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The A-Practicum Module Development of Adaptive Physical Education Courses

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Abstract--The idea of the research was coming from the learning transformation from full-offline to blended learning for practical courses at the Faculty of Sports Science. By the change of the learning process, it is known that there is an absence of practicum modules for adaptive physical education courses which is a compulsory subject for students in the Department of Sports Education. Furthermore, the course is being able to create game models that improve physical fitness for children with special needs, namely for the blind, the mentally disabled, the quadriplegic, the deaf, and the unsociable children. Therefore, the research aimed to develop the E- Practicum Module by using digitalization-based adaptive physical education courses as the use of Information and Communication Technology (ICT) in solving the problems. The Research and Development was the

method used in the research that observes and develops the E-Practicum Modules as teaching material by using Kvisoft Flipbook Maker application which has been developed by the Borg and Gall model and modified with seven stages of potential and problems, data collection, product design, design validation, design revision, product testing, and product revisions.

Keywords---adaptive, digitalization, e-modules, game models, physical education.

Introduction

The learning transformation from full-offline to the blended learning processes is challenging for both students and lecturers which is suddenly occurred due to the COVID-19 pandemic. The pandemic has been affecting various sectors in the world, including in the way of implementing the education ranges, such as (Afudaniati et al., 2021). The readiness in facing the learning transformation, especially for practical courses with blended learning which was not prepared before the pandemic that is pushing the lecturers to find the best solution. Previously, in the offline classroom, the team-teaching adaptive physical education planned the class by printed textbooks. Erianti (2011) however, the textbooks were far from the proportional teaching material; the printed textbooks only contained the theories about adaptive physical education without the presence of game models for children with special needs and those only can be accessed by students using their gadgets. Based on the previous experience from the semesters of July – December 2020 and January – June 2021, lecturers could only possibly provide theoretical material to students. This adaptive physical education course is a practical course that involves movement activities by students. Duta (2021) confesses that the implementation of adaptive physical education learning during the pandemic experienced problems in selecting materials. The required ability in this course is the students can create game models that relate to the abnormalities or the characteristics of children with special needs, namely children who are blind (visual impairment), deaf (hearing and speech impairment), mental disability, orthopedically handicapped (the quadriplegic), the unsociable children and autism for finally applying as Information and Communication Technology (ICT) learning media independently or in the group (Jazwinski, 1969; Åström, 1983).

By those ideas, as lecturers of adaptive physical education courses, it is necessary to elevate the teaching materials preparation, especially in electronic practicum modules by utilizing the computer information technology so that the learning objectives of the class can be achieved. By this E-Practicum Modules, hopefully, the teaching-learning processes can be carried out using blended learning to follow the latest policies at Universitas Negeri Padang. The purpose of the E-Practicum Modules is to facilitate online learning (Mustaji, 2020). The purpose of this research is to develop the E-Practicum Modules for adaptive physical education courses based on ICT along with the Industrial Revolution 4.0 that can be simply accessed by students (Mäkiö-Marusik et al., 2019; Ritter & Pedersen, 2020).

Based on the leading research themes and topics developed at Universitas Negeri Padang in 2020-2024, specifically in the field of digital learning services with media and learning resources in Industrial Revolution Era (IRE) 4.0 as the topic, the authors decided to choose the distance learning media and technology as the leading research topic that relate to the policy for blended learning in adaptive physical education courses. Therefore, the urgency of this research is digitalizing the learning media for adaptive physical education courses. In addition, the contribution of the research to science is the existence of technology-based distance learning media in supporting the achievement of the Strategic Plan of Higher Education in the Universitas Negeri Padang (Göbel, 2011; Sugiki & Takeuchi, 2001).

Adaptive physical education is about physical education that is modified and designed to be studied, implemented, and encountered the educational needs of learning for extraordinary children or known as children with disabilities or special needs (Syam, 2018). Erianti (2018), it is explained that adaptive physical education is a service delivery system that is comprehensive and is designed to find out and find problems in the psychomotor domain. Taufan & Mazhud (2016), moreover, know that adaptive physical education is aimed at children who experience difficulties in moving, imitating motion, and even having physical problems that cause improper movement. Physical education organizes the movement parts in the body and develops the mental and moral aspects as well (Taufan et al., 2018). The basic concept explains that a country will be left behind by others without establishing good education and innovation including physical education (Hidayatullah & Anwar, 2020; Pelana et al., 2020; Hardiyono et al., 2021).

