Developing Project Based Learning (PBL) as a teaching Strategy in Physical Education for Preservice Physical Education Teacher

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Abstract
An appropriate teaching strategy can improve the teaching quality. The aim of this study is developing Project Based Learning (PBL) as a teaching Strategy in Physical Education for Preservice Physical Education Teacher. The development and innovation were executed through innovation course that provide both conceptual and skill reinforcement. Project-based learning activities are intended to train abilities and skills in developing learning, especially physical education. In addition, this research is expected to produce learning device products with a learning approach based on Project Based Learning (PBL).This is an action research which includes the analysis, planning, design, development, implementation, evaluation and revision phases. Furthermore, it uses qualitative descriptive analysis techniques and quantitative data analysis techniques to determine the teaching quality, learning outcome, and learning product. The final results are teaching instruments and materials that can be implemented to improve teaching quality, which consists of: RPS, handouts, power points, student worksheets and assessment instruments.

Keywords: Project Based Learning, Learning strategies, Learning Innovation

Introduction
The profile of the graduate masterprogram in Physical Education should have academic mastery with the demands of professionalism that has a strong personality in dealing with academic researchby answering existing problems and in accordance with what is desired by stakeholders as graduates. For this, the curriculum content should refer to certain qualifications and levels (level 8 KKNI) where each course has determined the learning outcomes and skills that students must possess.Through this study, researchers will innovate and see how far the implementation and achievement of learning programs in the physical education learning innovation course refer to the Standard. By implementing one of the learning methods based on Project Based Learning (PBL),it aims to provide skills to students in designing learning specifically Physical Education.

Project-based learning provides great opportunities for more interesting and meaningful learning experiences for students. According to the Buck Institute For Education (http://www.bie.org.),project-based learning has characteristics: 1) Intended to teach material meaningfully; 2) Requires critical thinking, problem solving, collaboration, and various forms of communication; 3) Require inquiry as part of the learning process and create something new; 4) Organized based on questions that cause curiosity; 5) Creating a need to know essential concepts and skills; 6) Provide opportunities for students to argue and make choices; 7) Includes a process of improvement and reflection; and 8) Involving the community in the presentation of project results.Illustratively, the characteristics of project-based learning can be described as follows.

Figure 1. Characteristics of Project Based Learning (source : http://www.bie.org)

In project-based learning, students are actively involved in solving problems assigned by the teacher in the form of a project. Students actively manage their learning by working in a real way, reducing competition in the classroom and directing students to be more collaborative than working independently can also be done independently through working to construct learning (new knowledge and skills), and manifest it in real products. In general, the steps of Project Based Learning (PBP) can be explained as follows.

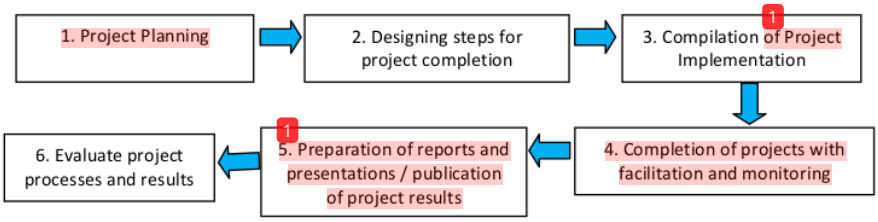

Figure 2 Project-based learning steps adapted from Keser&Karagoca (2010)

Method

This research is a type of developmental research. As for what was developed in this study is a learning strategy in the Physical Education Learning Innovation course that uses Project Based Learning (PBL) syntax in the design of its learning activities.This research refers to Fenrich's (1997) instructional development cycle which includes phase 6 phases as in figure 3.

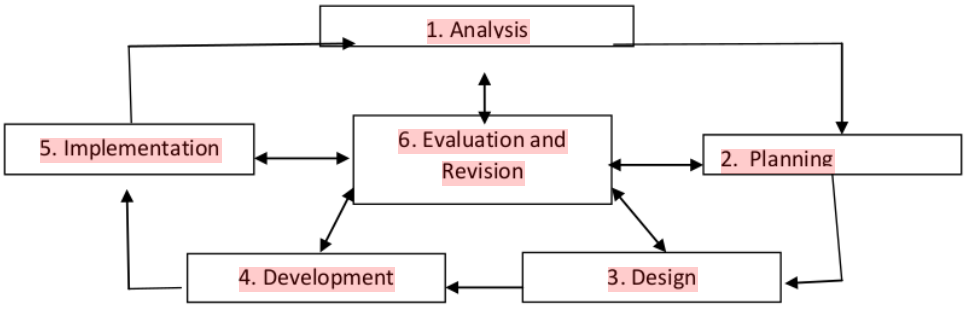

Figure 3. Model of the Instructional Development Cycle (Fenrich, 1997)

The evaluation and revision phase is ongoing activities carried out at each phase throughout the development cycle. Each phase will be evaluated on the results of the activity and revised according to the results of the evaluation, and continued in the next phase.The instructional development cycle model will be used in the development of the Physical Education Learning Innovation learning device with the previews designs (Figure 3). In the analysis phase (theoretical), covering the activities of theoretical analysis of content, curriculum content, especially Learning Innovation material including adjusting the SKS weight, conducting a literature review to obtain an overview of: (a) Structure, systematics, and substance of learning devices, (b) Project Based Learning (PBL), (c) Attitude, cognitive, and skill assessment rubrics, (d) Semester Program Plan (RPS). During this phase evaluation and revision is carried out.

