

THE DEVELOPMENT OF FIN SWIMMING INSTRUCTION PACKAGE FOR NAVAL CADETS ACADEMY

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ABSTRACT

Instruction package is a learning instruction containing teaching material directed at the achievement of instructional objectives to be given to educators and students, which includes lesson plans, lesson programs, educational and training books, student exercise books, testing tools and a list of instructional tools. In military education lecturers or educators must be able to provide and present material well and it is hoped that cadets can apply it when practical training is carried out. Therefore PI is very necessary for the success of a practice exercise. Cadets is a soldier of the Naval Academy students as individuals who are guided, cared for, assisted and trained until they become officers. Fin swimming is a water sport activity that is carried out by a swimmer by using a mask, snorkel and fins equipment, to be able to dive, move faster in water and last longer on the surface of the water. In this research, the formulation of the problem examined is what factors need to be developed to improve the quality of PI Fin Swimming in order to help facilitate the understanding of Naval Cadets Academy with sub-problems are the feasibility of the content, linguistic aspects, presentation aspects and graphic aspects. The research instrument used in the questionnaire was closed and open questions. Data analysis is carried out through the process of triangulating data and information obtained when conducting research or direct observation. The respondents were cadets of Level IV Naval Academy, Teaching Materials Expert, Head of the Physical Department. The selection of respondents is done by purposive random sampling technique. The factors that must be corrected from each item aspects are as follows: aspects of the appropriateness of contents or material that are generally included in the good category, sub-aspects that get enough votes from respondents are conformity with the development of science and technology and examples are quite varied and applicable but not yet can motivate more cadets to find more appropriate movement techniques during learning, linguistic aspects are generally included in the good category, sub-aspects that get sufficient assessment from respondents are the clarity of information conveyed and are quite interactive so that cadets still have difficulty understanding even more so when studied by themselves, aspects of the presentation in general are included in either category, sub-aspects that get less assessment from the respondent is the column of learning material summary, aspects of graphics in general. The results of the evaluation were followed up by developing a PI and respondents were asked to provide a response. The responses of each respondent can be concluded in general that the PI Fin Swimming results of the development were good and fulfilled every aspect of the PI as a teaching material for Cadets.

Keywords: *Instruction Package, Cadets, Development, Fin Swimming*

1. INTRODUCTION

Education is a conscious effort deliberately designed to achieve the stated goals. Education aims to improve the quality of human resources. Likewise, the TNI in the life of the nation and state which has a role as a national defense force. One effort to improve the quality of human resources is through the education process in educational institutions. Starting with this educational objective, activities

are planned to be presented to students. Curriculum objectives achieved through the implementation of academic activities must be clearly stated. The purpose of each academic activity is a clear formulation of changes in the ability of knowledge, skills and attitudes of students who want to achieve after students end their education.

AAL is the central executive body which is under the Navy Chief of Staff and has the

main task of carrying out the first education of the Navy AL Volunteer Academic level (Diploma IV) and D4 Strata education by obtaining a Bachelor of Applied Defense (S.ST Han) degree in the Program Marine Defense Defense Management Studies, Marine Aspect Sea Defense Management, Financial Management and Sea Logistics Logistics, Battleship Mechanical Engineering and Naval Electronics Engineering.

Indonesia Naval Academy (AAL).

The realization of competency competencies of AAL graduates is expected to be supported by ten educational components. The ten components of education are based on the Kasal Regulation No. / 78 / X / 2008 concerning the 10 components of education consisting of curriculum, instruction package / module, teaching staff, education staff, students, instruction tools / instruction aids, teaching methods, educational evaluation, facilities education and education budget.

One of the ten components that need to be evaluated and developed through scientific assessment is the instruction package (PI). Thus the evaluation, assessment and development of PIs as teaching materials is very important so that PI functions can be used optimally. The functions of PI include as a guideline for cadets on competencies that must be mastered, guidelines for Gadik to direct learning activities, and learning evaluation tools. The end result is the quality of the results of students there is always an increase over time in accordance with the demands of the needs. Therefore, to find out the extent of functioning of the PI and can help cadets better understand teaching material or if there are still things that need to be improved, an evaluation is carried out. the development of science and technology, the truth of the substance of the material supported by theories and facts as well as data related to teaching material, the benefits for adding insight into knowledge, conformity with the writing of the final work and the suitability of the material context with the assignment of cadets.

