RITVET

Development of Contextual Training-based Module for Building Construction

Balqis Hisham[1], Halizah Awang[1]*

[1]Faculty of Technical and Vocational Education,
Universiti Tun Hussein Onn Malaysia, 86400 Parit Raja, Johor, MALAYSIA

*Corresponding Author Designation

Abstract: This study was conducted to develop a Learning Module with the Concept of Contextual Training on Building Structure Construction and identify the Learning Module's suitability for curriculum demands. The design of this study is based on the Sidek Model. The objective of the study is to produce a learning module with the concept of contextual training for the topic of Building Structure Construction according to the suitability of the format and the validity of the content. This study consists of 40 students of Sekolah Menengah Teknik Bukit Piatu who majored in Civil Engineering. This study shows that the Contextual Training-based Module in building construction was suitable as a learning module used by Form 4 Students of Sekolah Menengah Teknik Bukit Piatu. The developed contextual training-based module meets the content criteria and can be accepted by students as a learning module as can help students understand the topic more effectively theoretically and practically.

Keywords: Building Structure, Building Construction, Module Development, Learning Module, Sidek Model

1. Introduction

Various research and studies have been done to find suitable methods to assist students in their learning approach. A teacher needs to be efficient and creative in overcoming the problem. In addition, the selection of appropriate learning strategies so that students will be more enthusiastic and able to understand learning more easily. This is due to the strategies and steps taken by teachers in the learning process that will affect the performance and achievement of students in the learning process. According to (Quaye, 2020) learning theoretically decreases interest for students. In addition, having less clear reference material on the subject studied makes it difficult for students to review the lessons learned. This will make students less focused and fall behind in lessons (Marjorie M. Petit, 2016). Thus, students will have a fear of sitting for exams which leads to unsatisfactory results, as well as fear of failing to comply (Izhar Oplatka and Chajim Erlanger, 2020).

New ideas need to be introduced in the approach to student-centered learning. Teachers must take appropriate steps in formulating effective learning strategies and ensuring that learning objectives are achieved. This shows that teachers play a very important role in learning to achieve all learning objectives by using more creative and interesting learning methods. This argument is reinforced by summarizing five reasons why teachers should be prepared with a variety of strategies. The first reason is that other students learn in different ways in different situations. Therefore, a teacher must always be prepared in teaching students. Next, there are more appropriate lessons taught in certain strategies only. For example, appropriate engineering subjects are conducted on a hands-on basis or practical training to ensure that students will understand the topic well.

Learning modules are approaches that are systematically designed and engaging educators have long utilized. The methodology or method employed should be suited to the learning goals because it has a lasting effect on the knowledge and motivation of students (Barbara Wasson, 2020). In addition, modules are relevant in this period since they are suitable for producing students with specified academic credentials, training and leadership abilities, and high-quality responsibilities, in conformity with the national philosophy requirements (Norhaqikah Khalil, 2017). This learning module also assists teachers in making the learning process easier. Successful delivery of teachers or lecturers will be achieved by utilizing the learning modules.

The production of a learning module with the concept of contextual training aims to produce a learning module as one of the ABBM that can be used by students who study the topic of Building Structure Construction. The objective statement of this project is to (i) produce a learning module with the concept of contextual training as ABBM for the topic of Building Structure Construction according to the suitability of the format in terms of content and (ii) identify the functionality of the learning module with the concept of contextual training as ABBM for the topic of Building Structure Construction from content aspects.

2. Methodology

The development of this module is to adapt the Sidek model based on the suitability in the development of the learning module of the Building Structure Construction course. Therefore, this module should have the criteria already selected. The important thing in a module is that the module's content is arranged and in a sequence that is easy to understand by the users of the module and must be appropriate to the level of knowledge of students. The production of good modules can attract the attention of readers in undergoing an effective learning process. Therefore, module development must always carry out modification and improvement to achieve the desired learning objectives.