In the planning phase, planning of the Physical Education Learning Innovation learning tool planning begins with basic planning related to the format and content of the Semester Learning Plan (RPS) to adjust lecture activities, content, scope of material, questions and evaluation and harmonize learning outcomes. Prepare handouts, combining material with other lecture materials such as power point. Designing PBL syntax, preparing student work sessions (MFIs) and making observation sheets that are designed according to the design of activities. In addition, planning an assessment instrument format to measure student performance. During this phase evaluation and revision is carried out.In the design phase, preparation and design of the scenario of Physical Education Learning Innovation is carried out with syntax to participate in project based learning (PBL), and designing student activities that can provide skills in designing learning especially the activities of students (elementary, middle and high school) along with assessment instruments for aspects skills. In this phase an evaluation and revision was also carried out.

In the development phase a product review and validation is produced by the expert team. Sharing is done to study the material more deeply. Readability testing of learning devices is done by sampling to students before the implementation phase. In this phase, evaluations and revisions are also still underway. In the implementation phase, the application of tools to students to find out the effectiveness of the device in training students' skills in designing physical education learning. The testing phase is the readability of the device on 5 representative students from each 2017 A (regular) and 2017 B (Parallel) class. After the review was carried out by experts, the trial was carried out on ± 30 students in the regular and parallel classes.The research design used was one group pretest-posttest design, time of implementation, preparation of the device was carried out within 4 months. Data analysis at small group trials using qualitative descriptive analysis techniques and quantitative data analysis techniques. while the data obtained about the effectiveness of the product were analyzed by expert validity tests so that it could be implemented in the learning process.

Results and Discussion

In this section, we will explain about the research strategy matrix related to the process of preparing devices that are adjusted to the procedures and steps of development research, namely:Results in the analysis phase (theoretical): find facts that have not been contained in the structure of the curriculum that should be, with the adjustment of material with a weight of 3 credits. Phase Planning produced several products in the form of draft handouts, Power Point drafts, RPS format, PBL syntax, Outline design of the MFI's motion (Student Worksheet). Phase Design produces PBL-based learning tools Phase Development in the form of validated learning tools. The implementation phase produces data from the readability of the device, the results of the trial data after improving the device and the learning model with the subject according to the material designed

As previously explained, the output of this research is in the form of products in learning. The procedures for device development have been carried out in accordance with the procedures and development steps that follow 6 phases. The process runs according to the procedure by paying attention to input from experts and making revisions if needed. Obtaining input and suggestions from the judgment experts strongly imparts refinement of documents. While the results of sharing with students related to discussion, activities and readability of device documents can be concluded

that students are very enthusiastic about learning models like this because they are encouraged to develop both the concept of thinking and the activities carried out, the target of clear achievement and provision in designing activities, especially field practice for physical education lessons.

The design in the development of this learning innovation model is prepared with consideration of each phase that is followed. In detail the design of activities is like in the following matrix:

Table 1 . Matrix of PBL Phase

No	Phase	Activity	Result
1	*analysis* (theoretic)	analysis of student curriculum in Unesa's FIK Physical Education Study of Master Program Aka literature review has an overview of: (a) Structure, systematics, and substance of learning devices, (b) Project Based Learning, (c) Assessment Rubric (d) Semester Learning Plan (RPS). Evaluation and revision	find facts that have not been contained in the curriculum structure that should be adjustment of material with a weight of 3 credits.
2	*Planning*	planning the format of learning devices (Physical education Learning Innovations) planning assessment instrument format to measure student performance evaluation and revision	draft handout draft PPT RPS format PBL syntax Outline of motion design (Student Worksheet)
3	*Design*	Drafting of learning devices (physical education learning innovations), handouts, student worksheets (LKM), assessment instruments Evaluation and revision.	PBL-based learning tools Review results
4	*Develop-ment*	review and validation of the draft learning device (PBL-based physical education learning innovation), along with instruments specifically related to students' skills in designing learning. evaluation and revision. Workshop / sharing namely review and draft validation activities carried out by sports education experts, and students for readability	Validated learning device
5	Implemen-tation	trial learning device (small group) application of the device to UNESA Master students of physical education department to find out the effectiveness of the device in training student skills in designing learning	small group data for device readability the results of the trial group test after repairing the device implementation of the model with the subject according to the material designed
6	Evaluation and Revision	evaluating products (learning devices) that have been implemented, carried out in each phase. Create more creative designs by adjusting the contents of the activity observation sheet	Inputs to product improvement, especially related to content / discussion material should always be associated with PBL models. Revision for product improvement