The examples presented in the Instruction Package are less varied and applicable according to the field of competence of the Youth Corps in order to improve the understanding of the Youth and the examples given are not in accordance with the development of defense field developments currently developing or related to the topic of writing the final work of the Cadets. so that

respondents (Youth) still have difficulty in determining the title in accordance with the field of competence / Youth Corps. The linguistic aspects are language that is easy to understand, clarity of information, conformity with Indonesian language rules, and the use of language effectively and efficiently.

Fin Swimming Instruction Package is very important to help Cadets in mastering swimming techniques using fins. Swimming is one of the core competencies that must be mastered by all Indonesian Navy personnel, moreover by an AAL cadet and becomes one of the measurement tools for AAL Cadets graduation. AAL cadets are educated and trained to be prepared to become a leader. A leader is required to have more ability compared to its members.

2. MATERIALS AND METHODS

2.1 Learning Characteristics of AAL Cadets

Education at the Indonesian Navy Academy is directed at achieving the vision of the Indonesian Navy, namely the realization of a reliable and respected Indonesian Navy. Solving all educational problems at the Naval Academy using a systematic approach that covers 8 aspects of education and of course with the updating of the 10 components of education. The Education Methods applied at the Navy Academy include detailed teaching, training and parenting methods with their respective goals namely teaching aimed at to equip cadets with general knowledge and basic profession as a sea patriot warrior. With the aim of educating cadets to become TNI AL personnel with Pancasila and Sapta Marga souls and have the ability to use, practice knowledge and skills in accordance with the demands of technical functions directed at the spectrum of work in initial assignments on Indonesian Warships (KRI), Pendarat and troops and be able to develop personally as leader of the Navy. In learning the Navy Academy cadets, educators or lecturers must innovate a lot in learning activities. Due to the dense activities of cadets who use boarding school system or boarding schools where the cadets attend regular education from morning to night at school then continued with special values education. For 24 hours cadets were under the education and supervision of platoon commanders, company commanders, battalion commanders, regimental commanders, TNI Navy Academy and trainers.

2.2 The Nature of Learning

Almighty God graces humans many advantages compared to other creatures, one of which is having a brain. Learning is basically a process of activities to increase one's knowledge

from something that does not know to know. Learning in the formal context in educational institutions is a process of communication or interaction between instructors and students who are taught.

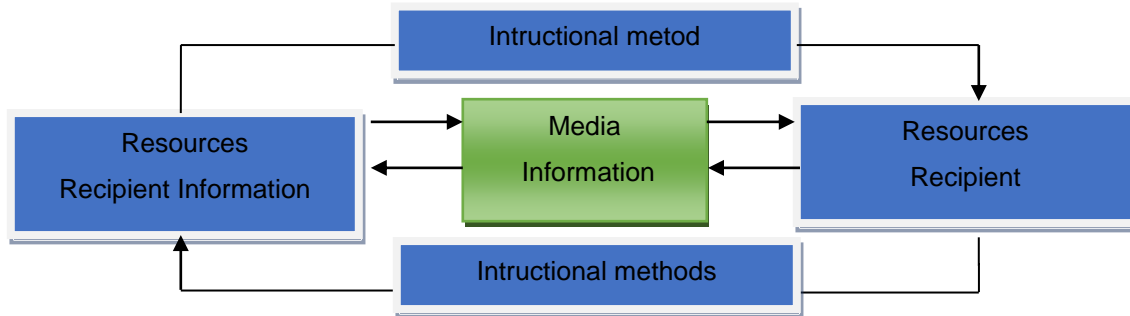


Figure 1. Communication Process in Learning

Based on the picture above it appears that the four components are mutually supportive so that the communication process can take place. The communication that is developed should be in a pleasant situation so that cadets as students can more easily understand all the subject matter delivered by Educational employee.