Furthermore, Ekawati et al. (2021) reveal that in this adaptive physical education the need for an educational process through movement activities can be carried out for the rate of growth and physical and psychological development of children. American Psychiatric Association (1980) it is also revealed that the disorders that occur in children with special needs will experience difficulties during the period of intellectual development and adaptive functions limitation. The process of optimizing all potential abilities and physical skills of the children needs to be carried out along with the limitations of the children (Hastata & Sugiyanto, 2019). The competence of this adaptive physical education course is to understand and explain the nature of children with special needs, define goals, learn principles of adaptive physical education and inclusive education and be able to create adaptive physical education learning programs (Widodo & Nurina, 2017). Some of the goals of adaptive physical education are 1) developing knowledge and skills related to aesthetic and social physical activities; 2) developing self-confidence, developing personal values through participation in physical activities, enjoying fun and joy through physical activities including sports games (Meimulyani & Tiswara, 2013; Sukriadi & Arif, 2021). Furthermore, Hartanto et al. (2021) it is explained that humans will not be able to live alone without help from others so that they can form social skills from humans themselves, as well as the types of children with special needs who need education for their development (Vai & Lorenza, 2019). The types of children with special needs include children who are blind (visual impairment), deaf (hearing and speech impairment), mentally disabled, orthopedically handicapped (the quadriplegic), unsociable children, and

autistic. Based on the types, it is necessary to innovate the teaching-learning materials for the students in blended learning class by providing the E- Practicum Modules as the learning media (Kalynychenko et al., 2021; Derkach et al., 2021).

According to Acha & Nova (2020); Louk & Sukoco (2016), what is meant by media are graphic tools, electronics for capturing, processing, and rearranging visual information. Furthermore, Giri (2016) also states clearly that learning media is a tool used for delivering the lesson. Furthermore Louk & Sukoco (2016) it is added that the media can improve the process and student learning outcomes. Mostly, using any situational media will also help the learning process. Therefore, all media can be used in the form of E-Modules (Sidiq, 2020). It can be said that E-Modules is an electronic-based module containing materials, methods, and evaluations of adaptive physical education courses that are arranged systematically and attractively where students can achieve competencies with digital or electronic complexes. According to Iqbal & Widodo (2018), the E-Module enhances the teaching-learning delivery process. The standards in media selection must be based on accuracy in learning objectives (Mustaji, 2020). Furthermore, Sumiharsono & Hasanah (2017), enlarges that other standards that must be considered in selecting media of E-Modules must be appropriate with the students' level of thinking. Because the use of learning media at this time, specifically teaching the millennials supported by advances in Information And ICT can be considered by educators in achieving more optimal learning outcomes (Swadesi & Kanca, 2018).

In this research, Kvisoft Flipbook Maker Pro 3.6.10 is an application to create e-books, e-modules, e-papers, and e-magazines was used to create physical education e-modules Juwati et al. (2021) where you can insert pictures, graphics, sound, links, and videos on worksheets Irnawan (2020) that attractively display the teaching media (Aperta & Amini, 2021). In addition, the flipbook maker has templates designs and some features such as background, control buttons, navigation bar, hyperlinks, and back-sound. Thus, students can experience real book reading from gadgets. Hopefully, using E-Modules learning media provides a refreshing and latest method for the online class and increases student learning motivation and understanding for the adaptive physical education material (Erickson, 1995; Azevedo & Paxson, 2014).

Method

The research method used is a research and development approach, which means the research is used to produce a product by testing its effectiveness (Sugiyono, 2015). The stages in the research were 1) the stage of potential and problem which means at this stage the authors were looking for main problem in teaching-learning as preliminary sources; 2) the stage of data/information collection which means analyzing the product by finding out importance of the product in handling the problems and this can be done by using questionnaires and observations; 3) the stage of product design which means the product would be designed by the authors based on the potential problems found; 4) the stage of design validation which means products (E-Practicum Modules) for adaptive physical education feasibility assessment by reviewers or assessments from material experts; 5) the stage of design revisions which means from the results of

material expert validation, the product would be revised based to suggestions and input from experts; 6) the stage of product trials which means that they are used to obtain various corrections or inputs about the products; 7) the stage of product revisions which means to have product revision based on the results of testing the product. This development research has two objectives; the first objective is to produce E- Practicum Modules teaching materials by using the *kvisoft flipbook maker* application for adaptive physical education courses. The second objective is to find out the responses of students to the E- Practicum Modules in adaptive physical education course materials which are based on the semester learning implementation plan. The media and materials experts and IT lecturers were taken part invalidating the instrument who know about adaptive physical education courses. Furthermore, students of adaptive physical education courses were taken as the sample of the research (Hills et al., 2015; Braithwaite et al., 2011).

