DEVELOPMENT AND VALIDATION OF AUTHENTIC ASSESSMENT MODULE TO ASSESS HIGHER ORDER THINKING SKILLS

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UNIVERSITI PENDIDIKAN SULTAN IDRIS

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ABSTRACT

The purpose of the study was to develop and validate an authentic assessment module to assess higher order thinking skills. This study used Collect-Relate-Create-Donates (CRCD) model by Ben Shneiderman as the basis for the contents of the module. The module was developed by using ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model. This module underwent validation process using Fleiss' Kappa agreement coefficient by eight experts. This study was also designed to determine the effect of the module towards higher order thinking skills (HOTS) amongst the students in terms of their reasoning and problem solving. A sample of 30 students was selected from a secondary school in Selangor. This study involved the administration of pre- and post-tests on the 30 form four Biology students. The module was conducted during Biology lesson for 12 weeks. The validation showed that Fleiss' Kappa agreement coefficient for face validation is 0.63 which is at substantial agreement and 0.89 (almost perfect agreement) for content validation. The students were given pre- and post-tests which consisted of HOTS items adapted from Examinations Syndicate. The pre- and post-tests also included items that measured the students' ability in problem-solving and reasoning. The data showed that the mean for the post-test (M = 21.20; SD = 4.96) was higher than the mean for pre-test (M = 12.07; SD = 3.59). Hence, the data showed that there was an increase in mean scores of the post-test compared to the pre-test. Students have shown improvement in HOTS after using the module. In conclusion, the authentic assessment module was effective in enhancing students' ability in HOTS particularly in reasoning and problem-solving. This implicates that the use of the authentic assessment module can be expanded to form four students in other schools to assess their higher order thinking skills.

PEMBANGUNAN DAN PENGESAHAN MODUL PENTAKSIRAN AUTENTIK UNTUK MENTAKSIR KEMAHIRAN BERFIKIR ARAS TINGGI

ABSTRAK

Kajian ini bertujuan untuk membangun dan mengesahkan modul pentaksiran autentik bagi mentaksir kemahiran berfikir aras tinggi. Kajian ini menggunakan model Collect-Relate-Create-Donates (CRCD) oleh Ben Shneiderman sebagai asas kandungan modul. Modul ini dibangun dengan menggunakan model ADDIE (Analysis, Design, Development, Implementation, and Evaluation). Proses pengesahan modul ini adalah dengan menggunakan pekali persetujuan Pleiss' Kappa oleh lapan orang pakar. Kajian ini juga direkabentuk untuk menentukan kesan modul terhadap kemahiran berfikir aras tinggi (KBAT) dalam kalangan murid dari segi penaakulan dan penyelesaian masalah. Sampel yang dipilih terdiri daripada 30 orang murid dari sekolah menengah di Selangor. Kajian ini melibatkan pentadbiran ujian pra dan ujian pos kepada 30 orang murid Biologi tingkatan empat. Modul ini dilaksanakan semasa mata pelajaran Biologi selama 12 minggu. Kesahan menunjukkan pekali persetujuan Pleiss' Kappa bagi kesahan muka ialah 0.63 iaitu pada tahap baik dan 0.89 (sangat baik) bagi kesahan kandungan. Murid-murid diberi ujian pra dan ujian pos yang terdiri daripada item-item KBAT yang diadaptasi daripada Lembaga Peperiksaan. Ujian pra dan ujian pos juga mengandungi item-item yang mengukur keupayaan murid dalam penyelesaian masalah dan penaakulan. Data menunjukkan bahawa min untuk ujian pos (M = 21.20; SD = 4.96) lebih tinggi daripada min untuk ujian pra (M = 12.07; SD = 3.59). Oleh itu, data menunjukkan bahawa terdapat peningkatan skor min ujian pos berbanding ujian pra. Murid telah menunjukkan peningkatan dalam KBAT setelah menggunakan modul. Kesimpulannya, modul pentaksiran autentik berkesan untuk meningkatkan keupayaan murid dalam KBAT terutama dalam penaakulan dan penyelesaian masalah. Implikasinya, penggunaan modul pentaksiran autentik dapat diperluaskan kepada murid-murid tingkatan empat di sekolah lain untuk mengukur kemahiran berfikir aras tinggi.

