> | 0.263                 | 11 | 0.033 | 0.829          | 11 | 0.023 |

Based on the normality test data, the pretest score has a sig.  $0.207 > 0.05$  and the posttest value has a sig.  $0.23 > 0.05$ , then the data can be concluded to distribute normally. With the criteria of the normality test, if the value of sig.  $> 0.05$ , then it can be stated that the data is distributed normally, if the value of sig.  $< 0.05$ , the data is declared not to be distributed normally. The T-test in this study was used to determine the significant difference between before and after the use of character education modules based on local wisdom.

**Table 7.** Paired T-Test Results

| Paired Samples Test       |            |                |                 |                                           |           |         |    |               |               |
|---------------------------|------------|----------------|-----------------|-------------------------------------------|-----------|---------|----|---------------|---------------|
| Pair 1                    | Red        | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference |           | t       | df | Significance  |               |
|                           |            |                |                 | (Lower)                                   | (Upper)   |         |    | (One-Sided p) | (Two-Sided p) |
| <b>Pretest - Posttest</b> | - 24.54545 | 11.28152       | 3.40151         | -32.12448                                 | -16.96643 | - 7.216 | 10 | <.001         | <.001         |

Based on the table above, the results of the t-test with the criteria in the paired sample test if the  $t_{count} > t_{table}$  is less than 0.05, then  $H_a$  is accepted or it is stated that there is a significant difference between the pretest and posttest of the trainee and vice versa if  $H_0$  is accepted it can be stated that there is no significant difference. The results of the t-test in the table above show significant results (p – value) including one side  $p = 0.001 < 0.05$  and two sides  $p = 0.001 < 0.05$  so that  $H_a$  is accepted or can be stated that the training module based on local wisdom is effective on the results of training understanding. This means that there is a significant difference between the results of the pretest and posttest.

The N-Gain test in this study was used for the effectiveness of the training module between before and after using the training module based on local wisdom. The following are the results of the N-Gain score test in this study:

**Table 8.** N-Gain Score Test Results

|                    | Descriptive Statistics |         |         |         |                |
|--------------------|------------------------|---------|---------|---------|----------------|
|                    | N                      | Minimum | Maximum | Red     | Std. Deviation |
| N_Gain_Score       | 11                     | 0.50    | 1.00    | 0.8083  | 0.19561        |
| N_Gain_Percent     | 11                     | 50.00   | 100.00  | 80.8333 | 19.56116       |
| Valid N (listwise) | 11                     |         |         |         |                |

Based on the table above, the average n-gain score gets a value of 0.8083, and the average n-gain percentage (%) gets a value of 80.8333%. When viewed based on the distribution category of the n-gain score, the value obtained, 0.8083, can be concluded to have effectiveness in the "high" category. Meanwhile, the value of n-gain percentage (%) is viewed using the interpretation of effectiveness with the category of "effective".

### 3.1.7 Operational Field Testing

This stage is the final stage of development research that has gone through various trials and evaluations. The training module was declared feasible for widespread implementation after being revised based on the suggestions provided.

## 3.2 Discussion

The findings demonstrate that the local wisdom-based character education training module is both feasible and effective in enhancing teachers' competence in implementing character education. The module achieved a very high feasibility score from expert validation (84.38%), while the operational field test revealed a statistically significant improvement in participants' learning outcomes ( $p < .001$ ) with a high N-Gain score (0.8083). These results suggest that the module provides not only pedagogically sound instructional materials but also an effective framework for supporting teachers' professional learning. Unlike conventional training resources that primarily focus on knowledge transmission, the developed module integrates conceptual understanding, practical classroom implementation, school leadership, monitoring instruments, and Follow-up Plans (RTL), thereby promoting sustainable institutional implementation of character education. This finding supports previous studies arguing that effective professional development should provide teachers with coherent instructional resources that are directly applicable to classroom practice and organizational improvement (Darling-Hammond et al., 2017; Desimone & Garet, 2015).

The effectiveness of the module can also be interpreted through the perspective of adult learning theory (andragogy). According to Knowles et al. (2020), adult learners acquire knowledge more effectively when learning activities address authentic professional problems, encourage active participation, and facilitate immediate application in workplace contexts. In this study, participants encountered real educational challenges, including student disciplinary problems, bullying, and inconsistent implementation of character education despite previous participation in teacher training programs. The module addressed these contextual needs by integrating collaborative discussions, case-based learning, classroom simulations, peer reflection, and action planning. Such learning experiences encouraged participants to construct new knowledge from their professional experiences rather than passively receiving theoretical information. Consequently, teachers developed a stronger understanding of how character education could be systematically implemented within their own schools.

Another important contribution of this study lies in the integration of local wisdom as the primary pedagogical foundation of character education. Previous research has consistently shown that moral values become more meaningful when they are contextualized within learners' sociocultural environments rather than presented as universal ethical principles detached from students' daily lives (Berkowitz & Bier, 2014; Lickona, 1991). Local wisdom enables teachers to connect character values with community traditions, local customs, cultural narratives, and shared social norms that are already familiar to students. This contextualization strengthens students' cultural identity while simultaneously preserving indigenous values that may gradually decline under the influence of globalization and digitalization. Recent studies similarly conclude that integrating local wisdom into educational practices enhances students' moral awareness, cultural appreciation, and social responsibility because learning becomes personally relevant and culturally meaningful (Fa'idah et al., 2024; Nuraeni et al., 2024). Therefore, the module developed in this study extends previous instructional approaches by positioning local culture not merely as learning content but as the central pedagogical framework through which character values are constructed.

