

Development of Motion and Mobility Teaching Materials Based on Blended Learning for Master Students of Special Education Program

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Abstract—The aim of this research was to produce prototypes of products development of motion and mobility based on blended learning for master students' special education program at the Graduate School of Universitas Negeri Surabaya. This development research used ADDDEM model design (Analyze, Design, Develop, Deliver, Evaluate, and Maintenance) (Purnomo, Made, et al.). This research produced prototypes of products development of motion and mobility based on blended learning based for master students special education program at the Graduate School of Universitas Negeri Surabaya. The result of blended learning based products was classified into 2 ways, namely offline in the form of textbook products with 400 pages, and 2online in the form of e-material.

Keywords—*Blended Learning Model; Development of Motion and Mobility*

I. INTRODUCTION

In learning there are 5 concepts, namely interaction, students, teachers, learning resources, and learning environment. The main characteristics of learning are initiation, facilitation, and improvement of the students learning process. This shows that learning has an intentional element from persons outside the learners who carry out the learning process. This is an individual or collective educator in a system as the main characteristic of the concept of learning. In addition, another feature of learning is the interaction that is intentionally programmed. This interaction occurs between students who learn with their learning environment, both with teachers, other students, media and or other learning resources. Learning innovations as demands from a conventional nature combine with information and communication technology according to the demands of the global era.

The form of equipment design/ device that can be visualized and audio-visualized is packaged through the empowerment of information and communication technology-based learning resources or ICT (Information and Communication Technology). Therefore, the development of teaching and learning materials for motion and mobility was deliberately chosen in the master program of special education, because it is unique to target children with special needs with various characteristics. Another advantage is that between quadriplegic, cerebral palsy and blindness in motion and mobility have differences, especially in providing learning services for each child. Therefore the development

of teaching materials for ICT packaging for lectures requires learning programs by integrating the benefits of face-to-face learning, and offline-online e-learning. This means that lecturers in the classroom have the potential to operate information and communication technology equipment or ICT (Information and Communication Technology) as one of the learning resources for master program special education students.

Faisal [1] stated that through the findings about blended learning, there is an opportunity to shift the conventional learning paradigm towards information and communication technology in developing new knowledge, skills, and behavior for students. In blended learning as a process, teaching and learning activities require a variety of methods, models and learning media that are applied to achieve maximum results and quality. Supported by [2], that learning develops new knowledge, skills, and behaviors which are individual interactions with information and the environment. Information and communication technology skills not only require technical skills, but also require mental maturity and problem solving abilities.

Teachers or teaching are people who control, lead and direct teaching. Three components in describing the delivery strategy in learning, namely a) learning media, b) student interaction with the media, and c) the form of teaching and learning [3]. The emphasis lies in the classroom learning system, viewing students in heterogeneous groups with various characteristics and learning materials. On the other hand, in learning the subjects of Motion and Mobility, facilities to support online procurement at Universitas Negeri Surabaya have been developed, but the implementation is still not maximal. The learning delivered specifically in the Special Education Department still tends to use conventional learning media such as taking notes from the blackboard and the Power Point presentation software media. This means that in learning the use of information and communication technology such as the blended learning model, it has not been realized effectively and interactively when implementing classroom learning.

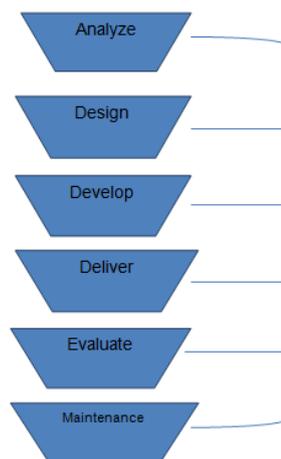
Specifically in the course of Development of Motion and Mobility as a foundation for the master program of Special Education and requires an understanding that is not only focused on the form of learning that still uses power point exposure, still images (non multimedia) and reference book translations. The other side of the Development of Motion and Mobility course, most of which require a comprehensive

