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Better Teaching and Learning Model Character (BTL-C) to Establish Students' Pedagogical Competence

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ABSTRACT

Creating a model study of Better Teaching and Learning Character (BTL-C) can help students learn with greater passion, activity, and results while assessing the model study's validity, effectiveness, and applicability. These studies are research & Development studies (R&D). Three phases of research were carried out: an examination of the BTL-C model by theoretic and professional review. Empirical testing supports the BTL-C model's empirical validity. Phased implementation to determine whether the BTL-C paradigm is useful and effective. The study's findings show that the developed model study of BTL-C integrates character items into mathematics items and is provided at the network's ICARE step of connection. A validator has verified the validity of this model, and it is backed up with test-field validation data. This methodology has also been tested regarding how well it helps students develop their character and increase their passion, activity, and learning outcomes. Implementing the BTL-C model in practice has also been evaluated through observations of the lecturer's capacity for learning in the classroom, lecturer responses to model-use amenities, and student acceptance of the lecturer-applied model. The final results show that the generated model study for the BTL-C has met all the necessary criteria and is both practical and effective.

Keywords: *pedagogy competence, BTL-C, ICARE, effective*

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INTRODUCTION

The paradigm of the current learning model has changed from what was originally lecturer-centered to student-centered learning. This paradigm must be addressed by the Faculty of Lecturer Training and Education, University of Muhammadiyah Purwokerto, as a university that produces prospective lecturers so that students understand various new learning models that can be applied in schools. Student-centered learning developed today has not touched the realm of character comprehensively. Therefore, developing a learning model that can grow students' character is necessary. One of the learning models that is believed to be able to change this paradigm is the Better Teaching and Learning Character (BTL-C) learning model.

BTL-C is a development of Better Teaching and Learning (BTL) developed by Decentralized Basic Education 3 (DBE3) (Karsidi, 2015). This BTL has trained junior high school lecturers in several cities in five provinces. For Central Java province, BTL is trained in several junior high schools in Kudus, Purwodadi, Boyolali, Karanganyar, and Purworejo. The implementation of BTL in junior high schools in five provinces in 2019/2020 showed a significant increase in teacher activities, classroom environment, and student activities during learning (Putri et al., 2013).

The positive impact of the application of BTL above encourages researchers to develop in the University, as well as a vehicle for dissemination and implementation to students. Each educational study program in higher education, in addition to developing regular lecture programs that are more directed at providing theoretical provisions about the subject matter of the field of study and aspects of pedagogy (Iorio & Adler, 2013). After completing the regular program, students are intensively prepared to become teachers. Before implementing Field Experience Practice (PPL) in the training school, they were given a PPL briefing, including microteaching activities. During microteaching, students can be given training on the BTL-C model (Pristiwati, 2013).

Training BTL-C to prospective teachers makes it possible to create continuous improvement. This training can be used as a provision for prospective teachers to learn professionally in schools (Chew & Sim, 2020). The material is delivered according to the syntax of the BTL-C model and includes a concrete example for students. Students can also apply this model when teaching practice in schools and becoming future teachers.

BTL-C was developed based on the fact in the field that learning is less empowering for students in the teaching and learning process and the formation of their character (Baker & Blankenship, 2019). Students are usually only learning objects. Student learning activities are less than optimal. Students less utilize learning media; students rarely touch the realm of character. The approach used in the BTL-C model includes five key elements of the learning experience, namely ICARE, which is an acronym for Introduction, Connection, Application, Reflection, and Extension (Jalal, 2019).

The development of the BTL-C model is intended to maximize the teaching and learning process, learning outcomes, and student character formation. Therefore, the development of the BTL-C model lies in adding character content at the time of learning.

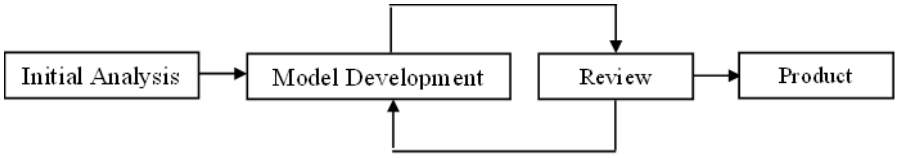

Figure 1. Research and Development of BTL-C Model

The model development step begins with a needs analysis and ends with a wide-scale trial. In this BTL-C model, students are also involved as widely as possible in the use of learning media (Harris et al., 2018). The learning media developed is simple and affordable, obtained from all around us. Using 3R materials (reduce, reuse, recycle) as alternative media materials also needs further development, which is adjusted to basic competencies (Alles et al., 2018).

