

THE DEVELOPMENT OF (ArtHis) INTERACTIVE MODULE IN TEACHING AND LEARNING ART HISTORY

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ABSTRACT

The publishing material of art history pedagogy is known to have too many facts and students need to digest lots of information. The alternative methods of teaching and learning have become more reliable when technology-based methods have been found to be an effective pedagogical material. This study aims to design and develop an ArtHis Interactive Module for teaching and learning art history in Visual Art Education. For this reason, this study also investigates the impact of its usability in classroom and assesses the learning motivation of Visual Art students simultaneously. In this study, the Design and Developmental Research (DDR) method was used. For the most part, the ArtHis Interactive Module is developed by using ADDIE Model by considering the elements of design, technical, pedagogical, and the content which is appropriate to achieve the objectives stated in Visual Art Education syllabus. Specifically, the development process was guided and supported by Dual Coding Theory and Flow Theory for information processing. For this purpose, the research focused on Form 5 Visual Art students. Microsoft PowerPoint was used to produce the interactive module with the aim of enhancing the students' motivation in learning Art History. The finding shows that the impact of learning art history using ArtHis Interactive Module has improved students' conceptual understanding. It is also determined that 93.9 percent students agree that the exercises in the ArtHis Interactive



Module help them to gauge their level of understanding and knowledge on the topics in Art History. In conclusion, ArtHis Interactive Module is used for the purpose of improving teaching methods and increasing the motivation of students in Visual Art Education especially Art History topics.

Keywords: *art history, learning motivation, interactive module, visual art education, ArtHis*

INTRODUCTION

The use of interactive modules through a combination of multimedia elements can produce an effective presentation (Ampa, 2015). The combination elements of text, graphics, audio, video and animation also helped to facilitate teaching and learning process. Following the development of multimedia technology, multimedia applications and innovation also move forward hand in hand with the development of education. The use of interactive multimedia is necessary for students to have a better understanding of the topics taught through exposure to the real picture or a clear demonstration for students. The incorporation of interactive media in the art classroom will provide students with greater access to imagery, content and experience that can form those beliefs (Yang, Suchan, & Kundu, 2011).

William D. Beeland, J. (2011) stated that the value of technology in the classroom has raised the issues and debates among educational technologists. However, various forms of technology that is now available for its intended use by teachers and students in the classroom are in fact providing great potential to meet the needs of students and sink all issues that prevent them from learning. Technology has been proven to increase productivity, enhance motivation, provide author's direct support, teaching abilities that are unique and enhance information literacy (Kamaruddin, 2015). The advent of technology is supposed to be used in the field of education and developed and innovated for educational purposes. Research objectives for this study are: (i) to identify the elements and appropriate contents to be implemented in the interactive module, (ii) to design and develop an art history interactive module based on the upper secondary syllabus, (iii) to identify the levels of usability of the interactive module as a teaching aid for Visual Art Education teachers.

LITERATURE REVIEW

Visual Art Education Syllabus (Pusat Perkembangan Kurikulum, 2000) for upper secondary level mainly focuses on two main themes which are a) Production of Visual Art (*Penghasilan Seni Visual*) b) The Historical of Visual Art (*Sejarah dan Apresiasi Seni Visual*). The weighting of these two components are balanced in teaching and learning session. The implementation of teaching in the classroom poses a problem because teachers face a lack of teaching aids needed especially for the topic, The Historical of Visual Arts details on topics that are related to western and Malaysian artists (Azizan, 2009).

At the same time, teachers also face the problem of learning content that is related to the topic as the topics are usually too broad and need a long time to finish. Consequently, teachers are also currently using a few books to teach these topics. Due to limited teaching materials and teaching aids, it has caused students to lose interest in the subject that is based on history. Furthermore, the image in the book is printed in black and white which does not show the original colours of the artwork which are important for students' observation in art criticism sessions. As stated in Duh (2016), to encourage students to master the skills in art appreciation, the observation of original objects is important so that students can express their feelings. Therefore, artworks that are printed colourless and illustrated in a low quality manner will affect the process of art criticism.

To have well planned lessons, a form of systematic instructional design is necessary to ensure the effectiveness of the learning objectives. Chou *et al.* (2015) argue that an effective teaching material is a material that enables students to acquire specific skills, knowledge and attitudes. Effective teaching materials are materials that are preferred by students. The study that will be carried out involves the development of teaching materials to enhance students' motivation and interest in Art History. In addition, it also functions as a teaching tool that can diversify the teaching methods to enhance the effectiveness which will directly increase students' interest in art history.

