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## Concept of DDR in Developing Health Education Assessment Module for Classroom- Based Assessment

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### Abstract

The purpose of this study is to design and Health Education assessment module for Classroom-based assessment implementation. This study will employ the Design and Development Research (DDR) approach, which has three phases. During phase one, needs analysis carried out with 291 Health Education teachers. This is to identify whether there is a need to develop Health Education Assessment Module for Classroom-based assessment implementation. During the second phase, the design and development phase, the Fuzzy Delphi Method (FDM), will be carried out by inviting 20 experts from various fields. During the evaluation phase, quasi experiment will be implemented to know the module's effectiveness among lower primary students. Random sampling will be used in the need analysis and evaluation phase, while purposive sampling method in the second phase. The data will be analyzed using descriptive statistics. Analysis of the data of this study will be made by using 'SPSS' version 22.

**Keywords:** Design and Development Research (DDR), Fuzzy Delphi Method (FDM), Health Education, Assessment Module.

### Introduction

In Malaysia, there are two types of tests that is exam-oriented evaluation and school-based evaluation. The Malaysian Exams Board administered an exam-oriented assessment, and the school carried out a school-based assessment. The application of the evaluation is consistent with the definition made by Shepard (2000), whereby the exam-oriented evaluation is classified as a summative external evaluation, whereas the school-based evaluation is also known as a formative internal evaluation. According to the Malaysian Examinations Board (2011), focusing too much on academic performance will infuse tension on students, parents, and pupils. In finishing the syllabus, the teacher's pressure allows the examination to be neglected and less successful in teaching and learning. Efforts should also be made to strengthen the teaching career

and increase the standards of teaching and learning. The Malaysian Examinations Board (2011) has reported that developing countries have updated their education assessment system. There is also a claim that our national education system depends very heavily on exam-oriented exams. As part of the Curriculum Transformation Policy dated 17 December 2010, the Cabinet of Ministers decided that school-based evaluations should be carried out in schools. School-based appraisal commonly referred to as SBA refers to an effort to holistically improve an individual by prominence towards intelligence mastery, academic model, progressive attitude as a habit of teaching moral values, ethics and morals as illustrated in the Malaysian Education Roadmap, the national honesty strategy that aspired to be our national mission. In 2011, the SBA was launched in primary school and was introduced in 2012 at the high school level. It was conducted based on Malaysian Examinations Board Circular No. 3/2011.

According to the letter, SBA is an appraisal method used to ensure the student's accomplishment without being judged based on the review. SBA also provides systematic performance assessment and pupils' academic progress across four elements, including school evaluation, physical activity evaluation, athletics and co-curriculum, psychometric evaluation, and exam-oriented evaluation. In 2014, as in Malaysian Examination Board Circular No 1/2014, the Ministry of Education (MOE) had to stabilize SBA's application by the further revision to become more welcoming students. One of the SBA elements, namely school-based appraisal, was modified to classroom-based assessment in 2016. According to the Curriculum Development Division (2018), school-based appraisal maintains all school evaluation principles and requires the extent of determination of pupil control in each subject. The teacher plays a crucial role in executing SBA with a series of learning priorities aimed at enhancing the learning of pupils by formative appraisal known as learning evaluation, evaluation as learning and learning evaluation. Curriculum Development Division (2018), confirmed that learning evaluation is referred to as formative evaluation. Evaluation as learning emerges as the student reflects and reviews the learning progress in question. This helps them to appreciate their learning intent and know what they can do to meet learning goals.

On the other hand, the measurement of learning was carried out at the end of a given period, subject, or education field. The evaluation usually takes place in the summative form (Curriculum Development Division, 2018). As the former Minister of Education, Dr. Maszlee Malik, declared the test to be withdrawn for pupils on 31 October 2018, classroom appraisal became more relevant and obligatory for all residents. According to the Ministry of Education Malaysia Circular No. 14/2018 (Abolition of lower primary students intermediate and end of year test practices), his declaration was implemented.

### **Methodology**

This analysis typically employs the design and development research (DDR) introduced by Ritchey and Klien (2007). According to Ritchey and Klien (2007), in experiments with a final decision of characters such as a model, module, structure, taxonomy, and other studies that will create something groundbreaking, this approach is very suitable used. DDR has three levels. It consists of a review of criteria, design and development, and phases of assessment. Every phase is implemented using a different approach from the study method, sampling, procedure, instrument protocol, and analysis data. There are two developmental testing groups in DDR. Type

one is called product and tool analysis, while concept research is called as type two. Type one analysis is a study of model creation, validation, or usage of a particular product or tool design and development programs.