Attitude assessment needs to include elements of character. In addition, students and lecturers are asked to write a reflection journal. The writing of the reflection journal is carried out at the end of the lesson (Narayan, 2018). The content of the reflection journal in the form of a description of events ranging from descriptions, feelings and thoughts, evaluation, analysis, conclusions, and plans requires skills in pouring with words. Prospective teachers must have competencies such as teacher competencies (Shelton & Hawkins, 2018).

Pedagogical competence is one of the competencies of a professional teacher. Therefore, prospective teachers also need to be equipped with various competencies (Slavin, 2016). A lecturer's competence includes pedagogical, personal, social, and professional competencies. This research focuses on providing pedagogical competencies to prospective teachers, while other competencies have been given when taking regular lectures (Pizzolato & Adorno, 2020).

RESEARCH METHODS

The type of research used in this study is Research and Development R & D), starting from data collection, interpretation of the data, and interpretation of the research results, as in figure 1 above.

The trial is intended to determine the suitability of the learning model, including the readability of its supporting features such as teaching materials, learning scenarios, and the characteristics of evaluation tools and questions (Chodkiewicz, 2019). On the other hand, determine how much time it takes to complete each planned learning theme and test. Thus, model lecturers and test makers can estimate the amount of time and the number of questions accordingly (Ament & Edwards, 2018).

The trial of the development product is carried out through two stages, namely individual and field testing. Individual tests are carried out by experts and lecturers in the field of study and are imposed on several 8 students. The field test is implemented in a class with 50 students. The trial design can be seen in Diagram 1 below.

The instruments used in this trial are questionnaires, attitude scales, interest scales, tests, and observation sheets (Moria et al., 2017). The questionnaire is addressed to lecturers and students to determine the product's validity, including the material's suitability for student development, the readability of learning scenarios, and

the suitability of the test to learning objectives (Putri et al., 2013).

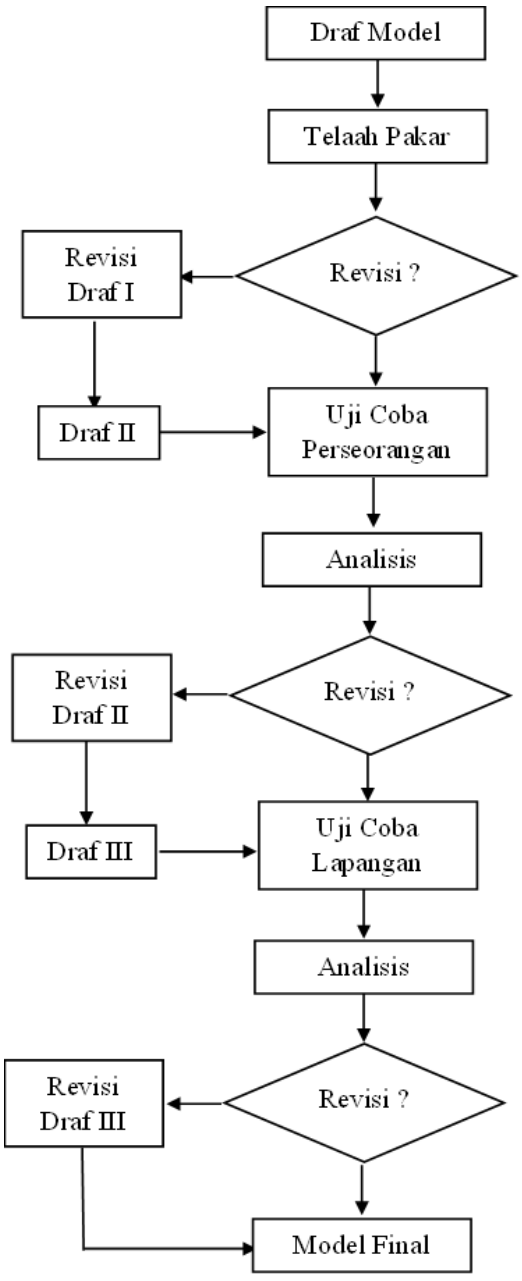

Diagram 1. Trial Design Model

A scale of attitudes, interests, activities, and tests determines the product's effectiveness. Use the observation sheet to determine the product's practicality, including implementing the learning model and assessing the responses of lecturers, students, and students.