Results and Discussion

The result of the development done by authors is to produce E-Practicum Modules as teaching materials by using the *kvisoft flipbook maker* application. This research and development are using the research and development procedure according to Sugiyono. The stages of the research and development procedure can be seen as follows:

Potential and problem

The Potential in this research is to develop E-Practicum Modules as teaching materials by using the *kvisoft flipbook maker* application. This research was conducted in the Health and Recreation Physical Education Study Program, Faculty of Sports Science, which is one of the study programs that is qualified in terms of facilities and infrastructure for offline lectures. However, for the online class, the teaching-learning media does not yet exist for adaptive physical education courses. Problem identification in this research was conducting needs analysis in the Health and Recreation Physical Education Study Program, Faculty of Sports Science, specifically in understanding the material of the Semester Plan of Learning Implementation (RPS), interviewing the team-teaching of adaptive physical education courses, and directing field observations and experience from the authors themselves as the subject lecturers. From the results of interviews, and observations, the fundamental problem was the unavailability of electronic-based learning modules for adaptive physical education courses. The problems provide ideas to the authors to develop E-Practicum Modules as teaching materials using the *kvisoft flipbook maker* application. In this analysis of potentials and needs, it was determined that the characteristics of children that have discussed in this e-module were about the blind (visual impairment), the deaf (hearing and speech impairment), the mental disability, the orthopedically handicapped (the quadriplegic), the unsociable children, and autistic (Briones et al., 2020; Peter, 2015).

Collecting information

After the Potential and problem processes are completed, the next stage is collecting information. Gathering information is crucial to recognize the students' needs of the products development by development and research approach. The first step is to collect problems in the Physical Education and Recreational Health and Sports Education Study Program from the lecturers and students who take adaptive physical education courses. The next stage is to collect reference sources such as physical education journals related to the development of E-Module as teaching materials using *kvisoft flipbook maker*, Semester Plan of Learning Implementation for adaptive physical education, and other sources related to research. From the information gathering stage, it can be said that this e-module is very much needed because there is no electronic-based media before for this adaptive physical education course online (Alsharif, 2020; Rinatha et al., 2018).

Product design

After analyzing the needs, the next step is product designing that includes preparing the Semester Plan of Learning Implementation, compiling learning materials for adaptive physical education, making narrations of game models, and taking videos of the implementation of games for children with special needs. The E- Practicum Modules development product design consists of the front and back cover, the team page, the introduction, and the table of contents. The E-Practicum Modules consisted of material for learning activities, summaries, and formative tests for students' assignments on the material presented, as well as videos of game models.

Design validation

The research and development of the E-Practicum Modules are validated at an early stage by the validators; material and media experts. The standards for determining expert subjects are: 1) Experienced in their field; and 2) Minimum level of education is magister program. The validation instrument uses the Likert scale. The results of expert validation and practitioner validation can be seen as follows:

- The Result of experts validation
The material experts' validation aimed to test the completeness, the truth, and the systematics of the material. The validator who became material experts consisted of 2 lecturers who were in charge of the adaptive physical education course. The results of material validation data can be seen in the following Table 1 below.

Table 1
Validation result by experts

Analysis	Validators	
	1	2
Σ Score	59	56
Mean	3.69	3.50

Mean Total	3,59
Percentage	89.84%
Standard	Good

- The result of media expert

Media expert validation aims to test the presence of E- Practicum Modules with the *kvisoft flipbook maker* application. The validator who became a media expert consisted of 1 Multimedia lecturer from the Faculty of Science and Technology UIN Ar-Raniry Banda Aceh. The results of media validation data can be seen in the following Table 2 below.

Table 2
Validation result by media expert

Analysis	Validators	
	1	2
Σ Score	55	57
Mean	3.44	3.56
Mean Total	3,50	
Percentage	87.50%	
Standard	Very Good	

Design revision

After the product design was validated through the assessment of material experts and media experts, the researchers then revised the product design based on the input from the experts. At this revision stage, the media experts added suggestions to use more attractive colors so that users are more interested in using the application. Moreover, the materials also have been updated based on materials experts input to add the game model for each child character at least 5 forms of play.

