VCD Development of Innovative Character-Based Learning Models as Learning Media in Learning Strategy Courses

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Abstract. This research aims to develop VCD media on character-based innovative learning models. The type of this research is the study of R & D with Four-D). The analysis of the data used to develop the models of learning and development within the VCD pieces is using the sheet media expert assessment and experts’ and students’ responses. Based on the evaluation through questionnaires by material experts showed 87.0% for character-based PBL Learning plan and got 85.9% for Cooperative Learning Model type TS-TS, both including its category Neither instrument of Lesson Plan. Results of the validation study model VCD by a media expert with the details of the quantitative results are obtained to have an average percentage of 84.70% for VCD character-based PBL learning model and 88.2% for the type of cooperative learning model TS-TS. From these results, it can be concluded that the media VCD learning model being developed has fulfilled the good criterion. Meanwhile, based on student questionnaires obtained quantitative data has a percentage of 80.60% for VCD on character-based PBL learning model and 84.7% for the type of cooperative learning model TS-TS. Therefore, it can be concluded that the developed media is already categorized to be good.

Keywords: VCD, development, innovative, character, strategies

1. Introduction
The National Education of Indonesia is nowadays still facing many problems. According to the data of the United Nations Development Program (UNDP) of 2011 on the Human Development Index (HDI), Indonesia ranks 124 of 187 countries, which are surveyed in the index of 0.67 percent. Subandi Sardjoko, Director of Education Board of the National Development Planning Agency (Bappenas) in [1], even stated that the index of the higher education levels in Indonesia is also considered still low at 14.6 percent, in contrast to Singapore and Malaysia which have a better index of education level that is 28 percent and 33 percent.

Research by Jutfi et al. [2] indicated that the level of science literacy for the West Nusa Tenggara’s natural science teachers in secondary schools is still low at 47%, as well as the level of literacy of inquiry that still needs to be improved, which is at 61%. The quality of teachers in Indonesia is still considered low. Referring to the results of these studies, it is the teacher that becomes a factor in determining the level of educational success, especially in West Nusa Tenggara Province. The quality of education being assessed on the achievement of learners is largely determined by the teachers who
are 34% in the developing countries and 36% in the industrial countries. The problem of education is the duty and responsibility of all parties, including the Teacher Training Faculty of Higher Education Levels which mainly works to create the candidates of educators or teachers.

The Department of Mathematics and Natural Sciences, Faculty of Teacher Training and Education University of University, is an institution that is responsible to provide candidate teachers whose competencies are under the field of Mathematics and Natural Sciences. Thus, the factor of student teachers is one factor that plays an essential role in improving the quality of science education in the West Nusa Tenggara province. The subject of Learning strategies is the subject of Course Work Behavior in the Undergraduate program on Mathematics and Natural Sciences Department, whose objective is to equip student teachers with the knowledge and skills to plan and implement an effective learning process in secondary schools. To produce graduates who are skilled and prospective to be teachers in implementing the learning activities it is needed to provide knowledge about learning models that are used to convey the materials of natural science which are following the applied curriculum that is the character-based curriculum.

This is compatible with the mandate of the National Education Law of 2003 intending that education is not only shaping Indonesia's intelligent beings but also creating those who have personality or character. One important thing in education is an element of character education for students. Given the importance of character education, then with the enactment of the curriculum in 2013, known as curriculum-based character, learning science conducted by the teacher must take place in a constructivist (building) which is based on the idea that every learner is the potential seed that can develop independently so that the quality of learning science becomes better.

Based on observations done by the research team, learning strategies course in the Faculty of Education of Mathematics and Natural Sciences consist mostly of materials on models of learning, teaching methods, learning strategies. In the process of teaching, it is only delivered by exploring without practicing how the learning models are applied in learning natural sciences being suitable with the applied curriculum. This fact has resulted in a lack of understanding of procedural skills teaching as well as many student teachers who are less skilled in teaching and training activities (micro-teaching). After all, are analyzed, the main cause is due to lack of knowledge, understanding, and observation of students on how the students in teaching activity are using the models, methods, and learning strategies corresponding to materials of natural science.