The subjects of the individual trial were experts and educational practitioners (2 lecturers), while the subjects of the limited field trial were several students. The technique of taking field trial subjects was carried out by cluster sampling.

Two types of data obtained from product trials are qualitative and quantitative. Qualitative data in the form of inputs from experts, both obtained by interviews and filling out questionnaires. Quantitative data from the student's answer response (score) to the test tested him.

Data analysis for empirical model match tests was conducted using Exploratory and Confirmatory Factor Analysis. The results of the model's implementation effectiveness are analyzed by t-test. Increased activity, interest, and learning outcomes were analyzed using the normalized gain formula. The practicality of the model has been analyzed percentage descriptively. Development is said to be successful if it meets the following success indicators.

First indicator: the validity of the product can be seen from the average score of the validator against the learning device ≥ 4.

Teaching materials have a moderate to a high level of readability or are in the category of easy to understand. The evaluation tool has a reliability coefficient (r) ≥ 0.7, proportional difficulty levels ranging from easy, moderate to difficult (0.0 - 1.0), and good differentiation (≥ 0.3).

Second indicator: the model is said to be effective in the event of an increase in interest, activity, and learning outcomes

This model is characterized by acquiring an average learning outcome of at least 70 and a classical completion of 86%. At least in the category of characters begins to develop, showing the sign of behavior expressed in the indicators and begins to be consistent.

Third indicator: The model is expressed as practical

The lecturer's and student's average opinion states the model is easy and practical to use, and the student thinks the learning model is pleasant.

The research is carried out in three stages, namely: (1) Theoretical exploration and review of experts and interested parties; (2) Empirical test, which aims to empirically validate the resulting product, namely the BTL-C model and its supporting features; (3) The implementation stage, which aims to implement the model, find out the effectiveness of the model, and obtain a proven learning model.

RESULTS AND DISCUSSION

Result

The learning model developed is to integrate character components into the BTL learning model. The integration of characters into learning is carried out at the connection stage. The activity is carried out by showing videos related to value and character content, conveying moral messages adjusted to the material and learning objectives achieved in the learning process. Explicit character integration can be seen in the syllabus, Lesson Plan, and teaching materials. An example of a Lesson Plan format developed based on learning with the BTL-C model.

Validation of the learning model developed is carried out through several stages: expert validation, limited trials, and large-scale trials.

Expert Validation

Validation of the BTL-C model developed is carried out by a lecturer in the mathematics department who teaches in Universitas Muhammadiyah Purwoketo. The validation results show that the model developed is appropriate for cultivating student character. The developed model has integrated character material in the Mathematics material and is delivered at the time of the connection step.

The developed Lesson Plan and Instrument test are already good (average score of 4.6) but still need improvement. What needs to be revised is the suitability of the BTL-C step with the Lesson Plan design that uses the Exploration, Elaboration, and Confirmation model. The results of the subsequent improvement were revalidated and declared valid for use since the average score of the validators was ≥ 4.0.

Limited Trials

The BTL-C model that experts and practitioners have validated is then socialized to prospective students so that they are skilled in applying it when teaching in the classroom. On this occasion, students subject to socialization will carry out teaching practices in schools. Student success in applying the model

BTL-C can be seen from the results of making syllabuses, Lesson plans, teaching materials, and evaluation tools, as well as their ability to apply BTL-C in the classroom. The assessment results of the developed devices show that the study students can

make devices following the developed BTL-C model.

The model tested the device on three students to determine the teaching materials' readability and evaluation tools' level. The trial results show that the teaching materials have a level of readability in the medium category and the test and non-test evaluation tools need to be improved.

Broad-Scale Trials

The improved BTL-C device is then used to teach Mathematics material in the classroom as a step of wide-scale trials. The results of large-scale trials also determine the suitability of the developed models and their effectiveness in growing student character, interest in learning, activities, and student learning outcomes.

The effectiveness of the BTL-C model developed can be seen from the achievement of success indicators such as an increase in interest, activities, and learning outcomes, as well as the acquisition of an average learning outcome of at least 70 and a classical completion of 86%.

Growing Character

The results of the application of BTL-C show that there is an increase in the character of students from the category starting to be seen to begin to develop. The character of the students has not yet reached the category of cultivating. This character is because learning is only carried out in a few meetings. The characteristics grown in this study include discipline, respect and attention to others, perseverance, responsibility, cooperation, and accuracy. Among these characters, the most notable improvement is cooperation. The character of respect and attention to others has increased the lowest.