2.3 Learning Model

In relation to the learning variable, the position of the learning model in the learning variable can be described as follows:

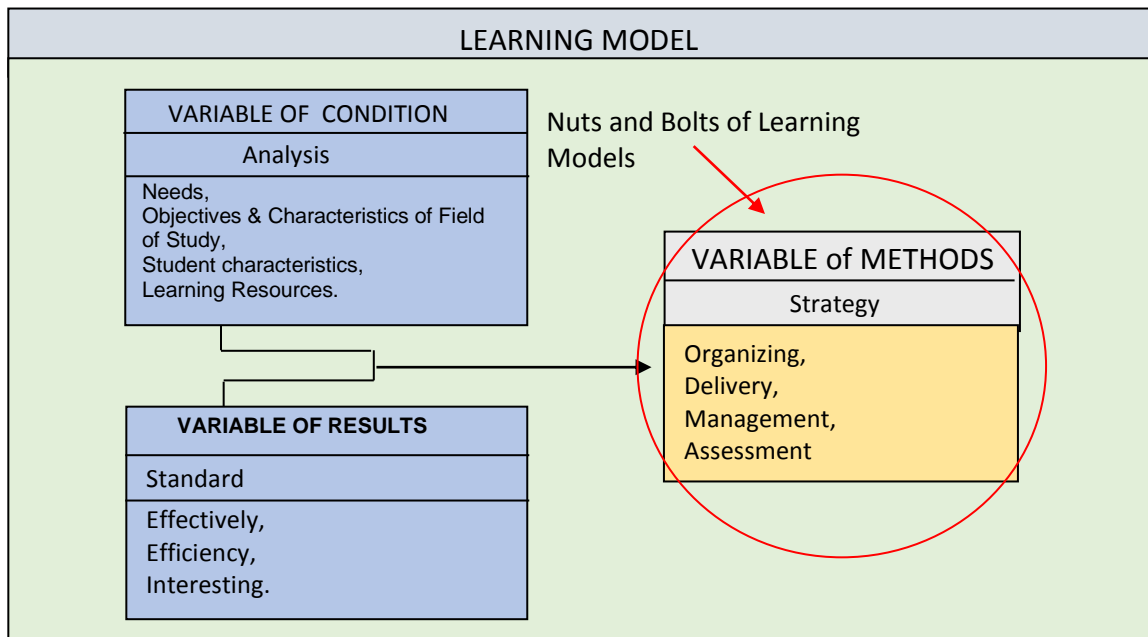


Figure 2. Position of Learning Models in Learning Variables
(Source: Modification of Reigeluth Thinking, (1983) and Degeng, (1989).

While the role of the learning model as a bridge between theory and practice, can be illustrated in the following scheme:

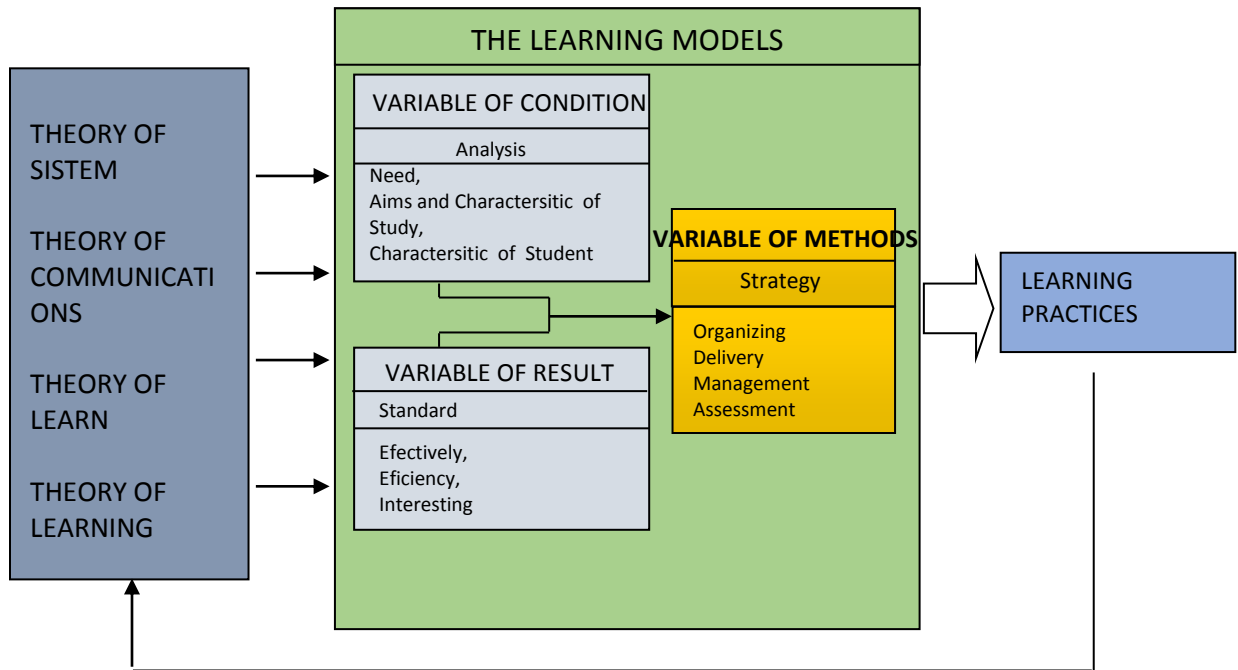


Figure 3. The Role of the Model as a Bridge between Theory and Practice (Source: Degeng, 1989)

2.4 Teaching materials

Teaching material as one of the guidelines in the teaching and learning process by both Gadik and students is very useful to improve students' understanding and learning outcomes. To find out the extent of the effectiveness and usefulness of teaching materials in accordance with the demands of the development of current science and standards that have been set both institutions and applicable regulations, then the evaluation and development of teaching materials needs to be done periodically and continuously. Teaching materials have an important function in the learning process. The factors that influence the feasibility of a teaching material to be evaluated include the content, scope, readability, language, illustrations, appearance and packaging (Pannen & Puspitasari, 2005), while Suparman (2005) in the process of instructional product development, formative evaluation is a process of providing and using information as a basis for decision making in order to improve the quality of teaching materials or as instructional media. Formative evaluation of teaching materials can be done by reviewing instructional materials /

instructional media, viewing learning outcomes and collecting students' opinions.

The evaluation component includes the appropriateness of content, linguistics, offerings, and graphics. The component of content eligibility includes, among others:

1. Compliance with SK, KD
2. Compliance with child development
3. Conformity with the needs of teaching materials
4. The truth of the substance of learning material
5. Benefits for adding insight
6. Conformity with moral values, and social values

The Language Components include:

1. Readability
2. Clarity of information
3. Conformity with the rules of Indonesian Language is good and right
4. Effective and efficient use of language (clear and concise)

The Presentation Components include:

1. Clarity of objectives (indicators) to be achieved
2. The order of offerings

3. Providing motivation, attractiveness
4. Interaction (giving stimulus and respond)
5. Complete information

The Components of the Graphic include:

1. Use of fonts; type and size
2. Lay out or layout
3. Illustrations, pictures, photos
4. Display design

2.5 Development Research

Research development or known as design research is research based on research objectives that have a design process (design) as an important stage in research. As for some understanding of development research from several experts. According to Plomp development research are: A systematic study of designing, developing and evaluating educational interventions (such as programs, strategies and learning materials, products and systems) as a solution to solving complex problems in educational practice, which it also aims to advance our knowledge of the characteristics of these interventions and their design and development processes.

2.6 Understanding the module

a. Definition. Modules are a way of organizing subject matter that takes into account the function of education. Strategies for organizing learning material contain sequencing which refers to the making of the order of presentation of subject matter, and synthesizing which refers to efforts to show students the relationship between facts, concepts, procedures and principles contained in the learning material. To design learning materials, there are five categories of capabilities that can be learned by students, namely verbal information, intellectual skills, cognitive strategies, attitudes, and motor skills. The strategy of organizing learning material consists of three stages of the thought process, namely the formation of concepts, interpretation of concepts, and application of principles. These strategies play a very important role in designing learning. Its usefulness can make students more interested in learning, students automatically learn to start from prerequisites, and can improve learning outcomes.

b. Module Function. The function of the module is as a learning material used in student learning activities. With the module students can learn more directed and systematic. Students are expected to master the competencies demanded by the learning activities that they participate in. The module is also expected to provide learning instructions for participants during the training.

c. Module Features

The characteristics of the module are as follows (Ari, 2012):

- 1) Preceded by statement of learning objectives
- 2) Knowledge is organized in such a way that can lead to participation students actively.
- 3) Contains a rating system based on mastery.
- 4) Contains all elements of study material and all lesson assignments.
- 5) Provide opportunities for differences between individual students
- 6) Leading to a goal of complete learning.

d. Benefits of Using Modules Learning to use modules has many benefits, students can be responsible for their own learning activities, learning with modules highly values individual differences, so students can learn according to their ability levels, so learning is more effective and efficient.