Product testing

After the product validation by material and media experts and revision, then, it is time for product testing which is intended to find out the students' responses to the adaptive physical education E- Practicum Modules using the *kvisoft flipbook maker* application. After testing the product on the 85 students who took the Adaptive Physical Education course in the semester of July – December 2021 by giving a questionnaire. The results product testing obtained an average of 3.52 with the interpretation standard achieved, namely "very interesting", meaning that the E-Practicum Module developed by the authors was very interesting to be used as an online learning medium for adaptive physical education courses.

Product revision

After product testing that determines the attractiveness of the adaptive physical education E- Practicum Modules using the *kvisof flipbook maker* application with high scoring from the students. Then, E-Practicum Modules can be used as a learning resource for students in adaptive physical education courses in the

period of July – December semester of 2021. The product of the development of learning media in the form of E-Practicum Modules has advantages including 1) the developed E-Practicum Modules provide new knowledge and learning experiences for students both in terms of material and technology used, namely the *kvisoft flipbook maker* application, 2) the E-Practicum Modules are formed in soft files which are accessible and flexible by using the *kvisoft flipbook maker* application without internet connection, 3) supporting by interesting videos so that the students do not get bored quickly during learning. The materials presented in the adaptive physical education E-Practicum Modules are:

- The basic concepts of learning adaptive physical education; the factors that cause children with special needs.
- The characteristics of mentally disabled children.
- Game models for mentally disabled children (the name of the color instruction game, the movement activity instruction with the ball, the number instruction game, the dexterity of arranging cans, putting in the basket-ball, and stacking the most beautiful cans.
- The characteristics of the mentally disabled children.
- The game models for the mentally disabled children (name of the bowling game and cans, a combination of zigzag and *holaho* jumping, running, *holaho* jumping and putting in the basket, sniper hunting.
- Characteristics of children with disabilities.
- game models for children with disabilities (name of goal ball game, throw and catch tennis ball, game of catching the ball, touch instruction game, throw and chase, precise ball scrolling.
- Characteristics of deaf children.
- Game models for deaf children (name of swaying pinging ball game, dexterity of playing ping-pong ball, suit-matching, dexterity of hitting and receiving pim-pong balls, dragging pim-pong balls on the floor, basketball, towers.
- Characteristics of autistic children.
- Game models for autistic children (dexterity to catch a ball, dexterity to kick plastic bottles, rubber football, drag cans with *holaho*, chase tails.

The following is a screenshot of the adaptive physical education e-module presentation that has been developed based on the course material that can be accessed by students. The game types come from the original creative concept and design of the researcher as the guarantee of the research products innovation.

- The adaptive physical education e-module book cover is designed to attract readers which consist of module title, author identity, picture, and institutional identity.

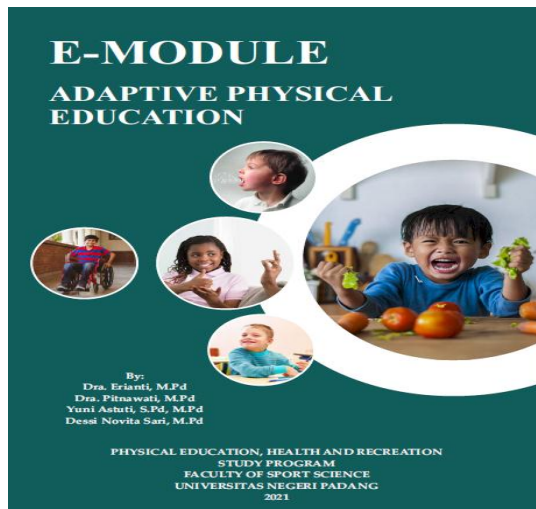


Figure 1. E-module book cover

- The preface is a leading introduction sentence to the Table of contents. The original size of the preface will be submitted in the appendix.