Next, contextual learning is learning that drives learning and learning activities in the classroom. Demonstration of contextual learning, success in learning using collaboration with students, appropriate activities in lessons, relationships with real situations of real work contexts, and content integration between academics and real jobs. Appropriate learning activities can develop students' abilities to be creative and innovative in explaining, reviewing, analyzing, and evaluating ideas to enhance and maximize the problem-solving efforts they face. (I.W. Widana, 2018). Contextual learning combines content with the daily experiences of individuals, communities, and the world of work. This method provides concrete learning that involves hands-on and mind-on activities. (A. K. Daragmeh and E. B. Dawwas, 2017) The main goal of contextual learning is to produce excellent and quality students in preparation for entering the world of work later.
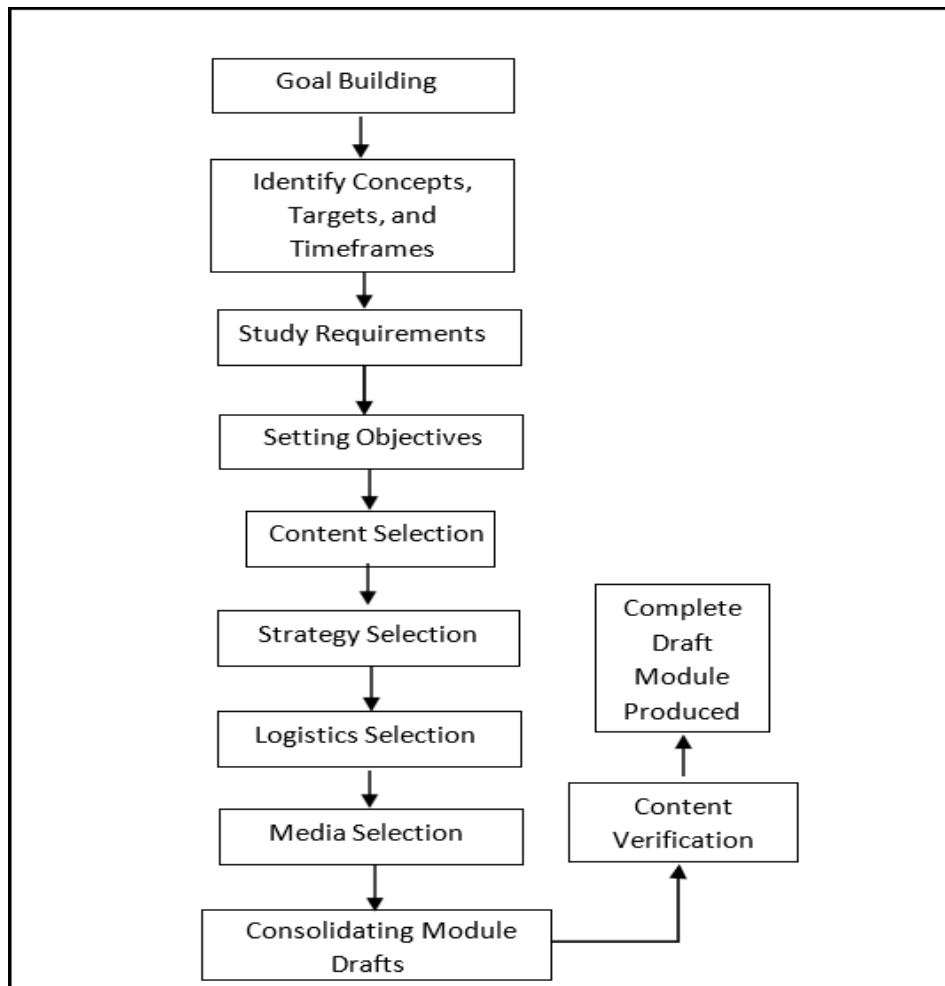
Figure 1: The Adaptation of Sidek Module Development Model (Mohd Noah & Ahmad, 2005)

i.   State the goal.

In the development of this module, the contextual concept has been articulated. Researchers argue that a learning process will be more effective if it is linked to real situations and hands-on.

ii.   Identify concepts, targets, and timeframes.

