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The Expert Perception on Development and Usability of Teaching Aids Kit Canvas System for Aquaculture Course

Ismail, Abdul Hadie[1], Ismail, Zalina[2*], Abdul Mutalib, Asilah[3], Ab Latif, Zahidah[4] & Che Man, Shaibatul Islamiah[5]

[1,2*,3]Department of Agricultural Science, Faculty of Technical and Vocational, Sultan Idris Education University, 35900 Tanjong Malim, Perak, MALAYSIA

[4]Department of Family and Consumer Science, Faculty of Technical and Vocational, Sultan Idris Education University, 35900 Tanjong Malim, Perak, MALAYSIA

[5]Centre of Studies for Landscape Architecture, Faculty of Architecture, Planning and Surveying, Universiti Teknologi MARA, UiTM Puncak Alam, 42300 Selangor, MALAYSIA

*Corresponding author email: orifad2002@yahoo.com

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Abstract: Due to the COVID-19, teachers forced to perform online teaching and learning procedures, which made it impossible for teachers to track students of understanding, especially in practical classes. Teaching and learning in an online class, limiting the learning process of practical classes or hands-on experience for aquaculture, specifically in canvas system topics. In aquaculture subject, practical classes are an essential thing. Students do the fieldwork and at the same time, individual skills tested to measures the level of understanding in specific topics. In this regard, the development of teaching aids kit Mini Model (Canvas system) is required to help teachers enhance students' understanding and skills related to aquaculture subjects. The development of teaching aid is a critical phase to make sure the teaching aids develop in accordance with the objectives and work well. Therefore, it is important to have an expert perception of the development and usability of the teaching aid kit Canvas system mini model. In this study, nine experts were chosen from the Faculty Technical and Vocational, Sultan Idris Education University based on their experience developing teaching aid kits and pedagogy. A set of questionnaires was distributed to the experts to obtain the required information and data. All data obtained were analysed using Statistical Package for Social Science SPSS version 24' to obtain the frequency, percentage and mean through descriptive analysis. The study's findings show that the development and usability of the teaching Aids Kit Mini Model (Canvas system) is acceptable and can be used as a teaching aid for aquaculture subject.

Keywords: Canvas system, teaching aids kit, online learning, Aquaculture and technical and vocational education

1. Introduction

The epidemic of Covid-19 has caused education issues such as the need to inform strategies for continuing to adapt to current life norms and procedures, which necessitate the use of online teaching and learning. As a result, governments worldwide, including Malaysia, and Sultan Idris Education University (UPSI) in particular have emphasized and encouraged online resources to support students learning. The application of e-learning education is a way that can facilitate the teaching and learning process indirectly involves good communication.

The online learning method influences student comprehension include constructive participation with online learning practices such as learner-self, learner-instructor, learner content and learner interface (Nguyen, 2017; Chou et al., 2010). At the same time, teaching and learning in an online class, limiting the learning process of practical classes or hands-on experience such as aquaculture subject. In aquaculture subject, practical classes are an essential thing. Students do the fieldwork and, at the same time, individual skills tested to measures the level of understanding in specific topics, particularly in canvas system topic.

Two-way instructional approaches that include contact with teachers and students to enable students to engage in practical lessons that can help develop individual comprehension and skills is essential for teaching and learning process

*Corresponding author: orifad2002@yahoo.com

(Nguyen, 2017; Grade & Edson, 2009. Therefore, creating teaching that can assist the student in understanding related to the aquaculture subject is important.

Effective teaching and learning can be seen through the ability to produce excellent and effective learning (Hidayat & Shafie, 2020; Kamarul & Ab Halim, 2007). Learning-based on teaching aid is also one of the most effective methods in assisting learning during Covid-19 and MCO. According to Yee et al. (2021), teaching aids materials is an important thing in a teaching and learning session as it can stimulate student's interest in learning because teaching aid is either in electronic or non-electronic form is an important support tool to increase the understanding of students and their interest in learning. The teaching aid path is necessary to understand the concepts in the teaching method, and it can also attract students to think creatively, innovate, and increase competitiveness (Majeed, 2021).

In aquaculture subject, students can learn about materials and tools suitable for thinking and comprehension response of the canvas system by using a teaching aids Kit Mini Model Canvas System. Students can identify the purpose, suitable materials, installation methods and appropriate types of animals used with the kit or mini model.

The Teaching Aids Kit Mini Model Canvas System structure uses PVC pipe with connectors which require students to carry out the mini model installation and assembly process directly concerning the installation instructions provided. Students can assemble independently, and with the teacher's observation where students can gain experience in building a mini model of the canvas system throughout the online classroom learning takes place.