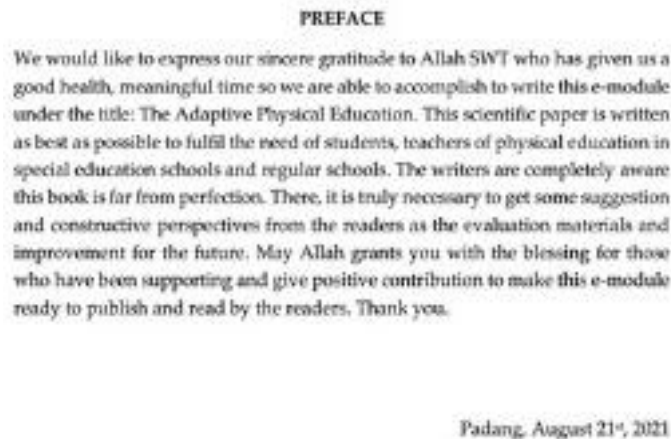


Figure 2. The preface

- The table of contents as readers' guidance for the adaptive physical education e-module. The original size of the Table of contents will be submitted in the appendix.

LIST OF CONTENTS	
PREFACE	i
LIST OF CONTENTS	ii
COURSE OVERVIEW	iv
Module 1. The essence of adaptive physical education	
Learning activity: the basic concept of learning of adaptive physical education	1
Summary	17
Formative Test 1	17
Module 2. Intellectual Disability	
Learning activity 1. The characteristics of children with Intellectual disability	18
Summary	22
Formative Test 2	23
Learning activity 2. The models of games for children with intellectual disability	24
Module 3. Emotional and Social Disability	
Learning activity 1. The characteristics of children with Emotional and Social Disability	36
Summary	41
Formative Test 2	42
Learning activity 2. The models of games for children with Emotional and Social Disability	43
Module 4. Physical Disability	
Learning activity 1. The characteristics of children with physical disability	53
Summary	57
Formative Test 2	58
Learning activity 2. The models of games for children with physical disability	59
Module 5. Hearing Impairment	
Learning activity 1. The characteristics of children with hearing impairment	72
Summary	77
Formative Test 2	78
Learning activity 2. The models of games for children with hearing impairment	79
Module 6. Autism	
Learning activity 1. The characteristics of children with autism	90
Summary	99
Formative Test 2	99
Learning activity 2. The models of games for children with autism	100

Figure 3. The table of contents

- The *Kvisoft flipbook maker* application based-learning materials for adaptive physical education which consist of the title and the description of the material. The original size of the learning materials will be submitted in the appendix.

COURSE OVERVIEW
<p>The course of adaptive physical education discusses the basic concepts and the essence of the learning of adaptive physical education for children with special needs, causative factors, and the characteristics of children with special needs. Specifically, the students will be provided with the knowledge and learning experiences through physical activities by conducting some modification and development of learning media for adaptive physical education which are customized with the characteristics of children with special needs so it can be properly applied in the learning process of adaptive physical education course in special education schools. The learning outcomes of this course are: 1) able to plan, apply, and evaluate the learning which using the approach of active learning and utilise the local environmental potential in accordance with the specified standards and qualities, 2) able to explain the basic concepts and the essence of adaptive physical education for children with special needs, 3) able to create the models of games in accordance with the kinds of disabilities or characteristics of children with special needs, such as visual impairment, hearing impairment, intellectual disabilities, emotional dan social disorders, physical disabilities, and children with autism, 4) able to utilise the use of media for each type of disabilities with ICT approach, 5) able to analyse and solve the problems regarding to the adaptive physical education.</p>

Figure 4. Learning materials

- The video of modified game types for adaptive physical education is listed in the needs analysis stages. The original size of the video/picture of modified games types will be submitted in the appendix.



Figure 5. Game types video

- The references as the source of information used by the researchers to develop the E-Practicum Module of the adaptive physical education course

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Figure 6. References

Conclusion

The conclusion obtained from this research and development can be summarized as follow: 1) The E- Practicum Modules as teaching material based on *kvisoft flipbook maker* application developed by the *Borg and Gall* model and modified by Sugiyono have seven the stages of potential and problems, data collection, product design, design validation, design revision, product testing, and product revisions; 2) It found that the average score with the good category at the product validation stage which was evaluated by the material experts and the linguists, while the average score was obtained with very good category from the media experts. It can be said that the final product will be advantageous to the teaching learning processes; and 3) Moreover, the student responses to E- Practicum Modules using the *kvisoft flipbook maker* application obtained an average score of 3.52 with a very interesting category. It can be concluded that the product of the research is positively encouraged the students to be more interested to join the online class, particularly in adaptive physical education.

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