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LIST OF ABBREVIATIONS

CDD	Curriculum Development Division
CRCD	Collect- Relate- Create- Donate
DDR	Design and Developmental Research
ES	Examination Syndicate
HOTS	Higher Order Thinking Skills
LOTS	Lower Order Thinking Skills
MEB	Malaysian Education Blueprint
MOE	Ministry of Education
OECD	Organization for Economic Co-operation and Development
PISA	Programme for International Student Assessment
PT3	Pentaksiran Tingkatan 3
SBA	School-based Assessment
SPM	Sijil Pelajaran Malaysia
SPSS	Statistical Package for the Social Science
STAM	Sijil Tinggi Agama Malaysia
STPM	Sijil Tinggi Pelajaran Malaysia
TIMSS	Trends in International Mathematics and Science Study
UPSR	Ujian Pencapaian Sekolah Rendah

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CHAPTER 1

INTRODUCTION

1.1 Background

Education has been the most important agenda of interest and it is given much priority by the Malaysian's public. The Ministry of Education plays a crucial role in ensuring the education standard in Malaysia is on tandem with the international standard. Therefore, new policies are being gradually formulated and transformation of education is implemented to improve the education system. The improvement of the country's education system involves at various levels, beginning from early stages of education up to the tertiary level. The Malaysian Education Blueprint (2013-2025) has been developed and constitutes many aspects to upgrade the education system. The blueprint highlights five education aspirations; accessibility, quality, equity, unity and efficiency.

Through this aspiration, an educational philosophy is developed to achieve a balanced and harmonious generation.

The main key elements in the Malaysian's education system are teaching and learning (T&L) and assessment. Both of these aspects are closely intertwined and have major effects on the quality of education. Student aspirations imprinted in the blueprint place emphasis on knowledge and skills. Teaching and learning activities as well as assessments, are conducted to nurture and improve knowledge and students' skills. T&L process will determine the different qualities in students' ability (the transformation of the Malaysian public education challenge, p.39). Thinking skills is one of the elements that underlie the aspirations of students in the blueprint. This indicates that the education system plays a crucial role to help students acquire various aspects of thinking skills. (Chapter 2: Vision and Aspirations, page 5, Malaysian Education Blueprint 2013-2015).

In assessment aspect, Examination Syndicate conducts public examinations namely Ujian Pencapaian Sekolah Rendah (UPSR), Pentaksiran Tingkatan 3 (PT3), Sijil Pelajaran Malaysia (SPM) and Sijil Tinggi Agama Malaysia (STAM) while Sijil Tinggi Pelajaran Malaysia (STPM) is operated by Malaysian Examinations Council (MPM). In addition to that, Malaysia has recently taken part in international assessments such as Trends in International Mathematics and Science Study (TIMSS) and Programme for International Student Assessment (PISA). Report on the performance of students from TIMSS and PISA reveals a disappointing evidence, a reflection of the actual achievement of the students in Malaysia in Mathematics and Science. As a result, aspirations in the quality of education emphasise on the ability of

Malaysia to be in the top third in international assessments ranking within the next 15 years.

Academic assessment practices in Malaysia have major impact on the education system. The issue is much debated on teachers' teaching to prepare students for the examination is not new in Malaysia (Chapter 4: Student learning, page 4, Blueprint 2013-2015). In the light of this, the exam-oriented culture that has over powered the school should be eliminated in order to equip the students with knowledge and skills to enable them to face real challenges in life. Therefore, the transformation of education embodied in the blueprint involves assessment that can improve the quality of education globally. The main objective of this transformation is to revamp the school's assessment and focus on higher order thinking skills (Executive Summary, page E-13, MEB 2013-2015). In other words, the questions and topics that will be tested in the examination cannot be predicted by teachers. Instead, students are trained to apply the knowledge gained in various situations.

Assessment as well as other elements in education require changes and transformations towards producing a quality education system. One of the changes made in the transformation of national education is to emphasize the development of higher-order thinking skills (HOTS) among students. HOTS will be integrated in the school-based assessment (SBA). In conjunction with the transformation, the Curriculum Development Division (CDC) and the Examination Syndicate (ES) incorporate respective roles in implementing the elements of HOTS in T&L and assessment. The proportion of questions that measure higher-order thinking skills will be increased in SBA as well as in examinations papers within the next three years.

