



## The Development of Learning Method “Imagination Box”: An Effective and Efficient Method to Evaluate Student’s Understanding

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**Abstract: The Development of Learning Method “Imagination Box”: An Effective and Efficient Method to Evaluate Student’s Understanding.** **Objectives:** This study aims to develop effective and efficient learning method in order to evaluate student’s understanding in the theory of physical education, sport, health, and recreation equipped with assesment instrument. **Method:** This study is research and development which is adopted from ADDIE. Datas analysis techniques are quantitative and qualitative. Quantitative data analysis technique used descriptive statistical analysis and qualitative data analysis including analysis of instrument feasibility, analysis of instrument trials and analysis of the results of the conversion criteria of the instruments developed. **Findings:** The information aspect of the method developed is valid with a mean score of 3.2-3.6, the average performance aspect is high with score of 3.5-3.7, and the efficiency aspect of the method is high with score of 3.3-3.5. **Results:** The learning method “Imagination Box” which is equipped with the assessment instrument produced is feasible to be implemented and become variation of the learning method for teacher.

**Kata kunci:** *imagination box, ADDIE, student’s understanding.*

**Abstrak: Pengembangan Metode Pembelajaran “Kotak Imaginasi”:** *Metode yang Efektif dan Efisien untuk Mengukur Pemahaman Konsep Siswa.* **Tujuan:** *Penelitian ini bertujuan untuk mengembangkan metode pembelajaran yang efektif dan efisien guna meningkatkan pemahaman konsep siswa pada mata pelajaran teori Pendidikan Jasmani Olahraga dan Kesehatan (PJOK) yang dilengkapi dengan instrumen penilaian.* **Metode:** *Penelitian pengembangan ini mengadopsi langkah pengembangan ADDIE. Penelitian ini menggunakan teknik analisis data kuantitatif dengan analisis statistik deskriptif dan analisis data kualitatif meliputi analisis kelayakan instrumen, analisis uji coba instrumen dan analisis hasil dari kriteria konversi dari instrumen yang dikembangkan.* **Temuan:** *Aspek informasi dari metode yang dikembangkan adalah valid dengan rerata skor 3,2-3,6, rerata skor aspek permorma 3,5-3,7 dengan kategori tinggi, dan aspek efisiensi metode dengan rerata skor 3,3-3,5 dengan kategori tinggi.* **Kesimpulan:** *Metode pembelajaran “Kotak Imaginasi” layak digunakan dan dapat dijadikan sebagai variasi metode guru dalam mengajar.*

**Kata kunci:** *kotak imaginasi, ADDIE, pemahaman konsep siswa.*

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## ■ INTRODUCTION

By the time, teachers are required to be able to carry out various innovative breakthroughs in the learning process in order to achieve educational goals (Ekayana, 2013). One of them is by constantly updating the implementation of learning both strategies, methods, and learning techniques in accordance with the times and characteristics of students to be able to help in facing learning difficulties. Through the strategies that teachers use in the teaching process education goals should be achieved in accordance with applicable curriculum directives. However, problems are also often experienced by teachers who have difficulties or even fail in the teaching and learning process. Many planning education reforms fail because of errors identifying specific technical problems, such as lack of good material, effective training, lack of administrative support (Zakso, 2010). Therefore every teacher is required to be able and able to carry out the learning process by innovating. Learning innovations can be carried out by educators to improve weaknesses in the process

Seiring dengan perkembangan zaman, guru dituntut untuk mampu melakukan berbagai terobosan inovatif dalam proses pembelajaran guna mencapai tujuan pendidikan (Ekayana, 2013). Salah satunya ialah dengan senantiasa mengupdate pelaksanaan pembelajaran baik strategi, metode, serta teknik pembelajaran sesuai dengan perkembangan zaman dan karakteristik peserta didik agar bisa membantu dalam menghadapi kesulitan belajar. Melalui strategi yang digunakan guru dalam proses mengajar hendaknya tercapai tujuan pendidikan sesuai dengan arahan kurikulum yang berlaku. Akan tetapi permasalahan juga sering dialami guru yang kesulitan atau bahkan gagal dalam melakukan proses belajar mengajar. Banyak perencanaan pembaharuan pendidikan gagal karena kesalahan mengidentifikasi masalah teknis yang spesifik,

seperti kekurangan material yang baik, pelatihan yang efektif dukungan administratif yang kurang (Zakso, 2010). Therefore every teacher is required to be able and able to carry out the learning process by innovating. Learning innovations can be carried out by educators to improve weaknesses in the learning process, so that they can achieve maximum results (Halik, 2013).

