Improving the Quality of Video Programs at Universitas Terbuka based on Problem-Based

Learning Approach

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IMPROVING THE QUALITY OF VIDEO PROGRAM

Abstract

The paper discusses the concept of video based on Problem-Based Learning (PBL). The background of the idea is based on the results of institutional research. Almost half of the UT student respondents stated that they did not utilize the video and interactive video program that accompanied the printed materials (modules). The factors causing low utilization of video program that should be considered are packages of material such as video duration and video format. Baden and Major (2004) state PBL is a strategy that can develop critical thinking and motivation of students. Video based on PBL tends to make students motivated and challenged to find solutions to problems, and can speed up the understanding of the topics discussed in the module. At the end of the paper, the need for further research to develop video based on PBL and an evaluation of the product is given.

Keywords: video and interactive video program, PBL, video format based on PBL

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Universitas Terbuka (UT) has the primary mission to serve those who want to attend

higher education through open and distance learning system. UT active students per December

14, 2015, reached 396,955 (retrieved from www.ut.ac.id on April 12, 2016) which are in the

Faculty of Teacher Training and Education, Faculty of Social and Political Sciences, Faculty of

Economics, Faculty of Mathematics and Natural Sciences, and Postgraduate. Most of the students

are working. They chose UT to pursue higher education because UT makes it possible to learn

independently according to their time availability without leaving work.

The main learning materials used are printed materials in the form of modules. A number of

the Course Book (BMP) developed until now reaches 1163 (Suryo Prabowo, personal

communication, April 10, 2016). Furthermore, based on the learning needs of diverse students

and the culture of learning, it also develops non-printed learning materials that serve to

complement the materials on the printed modules. The types of non-printed learning materials

that accompany the modules are in the form of video programs, interactive video programs,

audio, audio graphics, and computer-assisted instruction (CAI) program, in a total of 495

materials (Suryo Prabowo, personal communication, April 10, 2016).

The idea of the format of presentation of the material on video and interactive video

programs that will be described in this paper is based on the results of research institutions

regarding the use pattern of non-printed instructional materials performed in 2009. The focus of

the research is to see the pattern of utilization of audio programs, video programs, interactive

video programs, and CAI program as non-printed learning materials that accompany the modules

for UT students. Survey technique is used by distributing 1,500 questionnaires to UT students in

Western, Central, and Eastern parts of Indonesia, and questionnaires returned and processed were

405 sets. The results show that the use of non-printed instructional materials in the form of video

programs, interactive video programs, and CAI program by the students is still low. As many as

198 students have never utilized interactive video programs in their independent learning process

with the modules they receive. As many as 38 students have never utilized the video programs in

the modules they have. As many as 195 students have never utilized the CAI program in the

modules they have. (Prabowo, Sunardianto, and Harsabudhi, 2009). The reasons for not using the

non-printed instructional materials, especially CAI and interactive video programs, are that

students do not have a CD player or PC. In addition, the presentation of the video and interactive

video program is suspected to be the cause for the least use of non-printed materials. While the

function of the video program is to clarify and enrich the module, so it should be able to attract

and motivate students to the material.

In terms of the form of presentation of the video and interactive video program which

more challenging to learn, this paper will describe the concept of presenting materials in the form

of video programs and interactive video programs (including CAI). One that is considered to

increase the effectiveness with the use of video and interactive video program is a contextual

material presentation as suggested by Problem-Based Learning (PBL).

Literature Review

In contrast to the need for instructional materials of face to face university students, the

needs of learning materials for UT students are varied, so that the types of course material offered

should be various (superman, and Zuhairi, 2004, p. 136). This is related to the main characteristics of the implementation of open and distance education that is the distance between learners with learning resources. The implementation of such designs is to accommodate the needs of people who want access to educational programs, but have different conditions and situations, such learners are far from urban areas of no universities available, physical, age, and time limitations. Pribadi in Asandhimitra *et al.* (2004, p. 99-101) states that the nature of UT learning materials covers three things, namely modular, self-contained, and self-instruction. The main learning materials are in the form of printed learning materials or subject matters arranged on a modular basis. A series of important topics that support the achievement of specific competencies is organized into a single and comprehensive module. Self-contained on UT printed learning materials means that the materials contain the whole substance of scientific material arranged in such a way followed by detailed examples and applications. Self-instruction means that learning materials are designed for students to be able to learn independently with minimum help from tutors. Therefore, printed instructional materials arranged in modules have the different format from textbooks. Inside, there are descriptions just like the dialogues between students and teachers in a face-to-face meeting, an instruction to perform tasks or exercises, and formative evaluation which can be measured by the students themselves.