understanding of the conditions of various types of disabilities that vary in characteristics and needs in the development of motion and mobility services. However, the learning material presented in the learning process currently tends to be conventional with oral, discussion of results translating, so that it is less effective in exploring and understanding the material when described using power point media for students. Moreover, the course material for Development of Motion and Mobility courses strived to be more applicable according to field conditions that are intended for cerebral palsy, blind, autistic children and so on. Blended learning based teaching materials are trying to make students in the course feel inspired in developing more broadly through the thesis concept. Therefore the aim of this research was to produce prototypes of products Development of Motion and Mobility teaching materials based on blended learning.

II. METHOD

As for developing this teaching material by adapting the ADDDEM model through 6 stages, namely Analyze, Design, Develop, Deliver, Evaluate, and Maintenance [4]. The development of ADDDEM models as one type of development to design blended learning models in the form of off-line and online-based Development of Motion and Mobility courses in master program of special education. In this development research used 6 cycle steps as a basis for producing products that are packaged through dictate book forms and e-material. Textbook products in the course of Development of Motion and Mobility are packaged offline and teaching materials that are e-materials are packaged online. Below in figure 1 is a description of the development of the ADDDEM model for the manufacture of blended learning model products as teaching materials.

Fig. 1. Research Process



The trials of prototypes of products Development of Motion and Mobility teaching materials based on blended learning are carried out by validators, namely responses from content experts and design experts, as well as prospective users. The subjects of the trial of blended learning model products for the course of Development of Motion and Mobility were tested on students in master program of Special Education.

The data obtained from expert tests and prospective user tests are basically 1) quantitative data were obtained using an assessment questionnaire given to each expert and prospective product users, 2) qualitative data were obtained by interviews and expert discussions as well as from notes, criticisms, expert suggestions on the content and plans for developing a blended learning model for Development of Motion and Mobility in the master program of special education. Data collection instruments by using an assessment questionnaire to gather expert opinions on the feasibility of a blended learning model for the course of blended learning model for Development of Motion and Mobility in the master program of special education.

Quantitative data was obtained from expert tests and user tests of blended learning models for the Development of Motion and Mobility in the master program of special education students. The criteria used are based on assessments provided by experts and prospective users given questionnaires classified into 4 answer categories (values 1, 2, 3, and 4), then converted in percentage form. The result of the conversion [5], is.

- 0% - 64% = 1, very less precise / less obvious / less appropriate, revised.
- 65% - 79% = 2, less precise / less obvious / less appropriate, revised.
- 80% - 89% = 3, exact / clear / appropriate, unrevised.
- 90% - 100% = 4, very precise / very clear / very appropriate, not revised.

III. RESULT AND DISCUSSION

A. Result

Field findings in the use of blended learning based on Development of Motion and Mobility teaching materials and theoretical studies from various references can overcome problems faced by subject lecturers and users. The stage of the process of developing blended learning Development of Motion and Mobility teaching materials for the students of the master program of special education, refers to the research on the development of ADDDEM (Analyze, Design, Develop, Deliver, Evaluate, and Maintenance) models, which are designed through the following steps.

1) Analyze

This stage includes:

- In this analysis, it was carried out to obtain theoretical references and findings from the field found in Special School for Physical Handicapped and Special School for Blind to develop teaching materials for Development of Motion and Mobility based on blended learning.
- Subjects of Development of Motion and Mobility in accordance with learning outcomes using science and technology to obtain sources/ references from various sources about the concept of development and mobility, principles, theories, types of

movement, principles and methods of body training services.