RESEARCH METHODOLOGY

The research design for this study is a design and development research design which will focus on development of the interactive module in teaching the Art History (Richey & Klein, 2005). The design and development research includes:

- i. The study of the process and impact of the specific instructional design and; or
- ii. A situation in which an instructional design activities and learning, development or evaluation and review process in same time; or
- iii. A research design of teaching and learning, development and assessment of the overall process or a group of processes.

The study concluded that the design and development of a systematic study which aimed at obtaining empirical basis for production output and teaching apparatus and models of new or better that includes the construction (Richey, Klein & Nelson, 2004a). The research design and development of a problem-oriented research and using research methodology between the discipline of case studies, experiments, studies or research actions votes (Richey *et al.*, 2004a). Various approaches can be used for the research development, as shown in Table 1.

Table 1: A Comparison of Two Types of Developmental Research by Richey and Klein (2007)

	Design Research 1 (Review Product and Hardware)	Design Research 2 (Model)
Emphasis	The study of the product or the design of a specific programme, the development and evaluation of projects.	Process review, equipment design or model, development or evaluation.
Product / Findings	The lessons of developing a specific product and analyse the conditions that facilitate the use of the product.	Procedures and / or model design, development and evaluation of new and situations that support its use.
Result	Context-specific conclusion.	Generalised conclusions.

THE MODULE INTERACTIVE DEVELOPMENT PROCESS USING INSTRUCTIONAL SYSTEM DESIGN MODEL

To develop interactive modules, researchers chose to use the ADDIE model. This model is the basis model compare with other instructional design that has advantages of its own (Nawi, Abdul & Zakaria, 2016). Among its advantages are ADDIE model consists of five basic phases of instructional design. The phases have its own purpose, which allows researchers to organise the work of process during the construction of interactive modules in art history.

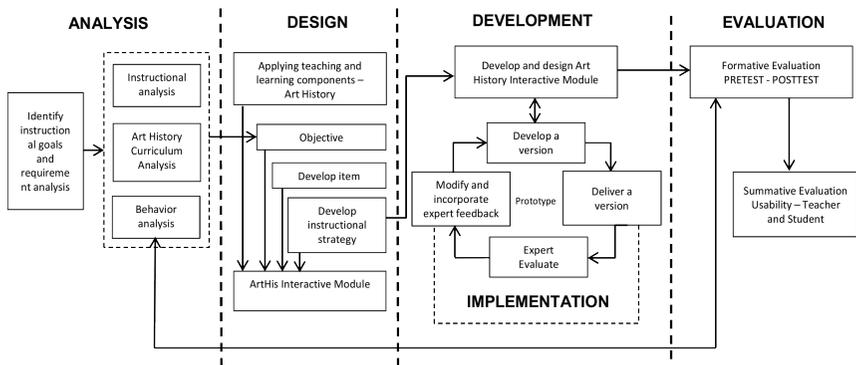


Figure 1: Module Interactive Development Process
(Source by the authors)

In the analysis phase, researchers conducted a process to analyse the need to ensure the development of an interactive module that is more systematic. Analysis of the needs of the demonstration was implemented in Phase 1: Needs analysis. This main phase allowed a developer of interactive modules that clearly understand the terms, or the main features of a development project implemented.

The design phase is carried out after completing the process of needs analysis. It explains the whole view about the shape, structure, teaching approaches, learning theory, types of media and technology to be used (Nawi, Abdul & Zakaria, 2016). Some of the other things to be determined in this phase include the formation of specific objectives for teaching and

learning strategy selection (Nachiappan, 2013). Learning objectives in accordance with the requirements of the Ministry of Education (MOE) should be incorporated during the process of developing this interactive module to measure the learning outcomes achieved. Activities also need to be established accurately so that it is able to motivate students.

The development phase is carried out as soon as the analysis and design phase are completed. The work will shift from thinking about and planning to a process of developing interactive modules based on the planning design that have been made in the previous phase. Multimedia elements such as text, images, graphics, audio, video, interactivity and animation will begin to be collected and produced using PowerPoint 2010 and supporting software, in addition to getting it from external online sources such as the internet. Thus the content development process of interactive modules is moving to the stage of composing or writing using appropriate software.