In addition, UT also develops non-printed learning materials, which are supplemental to BMP. The substance of these supplementary materials is additional materials that enrich and clarify the concepts outlined in BMP. It can be audio materials, videos, interactive videos, or CAI. Those are packaged in one complete package received by students as their independent learning materials (Supaman, 2014, p 364). According to Moore and Kearsley (2012, p. 91), the

combination of printed and non-printed learning materials packed in one is compulsory in the implementation of open and distance education. The more diverse forms of learning materials in one package provided based on the learning needs of students, the more effective for the courses offered remotely as it can facilitate students of diverse abilities and learning styles. In line with that statement, Simonson, Smaldino, Albright, and Zvacek (2012, p. 201 -202) confirm that the key to using quality learning materials package depends on the appropriate media type that is prepared at the beginning of the term. This allows developers to adjust the sources of a variety of learning materials based on the needs of the students. Associated with the packaging materials in UT BMP, its structure consists of the review of courses that shows the expected competencies achieved by the students after completing the course. After that, modules are prepared in accordance with the weight of the subjects. Subjects of two (2) credits have BMP with 6 modules, nine (9) modules for subjects of three (3) credits, and twelve (12) modules for subjects of four (4) credits. Each module begins with an Introduction, General and Specific Instructional Objectives, Main Activities including explanation and examples, exercises or instructions to carry out the practice, as well as a summary. At the end of each module, there is Formative Tests, Feedback, and Follow-Up, Bibliography, and Glossary (Padmo, Mutiara, and Kurniati in Zuhairi and Nugraheni, 2009, p. 41).

To improve the quality of learning services to students, UT equips BMP with various types of media such as audio cassette programs, video programs, interactive video programs, and Computer-Assisted Instruction (CAI). Actually, another form of CAI in UT is the interactive video program that is computer-based learning materials consisting of graphic illustrations, animations, and video program that requires the computer to run the program. Until 2015, the

video programs as BMP supplementary were 146, interactive video programs were 210, while

the audio programs were 139 (Suryo Prabowo, personal communication, April 11, 2016). As

stated in the introduction, video programs and interactive video programs were underutilized

when students learned BMP because of lack of CD players, less skilled in operating a computer,

or have limited time to study. There was another factor to consider is the material presentation

mismatch for both types of non-printed instructional materials. However, previous research on

interactive video programs used as a supplement of a BMP for Early Childhood Education

Program (PAUD) and Communication Studies Program, reveals that these materials facilitate

students in understanding the topics (Windrati and Asih, 2009; Tatminingsih, Amini, and

Setiawan, 2011). This proves that if a material is presented through appropriate presentation

format, it will help students understand the material in a comprehensive manner. Munir (2013, p.

7) Also confirms that multimedia learning materials, including interactive videos, can be used to

create a dynamic reading by displaying the sentences in a new form accompanied by elements of

sound, graphics, video, and animation. Video programs, although less dynamic compared to

interactive video programs, the format is more simple and linear. Although Smaldino, Lowther,

and Russell (2008, p. 310) state that video programs can accommodate almost all topics, for all

learning styles and all dimensions of learning, the research on the use of multi-media program by

Padmo and Toha (2002) find that UT students take better advantage of BMP than video programs

because it is easier and faster to access. This shows that although video programs are considered

effective to help the process of learning, we cannot be sure that students would use them. It seems

that students will consider making use of multimedia if there is a need for it. Hence, the existing

BMP and BMP supplements should be structured in interrelated and complementary to encourage students to utilize both forms in parallel.

Problem-based Learning (PBL) is a learning strategy that initiated from the presentation of the problems closely related to real cases and significant for students. This also serves as a stepping stone for further exploration and observation (Arends, 2007/2008, p. 41). Furthermore, Baden and Major (2004) in various chapters of their book say that PBL is considered to build motivation and higher order thinking. In the context of learning, there are several characteristics of PBL. First, the questions or problems should intrigue the curiosity of students to further investigate. Second, although the problem can also be selected from the subject field of study, ideally problems should be examined from various angles of sciences such as biology, sociology, and economics. Third, PBL is a strategy that directs students to find a real solution to real problems (not imaginary). Fourth, students must produce a product after the process of investigation and discovery of solutions to the real problems. Fifth, PBL expects cooperation among students (Arends, 2007/2008, p. 42-43). In practice, the application of PBL in the context of higher education produces a wide variety of models of PBL. As stated by Conway and Little (2000) in Baden and Major (2004, p. 36), PBL could be learning strategies and could also be the design of the curriculum. PBL as a learning strategy can be combined with other learning approaches. The most important process when designing PBL is the problem. Hung in Spector, Lockee, Smaldino, and Herring (2013, p. 190) says that PBL is a strategy that is complicated and requires a high level of thinking skills. He outlines some of the tools that can help students to internalize or visualize the process of conceptualization of the problem as the first step of the PBL. Mind maps, the use of diagrams, and system modeling are some visualization tools to build