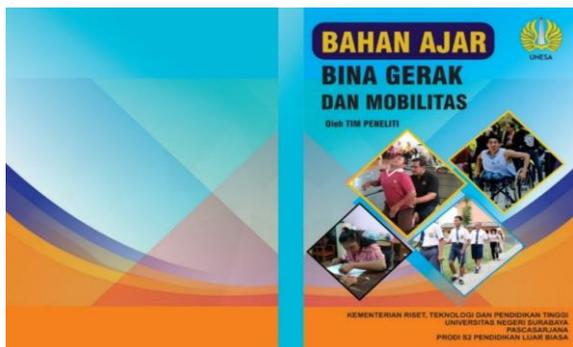
- The availability of teaching materials packaged in a blended learning program does not yet exist in the master program of Special Education.

2) *Design*

This stage is described as follows:

- In the selection of materials for Development of Motion and Mobility courses, this is tailored to the content that will be packaged through offline and online.
- Understanding of master students in the Special Education Program in learning outcomes has the potential to utilize science and technology, master, make decisions about concepts and theories within the scope of movement and mobility, and be responsible for individual and group learning performance.
- In the achievement of learning of Development of Motion and Mobility courses for the design of teaching materials in the material between offline and online this has a mutually collaborative relationship.
- Metadata of learning object.
- In designing instructional materials for object tracking strategies in the course of Development of Motion and Mobility, using blended learning both offline and online. This offline object tracking strategy is designed in the form of teaching and developing mobility textbooks, following the cover in the figure 2.

Figure 2. Book Cover



3) *Design*

This stage is described as follows:

- Developed e-materials using technology that is neutral to the delivery method.
- Developed e-material using technology that is device independent
- Packing e-materials follows the e-learning specification standards.

4) *Design*

This stage is described as follows:

- Implemented internet technology to deliver e-materials in various formats.
- Implemented mobile technology to deliver e-material.

5) *Evaluate*

This stage is carried out at each of the above stages and functions like feedback to correct any possible mistakes that might occur. Following are the steps at this stage.

- Feedback between fellow lecturers and students to reuse / repurpose learning objects
- Evaluating learning objects
- Evaluate meta data

6) *Maintenance*

This stage is carried out to maintain the relevance of the e-material itself, here are some steps that have been taken.

- Keeping e-material content always relevant
- Keeping e-material content up-to-date
- Utilizing evaluation results data to improve material or maintain e-material content.

B. Discussion

In developing prototype products for Development of Motion and Mobility teaching materials based on blended learning for master students of Special Education program at the Universitas Negeri Surabaya is packaged through offline and online. In producing prototype products based on the study of theoretical studies and field findings about the learning conditions in the course of Development of Motion and Mobility teaching materials based on blended learning for master students of Special Education program, it is necessary to update the material content. This conditioning impacts the needs of the field, especially the users of human resources, especially in special schools. The need for special education market share for qualified alumni needs to be prepared or reviewed for lecture materials that are appropriate to the user's field conditions, so that the Special Education master graduates are in accordance with the standards expected by the community, especially institutions that provide services for children with special needs.

The other side of the condition of master students in learning requires scientific studies that refer to the flexible, more effective and efficient model needed by students in learning. This is confirmed by [6], that the use of online e-learning is as follows.

1) *Flexibility*

In classroom learning requires learners to be present in class at certain hours (often this time clashes with routine learning activities), the online learning e-learning system provides flexibility in choosing the time and place to access learning materials.

2) *Effective, Efficient and Attractive Learning*

According to Reigeluth (in Uno, 2009), that learning outcomes can be classified into 3 aspects, namely.

- a. Effectiveness of learning,
- b. Learning efficiency,
- c. The attraction of learning.

The effectiveness aspect of learning is measured by the level of student achievement on the learning objectives that have been set. While the efficiency aspect is measured by the ratio between effectiveness and the amount of time and or costs used. The attractiveness aspect of learning is measured by observing students' tendency to continue learning. Furthermore [3] suggested that learning outcomes usually follow certain lessons that must be linked to the achievement of learning goals that have been set. In line with this, [7], said that effective learning emphasizes the importance of learning as a personal process, and contains learning strategies that can accommodate various contexts, students with various backgrounds, needs and problems.