This study further contributes to the literature by demonstrating that successful character education requires organizational support beyond classroom instruction alone. Previous studies have primarily focused on developing student learning materials or integrating character values into classroom activities, whereas the present module adopts a broader managerial perspective involving leadership governance, school culture, assessment systems, community collaboration, and Follow-up Plans (RTL). This comprehensive approach transforms character education from an individual teacher responsibility into a whole-school improvement strategy. Such findings are consistent with school effectiveness research suggesting that sustainable educational change depends on coherent leadership, institutional commitment, collaborative professional culture, and continuous evaluation rather than isolated instructional interventions (Fullan, 2007; Hallinger & Heck, 2010). Accordingly, embedding character education within school management systems increases the likelihood that character values will become institutional practices rather than temporary classroom initiatives.

The significant improvement in participants' competence may also be explained by the quality of the instructional design employed in developing the module. Following expert validation, several revisions were incorporated, including clearer learning objectives formulated using operational verbs, stronger alignment between learning outcomes and assessment tasks, HOTS-oriented learning activities, structured evaluation instruments, and explicit scoring rubrics. These revisions improved instructional coherence by ensuring consistency among learning objectives, learning activities, and assessment procedures. According to Biggs and Tang (2011), constructive alignment is one of the most influential principles of effective instructional design because it encourages learners to actively construct knowledge through learning experiences that directly correspond with intended learning outcomes. Similarly, Hattie (2009) argues that explicit learning intentions, formative feedback, and clearly communicated success criteria substantially improve learning effectiveness. Therefore, the positive learning gains observed in this study likely resulted not only from the training itself but also from the improved instructional quality of the developed module.

Another noteworthy finding concerns the incorporation of school-family-community partnerships within the module implementation. Character education cannot be sustained solely through classroom instruction because students continuously interact with multiple social environments that influence their attitudes and behaviours. Consequently, the inclusion of parent workshops and community participation within the Follow-up Plan (RTL) represents an important innovation that extends character education beyond school boundaries. This finding aligns with Bronfenbrenner's (1979) ecological systems theory, which emphasizes that children's development is shaped through interactions among interconnected social systems, including families, schools, and communities. Likewise, Epstein (2018) argues that meaningful partnerships between schools and families significantly strengthen students' academic achievement, social competence, and moral development. By encouraging collaborative participation among various stakeholders, the developed module creates a more consistent educational environment in which character values are reinforced across multiple contexts rather than confined to classroom activities alone.

Although the findings indicate promising outcomes, several limitations should be acknowledged. First, the operational field testing involved only eleven participants from a single junior high school, limiting the generalizability of the findings to broader educational contexts. Second, this study employed a one-group pretest-posttest design without a comparison group, making it difficult to attribute all observed improvements exclusively to the intervention because alternative explanations, including testing effects, maturation, and participants' prior experiences, cannot be completely eliminated (Creswell & Creswell, 2023). Third, the study evaluated teachers' competence immediately after training but did not investigate long-term implementation fidelity or its influence on students' behavioural outcomes. Future research should therefore involve larger multi-school samples, employ quasi-experimental or randomized controlled designs where appropriate, and conduct longitudinal evaluations examining whether improved teacher competence ultimately contributes to sustainable improvements in students' character development.

Overall, this study contributes both theoretically and practically to the growing literature on character education and teacher professional development. Theoretically, it expands existing scholarship by proposing a comprehensive managerial framework that integrates local wisdom, instructional design, leadership, assessment systems, and continuous improvement within teacher training. Practically, the developed module offers schools a systematic operational guide for implementing culturally responsive character education that extends beyond curriculum integration into organizational governance and stakeholder collaboration. As educational systems continue to confront moral challenges associated with rapid technological and social transformation, integrating local wisdom into structured teacher professional development represents a promising strategy for strengthening sustainable character education within diverse educational settings.

#### 4. CONCLUSION

This study demonstrates that the local wisdom-based character education training module is both feasible and effective in enhancing teachers' competence in implementing character education, as evidenced by very high expert validation results and significant improvements in participants' post-training performance. The module contributes theoretically by extending the discourse on character education through the integration of local wisdom, instructional design, school leadership, assessment, and follow-up planning into a comprehensive teacher professional development framework. Practically, it provides schools with a systematic and culturally responsive training resource that supports the sustainable institutionalization of character education beyond classroom instruction. Nevertheless, this study has several limitations. The operational field testing was conducted with only eleven participants from a single junior high school using a one-group pretest–posttest design, thereby limiting the generalizability of the findings and restricting causal inference regarding the effectiveness of the intervention. Furthermore, the study focused primarily on short-term improvements in teachers' competence and did not examine the long-term implementation of the module or its direct impact on students' character development. Therefore, future research should involve larger and more diverse samples across different educational contexts, employ more rigorous experimental or quasi-experimental designs with comparison groups, and conduct longitudinal investigations to evaluate the sustainability of teacher competency development and its influence on students' behavioural and character outcomes.

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