problems in the PBL process. Barret, Cashman, and Moore in Barret and Moore (2011, p. 23- 24) state that the use of a variety of media to present a problem in the first step of PBL can encourage students to be challenged to develop problems. Furthermore, it is important to design an appropriate issue to the learning needs of students. There are three general categories to group the appropriate form of media in designing problems in PBL, which refers to real experiences, such as real things, controversial issues, and social and emotional issues; to simulated experiences such as correspondence, summary of news, role plays, dialogues, and fragments of literature; as well as to digital form experiences such as photographs, illustrations, animations, websites, video excerpts, audio excerpts, and e-mails. The result of Research and Development on PBL-based video program that developed as a medium of learning physics in junior high schools showed that teachers and students can apply for PBL-based video programs in a good way (Yuliono, Sarwanto, and Wahyuningsih, 2014, p. 21).

In practice, UT has been using PBL strategy, though with a simple PBL spectrum, namely the delivery of problems and solutions, and thus it does not ask students to investigate in depth to seek solutions of their own. It is practiced in a streaming video program that is put on the Guru Pintar Online Portal, an open source that is intended for teachers. Rahayu and Andayani (Belawati, Damayanti, and Puspitasari, 2014, p. 268) reveal that the part of Portal especially video streaming developed by the PBL approach is expected to trigger critical and creative thinking skills. The illustrations used as problems in between 5 to 10 minutes video streaming in the Portal are developed based on learning problems experienced by the teachers of kindergarten and elementary school. Similarly, the solutions shown in the video streaming are the experience of teachers who manage to overcome learning problems with their own solutions. Rahayu and

Andayani in Belawati, Damayanti, and Puspitasari (2014, p. 270) reveal the results of the evaluation conducted by Antoro, Supratmi, and Purwoningsih (2012) on the utilization of video streaming in the Portal Guru Pintar Online—that teachers have a positive impression toward the presentation of solutions to the problems of learning found in the classroom, and teachers think that they can do the solutions in their class. From this experience of developing a video streaming through PBL approach as an open-source learning, a similar pattern can also be practiced to develop non-printed supplementary teaching materials (video and interactive video programs) accompanying BMP courses at UT.

Discussion

The draft of supplementary materials in the form of video and interactive video programs (BMP accompanying materials) which are based on PBL described below is a strategy that does not separate delivery of materials to BMP. Syntactic of PBL will be described referring to Arends (2007/2008, p. 57), which consists of five (5) steps, and when applied to the development of video-based PBL programs, it consists of the following steps.

1. Presentation of several phenomena followed by a guiding sentence for students to think of the problem outlined in the form of illustrations in BMP and also visually via the video program;

2. Steps to organize students are described in written form in BMP in clear procedures and complete activities;

3. Assistance, encouragement, and guidance to investigate a topic are in written in BMP. Developers must also include sources or other student groups as well as a contact address and email address to allow students to communicate and interact;

4. The process of producing the products is presented through visual via video programs; and

5. The analysis and evaluation of the process of solving the problem are described in two

    formats through BMP and visually in the video programs.

  In the production, the video program is presented in the form of fragments and lasts for

about 10 minutes. As described by Smaldino *et al.* (2008, p. 310), students will be more

comfortable with a video program of several minutes than with video program of 30 minutes (see

Appendix A for the concept design of video programs based on PBL). Furthermore, the concept

of interactive video programs based on PBL is slightly different in design to syntactic 4th and 5th

using interactive video programs only, whereas the working procedures for PBL from the first

step until the third is presented in narrative form in BMP (see Appendix B for the concept design

of interactive video programs based on PBL). PBL-based interactive video programs can be made

for a longer duration than PBL-based video programs that are linear because PBL-based

interactive video programs merge animation formats, graphics, and video excerpts lasting for 7

minutes at the most. Noting the diversity of UT students spread in large cities, small towns, and

countryside, as well as the diversity of age, the navigation components in PBL-based interactive

video programs should be simple and large enough to be seen.

Conclusions and Future Study

  Related to the effectiveness of learning materials, it needed an appropriate strategy in

preparing them. One of which is probing the new form of learning material. In term of searching

the video and interactive video program which aligned with BMP, it is necessary to further

investigate through in-depth assessments on various concepts and theories related to the

application of PBL in video and interactive video program. In addition, the study to develop a

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form of video programs and interactive video programs based on PBL and test on the usefulness of the programs as supplement accompanying BMP among UT students must also be conducted.