Interactive modules that are ready to be developed will be presented informally to a group of expert Visual Art teachers. The aim is to evaluate the usability and identify the problems discovered during the execution phase of design and development. All deficiencies and shortcomings that arise are identified and modified based on the findings from usability evaluation. After passing the modification process, the usability evaluation on the interactive modules to Visual Art students is held. During this stage, pre-test and post-test are conducted to identify the level of knowledge of students after using this interactive module.

The evaluation phase is divided into two parts consisting formative and summative evaluation. Formative evaluation is carried out at all phases to ensure its effectiveness while summative evaluation will take place at the end after interactive multimedia is settled. This involves feedback from users of content, strategy, graphics, audio, video, interface and others through supervision, tests, and questionnaires. In this study, researchers have been able to carry out the evaluation of usability interactive modules through the procedure in pre-test and post-test of students who were selected through purposive sampling method. Differences in pre-test and post-test scores were analysed to determine the usability of the module. Summative evaluation was conducted to obtain feedback from the respondents involved. They consist of a group of students who are using the interactive modules.

The evaluation for a group of students was conducted by survey while the teacher was done through the semi-structured interview. Data obtained were analysed to determine the usability of interactive modules.

DEVELOPMENT OF INTERACTIVE MODULE AS LEARNING MATERIALS

Education technology is a combination of people, equipment, techniques and events that aim to give a good impression to education. When all these sources combined, it will make teaching and learning to be more engaging and effective for students. According to Nawi, Abdul and Zakaria (2016), educational technology involves using hardware, software and delivery methods. All three of these components must be implemented systematically to achieve effective delivery of instruction. Computer technology today has been developed progressively; especially multimedia technology which has become a factor affecting schools. This merger will create a more efficient and interesting teaching and learning process. In the development of teaching materials for interactive modules in art history; the researchers chose to develop this module by using Microsoft PowerPoint slide presentation.

Microsoft PowerPoint 2010 version has been duly elected as premier software in the development of interactive modules due to its many advantages. Generally, Microsoft PowerPoint is a universal software that is easily accessible to all users of the computer. Although there is many sophisticated software in the market, Microsoft PowerPoint is still compatible and able to compete with other existing software (Chiew *et al.*, 2013). In addition, this software also comes with the ability to operate including the use of multimedia elements, graphics, animation and object-oriented programming that can be used easily and effectively. According to Hashemi, Azizinezhad, and Farokhi (2012), this educational model is suitable to be integrated into the classroom through the design of PowerPoint presentation.

INTERFACE DESIGN ON LEARNING MATERIALS

Interface design is a key element in delivering information through computer-based multimedia teaching materials. Technological developments taking place in the world of education today makes use of elements such as movement, colours, and illustrations that can now be delivered more effectively such as the use of text, graphics, audio, video and animation through this interactive module.

Text

The use of text in a multimedia system is something that is absolutely of undeniable importance. Although there is a variety of multimedia elements that are more interesting and dynamic, the use of text is still needed as one of the key elements in the process of information delivery. Text generally refers to the letters arranged to form a meaning that can be understood. By, text refers to any type of symbol, letters, alphabet, numbers, statistics, and various types of writing and font that form the basis for the dissemination of information (Hashemi, Azizinezhad, & Farokhi, M, 2012). In an interactive multimedia system, the text also plays an important role in disseminating information to a user.

Graphic

According to Tangen *et al.* (2011), graphic refers to a variety of presentation of graphic image or visual display that does not move such as drawings, paintings, sketches, photographs, illustrations and others. It is among the most important elements to emphasize in a process of information delivery. The use of graphics is said to deliver a piece of information more quickly and exactly that is presented in a visual form. The graphics are also able to assist in explaining a piece of information accurately and effectively.

Audio

Audio or sound effects are an effective lure to attract someone's attention. Audio in a multimedia system refers to voice recording, voice, music and other audio special effects (Tomljenovic, 2015). In an interactive multimedia system, the audio elements can be used to assist the process of delivering presentations as they are more robust and effective. In addition,

audio can also increase motivation among users to be more interested in pursuing a process of information delivery.

Video

Video is one of the multimedia elements that is the most dynamic and realistic compared to other elements. According to Tangen *et al.* (2011), video is a combination of various media such as text, graphics and audio. The use of video in the delivery of information is capable of affecting the feelings and emotions of its users.

Animation

Animation refers to a visual display that is dynamic. According to Tangen *et al.* (2011), animation refers to the process of making an object that looks life or gives the impression of moving to something that is essentially static. The animation is one of the most popular multimedia elements and is in the limelight because it is capable of expressing a human fantasy into the realm of reality. In addition, animation is also able to give confirmation to enable the delivery of an audience's attention focused on the content to be conveyed.