One type of education taught in school subjects is physical education. Physical education has been a marginalized subject in school for more than 4 decades (Beddoes *et al.*, 2016) with negatives image attached to physical education teachers (McCullick *et al.*, 2003; Spittle *et al.*, 2009). Many people think physical education is only done in the field and is often referred to as sports education. Physical education is a type of education carried out through a type of physical activity, namely physical activity. The implementation of physical education is carried out through two different types of learning activities, namely theory and practice. The theory material is carried out in the classroom and carried out according to the direction of competencies in the curriculum. The theoretical material in the class is also done when the weather in the school doesn't support, for example rain occurs. Class material was also held because the infrastructure was still not ready for use, for example a field that had not yet been completed.

Based on the field observations at Musamus University on physical education learning activities in theoretical material in the classroom, it was found that students were more interested in practical material directly in the field, students felt less enthusiastic in participating in learning activities, feeling lazy and shown by students following the learning process without responses and reactions to the material taught by the teacher. This is justified based on the results of direct interviews with students, found the fact that students actually still not much master the material

presented by the teacher, but the material has been changed to the next material. Students only follow the material conveyed by the teacher, with the reason for completing the material which is the task of a teacher. The opinions of these students are actually reasonable, this can be influenced by the ability of students in a heterogeneous class to absorb material. Especially in physical education, health, sport, health, and recreation subjects an indemnical process is carried out in the field, however, it does not rule out the possibility of theoretical lessons in the classroom for example in rainy weather, facilities and infrastructure do not yet exist, or material presented at discussing health theory that cannot be done through sports practice in the field. Based on the problems revealed above, then as a teacher PJOK is expected to be smart and alert in carrying out the learning process which includes the implementation, implementation and periodic checking of each student in a class about the level of understanding of the material that has been delivered.

Recent study just focused focused on how the right methods for implementing theories obtained in the form of physical training (Mikael *et al.*; 2014), learning approach theory to practice based on behavioral, constructive, ecological, situation, or active perspectives (Barker *et al.*, 2013; Light, 2011; Dyson *et al.*, 2010), study of different aspects of the learning process carried out in the gym or outdoors (Quennerstedt *et al.*; 2011), the development of measuring scale of preservice physical education teacher' belief about the Physical Profession (Fan *et al.*, 2018; Hand, 2014), childhood obesity can be overcome through physical education (Quinn, 2012), and about the development of skills needed in sports and high training interval intensity (Agostino, 2019; Prystupa *et al.*, 2019). The absence of study on specific learning methods on physical education, health, sports, and recreation subjects in theoretical material in class

equipped with evaluation instruments and students' disinterest in learning theoretical material, became the basis for this development research. This research produces a learning method called the "Imagination Box" which is equipped with assessment instruments to measure students' conceptual understanding.

## ■ METHOD

This study is research and development. The procedure used in this study refers to the procedure for developing the ADDIE model which consists of five stages of development, there are *Analysis, Design, Develop, Implement, dan Evaluate* (Mulyatiningsih, 2011). The reasons for the use of the ADDIE development model is that this conceptual model refers to an analytical model that provides product components to be developed and the interrelationships between components. This study has been conducted in Junior High School State 2 Kabupaten Merauke. The object of this study is the teaching and learning process, especially the learning method material while the subjects in this study are teachers and students in the learning process of physical education. This research and development focuses on making products in the form of learning methods used to measure learning comprehension of physical education in the classroom.

The instruments used in this study were observation guides, questionnaires and interview guidelines. The explanation of each instrument is a questionnaire made using a 5-scale Likert scale, that is, very good, good, good enough, lacking, and very poor. The use of questionnaires is composed of 2 types according to the role of the respondent's position, namely the expert questionnaire which includes linguists, and expert evaluators and product user questionnaires, namely the PJOK teacher. Instruments made before use are validated. The validation used is construct validity. Furthermore, to examine the

construct validity of the instrument is to use the opinion responses of experts (expert judgment).