As one of the outcomes of the research that has received the most feedback from respondents is the material in the Semester Learning Plan (RPS). Semester Learning Plan (RPS) which has been adjusted to SN Dikti and KKNI by considering the weight of the SKS of the course.RPS is arranged based on the themes given in one semester consisting of 14 face-to-face, 1 midterm exam and 1 semester final exam with a weight of 3 credits (150 minutes). As a general description of the material distribution in lectures are as follows:

Table 2. Semester Learning Plan

Week	Material / Subject	Time	Activity
1	PBM studies based on local, traditional and modern wisdom (Character Building)	150 minutes	- Study of literature
2-3-4	Implementation of various models, strategies and teacher teaching techniques: Active Interaction, Applied Learning, Scanning and Leveling, Discussion and Feedback, Teaching and Motivation, Body Language, Picture and Group Technology, Reasoning and Argumentation, Self-Reflection, Focus and Point Base, Question and Answer Method, Commenting on Student Question, Honesty	3x 150 minutes	- Journal Exploration
5-6	Analysis of research journal results (national scale) about PJOK Learning	2x150 minutes	- Assignment
7-8	Analysis of research journal results (international scale) about PJOK Learning	2x150 minutes	- Group project
9	Middle Semester Exam (Materials 1 to 8)	150 minutes	- Discussion
10-11	Implementation of the concept of holistic education through various approaches to learning (PJOK): 1. Contextual learning, 2. Student Active Learning	2x150 minutes	- Presentation
12-13	Implementation of the concept of holistic education through various approaches to learning (PJOK): 1. Integrated learning, 2. Multiple Intelligences	2x150 minutes	Report preparation
14-15	Implementation of the concept of holistic education through various approaches to learning (PJOK): 1.Developmentally Appropriate learning (DAP) 2. Collaboration Learning	2x150 minutes	
16	Final Semester Examination (Materials 10 to 15)	150 minutes	

The following is a recapitulation of the questionnaire results of the recapitulation of student responses that have been carried out on a number of 30 Masters of Sport Education students:

Table 3. Student Response Questionnaire Recapitulation

Items	Frequency					TOTAL
	1 Very Low	2 Low	3 Fair	4 Good	5 Very Good	
1	0	0	1	1	28	30
2	0	1	0	4	25	30
3	0	0	0	12	18	30
4	0	0	2	4	24	30
5	0	0	0	3	27	30
6	0	0	0	10	20	30
7	0	0	2	7	21	30
8	1	0	0	8	21	30
9	0	1	1	15	13	30
10	0	0	0	10	20	30
11	0	0	3	17	10	30
12	0	1	1	8	20	30
13	0	0	1	12	17	30
14	0	0	0	10	20	30
Total	1	3	11	121	284	420
Score	1	6	33	484	1420	1944
Total Score			1944			
Maximum score			2100			
PROCENTAGE			93%			

It can be explained that the results of the responses carried out by 30 students showed that: most of the items that had a very good (SB) and good (B) response by students meant that students appreciated positively towards the task, completing activities thoroughly understanding the form of assignments given. Adequate category (C) spreads over 7 statements (item 1 = 1 mhs; item 4 = 2 mhs; item 7 = 2 mhs; item 9 = 1 mhs; item 11 = 3 mhs, item 12 = 1 mhs; item 13 = 1 Students, it is suspected that students' understanding of the material and activity sheet is only limited to understanding but less challenged in innovating the work that he will display. There were 3 students giving Less (K) responses, namely 1 student each at points 2.9 and 12. And only 1 student responded less (K) in item 8. For students with responses (K) and (SK) can it means they cannot understand the instructions that they must do on the observation sheet and tend to be passive. However, on other items it can still follow the direction and instructions that must be done.

The results of the questionnaire responses that were filled out and conducted on a number of 30 Masters students in Sports Education showed that most of them positively appreciated the assignments, completed their assignments and activities thoroughly and understood the form of assignments given. Whereas about the outputs of the research results, how many learning tools in the Physical Education Learning Innovation course are able to train skills in designing learning for students.

Conclusion

It can be concluded that Problem Based Learning (PBL) is a learning method that encourages students to recognize ways of learning and collaborating in groups to find solutions to problems in the real world. Problem simulation is used to activate students' curiosity before starting to study a subject. PBL prepares students to think critically and analytically, and is able to appropriately obtain and use learning resources.

So that it can be interpreted that PBL is a learning process that is the starting point of learning based on problems in real life and from this problem students are stimulated to study problems based on the knowledge and experience they have before (prior knowledge) so that from prior knowledge new knowledge and experience will be formed . Discussions using small groups are the main points in implementing PBL. PBL is a learning process in which problems are the main guide to learning. Thus, existing problems are used as a means for students to learn something that can support their knowledge. The specific conclusion from this research are explained as follows:

1. The development of learning strategies in the Innovation Course based on project based learning (PBL) based learning is able to make the learning situation interesting and able to train students' skills in designing learning.
2. PBL-based learning strategy models in the Physical Education Learning Innovation course developed can be implemented based on learning activities, achievement of learning objectives.

Acknowledgments

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Conflict of interest

The authors declare that they have no conflict of interest.

Ethical approval

The research was approved by the local institutional (sport science faculty) review board.

Informed consent

All participants have provided informed consent.

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