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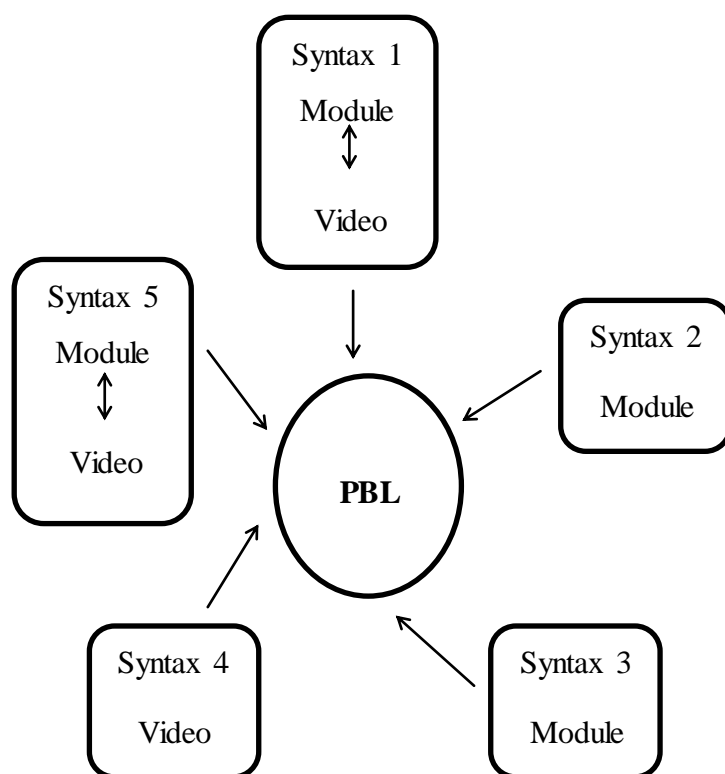
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Appendix A

Concept Design of PBL-Based Video Programs

Below is a framework for designing PBL-based video programs

Figure A1

Concept design of the video programs based on PBL

The arrow inside the square of syntax 1and syntax 5 illustrates the interaction of material

presented in the module with the video program. While syntax 4 will not be illustrated in the

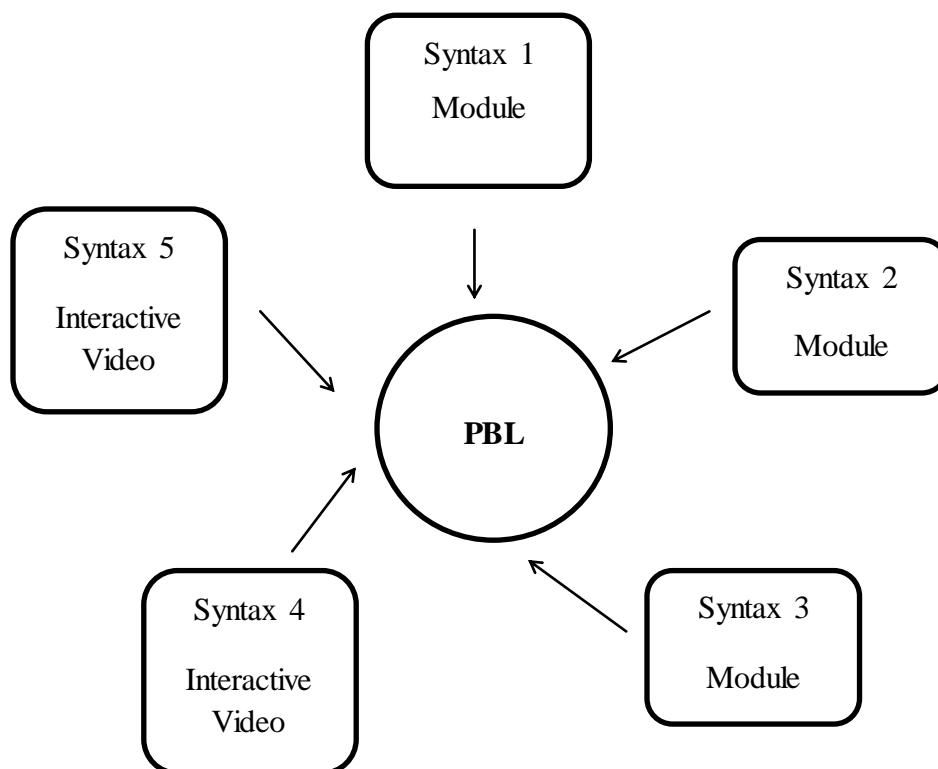module

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Appendix B

Concept Design of PBL-Based Interactive Video Programs

Below is a framework for designing PBL-based interactive video programs

Figure B1

Concept design of the interactive video programs based on PBL

In the figure of the conceptual design of the interactive video programs based on PBL, syntax 4

and 5 are presented through an interactive video program without clarification within the module.