2.7 Definition of Instruction Package

In the teaching and learning process educators provide or present material to students, and also educators help students in understanding the material presented. In military education. Lecturers or educators must be able to provide and present the material well and it is hoped that cadets can apply it when practical training is carried out. Therefore PI is very necessary for the success of a practice exercise

2.8 Sport Fin Swimming Overview

a. The essence of swimming Fin. Fin swimming is a water sport activity carried out by a swimmer by using mask, snorkel and fin equipment, to be able to dive, move faster in water and last

longer on the surface of the water. Poor Diving is an absolute and mandatory basic dive technique that must be learned well and correctly before becoming a Scuba-level diver. Someone who already understands and is adept at doing skin diving techniques is called SnorkelerDive. The activity carried out by a Snorkeler Diver is called Snorkeling. With fin, swimmers will be more efficient in moving in the water, so that they will accelerate the movement of swimmers. Snorkel is part of the snorkel gear or diving equipment in the form of a J-shaped hose with mouth protection at the bottom end. This tool functions as an air inlet when breathing with your mouth without having to lift your face from the surface of the water (My Indonesia Roaming, 2018)

b. Principles of Swimming Fin Sports. Swimming is a type of exercise that is carried out in water. This sport can be done from small children to parents. This sport is very useful as an educational tool, as a healthy recreation, instill courage, confidence and as a therapy that is sometimes recommended by doctors. Now, swimming is used as a means to make achievements, this is evidenced by the number of swimming clubs everywhere, and the number of swimming competitions held from the local level to the international level. For swimming achievement must know the principles of swimming to support the desired performance. There are several swimming principles that must be known by swimming coaches and athletes, namely:

- 1) Principle of Obstacles and encouragement
- 2) Legal Principles of Reaction Action
- 3) Principle of Transfer of Momentum
- 4) Principles of Square Law Theory
- 5) The Buoyancy Principle

c. Introduction of Swimming Fin equipment (Fin Swimming)

1) Mask and Snorkel. There are two types of Mask and Snorkel ingredients: Mask and Snorkel, namely:

(a) Neoprene rubber, usually black and cheap. with Neoprene rubber, silicone is stronger and more flexible so it is more comfortable, because it is easier to follow the shape of our faces

(b) Silicon, transparent. Although silicon is more expensive

2) Fin. Fin is used to help us swim in water, so that the energy expended is less and more efficient than swimming using only the hands and feet. Because it has wider fins.

d. Use of Swimming Fin Equipment

Masks, Snorkels and Fin. Masks are eye and nose patches that function the same as swimming goggles, namely as a window to help see in water. It's just that the mask is made in such a way that there is an air cavity between the mask, our eyes and nose, so that it can prevent the occurrence of a Squeeze mask. While Snorkel is a special tool to help breathing through the mouth on the surface of the water without lifting the head. Fins are used to help us swim in water, so that the energy expended is less and more efficient than swimming using only the hands and feet. Because it has wider fins.

3. RESULT AND DISCUSSION

3.1 Research Model.

This research was conducted using a research development approach that assessed aspects that must be fulfilled in the development of the Fin Swimming Instruction Package based on the Directorate of Higher Education handbook and other related references that have been described in the literature review. Research and development methods or in English Research and Development is a research method used to produce certain products

Research development or known as design research is research based on research objectives that have a design process (design) as an important stage in research. The main aspects studied include the feasibility of design, material, linguistic, and presentation. In connection with these aspects, evaluation is carried out in stages by involving design experts, material experts, linguists and presentation experts.