Colour

Besides being able to influence attention, a good colour selection has a positive impact on students' learning process, it is also able to highlight a piece of information to facilitate and enhance the visual clarity so that they become more effective.

Sample Interfaces Layout in the Interactive Module



Figure 2: Main Menu and Sub Menu for Topics of the Art Stream
(Source by the authors)

USABILITY TEST

The evaluation is conducted to test the usability of interactive modules that is done through the use of questionnaire given to four experienced teachers teaching Visual Art at Form 5 level. The assessment was performed to identify any weaknesses inherent in the design and development of interactive modules.

Analysis of Usability Test

The discussion of findings was based from expert evaluation on the interactive module on the following themes:

- i. Item Evaluation on Technical Aspects
- ii. Interface Design
- iii. Multimedia Elements
- iv. Content of Teaching

Analysis of Feedback on Technical Aspects

Table 2: Analysis on the Item of Technical Aspects

No	Item Evaluation on Technical Aspects	Percentage Value of Strongly Agree (%)
A1	Interactive module has clear instructions.	75
A2	Interactive modules work well.	75
A3	Interactive modules have a smooth transition from one view to another.	75
A4	Interactive modules have a clear background voice.	50
A5	Interactive modules can be used for all computer systems (Windows 95, 98, 2000, XP, Macintosh and others).	100

With reference to Table 2, researchers found the highest percentage was the item, A5, which is 100 percent and the lowest is in A4 item. Three out of the four teachers that provided expert criticisms reported that the background music is quite slow and not diversified. They also suggested that the background music should be strengthened to stimulate students' enthusiasm.

Analysis of Interface Design

Table 3: Analysis on the Item of Interface Design

No	Item Evaluation on Interface Design	Percentage Value of Strongly Agree (%)
B1	This interactive module contains interactive icons / buttons that are easy to understand.	75
B2	This interactive module contains interactive icons / buttons that are easily accessible.	100
B3	Interactive module provides interface interactive icons / buttons that is consistent.	100

B4	Hypertext (accessible via text) currently function well.	75
B5	Hypermedia (access through image / animation / video) works well.	100
B6	Interactive features in this module does not interfere with teaching and learning process.	100

In the analysis of the interface design theme, it was found that only items, B1 and B4, are below the standard of expert evaluation. However, the majority of experts agree with the interface design that has been developed. Suggestions given by an expert teacher include in the item of the background colour to be diversified and more vibrant. In addition, another teacher also suggested that the main menu button to be made available on certain parts to facilitate the process of finding the next subtopic.

Analysis of Multimedia Element

Table 4: Analysis on the Item of Multimedia Element

No	Item Evaluation on Multimedia Element	Percentage Value of Strongly Agree (%)
C1	Integration of interactive modules have the appropriate colours.	75
C2	Interactive modules have bright and clear images / illustrations.	75
C3	Interactive modules have the appropriate and clear sound effects.	25
C4	Interactive modules have a bright and clear video clip.	75
C5	Interactive modules using an appropriate and clear letters / fonts / text.	50
C6	Interactive modules integrate compatible multimedia elements (text, audio, video, animation or graphics).	50
C7	Interactive modules have an attractive integration of multimedia elements.	50
C8	Multimedia elements are functioning properly.	75

In Table 4 above, C3 item has recorded the lowest of agreement at only 25 percent. Most experts were less satisfied with elements of sound effects used in the interactive modules. Among the criticisms made in the use of text for content is the alleged lack of clarity. They suggested that a keyword in the highlighted text is necessary to facilitate the students to identify the difference. One of the expert teachers also suggested that animated elements be varied with interesting sound effects. While two of the four expert teachers commented on the use of video with English voice-over, others suggested that the videos to be translated into the Malay language so that students can better understand the content of the video.

Analysis of Content of Teaching

Table 5: Analysis on the item of teaching content

No	Item Evaluation on Content of Teaching	Percentage Value of Strongly Agree (%)
D1	Interactive module developed according to the Visual Arts Education curriculum syllabus formulated by Ministry of Education.	75
D2	Interactive modules provide teaching content meets the stated objectives.	100
D3	Interactive modules provide facts and concepts that are easily understood by students.	50
D4	Interactive modules provide continuous content and well organised and not misleading.	50
D5	The module provides a presentation and interactive teaching strategies appropriate to the diversity of students' abilities.	25
D6	Interactive modules provide teaching strategies (simulations, tutorials, exercises and games) appropriate to the topic being taught.	75
D7	Interactive modules help simplify the process of teaching and learning.	100

The results of evaluation on the theme content of teaching as in Table 5 above indicate that the majority of expert teachers strongly agreed with items D2 and D7. However, for D5, only 25 percent of expert teachers strongly agreed with the contents of interactive modules that meet the teaching strategies according to student ability. One of the four expert teachers suggested that the keywords for each content to be highlighted on each slide to avoid confusion facts.