Based on the problems above, it should, therefore, be developed learning media in the form of pieces of VCD containing about models of innovative learning science, so that students who take a course learning strategies can see directly how the action of a teacher in applying models of learning science-based character which is accordance with the 2013 curriculum and how one teacher’s procedural skill in teaching is. The importance of media in teaching and learning of some subjects was also realized in the works of [3]. Procedural Skill in teaching comprises the skill in opening lessons, the techniques, and procedures on introducing materials, as well as a procedure in closing the lessons. However, before the package in the pieces of VCD, it is first of all developed learning devices in the form of the syllabus, the character-based Learning Program Plan, the assessment instrument of learning outcomes, and the assessment instrument of teaching procedural skills. The characters being developed following the 2013 curriculum are religious, honest, tolerant, discipline, hard-working, creative, independent, democratic, curious, the spirit of nationalism, patriotism, friendship, love the peace, environmental awareness and responsibility. Because the natural science in 2013 curriculum is developed to be a subject of integrated science and social studies, VCD pieces will be developed in accordance with the curriculum in 2013, namely: a model of problem-based learning (PBL) and character-based cooperative learning model of type Two Stay Two Stray (TS-TS). The advent of multimedia and multimedia technologies has changed the way educators teach and students learn [4].
2. Method
This research is a development that is developing VCD media on character-based learning model PBL and cooperative type of TS-TS in science subjects of junior high schools. Before developing VCD media it is firstly developed learning tools that include syllabus, lesson plans of character-based natural sciences. The design of the development of the science VCD PBL learning model based on the character is following the model of development of learning to follow the 4D model suggested by Thiagarajan, Semmel & Semmel in [5] which consists of four primary stages or phases: 1. Define, 2. Design, 3. Develop and 4. Disseminate. steps for creating VCD media as shown in figure 1.

![Flowchart Making Media VCD](image)

**Figure 1.** Flowchart Making Media VCD

Analysis of the device SMP character-based learning science and media VCD [6]:

\[
Value = \frac{\sum \text{Score}}{\text{max score}} \times 100\%
\]

| No | Score   | Information                                      |
|----|---------|--------------------------------------------------|
| A  | 90% - 100% | Worth/Both are used in the field without any revision |
| B  | 80% - 89%  | Worth / Good use in the field with minimal revision. |
| C  | 70% - 79%  | less feasible / less good use with revisions       |
| D  | < 69 %     | Not worth / Not Good use in the field             |

3. Result and Discussion
3.1. The product validation to the character-based Learning Plan, Syllabus and Worksheet on natural science using learning model PBL and Cooperative type TS-TS is validated by the expert.

| Learning Model                        | Percentage  | Conclusion     |
|---------------------------------------|-------------|----------------|
| PBL (Problem Based Learning)          | 87,0 %      | Good Category  |
| Cooperative Type Two Stay Two Stray   | 85,9 %      | Good Category  |

From the review done by the Learning Technology expert, it shows that the result obtained quantitatively has a percentage of 87% and 85.9%, then it generates a qualitative data that stated the products pf character-based syllabus, lesson plans and worksheets on natural science and is best used with a little revision. The data that should be revised based on inputs from the expert of technology learning is the typing on the formulation of the indicators where the writing competency is less m and the writing of indicators are also less k; besides, the revised notes on the worksheets are to be raised.
with a little character on the PBL model worksheet, and the Learning Plan that should be designed reciprocally is the actions of teachers and students.

3.2. *The validation of media products or the second test is conducted by an expert in media.*

The result of the review carried out by that expert is obtained in a quantitative form that is a percentage of 84.70% and the Cooperative type TS-TS is 88.2%.