Teaching aids as learning media in the teaching and learning process can arouse new desires and interests, arouse motivation and stimulation of learning activities, and even bring psychological influence on students (Ratnasari et al., 2017). The development of teaching aid is a critical phase to make sure the teaching aids develop in accordance with the objectives and work well (Mohd Rosli et al., 2021). Therefore, in this study, it is important to have an expert perception to answer the following questions: 1) What are expert perceptions of the elements for the development of teaching aids Kit canvas system?; 2) What are expert perceptions of the development (design and layout) of teaching aids Kit canvas system?; 3) What are expert perceptions of the usability of teaching aids kit canvas system?. Thus, these study objectives are: 1) To identify the experts' perceptions of the elements for the development of Teaching Aids Kit Canvas System for aquaculture courses; 2) To identify the experts' perception for the development of Teaching Aids Kit Canvas System for Aquaculture courses; 3) To identify the experts' perceptions on the usability of the Teaching Aids Kit Canvas System for Aquaculture courses.

2. Materials and Methods

2.1 Analysis

The first step of the Teaching Aids Kit Canvas System design is the analytical phase. A need analysis by student was performed to assess whether or not the instructional aid was required. The need analysis step required to produce a good way to facilitate the teaching and learning process indirectly involves good communication (Hidayat & Shafie, 2020). A survey was done among students to evaluate whether they think establishing a Teaching Aids Kit Canvas System in aquaculture is necessary. In this phase, 33 students of Bachelor of Education (Agriculture Science), Sultan Idris Education University picked to answer the need analysis questionnaire. The questionnaire contains two parts: section A (Demographics) and section B (Needs Analysis Study). This questionnaire contains 12 items using the 'Likert Scale' 5-point Likert scale ranging from 1 (Strongly Disagree), 2 (Disagree), 3 (Moderately agree), 4 (Agree) and 5 (Strongly agree).

2.2 Design

This stage decides all proprieties success measurement methods, multiple assessments, subject matter analysis, subject matter analysis, preparation and resources. The emphasis during the design process is on learning goals, material, subject matter analysis, exercise, lesson planning, evaluation tools used, and media collection. The designed instructional product needs to expressed in the form of drawings by labelling each component used. This process is important because the drawing will be a reference source for the future instructional product development phase.

2.3 Development

The development stage begins the processing and testing of the project or model methodology. At this point, the researcher uses the data gathered in the previous two stages to construct a programme that will relay what needs to teach students. This step entails the researcher producing or selecting materials and media, as well as conducting formative evaluations (Davis, 2013). Before the final product is put into use, the researcher must decide whether it will help students, as well as offer methods to improve it (Zhang, 2020).

2.4 Implementation and Evaluation

The implementation stages of the ADDIE model are referred to as the point at which the actual model is presented to the real-world environment and provides assistance to users (Budoya et al., 2019). In this study, the implementation phase is

the delivery of the product (teaching aid kit) to the expert. This teaching aids kit includes a tiny model (canvas system), manual (instruction), and video installation and usage to make installation and use easier (Roslan et al., 2021). In addition, a QR code was created to provide information relating to the installation and usages process. The expert has been given a week to test the Teaching Aids Kit Canvas System in order to ensure its development and usability. In evaluation phase, the evaluator is given a questionnaire consisted of three sections: 1) needs analysis study (necessary elements and features that need to be in teaching aids); 2) mini-model development (Canvas system); and 3) usability mini-model development (Canvas system). Suppose there are shortcomings or improvement that need to be done according to the expert. In that case, an improvement process needs to be done so that the mini-model operated and functioned perfectly.

2.5 Instrument Development (Questionnaire)

The questionnaire was created as the study's tool. In a quantitative study, questionnaires are frequently utilized. A questionnaire is a collection of questions asked by individuals in order to elicit statistically significant data about a specific topic. The expert's questions are based on the learning aid package that has been provided. There were four sections to the questionnaire. The first component contained a total of five items of demographic data from respondents. The second section included 19 items that were used to assess expert perceptions of fundamental elements of teaching aids and necessary features for teaching aids. The third section included 14 elements that were used to assess expert opinions on the development of the Teaching Aid Kit Mini Model Canvas System (Design and Layout).