3.2 Research procedure.

In the research development of the Swimming Fin Instruction Package using the Borg and Gall 1983 research model. Research and development of research on the theory of Brog and Gall (1983: 775) which suggests 10 steps that must be taken in Research and Development, namely:

- a. Research and information gathering, namely conducting a literature study relating to the study being studied, and preparing to formulate an evaluation of research work.
- b. Planning, in this step, formulates the skills and expertise related to, determine the objectives to be achieved at each stage, and if necessary a limited feasibility study is needed.
- c. Developing the initial form of the product, which is developing the initial form of the product to be produced. Related to this is the preparation of supporting components, preparation of guidelines and guidelines, and

evaluation of the feasibility of supporting tools.

d. Preliminary field testing, which is conducting initial field trials on a limited scale. In this step data collection and analysis can be done by interview, observation or questionnaire.

e. Major product revisions, which make improvements or revisions to the initial product that results from the initial trial results. This revision was carried out according to the targets obtained from the preparation of the field testing.

f. Main field testing, which is the main trial involving all subjects.

g. Operational product revisions, i.e. make improvements / refinements to the results of field trials, so the products developed are already operational design models that are ready to be validated.

h. Operational field testing, namely the validation test step for the product that has been produced by way of delivering questionnaires, collecting data and conducting analysis.

i. Revision of the final product, which is to make a final improvement to the model developed to produce the final (final) product.

j. *Dissemination and implementation*, namely the step of disseminating the developed product.

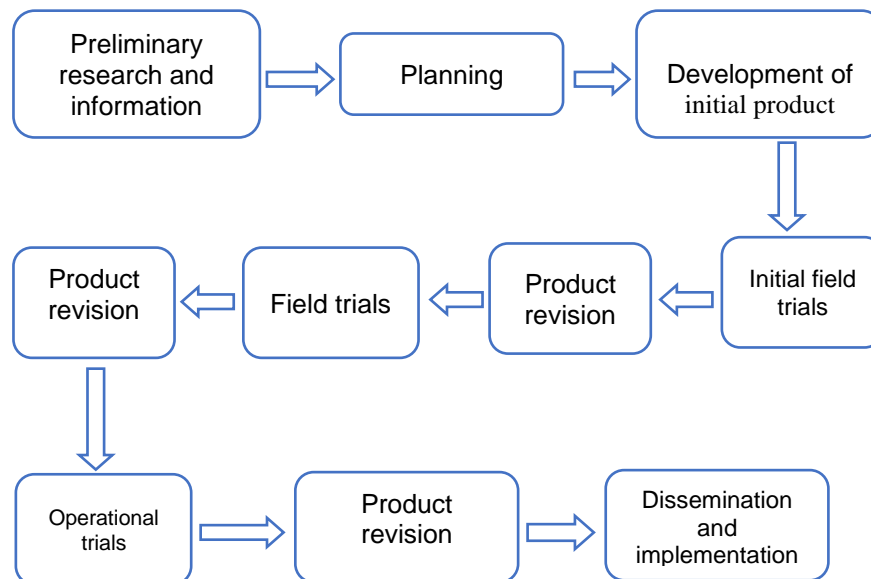


Figure 4. Diagram of Steps for the Borg and Gall Development Model (1983)

The following steps in the research and development of Borg and Gall that researchers use: (1) initial research and information gathering; (2) planning; (3) product format development; (4) small-scale trials; and (5) final revisions and product improvements. These stages will be used as important steps in product development in the form of a swimming pool Instruction Package for the Navy Academy Youth Academy. The following is an explanation of the stages the researcher will pass.

a. Preliminary Research and Information Collection

At this stage, the researcher conducts a preliminary study by gathering information, identifying needs, and exploring the needs of teaching materials. This aims to obtain preliminary data in detail, which will then be used in the process of developing learning modules. Information gathering, identification of needs, and exploration of the need for teaching materials is done in several ways.

b. Planning

After getting information on the need for learning media comes from a preliminary study as an initial step, the researchers then planned the making of PI swimming fin. The steps taken by researchers in planning product development, including formulating learning objectives, selecting materials, making module frameworks, and gathering materials.

c. Product Format Development

The initial step in the production of instructional media in the form of compiling a PI is to collect all references related to fin swimming material, illustrations, and drawings needed in development. After the references are collected, the next step is to arrange PI based on the framework that has been made. Before it is submitted to media experts and material experts to be assessed and validated, an independent check is carried out by the researcher.

d. Small scale trial

After the module is assessed and validated by media experts, material experts, and teachers, the module is then tested on cadets. Trials are carried out on a small scale on a limited basis. The purpose of this trial is to obtain information on the feasibility of

swimming fin learning modules for AAL cadets based on the response of cadets.

e. Final Revision and Product Improvement

A final revision was made based on responses from the trials given by cadets to produce a final product in the form of a fin swimming learning module for cadets as an independent learning material for AAL Cadets.