CONCLUSION

This research is focused on the implementation of interactive module in teaching and learning art history in Visual Art Education. Gioffre (2012) highlighted that interactive multimedia has its advantages in terms of being interactive which then promotes active learning among students from all age groups. An example of multimedia technology that has interactive potential is the computer. Neo *et al.* (2012) discovered that active learning process can be created through multimedia-oriented learning environment. In addition, active learning and cooperative learning have succeeded in improving interpersonal relationships among students.

Another key point in this research could contribute towards education of the 21st century. As stated in National Education Blueprint (Ministry of Education, 2013), in gaining students' aspirations in thinking skills, the equipment and teaching aids should be in line with the current requirements. According to Ampa (2015), with various technology approaches that are incorporated into the learning syllabus, students will not only be more interested to learn academic knowledge, but also stimulate students to be creative and inspire curiosity about the technology used in the learning system. Yoag *et al.* (2012) stated that history learning is important for students' spiritual, emotional, intellectual and physical development. In developing interactive modules for the history of art, Gioffre (2012) pointed out that the millennial generation who were born in the era of technological development has been identified as weak in responding to information that is static. Teaching aids that do not have interactive elements such as traditional slides were unable to complete their cognitive ability levels.

The use of the ADDIE model could serve as the basis for the development of instructional design of the ArtHis interactive modules. Overall, all the five phases of ADDIE model have been successfully used as a guideline when developing this interactive module. To ensure the interactive modules can be tested for its usability, the selection of Microsoft PowerPoint 2010 as a universal platform for the presentation of a module, has been successfully applied to the respondents in this study. Finding is parallel in the study of by Chiew *et al.* (2013) which explains that students would concentrate due to the design of the slide that has animated elements and colour variations thereby creating an interaction between lecturers and students.

Subsequently, the findings of the second research question on how does the level of ArtHis Interactive Module usability on the technical aspects, interface design and learning content accordance with expert views is determined by analyses on the ArtHis Interactive Modules which have been developed. In the context of this study, experts chosen amongst experienced teachers of Visual Art Education have agreed that the components of ArtHis Interactive Module are consistent and convenient as applicable as a teaching aid for the topic of Art History for upper secondary students. From a technical perspective, the majority of respondents gave positive comments and all of them agreed that elements of audio and video in interactive modules play a significant role in ensuring that the objectives can be achieved. This finding is consistent with a previous study by Kamaruddin (2015) which indicated that students concentrate on teaching and learning session if the applications use components of animation, video, quality image and graphics. Similarly, in another study by Saripah *et al.* (2013), found that the aspects of audio, colour, text and display on the multimedia modules should be relevant and can attract students and at the same time does not distract them. This study also hoped that the use of multimedia modules could be expanded with the use of technology in teaching and learning by replacing the conventional approach, which is less effective, especially in the current era of technological innovation.

Accordingly, the design and development of ArtHis Interactive Module also focus on aspects that the content of teaching must comply with the requirements of the syllabus of upper secondary Visual Art Education. The results of the evaluation performed by expert teachers on

the aspects of content, found the majority agreed that development of ArtHis interactive module is in accordance with the requirements of the learning objectives for Visual Art Education as contained in Art Education Syllabus (*Pusat Perkembangan Kurikulum*, 2000). The findings in this phase also strengthen the usability of ArtHis Interactive Module. Majority of expert teachers agreed with the characteristics of interactive modules that could facilitate the process of teaching and learning Art History topic that has a wide scope to be ruled by a Form 5 student. The support of teaching aids such as ArtHis Interactive Module can become a facilitator for teachers of Art Education to further strengthen their pedagogy. This finding is also consistent with the study of Ohwojoro (2015) which explained that teaching aids are pedagogical tools that assist in the delivery of information by the teachers to the children in the classroom. The use of teaching aids such as computers, audio-visual, slide shows and animation software used to present information interactively have shown to increase student motivation.

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