Assessment will be reinforced by inserting creative and problem solving skills (Chapter 4: Student learning, page 6, Blueprint 2013-2025). The assessment practices should be meaningful and able to help students to be knowledgeable, dominate and apply knowledge to solve problems in real life. The real objective of assessment must be comprehensible in order to guarantee the quality of the educational product.

According to the Ministry of Education (MOE), HOTS is defined as the ability to apply knowledge, skills and values to make reasoning and reflection to solve problems, make decisions, innovate and strive to create something (Curriculum Development Division, Ministry of Education, 2013). In accordance to the definition given, MES has begun to include HOTS elements in items building and identify the key attributes that should be possessed within item writers. This is part of the efforts to improve the quality of assessment in education.

1.2 Problem Statement

Students' performance in the national assessment is a key indicator for the education achievement in Malaysia. In addition, the international assessment participated by Malaysian students indicates their achievements and abilities in Mathematics and Science. The assessments are Trends in International Mathematics and Science Study (TIMSS) and Programme for International Student Assessment (PISA).

The performance of our students in TIMSS and PISA places Malaysia in an unsatisfactory ranking. The results have caused concern to the public especially in the field of education (Malaysia, Ministry of Education, 2013). In PISA 2009, Malaysia was ranked at 57th in Mathematics and 53rd in Science. The overall ranking for Malaysia in 2012 was 52nd, which is below the Organisation for Economic Co-operation and Development (OECD) average score (OECD, 2014). PISA emphasises and measures the application of knowledge in real life and lifelong learning (Abdullah & Francis Peters, 2015). Most items in PISA and TIMSS require students to give response using reasoning skills and HOTS. The performance of our students in PISA reflects on their lack of ability in applying knowledge to solve problems in everyday life. Based on the result, it shows that students are not able to master higher order thinking skills.

Generally, teachers still have not mastered the techniques and skills in assessing the students using HOTS items. This is proven by a study conducted by Yin Peen & Yusof Arshad, (2014) which showed that almost half (47.9%) of the questions used in the classroom consists of lower order thinking skills (LOTS) compared to only 16.3% of the questions is HOTS items. Results from the study entails that the items used in classroom assessment should measure higher-order thinking skills among students. Previous studies (S. Supramani, 2006) also found that most teachers are inclined to use low-level cognitive questions compared to high level ones. The response given by students depend on the item or questions given by the teacher (S. Supramani, 2006). It can therefore be said that assessment methods including the types of items and questioning techniques contribute to the students thinking ability.

Through the education development plan, gradual changes are being made to national examinations and school-based assessments. 40% of the UPSR exam questions and 50% of the SPM questions involve questions that require high level thinking. The design of national examination and assessment also changed to test more on higher order thinking skills (HOTS). This shows that HOTS are an integral part of education. Therefore, assessment methods and tools should also apply this element.

The attitudes of students that only depended on information and explanation given by teachers have resulted in inactive involvement of students in classroom. This situation does not stimulate higher order thinking skills among students (Yin Peen & Yusof Arshad, 2014). It can be concluded that the ability of teachers to deliver learning and conduct assessments that thoroughly measure higher-order thinking skills of students are major factors that affect students' performance. Methods of teaching and assessment instruments that do not stimulate students' thinking lead to the failure of students in answering HOTS items. Indirectly, the weakness in the application of HOTS elements during T&L and assessment resulted in poor performance in PISA and TIMSS.

Teaching and learning practices that are exam-oriented will affect the activities carried out in the classroom. The finding from the previous research (See Ling Suah, 2014) shows that 46.8% of respondents admitted that assessment methods are influenced by public examination. The study has also revealed that many school teachers more inclined to use multiple choice items in the assessment. Exam-oriented in teaching and assessment becomes a culture practiced by most teachers in Malaysia. Teachers and students are more concerned about their performance in examination

hence this motivates them to learn only factual knowledge and concept. They tend to seek direct information by asking factual questions (Yin Peen & Yusof Arshad, 2014). The exam-oriented approach will limit the activities in T&L as well as assessment which leads to teacher-centered learning. According to a study by Abdullah & Peters (2015), students place more emphasis on PT3 compared to PISA because PT3 is a compulsory national-level assessment while PISA is optional. Students who seat for PISA feel less enthusiastic as they could not access the individual result. The efforts exerted by the students is based on their point of view towards the importance of PISA and *Pentaksiran Tingkatan* 3 (PT3) respectively. Although PISA measures HOTS and problem-solving, students do not demonstrate their actual ability in giving response because of their perception that cause less attention is given to PISA. Classroom assessment practice also relegates the students from using HOTS because their thinking skill is not fully being explored.