**Table 3. Summary of Validation done by the Expert of Character-based PBL Media and Cooperative Type TS-TS**

| Number | Aspect | Score Average | Criteria |
|--------|--------|---------------|----------|
|        |        | PBL | TS-TS       |          |
| 1      | Format | 91.7% | 79.2% |          |
| 2      | Content | 75.0% | 91.7% |          |
| 3      | Language | 87.5% | 93.8% |          |
| **Average** | | **84.7%** | **88.2%** | **Good** |

**Conclusion:** Good / Worth used with little revisions

The average percentage of the three aspects then yields the qualitative data stating that the product of learning media in the form of pieces of VCD has good criteria and videos can be used with minimal revision. The result suggested by the media expert is that the cover of CD should not be written the complete title of the research but it is enough with the CD character-based Model of PBL and the character-based model of Cooperative type TS-TS; the video displayed too long (20 minutes) should be shortened that is within ± 15 minutes; it must be shown an opening that describes the syntax of learning model; the syntax of learning in the early part should be in better voice, the closing needs to show gratitude to sponsors; the logo of Department of Education and Culture should be replaced with the logo of the University of Mataram; the element of character education should be explicitly shown in the video. The revised media is done by replacing all of the inputs from the software expert and media expert. The result of the revision is that in the initial or opening part the animation of the Department of Education and Culture has been removed, the duration of time has been shortened into 15 minutes for each learning model, at the beginning there is a dubbing voice which explains the syntax of learning model, and the last part has appeared the acknowledgment session to the funds raisers or sponsors. Learning media is very important in learning [7]. Audio-visual media is considered an effective tool to improve students’ critical thinking ability and also motivate students to learn [8].

This is confirmed by [9] who stated that a visual symbol accelerates the obtainment of the goal to understand and remember the materials. If the media program is designed and developed well, then the function will be played by the media even without the presence of a teacher/lecturer [10]. Learning media too can stimulate the mind, attention, feeling, and ability or skills of the learners so that it encourages the learning process or the learning activities that can improve the students’ learning outcomes [11].

3.3. *Results of a small test questionnaire related to the responses of 15 students taking courses on teaching strategy are at an average of 80.6%.*

**Table 4. Summary of the results of the Validation Expert of PBL Media for the Character-based Model and Cooperative Type TS-TS**

| NUMBER | ASPECT  | SCORE AVERAGE | CRITERIA |
|--------|---------|---------------|----------|
|        |         | PBL | TS-TS |          |
| 1      | Format  | 81.9% | 84.2% | Good     |
| 2      | Content | 78.9% | 81.7% | Good     |
| 3      | Language | 80.9% | 86.3% | Good     |
| **Average** | | **80.6%** | **84.1%** | **Good** |
The results of the fifteen students’ responses can be summarized that the display effect is good, the duration of time a little over time and the syntax of the learning model must be shown to be more easily understood. Some good advice from the media expert and students’ responses are used to enhance media products of VCD. Products that have been revised by the contents based on the input of the media expert and users’ responses. The VCD 2 learning model is ready for dissemination. [11] which found the VCD more effective than conventional teaching methods.

Media learning is everything that becomes a means of delivering information from the sender to the recipient so that what is delivered can be well-received [12]. This is in line with the opinion [13] that the Media is a means of anything that brings information between a source and a receiver. Isaka [14] found that the teachers will be as excited as the pupils in learning side-by-side via the video programs. Gunawan et al. [15] and Hermansyah et al. [16] in their research also stated that computer-based media can support a variety of development of students' thinking skills. Audio-visual media as one of the technologies provide messages both in audio and visual, can facilitate and simplify the learning. The learners will find it easier to transform the information displayed in audio-visual media into their real context of learning. Video as the actualization of such media brings the students into the more contextualized learning experience. Thus, by using audio-visual media in the classroom, both the teacher and the students will be able to create a conducive atmosphere in the classroom [17]. Using multimedia audio-visual aids stimulates thinking and improves the learning environment in a classroom [18].

4. Conclusion
Learning media is the media that is used as a tool in the learning process and as a means of messenger for learning sources to the learning message recipient. The development of instructional media in pieces of VCD being made easy, practical, and efficient is designed to help the learning process. Integrating technology education into the classroom initiates when a teacher prepares lessons that use technology in relevant. In general, the VCD media of the PBL character-based model and the character-based cooperative TS-TS have been made in this study whose criteria are good and decent when used in learning. To clarify the syntaxes of the learning model in sense of their application on the procedural teaching syntax it is then needed to develop this video media. This media should be developed further for other kinds of learning models which are certainly by the implementation of the 2013 curriculum.

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