Analysis of the data used in this research and development is qualitative data analysis and quantitative data analysis. Feasibility analysis of instruments, analysis of instrument trials and analysis of the results of conversion criteria of the instruments developed. Quantitative data analysis techniques in this study using descriptive statistical analysis, in the form of questions that are converted into quantitative data with a scale of 5, namely by scoring from numbers 1 to 5. The steps in data analysis include: (a) collecting rough data, (b) scoring, (c) the score obtained is then converted into a value with a scale of 5 using the conversion reference from Table 2:

**Table 2.** Converted Value

Criteria	Formula
Veri feasible	$X > X_i + 1,8S_{bi}$
feasible	$X_i + 0,6S_{bi} < X < X_i + 1,8S_{bi}$
Quite feasible	$X_i - 0,6S_{bi} < X < X_i + 0,6S_{bi}$
Less feasible	$X_i - 1,8S_{bi} < X < X_i - 0,6S_{bi}$
not feasible	$X < X_i - 1,8S_{bi}$

**Notes:** Average ideal score ( $X_i$ ):  $1/2$  (ideal maximum score + ideal minimum score), standard deviation ideal score ( $S_{bi}$ ):  $1/6$  (ideal maximum score - ideal minimum score),  $X$  ideal: empirical score

## ■ RESULT AND DISCUSSION

### 1. Analysis (analysis)

The first step in this development is the analysis of the initial data. The contents of the activities in the research analysis step include two activities, namely, analysis of initial data collection and literature studies.

#### a. Field Needs Analysis Study

Curriculum analysis is carried out by reviewing the curriculum used and applied in the school. The curriculum used in junior high school on PJOK subjects is the 2013 curriculum. The specific analysis is the alternative needs of the method used by the teacher in checking and knowing the level of student understanding after the theoretical material delivered in accordance

with the 2013 curriculum load. having difficulty checking how much students understand the material the teacher has given through theoretical learning in the classroom.

#### b. Literature Study

Literature studies conducted in this study include, the results of previous studies that have been reviewed and concluded that the assessment in PJOK is more predominantly done through practical tests than theory tests, this is justified because the material taught is more dominant in one semester, namely sports practice material. Furthermore, so that there is no wrong flow with the existing material in the implementation of the 2013 curriculum in this there is an assessment of students' attitudes, knowledge and skills.

### 2. Design

In the activities carried out at this stage is the planning of making the initial draft of the product, namely the learning method used to measure the level of understanding of students in the subject matter of PJOK subjects in the class. The basis for drafting is based on the results of needs studies and literature studies that have been done before. The design phase maps KI and KD to health and first aid materials that are taught through theory in the classroom. During the drafting, a learning simulation was conducted by the PJOK teacher. In drafting a plot is made of learning, determining the tools used and detailed procedures in class settings.

### 3. Development

At this stage, product development has been carried out that is ready for trial. The learning method can be explained as follows:

#### 1. Class arrangement

The teacher has prepared a class setting scenario by not changing the class contents. What the teacher does is make the class simple and the focus of the students is only on the teacher. Class arrangements are made by arranging chairs without tables forming the letter U. The position

of the teacher becomes the center of attention of all students. In front of the teacher a teacher's desk and chair have been prepared. On the table a box named "imagination box" has been prepared and the paper has been folded according to the number of students. To attract the folded paper display, given different colors. The paper has folded into two folds of the same length.

## 2. Making tools

The tool in the form of an imagination box originating from a cardboard box that is not used measures 30 cm x 30 cm and height 60 cm. On each side is given the next one is given at the top, its function is to insert the folded paper. The imagination box and classroom settings are Figure 1.



**Figure 1.** Imagination Box and Class Setting

## 3. Explanation of Learning Cycle

Learning is ready to be carried out then the teacher directs students to prepare stationery and sit in the chairs that have been prepared. Students are asked to remember the understanding of the material that has been taught

according to Core Competence. Students are asked in order to stand and take the paper on the table, then the students sit back. After all students have taken the paper, the teacher then directs the students to listen to the explanation. to students to remember the material that has been delivered. If students already understand, the teacher directs to write questions about any material variables that are mastered by students. The question is written on the colorful paper that has been provided. After the question has been written, the paper is then folded and put into a box on the table. After the full box then the paper in the box is issued and calculated according to the number of students. The next question paper is set on the table and students are asked to stand up and take the paper after sitting the students are asked to read the questions and at the same time answer them. The answers that have been submitted will be checked to the question maker, and asked again to all other students.

## 4. Decision-making

The last stage of the imagination box learning method is taking conclusions from the results of the material presentation that has been discussed and discussed by students. The teacher is the person in charge of guiding and evaluating the learning process to make observations and at the same time reflect. The results of this reflection will be used in evaluating the upcoming learning process, from here the students will be able to understand and understand all the material given by the teacher.