3.3 Validasi Product

Before being used to test product quality, the instruments are first tested for validity. Testing is done so that the instrument can measure the aspects to be measured. In this study the validity was carried out by experts. The following instrument lattices for product assessment.

a. Validation Design.

The research process in design research includes steps such as the educational design process, namely analysis, design, evaluation and revision which is a process that ends in a balance between the ideal and practice

b. Validation Subject

Subjects in this study were those who validated the Fin Swimming Instruction Package produced, namely instructional media experts, learning material experts, fin swimming lecturers at AAL and students at AAL.

c. data type

The data presented in this PI swimming fin development research is the result of the validation of the swimming fin Instruction Package that has been developed consisting of qualitative data in the form of suggestions from the validator.

d. Data Collection Instruments

The data collection instrument used in this research study was to use a questionnaire in the form of a questionnaire. After knowing the data categories, the next step is to scale up the questionnaires that have been distributed.

e. Data analysis technique

Data analysis is carried out through the process of triangulating data and information obtained when conducting research or direct observation. Data analysis techniques use descriptive,

qualitative. Descriptive analysis techniques used questionnaire beliefs

$$P = \frac{\sum x}{\sum x_i} \times 100$$

P = prosentage sought (eligibility)

$\sum x$ = number of assessment

$\sum x_i$ = highest number of answer

100 = constant number

Note:

Table 1. Eligibility Criteria for Fin Swimming Instruction Packages

Percentage (%)	Eligibility Criteria
75% < P < 100%	Good
50% < P ≤ 75%	Good Enough
25% < P ≤ 50%	Poorly
0% < P ≤ 25%	Not Good

Information:

Good = Eligible / No Need To Be Revised

Good Enough = Fair Enough / A Minor Revision

Poorly = Inadequate / Major Revisions

Not Good = Inappropriate / Overall Revision

3.4 Instrument Grid

The evaluation instruments of experts, peers and cadets in this study have validation (content validity) which is based on 2 things, the lattices are arranged and based on expert judgment (expert judgment). To obtain the appropriateness of the instruments used in this study, the following steps were carried out:

- a. Arrange the instrument grille
- b. Consult with the supervisor
- c. Arrange the instrument points based on the instrument grid
- d. Consult the instrument with experts.

3.5 Presentation of Research Results Data

Data presented sequentially are qualitative data in the form of responses from subject matter experts, module learning design experts, peer testing, small group trials and large group trials.

3.6 Data analysis

- a. Feasibility Analysis of Fin Swimming Instruction Instructional Package from Content Expert Based on

table 4.1, which is the data of the content expert test results, the total score obtained from content validation or material is $(60 : 70) \times 100\% = 85.7$ or 85.7%. From the results of the feasibility of teaching materials Fin Swimming Instruction Package from content experts declared can be used without revision.

- b. Feasibility Analysis of Fin Swimming Instruction Package teaching materials from Learning Design Experts. Based on table 4.2 namely data from the Learning Design expert test results, the total score obtained from design validation is $(63 : 75) \times 100\% = 84$ or 84%. From these results the Fin Swimming Instruction Package was declared to be used without revision.

- c. Feasibility Analysis of Fin Swimming Instruction Instructional Package from Peer Trial results. Based on table 4.3, the data is the results of the trial of 2 Fin Swimming Academy Academies of the Navy of Surabaya. Based on the data in the table above, there are twelve questions regarding the

Fin Swimming Instruction Package, from several assessments based on scores ranging from 1 to 5, a calculation is made in the form of a percentage so that an assessment from the respondent can be identified.