Teachers need to have paradigm shift in order to ensure the purpose of assessment could be achieved. Teachers' readiness and acceptance towards assessment of HOTS in the classroom needs to be enhanced. Teachers must expose and encourage students to use HOTS to solve problems that relate to their daily life situations. Any changes for the improvement of the education system need to be considered and further supported to ensure the quality of educational products. In the light of this, this study will be focusing on developing a module for assessing HOTS. An authentic assessment module can be used to diversify assessment methods and stimulate HOTS among students to prepare them for problem solving in real life situation.

Many studies involving module development have been conducted. The modules developed include specific areas or subjects. However, most of the modules produced rely on methods in teaching and learning. For example, a study involving the development of modules for physics subjects for tenth grade students was conducted. The findings of the study conducted by Naval (2014) show that modules are a helpful tool in teaching and learning basic physics. A study conducted by Dewitt & Siraj (2010) showed that collaborative learning modules developed by them helped in teaching science. Therefore, studies involving the development of assessment modules need to be carried out to allow for a more specific approach to aspects of assessment. In line with these objectives, the researcher developed an authentic assessment module so that it could have positive implications in the field of assessment.

The Malaysian Education Blueprint also recommends steps taken to improve the quality of science, technology, engineering and math (STEM) education. This means that emphasis and improvement on the relevant subjects will be given. In line with these goals, the researcher has chosen to develop an authentic assessment module for one of the major science subjects, biology. Biological subject was chosen because it contains a curriculum that is broad and deep. The high school biology curriculum also contains elements that correspond to higher order thinking skills and fit into the concept of authentic assessment.

1.3 Objectives of the Study

This study aims to achieve the following objectives:

1. To develop an authentic assessment module to assess higher order thinking skills.

2. To validate the authentic assessment module to assess higher order thinking skills (HOTS).

3. To measure the effect of the module on students' ability in HOTS, in terms of:

   (a) Reasoning

   (b) Problem solving

1.4 Research Questions

1. What are the processes involved in the development the authentic assessment module?
2. To what extent the authentic assessment module is valid to assess higher order thinking skills?
3. To what extent the module is effective in enhancing students' ability in
   (a) Reasoning?
   (b) Problem solving?

1.5 Significance of the Study

Authentic Assessment Module is based on the framework Collect - Relate - Create - Donates (CRCD) developed as a tool to provide the younger generation towards achieving the 21st century skills. Construction of this assessment module is also based on the theory of constructivism as one of the approaches in the learning process. Consolidation of CRCD framework and constructivism are the basis in the development in this module to guide teachers and students towards assessment for learning. The researcher hopes that this study will become one of the reference source in the field of educational assessment and is used for:

1. Strengthening assessment practices in education to provide students with quality and master various skills. Effective assessment practices that are in line with curriculum requirements have significant impact on students' thinking ability. Through a variety of assessment methods that are integrated into one module and are authentic, the quality of students' learning can be improved.

2. Diversifying the methods of assessment used to measure multiple constructs or skills. Various assessment methods need to be explored to ensure that the assessment process has the potential to measure various constructs and skills needed. The varieties of methods and tasks will expose students to new situations that are unusual and stimulate their thinking.

3. Empowering assessment for learning and reducing exam-oriented learning. Assessment is a process that can be done through various ways

of obtaining information about students. Examinations are examples of summative assessments that ultimately place students at a certain level while assessment is a broader and more authentic process that enables students to be formally assessed. The process of assessment allows for improvement in learning as information on the development of students' knowledge and skills is constantly acquired. Proper assessment methods will give meaning to the study and thus reduce the exam-focused learning solely.

4. Improving the quality of teachers and further strengthen their role in education. Teachers do have special skills in teaching and learning. They also need to have skills in assessment to ensure effective teaching and learning. Through this study, the role of teachers is strengthened through the work of the students where their responsibility is to facilitate the students in carrying out the activities. Improvement in student thinking indirectly generates teachers' ideas and thinking. Teachers' skills are also enhanced in the area of scoring where they need to be more analytical and act as coordinators to ensure students complete their tasks. The process enables education environment to be more open and focused on thinking skills.

