

Developing Textbooks Sports Nutrition Science for Health Physical Education Students and Recreation at Ikip Budi Utomo Malang

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Abstract: The purpose of this study is to develop a sports nutrition science textbook that is feasible and validated by materials, media and language experts for Health Physical Education students and Recreation IKIP Budi Utomo Malang. Research on the development of this Sports Nutrition Science textbook refers to the 4D model developed by Thiagarajan, et al. (1974) which consists of 4 stages, namely Define, Design, Development, and Disseminate, which were modified to be adapted to this study. This development research produced a feasible and validated Sports Nutrition Science textbook by material, media and language experts for Health Physical Education students and Budi Utomo IKIP Recreation Malang.

1 INTRODUCTION

According to the Directorate General of Higher Education (2009), textbooks are handbooks for subjects written and compiled by experts in related fields and fulfil the rules of textbooks. In the field of education, textbooks are closely related to the learning process and curriculum. Textbooks are a means for implementing education and learning. During learning, the teacher can manage learning activities with the help of books. Students can participate in learning activities through book means.

Sports Nutrition is one of the compulsory subjects in the Health and Recreation Physical Education Study Program. Sports Nutrition Science is the study of the relationship between food management and physical performance that is beneficial for health, fitness, child growth and sports achievement development, especially for sportsmen. The purpose of studying sports nutrition is to understand the relationship of nutrition, lifestyle and physical performance. Athletes must have appropriate nutrition to obtain optimal health and physical abilities to enable them to endure hard physical training and be able to maintain a good appearance during the game.

The results of interviews with students of Health Physical Education and Recreation IKIP Budi Utomo

Malang showed that 80% of students were less interested in sports nutrition courses. They consider Sports Nutrition less related to the world of sports. This fact makes the lecture on Sports Nutrition Science seem less meaningful. Most PJKR students consider Sports Nutrition as a difficult subject. It is not surprising that the nutritional science learning outcomes of PJKR students, especially those at Budi Utomo IKIP Malang are still relatively low. Every final semester exam is only 45% to 55% of students who meet the Minimum Completion Criteria (KKM).

2 THEORITICAL REVIEW

Muslich (2010) states that books are an effective means of achieving competence in learning. Experiences and exercises that need to be taken, as well as information that must be sought, are presented in a book programmed. Books have a close relationship with the curriculum. Writing textbooks must pay attention and compile syllabus, determine learning methods, and determine how to present materials that are appropriate to the child's development level. Adalikwu, et al. (2013) stated that teaching material acts as a facilitator between educators and students and develops students' motivation during learning activities.

Textbooks are currently considered to be the most important and most widely used teaching material (Prastowo, 2012). The existence of books cannot be separated from learning activities, including at the university level. Textbooks have several functions, namely: 1) As reference material or reference material by students; 2) As an evaluation material; 3) As a tool for educators in implementing the curriculum; 4) As one of the determinants of teaching methods or techniques used by educators.

In developing books as teaching materials, the steps that must be carried out according to the Ministry of National Education (2008) are: 1) Study the curriculum by analysing it; 2) Determine the title of the book to be written in accordance with the decree that the book will provide; 3) Design a book outline so that the contents of the full book cover all aspects needed to achieve a competency; 4) Gather references as writing material, try to use the latest references and relevant to the study material; 5) Writing a book is done by paying attention to the presentation of sentences that are adjusted to the age and experience of the reader; 6) Evaluate / edit the results of writing by rereading. If there are deficiencies, additions are immediately made; 7) Improve writing.

The development of statistical textbooks for sports education is an effort to produce new products in the form of statistical books according to the stages mentioned. The books developed are designed for PJKR students, especially at the IKIP Budi Utomo Malang. Statistics teaching books have been developed so far statistics book specifically for sports education. This is in line with Wibowo's statement (2012: 24) which mentions the importance of textbooks containing conceptual ideas and theoretical studies and applications related to the daily lives of students.

The purpose of the development statistic textbooks for sports education is to maximize the important functions of textbooks that help students to recognize, remember and apply the knowledge taught by lecturers (Wibowo, 2012: 12). The short-term target of this development is to produce printed textbooks that can be used in lecture. Meanwhile, the long-term target is to increase the competence of students (prospective sports teachers) to using statistic in their fields.

3 RESEARCH METHODS

The development of this Sports Nutrition Science teaching book refers to 4D model developed by

Thiagarajan, et al. (1974) which consisted of 4 stages, namely Define, Design, Development, and Disseminate, which were modified to be adapted to this study.

3.1 Define Stage

At this define stage, it is about conducting an instructional needs analysis needed for the development of textbooks which includes steps: (1) Analyzing basic competencies in Sports Nutrition Science courses, (2) Identifying learning problems, and (3) Identifying weaknesses and shortcomings of textbooks Sports Nutrition.

3.2 Design Stage

The design phase was carried out to produce an initial draft of the Sports Nutrition Science textbook.

3.3 Stage Develop

This design phase aims to revise the initial draft textbook that has been prepared at the design stage. Revisions are based on the validation process carried out by material, media and language experts. After the validation and revision is complete, a development test is carried out which includes individual testing, small groups and Classroom Action Research (CAR).

3.4 Stage Disseminate

In this disseminate stage, dissemination of textbooks to be used in lectures on Sports Nutrition, especially for Health Physical Education Study Program and Recreation IKIP Budi Utomo Malang.

4 RESULTS AND DISCUSSION

4.1 The Results of Define Phase

At this define stage, conducting an instructional needs analysis needed for the development of textbooks which includes steps of: (1) Analyzing basic competencies in Sports Nutrition Science courses, (2) Identifying learning problems, and (3) Identifying weaknesses and shortcomings of textbooks Sports Nutrition.

4.2 Results of the Design Stage

The results of this design phase are to produce a draft textbook consisting of cover (cover page), preface, table of contents, instructions for use, and basic competencies in each chapter. The contents section consists of introductory material, main material, sample questions and exercises.

The cover section is given a blue color reflecting the color identity of the IKIP Budi Utomo Malang campus. The front cover contains the titles of books, authors, and institutions. Meanwhile, the back cover contains a brief description of the sports nutrition science textbook.

4.3 The Results of the Develop Phase

This textbook is validated by three experts, namely material, media and language experts. The results of the assessment of each validator are calculated and made in the form of percentages.

Table 1: Validation Result of Materials Expert.

Validator Code	Material Expert Validation	
	%	Criteria
V1	91,6	feasible in very good category.

Table 2: Validation Result of Media Expert.

Validator Code	Media Expert Validation	
	%	Criteria
V3	80	feasible in good category

Table 3: Validation Result of Language Expert.

Validator Code	Language Expert Validation	
	%	Criteria
V2	82,5	feasible in good category

The average validation results from the three validators were 84.7% in the criteria of decent and good. From the results of individual and small group trials, there are several things that need to be revised especially related to the way of writing and writing limits. This has been followed up and revised. Based on the implementation of Sports Nutrition Science textbooks in learning, the learning goes well. Based on the motivation questionnaire, the motivation of

students of the Health and Recreation Education Study Program at IKIP Budi Utomo Malang increased from before. Based on the results of the final test, it was found that students' completeness reached 82%.

4.4 The Results of Disseminate Phase

The result of the dissemination stage is the dissemination of textbooks to be used in lectures on Sports Nutrition, especially for the Biology Study Program of IKIP Budi Utomo Malang.

5 CONCLUSIONS

This development research resulted in a feasible and validated Sports Nutrition Science textbook by material, media, and language experts for Health Physical Education and Recreation IKIP Budi Utomo Malang students.

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