Based on this reality, the prototypes of product Development of Motion and Mobility teaching materials based on blended learning for master students of Special Education program at the Universitas Negeri Surabaya is a solution to learning cognitive understanding and practices and attitudes to learning innovation. The suitability of the ADDEM development model, selected in this study is used to develop a prototype product for Development of Motion and Mobility teaching materials based on blended learning for master students of Special Education program. The process of developing prototype products for Development of Motion and Mobility teaching materials based on blended learning is supported by the theory proposed by [9], not only in the form of learning media, but also in the form of procedures, instruments and learning processes. .

Based on the development of Development of Motion and Mobility teaching materials based on blended learning for master students of Special Education program on the use of information and communication technology with online packaging or e-learning that has been facilitated by Special Education master program at Universitas Negeri Surabaya. Aside from being part of an effort to improve the learning outcomes of master students of Special Education program, occupying an important role in preparing graduates' qualification standards that are competitive in the community. Other factors in the current development of internet use for educational purposes are increasingly widespread, especially in developed countries. The facts of the findings show that online media enable a more effective teaching and learning process.

Furthermore Independent learning through E-learning provides an opportunity for students to take control of learning success for each. This means that learners are given the freedom to determine when to start, when to finish and what part of the material they want to learn first. Students can start from topics or pages that draw their interest first or can just skip the parts that they think they have mastered. If they have difficulty understanding a part they can repeat it again until they feel able to understand. If after repeated there are still things that have not been understood, students

can contact the instructor / resource person through e-mail or interactive dialogue at certain times. E-learning, as expressed by [8], that learners and students can communicate easily through internet facilities regularly or whenever communication activities are carried out without being limited by time and place. Learners and students can use instructional materials or structured learning instructions on the internet. Wedemeyer [8] emphasized that learning independence with e-learning programs requires learning students independently and autonomously.

Regarding blended learning education methods, the close relationship between students and learners is the central point of education. With this method can produce good quality education, and not only makes smart students but also educated with polite behavior. Furthermore, the impact of infrastructure and learning conditions that are not suitable, and the increasing number of students, the conventional method does not achieve maximum results. The results of learning research that integrates learning using computers (internet) with traditional methods states that the achievements obtained are better with computers (internet) [11]. The best learning for students when arranged systematically can inspire, be fun and motivate, so that they can learn independently and are designed according to their grade or level.

Specifically, the learning centered on what, how and where is appropriate for the needs of the master students in Universitas Negeri Surabaya. In learning that suits the needs of master students is about what is taught. The principles of learning methods in the context of how learning is provided and the last place for learning that is in accordance with the needs of the second level students where learning needs to be given blended learning methods that can enrich and explore the mastery of learning material both offline and utilizing various sites available in Internet. In developing Development of Motion and Mobility teaching materials based on blended learning, the principles of learning methods are used, below.

- Learning that is in accordance with the learning needs of master students of Special Education Program.
- Teachers emphasize learning through visual channels both offline and online.
- Learning requires real experience in learning the concept of subject matter.

The linkage of Development of Motion and Mobility teaching materials based on blended learning is prioritized on how to package learning products delivered to master students in graduate school in comprehending comprehensively the teaching material. The complexity of the characteristics and needs of children with special needs who will be served and fostered through movement and mobility so that they can participate and socialize with their environment, the blended learning model as an alternative to develop teaching materials both offline and online.

IV. CONCLUSION

Development of Motion and Mobility teaching materials based on blended learning for master students of Special Education program has been designed based on the ADDDEM model. In the process stage the results of the development of Development of Motion and Mobility courses based on blended learning are, through the following: a) learning that is suitable for the learning needs of master students of Special Education Program, b) teachers emphasize learning through visual channels both offline and online, and c) learning requires real experience in learning the concept of lecture material.

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