5. Diversifying the learning and assessment approaches in education. The learning and assessment approach is diversified through effective assessment methods and instruments. This research, which supports an authentic assessment framework, enables teachers and students to not only be bound to traditional methods but to move in line with the

development of technology and the passage of time. Authentic assessment approaches expose students and teachers to real life situations and increase students' potential to master the 21st century skills.

1.6 Limitation of the Study

The study is to develop an authentic assessment module and to identify the effects of the module on higher order thinking skills among the form four Biology students. It is conducted with the following restrictions:

1. An assessment module has been developed by implementing only two subtopics from chapter "Investigating the Relationship between Living Things and the Environment" from form four Biology syllabus. The modules covered only one chapter to ensure the instrument's administration in accordance with the timeframe. The title is chosen by considering the learning objectives and constructs that can be measured and at the same time align with the module framework. In other words, two important things emphasised in assessment are manageability and construct measured. Therefore, not all chapters in the syllabus can be selected as the context for the tasks.

2. Form four students from the existing class were chosen as sample of the study to use Authentic Assessment. This study involves purposive sampling to enable the findings to be obtained smoothly and students

are ready to be assessed. The study of the effectiveness and administration of modules on students involves procedures set by the school. Therefore, only predetermined number of students who followed Biology curriculum for Form Four have been identified to involve.

3. The sample was selected from students of a secondary school in Kota Damansara, Petaling Jaya, Selangor. The number of students selected as the sample of this study is based on the readiness of students and their subject teachers to use the module developed.

4. Selection of schools is limited in the area of Petaling Jaya, Selangor. The school that is chosen is identified based on the basic facilities available, and type of school and teachers' experience. Students are selected from existing classes in the school.

5. The instrument for pre-test and post-test consists of the items that have been adapted from the Malaysian Education Certificate examination by Examinations Syndicate, Ministry of Education Malaysia. The construction of new items that meet the constructs measured in higher order thinking skills may take some time. According to the standard procedures of the Examinations Syndicate as the educational assessment board in Malaysia, the production of an assessment instrument begins with item construction, item evaluation, pilot study, scoring and data analysis. Each process takes time and requires validation from the experts to ensure that the item has high reliability and validity. By considering the time factors, items assembled for pre-test and post-test

instruments are existing items that have undergone these processes and are valid to be used.

In summary, the limitations of this study in particular involve the important aspects of instrument development. In the context of assessment, only one chapter of Form Four Biology syllabus is selected based on its appropriateness of construct measures, higher order thinking skills and authentic assessments. In assessment, context, construction and scoring are important elements to be considered. Because this study involved a specific group of students and the implementation at the school was required to follow administrative procedures, the number of students and location of the school was chosen. The limitations of the study are also related to the implications of the study in terms of assessment methods and teaching and learning processes. Only the teachers and students involved will use the modules and seat the pre post-test.

1.7 Operational Definition

1.7.1 Assessment Module

In this research, an authentic assessment module is used as a tool to measure higher order thinking skills among the students. The module comprises of instruments with tasks, rubrics and guidelines for teachers and students. It can be used as an alternative instrument to assess students. By using this module, students may have an opportunity to know how they are being assessed as the module is an authentic module.

1.7.2 Task

The main component of the assessment module is the tasks that students need to do. The development of the authentic assessment module requires authentic tasks. Based on the Five-Dimensional Model for Authentic Assessment, the tasks provided in the module meet all of the features of authentic assessment. The assigned task is also aligned with the measured construct. Basically, the assignment serves as a tool for students and as evidence to the construct being measured. The assigned task consists of a verb that describes or guides the response that the student needs to provide. The variety of tasks in the authentic assessment module involves the various cognitive levels of students and thus enables the various constructs to be measured.

1.7.3 Construct

Construct refers to characteristics, attributes or what to be measured. The construct used in the module refers to the cognitive levels. The constructs chosen to develop the items are based on the curriculum and expected be able to stimulate HOTS. In assessment aspect, higher order thinking skills involve construct starting from applying to creating, based on the revised Bloom's taxonomy. The task developed in this module covered a chapter from Biology Form 4. This module is provided with rubrics for the teachers to give score on students' performance or response.