## 4. Implementation

Based on the development steps in this research, the next step is to implement the product users, namely on PJOK learning in human health material at Merauke State Middle School 2. The trial was conducted with empirical tests on small scale groups, which were planned to be expanded on a wide scale. In small scale

/ limited scale tests carried out with the aim of knowing the accuracy of the learning method that is specifically carried out to determine the level of student understanding of the theoretical material that has been delivered by the teacher. After analysis and revision on a small scale, it continued with a large scale involving ten PJOK teachers from different schools. Along with the empirical test in this study instrument validation was carried out involving linguists and evaluation experts. The average results of the three validators concluded that the learning method to measure the level of understanding of students included in the criteria of decent / very good,

although in the input suggestions there were still revisions that must be corrected. Based on product development analysis in the form of learning methods used to measure the level of understanding of students included in the good and feasible category to be implemented.

The implementation of the product development in the form of the Imagination Box method has been carried out in the PJOK class VII i SMP 2 Merauke. Based on the advice and input from experts through video recordings of the imagination box learning method that has been carried out, the following input and suggestions are obtained in Table 2.

**Table 2.** Input and Suggestion from Validator

Class Arrangement	<ol style="list-style-type: none"> <li>1. Classes can be made lined up one by one chair without a table with the aim that students are not busy with other items, but focus on focusing on the teacher's explanation in front</li> <li>2. Students are neatly heterogeneous, if there are large classes, more than one group is created.</li> </ol>
Making Tools	<ol style="list-style-type: none"> <li>1. Boxes should be made to attract students so that the focus of learning is in the box.</li> <li>2. Because it is done not only once, the box is made of material that is strong and not easily damaged.</li> <li>3. Colorful paper folded neatly and if after writing fold back according to the original fold.</li> </ol>
Explanation of Learning Cycle	<ol style="list-style-type: none"> <li>1. 1. The essence of learning is material confirmation, if there are questions that have not been answered then the teacher as confirmation can explain the material.</li> <li>2. Students are expected not to make questions carelessly because material that is not in accordance with the discussion will slow down the learning process.</li> </ol>
Decision-making	The conclusions made by the teacher should be recorded, as a reflection material, how the knowledge and understanding of students in the learning that has been carried out previously.

## 5. Evaluation

At the implementation stage carried out at a small scale or limited scale. Then after repairs in accordance with the advice given by experts, then a thorough evaluation of the learning methods that have been developed is carried out. The results of the learning evaluation using the "Imagination Box" method were declared feasible by three experts as one of the learning process innovations. He conveyed the objectives to be achieved in the learning method effectively and efficiently. The results of observations made by the three experts can be explained as follows:

### a. What information

At the final product evaluation stage, then it involves three experts who provide input and assessment of the products that have been produced. The assessment of three experts stated that the information aspect of the method developed was valid with a mean score of 3.2-3.6. Explanation of the diagram above is the aspect of information conveyed through the "Imagination Box" learning method on aspects of information that can be clearly captured by product users. Information aspects based on the diagram above can be concluded that the three experts agreed to provide an assessment that the Box of Imagination teaching method is appropriate to be used in the learning process.

### b. Performance aspects

Finished at the last stage, the development product is then evaluated by three experts for assessment. In the aspect of appearance (performance), the expert states that the method has a high performance aspect with a mean score of 3.4-3.7. The explanation of the diagram above is the aspect of the display conveyed through the "Imagination Box" learning method in the performance aspect that can be clearly captured by the product user. Aspects of performance (appearance) of the product based on the diagram above can be concluded that the three experts agreed to give an assessment that the

Teaching Imagination teaching method is feasible to use in the learning process.

### c. Efficiency Aspect

The efficiency aspect of the product is the last assessment of the aspect of product development. The Box Imagination learning method based on the assessment of three experts has a high level of efficiency with a mean score of 3.3-3.5. Based on the results of the explanation of the diagram above on the efficiency aspects of the imagination box learning method, the use of time and maximizing activities in the form of student learning activities on average in the appropriate category is used as a learning method specifically to measure students' understanding especially PJOK material.

## ■ CONCLUSION

Based on the results of this research and development, it can be concluded that the appropriate development instruments are used to assess students in accordance with the aim of knowing students' understanding, and this learning method can be used as a variation of teachers in evaluating the level of student understanding in absorbing learning material. The results of this development still have limitations, namely that at the last evaluation step the ADDIE development procedure has not been carried out.

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