The rationale for the construction of the module was also identified in addition to the target group to ensure the use of the module can be carried out smoothly. The time for developing the module is also specified as it will facilitate the construction work of the module. The time taken by the researcher in the development of this learning module is based on the Gantt Chart attached to the appendix.

iii.   Study requirements.

The researcher has made a questionnaire to the target group, namely the Form 4 Civil Engineering students of Sekolah Menengah Teknik Bukit Piatu, Melaka. They have taken this Civil Engineering course to develop the Building Structure Construction learning module. This questionnaire aims to determine whether the concept of contextual training can help students understand the topic of Building Structure Construction more effectively.

iv.   Setting objectives.

Module objectives should be behavioral and measurable at the end of module implementation. Objectives should be clear on the targets to be addressed and the things to be achieved after the module

is successfully produced. The module produced by this researcher is a learning module of the Building Structure Construction course. The researcher has set the objectives at the introduction of the topic, which is placed at the beginning of the chapter page of the Building Structure Construction module.

    v.   Content selection.

The researcher has taken the module's content based on the syllabus set in the subject syllabus of Civil Engineering Studies. There are five main chapters in the syllabus of this course that has been selected by the researcher, namely Chapter 1 is the planning stage, and Chapter 2 is the analysis and design stage. Next is followed by chapter 3. Namely, the management stage and the fourth chapter is the construction stage, and the last chapter found in the Building Structure Construction Module with the Concept of Contextual Training is the delivery stage.

    vi.   Strategy selection.

Focuses on the steps toward the smooth implementation of the modules produced and the concept of contextual training in the learning process. The steps in the development of this learning module are such as construction or design of the module front page, arrangement of information based on subtopics, arrangement of diagrams and flow charts, and questions that have been constructed for reinforcement exercises at the end of each chapter, reinforcement activities, and group activities.

    vii.   Logistics selection.

The researcher has listed all the module auxiliary materials that contribute to the module's implementation in the logistics selection stage.

3. Results and Discussion

The instrument has been distributed to 40 students of Sekolah Menengah Teknik Bukit Piatu, Melaka.

3.1 Module Format Assessment Data

There are nine items in section A. By using the checklist instrument type, all the experts (100%) agree with the item, as shown in Table 1.

Table 1: Analyze part A items based on format aspects

No.	Item
1	The size of the module is easy to carry.
2	Attractive module design
3	The writing in the module is easy to read
4	The number of diagrams in the module is sufficient
5	The diagrams in the module are placed in appropriate places for reference
6	The photos in the module are placed in appropriate places for reference
7	The tables in the module are easy to reference
8	The order of the text in the module is easy to follow
9	The instructions in the module are clear

3.2 Module Content Evaluation Data

There are 11 items in this section B. By using checklist instrument type, all the respondents (100%) agree with the item, as shown in Table 2.

Table 2: Analyze part B items based on content aspects

No.	Item
1	I understand the objectives of the module clearly
2	I easily understood the contextually conceptualized activities I needed to do in the module
3	I was able to study the contents of the module without much trouble
4	I understand the ideas in this module
5	I was able to do all the things directed in the contextual activities of the module
6	Ideas in contextually conceptualized activities are interesting
7	The words used in the module are easy to understand
8	The writing style of the module is appropriate
9	I understand all the text in the module
10	This module makes it easier for me to study this topic
11	I am excited to learn using this module

Based on the research carried out in terms of format and content, all respondents agreed that the generated modules were an additional reference in the creation of student structures. Interestingly, this designed module is suited for digital environment technology, where students can access the module anywhere. Moreover, students can access strengthening activities with QR just in a contact context. Concerning design aspects, each participant agreed with the background colour, font size, charts, images, and arrangements utilized in this learning module. In the view of the pact, however, the graphics and the use of improper font sizes are still lacking.

4. Conclusion

Overall, the development of the construction module with the concept of contextual training was successful and qualified in structure and substance as stated in the objectives. This module will be more meaningful in making additions to features that experts advocate, such as expanding font size and visuals. The usage of QR codes will help students access the module enhancement workout wherever and anytime they choose. In addition, the utilization of the Sidek Module permits researchers to produce this module methodically.

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