1.7.4 Rubric

The rubric is the scoring guide provided for each task. It is a document that contains the possible responses to the tasks. For authentic assessment module, rubric is not only important to teachers or assessors but it also as a guide for students in carrying out assigned tasks. The rubric in the authentic assessment module is a scoring procedure that requires students' understanding of the scoring rules. The rubrics provided for the tasks are built to facilitate teachers and students. It is a list of things or responses to be considered and evaluated. The evaluation is based on the score provided according to the criteria set.

1.7.5 Higher Order Thinking Skills

Higher order thinking skills in the authentic assessment module caters specific construct and elements in accordance to the definition stated by the Ministry of Education (MOE). In assessment aspect, constructs that able to measure HOTS includes applying, analyzing, evaluating and creating. Items and tasks are constructed based on five elements introduced by Examination Syndicate (ES).

1.7.6 Authentic Assessment

Authentic assessments focus on real life situations and require students to apply their knowledge, skills and behaviours when carrying out assigned tasks. The elements of authentic assessment based on the Dimensional Model for Authentic Assessment are incorporated in the module. The three main concepts of authentic assessment applied in the development of module framework are assessment context, student role and scoring. In terms of context, tasks and activities are realistic, performance-based and cognitively complex. Students have a special role in authentic assessments that they have the opportunity to defend their answers or products and they can collaborate with their peers or teachers on their tasks. The assessment conducted on them is a formative assessment. Authentic assessment gives students the opportunity to know and understand the criteria of scoring. Scoring methods consist of performance indicators and criteria that lead students to master the constructs measured.

1.7.7 Problem solving

The ability to solve problems involves a combination of various skills. The basic process of a problem solving begins with understanding the problem or situation, followed by identifying options or alternative solutions and then making a decision. These processes involve the skills of understanding, applying, analysing and evaluating. The assigned task requires students to find a planned and systematic solution.

1.7.8 Reasoning

Reasoning skills implemented through tasks require students to make logical and rational judgments. Tasks built in the assessment module allow students to make inductive or deductive reasoning. Reasoning skills are also developed in the decision-making process when students have to make judgments about a given situation or fact.

1.7.9 Effectiveness of the Module to Assess Higher Order Thinking Skills

The effectiveness of the assessment module is based on the scores obtained through pre and post-tests. The differences between the results of the same pre and post-tests in terms of test specifications show the effect of using the module as an assessment tool. In particular, the impact of the activities carried out through the tasks in the module is also reflected in the quality of student responses.

1.8 Conceptual Framework

Basically, this study is a development and design research. In this study, an authentic assessment module was developed as an assessment instrument that potentially measured higher order thinking skills (HOTS). An instructional design model, ADDIE was used for developing the assessment module. R. Kilbane & B. Milman (2014) mentioned about the ADDIE model as a purposeful, simple and flexible in various

contexts to support the development of an instrument. ADDIE refers to analyse, design, develop, implement and evaluation as five phases involved in the model. Five phases represent the basis of the processes carried out systematically to develop the authentic assessment module in this study.

The conceptual framework of this study shows the integration between various components for developing the assessment module. The module is developed by applying assessment criteria based on Five-Dimensional Model for authentic assessment by Gulikers, Bastiaens, & Kirschner (2004) and HOTS components. Whitlock & Nanavati (2013) in his study claimed that authentic assessment is able to provide information about students' performance holistically. Azmah et al. (2014) contributes to the discussion by suggesting that authentic assessment is used in schools to increase students' interest in learning. By integrating the theory of constructivism and CRCD (Collect-Relate-Create-Donate) framework, the module designed consists of tasks which is able to enhance HOTS. CRCD framework was used as the main structure and technology-based elements are applied in accordance with the 21st-century learning. The tasks in this module enable students to apply knowledge and skills in problem-solving in real life situations. A research conceptual framework has been derived based on the integration of concepts involved in the development of the assessment module. This conceptual framework as shown in Figure 1.1 was used as guidance in developing the authentic assessment module.