In contrast, type two research is a study of model development, validation, or use. Type one study findings are lessons gained from the production of particular goods and the examination of situations that promote their use. On the other hand, modern design and production procedures or templates, and circumstances that promote their use, are Type two studies' products. Form two research is the category of developmental testing that was included in this study. DDR is a research methodology that can provide professionals in instructional technology and curriculum creation with accurate and accessible knowledge (Alias, Siraj, Rahman, & DeWitt, 2013). Brown and Collins suggested it for the first time in the 1990s. It is one of the well-known strategies in educational science. Developmental research, design research, design-based research, formative research, and design-based research are also recognized (Sahrir et al., 2012). In short, DDR is now a recent research design related to the design and production of a product by researchers. A model, module, structure, questionnaire, checklist, and so on may be such things. DDR enrolled experts in the planning, production, and assessment process of a product.

### **Data Analysis**

Before the research is being carried out, the researcher will apply for ethical approval from Sultan Idris Education University (UPSI). After that, the transmittal letters requesting official permission from the Ministry of Education Malaysia, State Education Departments, and District Education Offices will be obtained.

Then, the researcher will distribute 291 needs analysis questionnaires to Health Education teachers in Kedah. The data in the needs analysis survey will be analyzed using Statistical Package for Social Science (SPSS) version 23 to obtain the descriptive statistics. The descriptive statistics in this study includes percentages and means.

After the data is being analyzed, FDM will be administered. 20 experts will be selected based on the certain criteria. The researcher will deliver the checklist of FDM and experts' consent form by sending an email (Jamil et al., 2019). Two important terms must be understood in FDM are Triangular Fuzzy Number and defuzzification process. Triangular Fuzzy Number is represented by value  $m_1$ ,  $m_2$ , and  $m_3$ .

Regarding this,  $m_1$  represents the minimum value,  $m_2$  represents the reasonable value, whereas  $m_3$  represents the maximum value. On the other hand, Triangular Fuzzy Number is used to produce a Fuzzy scale to translate linguistic variables into the fuzzy number. FDM is a method to maintain or drop an item. The item will be maintained if it meets three conditions, namely the value of  $d$  threshold of the item is equal to or less than 0.2 ( $d \leq 0.2$ ); and the percentage of agreement among experts is equal to or exceeds 75 percent ( $\geq 75\%$ ) and alpha cut value must equal to or exceeds 0.5 percent ( $\geq 0.5$ ) (Lateh, Yaacob, & Rejab, 2017).

Next, the quasi-experiment will be carried out during the evaluation phase. The researcher will carry post and pre-test for eight weeks with the module first. The pre and post-test results will be analyzed with inference statistic, which is ANCOVA, to know the assessment module effectiveness towards lower primary students.

### Findings

It is estimated as a result for this study that there will be a Health Education assessment module that can be used in the implementation of classroom based assessment. With the use of DDR method the development of the module becomes more organized and systematic.

### Discussion

According to Othman et al (2013), that the assessment resources for Health Education are scarce and most teachers who teach the topic are still inexperienced in creating assessment items. As a result, teachers frequently purchase exercise books or evaluation materials from the supplier after confirming their legitimacy. Teachers will not need to purchase assessment materials because a module is being prepared for Health Education that meets the learning standard and annual lesson plan. They can use this module as a record of assessment, since this is also an endeavor to meet instructors' requirements in teaching Health Education for primary students in classroom based assessment.

Not only that, but the module has been developed in a variety of sectors. However, because most research focuses on core subjects exclusively, there has been less research done on assessment module development for the Health Education subject for classroom based assessment. As a result, this research is quite useful and important, and it will be a valuable resource for a wide group of Health Education teachers who teacher primary school students in completing classroom-based assessments..

### Conclusion

As a conclusion, this research is able to contribute to the field of knowledge and bring benefits to many people. This study is very important as it will gives significant benefits to Ministry of Education Malaysia, Health Education teachers, pupils, researchers, and individuals such as educational specialist, therapist, psychologist, occupational therapist, nurses and many other occupations.

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