Data analysis : Based on the data above, it can be calculated for each

$$\text{Average} = \frac{80+100+90+100+100+90+100+90+90+70+90+100}{12} = 91,6\%$$

Based on the results above, it can be interpreted that PI Fin Swimming is feasible to use because the feasibility reaches 91,6%.

d. Feasibility Analysis of Teaching Material Fin Swimming Instruction Package from the Results of the Cadets Trial

e. Analysis of the feasibility of the Public Swimming Instruction Package teaching material module from the results of small group trials.

$$\text{Average} = \frac{90+88+90+92+92+86+92+88+82+94}{10} = 89,4\%$$

Based on the results above, it can be interpreted that PI Fin Swimming is feasible to use because the feasibility reaches 89,4%. Based on the results above, it can be interpreted that PI Fin Swimming is feasible to use because the feasibility reaches 89,4%.

f. Analysis of the feasibility of teaching materials Fin Swimming Instruction Package from the results of field trials. Based on table 4.5, which is

$$\text{Average} = \frac{94+88+92+88+90,7+88+84,7+92,7+87,3+94}{10} = 89,9\%$$

Based on the results above, it can be interpreted that the PI is feasible to use because the feasibility reaches 89.9%. Based on the results above, it can be interpreted that the PI is feasible

percentage value at 2 lecturers as follows. Based on the percentage calculation, an accumulation calculation can be made so that the average percentage of respondent ratings can be obtained. Calculation of averages as follows:

Based on table 4.4 above, the data is the result of the trial of 10 Surabaya Naval Academy cadets. In the table above, the calculation can be done so that the following values are obtained. Based on the percentage calculation, an accumulation calculation can be made so that an average percentage of respondent ratings can be obtained. Calculation of averages as follows:

the result of the trial data of 30 Surabaya Navy Academy cadets, the above table can be calculated so that the following values are obtained Based on the percentage calculation, an accumulation calculation can be made so that an average percentage of respondent ratings can be obtained.

Calculation of averages as follows:

to use because the feasibility reaches 89.9%.

g. Analysis of All Trials Average total of all trials From all trials conducted by the author, the average value of the results of the trial:

Table 2. Score and Percentage of Questionnaire

No	Indicator	Percentage %
1	Validation of PI Content / Material Expert	85.7
2	Validation of Learning Design Expert	84
3	Peer Trials	91.6
4	Small Group Trials	89.4
5	Large group trials	89.9
Amount :		440.6

Overall grade point average: 440.6%: 5 = 88.12%
 These results are included in the criteria of interesting

4. CONCLUSION

4.1 Conclusions

Based on the opinion of respondents about Fin Swimming Instruction Package after development based on the results of the study it can be concluded in general from all aspects in question, including both categories. The factors that have been developed from each aspect item are as follows:

- a. From the aspect of content suitability generally included in the good category, sub aspects that have been developed according to the opinion of respondents are to provide examples of applicative and more varied adapted to the development of science and technology.
- b. In the linguistic aspect generally included in the good category, the sub aspects that have been developed according to the opinion of the respondent are to clarify the information conveyed and be more interactive so that the Youth are easier to learn and understand, including when learning independently.
- c. Coverage aspects of the presentation are generally included in the good category, sub aspects that have been developed according to the opinion of respondents is to include an emphasis column and a summary of learning material.
- d. Aspects of graphics are generally included in the good category, sub aspects that have been developed according to the opinion of respondents are displaying the material to be

highlighted to facilitate understanding so that it becomes more interesting to read the Youth of the PI.

e. The result of the development of the attached PI Fin Swimming.

4.2 Suggestion

Some things that need to be followed up based on the results of PI development research include:

- a. This Fin Swimming PI is a representation of the PI in the AAL and the TNI Academy in general. If an evaluation of other PIs will have results that are not much different. With this in mind, please the Chairperson to instruct that the current PI be improved in its entirety by taking into account the results of the development research that has been conducted.
- b. In order to have the same perception in improving PI as a whole, please hold a PI-making workshop at AAL by inviting Teaching Materials Experts as resource persons.
- c. In continued and continuous research in learning science, please conduct research on the development of learning strategies to deliver the material contained in PI Fin Swimming so that the material contained in PI Fin Swimming is conveyed properly in accordance with the objectives and learning content and is more easily understood by Youth. more optimal and can be used when on duty later.

ACKNOWLEDGEMENT

The authors greatly acknowledge the support from University of PGRI Adi Buana UNIPA Surabaya Indonesia, for providing the necessary resources to carry out this research work. The authors are also grateful to the anonymous reviewers and editorial board for their many insightful comments, which have significantly improved this article.

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