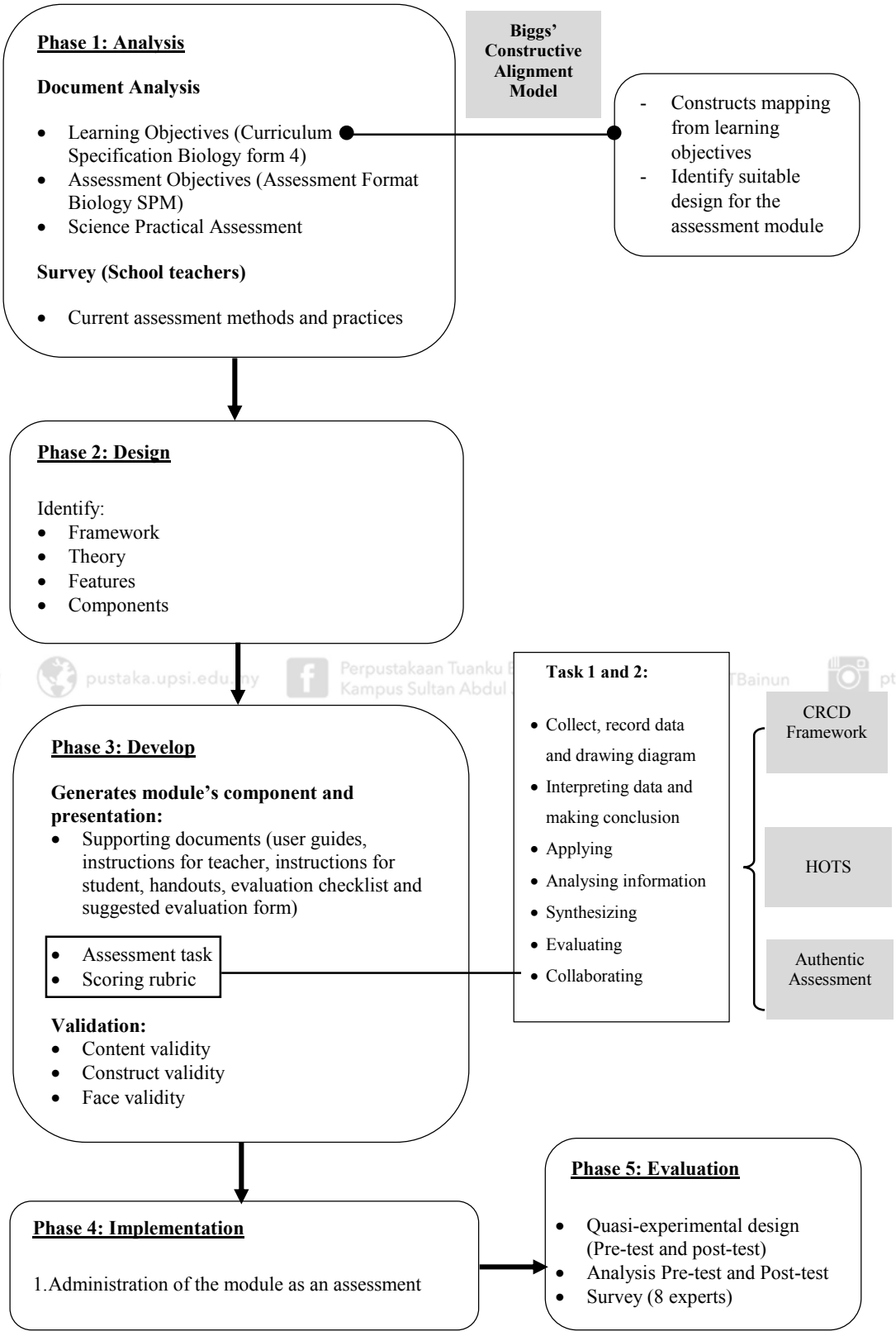

Figure 1.1. Research Conceptual Framework

1.9 Conclusion

Assessment is one of the important elements in education that contributes to the establishment of a balanced and quality individual. It is a method used not only to analyse the achievement of the students' learning, but it is able to form positive personality traits and holistic development of the students. Suitability of assessment methods practiced in the education system in Malaysia have a major impact on the national objective of producing quality education which is at par with other nations at the international level. This study is expected to serve as a reference in determining the assessment methods that will be used in line with the objectives of the subjects. However, teachers' skills and perception need to be improved to facilitate the transformation of the national education.