Increasing Student Interest in Learning

Based on the analysis of questionnaires about student interests, results were obtained that there was a significant increase in interest from before to after students were taught with the BTL-C model. Gain increased student interest in learning by 0.5 (moderate category). This result was significantly tested, with a t-test score of 4.33. This value is greater than the t-table with df = 62 and $\alpha = 0.05$ of 2.00. Because t-test > t-table, it can be concluded that there is a difference in scores between pre-test and post-test; in other words, the increase in student interest is significant.

Increasing Student Activity

Based on the analysis of the results of student activity observations during the learning process, results were obtained that there was a significant increase in activity from before to after students were taught with the BTL-C model.

Gains in the increase in student learning activities by 0.70. This result was significantly tested, with a t-test score of 4.77. This value is greater than the t-table with df = 62 and $\alpha = 0.05$ of 2.00. Since t-test > t-table, it can be concluded that there is a significant difference between the activity scores before and after the implementation of BTL-C.

Improving Student Learning Outcomes

The learning outcomes referred to in this study are cognitive learning outcomes. The analysis showed an increase in the average pre-test and post-test scores, from 42.32 to 75.45 and 83.76 at the end of learning.

Student Learning Completion

Classical completion increased from 0% to 68% and 85% at the end of learning. The average individual score has reached ≥ 70, and the classical completion has reached 85%. This score has exceeded the established success criteria of 85%.

Based on the results of observations on learning activities with the BTL-C model, the fact was that lecturers have been able to apply the BTL-C model well. The assessment results showed that the score on the learning carried out was in the high category. The lecturer questionnaire results show that the BTL-C model is easy to implement but requires more preparation time.

The results of providing questionnaires to students show that students like to be taught with the learning model applied by the practical lecturer. They argue that learning is fun, does not make sleepy, and students are always active throughout the learning process.

Discussion

The BTL-C learning model that integrates character into Mathematics material delivered with a collaborative approach, the use of the environment, the use of Instrument tests, and the creation of reflective journals can empower students in the teaching and learning process and character building. Students who are usually only objects of learning, so that student learning activities are less than optimal, can turn into active and productive students.

Learning media, which is usually less utilized by students, has turned into students who can take advantage of simple media that is affordable and obtained from the surrounding environment that meets the 3R criteria (reduce, reuse, and recycle). The touch of the character realm, which is rarely explicitly planned, can be presented realistically in learning with this BTL-C model.

The learning steps in the BTL-C learning model include five key elements of the learning experience known as ICARE, which is an acronym for Introduction, Connection, Application, Reflection, and Extension. Character integration is performed at the time of the Connection step. The ICARE framework is intended to ensure that students have the opportunity to apply what they have learned.

The learning process integrates skills that can empower students, such as cooperative learning, using the classroom environment, using Instrument tests, learning media, making reflective journals, and integrating characters into the subject matter.

The results of field trials show that prospective teachers have been able to develop BTL-C model learning tools and apply them in learning. This result shows that they already have pedagogical competence, namely managing learning, which includes understanding students, designing and implementing learning, carrying out learning evaluations, and developing students to actualize their various potentials. When designing learning, students can choose the right learning model according to the development of learners' thinking and the goals to be achieved.

The results of a wide-scale trial, namely the application of the BTL-C model in the classroom, have proven its effectiveness and practicality in growing student character and increasing student interest, activity, and learning outcomes. The development of a learning model is declared successful

if it has met the criteria of validity, effectiveness, and practicality.

The effectiveness of the BTL-C model in cultivating student character and improving student interests, activities, and learning outcomes is characterized by an increase in student character from a category beginning to a starting to develop. To improve the character of students in the category of cultivating, of course, takes a long time. Therefore, this model needs to continue to be applied so that the student can achieve the student habituation to cultivate positive characters.

CLOSING

The BTL-C learning model developed is to integrate character material into the Mathematics material and is delivered in the connection step in the ICARE step series of steps. This model is declared valid by validators and is supported by empirical validation results through field trials. This model has also been tested for its effectiveness in cultivating character and improving students' interests, activities, and cognitive learning outcomes. The practicality of applying the BTL-C model has also been tested through observations of the lecturer's ability to teach in the classroom, the lecturer's response to the lecturer's ease of using the model, and the student's acceptance response to the learning model applied by the lecturer. The final results show that the BTL-C learning model developed has met the criteria of validity, effectiveness, and practicality.

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