2.6 Sampling and Data Collection

The target expert was lecturers who worked at Faculty of Technical and Vocational, Sultan Idris Education University. A self-administered questionnaire and Aquaponic Mini Model Learning Aid Kit was distributed to the expert. The experts were chosen based on their experience in developing learning aid kits, teaching pedagogy, and knowledge of agriculture in practice. A total of 10 questionnaires were distributed and 9 responses were returned, corresponding to a response rate of 90%. The survey was open for a week between June 2nd and April 9th, 2021.

2.7 Data Analysis

To summarise the data, IBM SPSS Statistics 24 was used to do descriptive analysis and acquire statistics such as mean, standard deviation, frequency, and percentage. Cronbach's alpha values were used to determine the internal consistency of each identified construct in order to assess instrument reliability.

3. Results

3.1 Demographic Profiles Respondents

Table 1 presents frequencies and percentages for demographic variables. The majority of experts were female (77.8%, female; 22.2%, male). Most experts were 35 to 39 years (55.6%) old in comparison to the 30 to 34 (22.2%) and 25 to 30 (11.1%) age groups. The majority of experts held a certificate of Doctor of Philosophy (PhD) (77.8%), and 22.2% held a master's degree Data showed that 100% of the experts work as a lecturer.

Table 1: Demographic profiles respondents

Variable	Category	Frequency	%
Gender	Male	2	22.2
	Female	7	77.8
Age (Old)	25-30	1	11.1
	30-32	2	22.2
	35-39	5	55.6
	40-44	1	11.1
Level Education	Master	2	22.2
	PhD	7	77.8
Occupational	University lecturer	9	100

3.2 Expert Perception on Essential Element of Teaching Aid

The finding result answer the first objectives of the study, which is to identify the experts' perceptions of the elements for the development of Teaching Aids Kit Canvas System for aquaculture courses. Table 2 presents means and standard deviations score of the expert perspective on analysis of essential elements of teaching aid. An interpretive scale was developed a mean 0.0-0.186 (Weak), 1.87-1.93 (Moderate) and 1.94-2.00 (Good). The overall average mean value recorded a score of 1.89 implying need analysis were moderate. The highest rated essential element was teaching aid

related and accurate to learning topic and create a creativity (M = 2.00; SD = 0.00). Results shows that experts perception of essential elements of teaching aid are moderate.

Table 2: Means and standard deviations of expert perception on essential elements of teaching aid (TA: teaching aid)

Item	Mean	SD
Teaching aid related to the learning topic	2.00	.000
The content of the teaching aid is accurate and relevant to the topic	2.00	.000
Teaching aid help to make learning more in-depth about the content of the lesson	1.89	.333
TA that offers real experience	1.89	.333
TA can inspire creativity, both to teachers and students	2.00	.000
TA that contain original ideas and designs	1.89	.333
TA that contain high pure values (not using materials such as polite pictures or using materials that contain negative elements such as gambling and smoking).	1.89	.333

3.3 Expert Perception on Development of Aquaponic Mini Model Learning Aid Kit (Design and Layout)

The finding result answer the second objectives of the study, which is to identify the experts' perception for the development of Teaching Aids Kit Canvas System for Aquaculture courses. Table 3 present the means and standard deviations of the expert perspective on development of Teaching Aids Kit Mini Model Canvas System (Design and Layout). Based on the 2-point Likert scale, the mean rating of 2.00 implies development of teaching aids Kit Mini Model Canvas System (Design and Layout) is good. The overall means were categorized: 0.0 to 0.186 = Weak, 1.87 to 1.93 = Moderate, 1.94 to 2.00 = Good. The experts reported they prefer a development of Teaching Aids Kit Mini Model Canvas System (Design and Layout) that can achieved design objectives, included with a user with attractive, easy get information, Components easily disassembled use real materials, components are available and inexpensive, User manual included, clear manual writing and Interesting and appropriate visuals-audio. Results shows that expert perspective on development of Teaching Aids Kit Mini Model Canvas System (Design and Layout) was good.

Table 3: Means and standard deviations of expert perception on development of teaching aids kit mini model canvas system (design and layout)

Item	Mean	SD
The design of the teaching aid Kit Mini Model Canvas System developed in accordance with the learning objectives	2.00	.000
The design and layout of the teaching aid Kit Mini Model Canvas System developed attractive and simple	2.00	.000
The design of the teaching aid Kit Mini Model Canvas developed neatly and sturdy	1.89	.333
The size of the teaching aid Kit Mini Model Canvas developed suitable (medium size and easy to carry)	2.00	.000
The design of the teaching aid Kit Mini Model Canvas developed easy for students to use	2.00	.000
The design of teaching aid Kit Mini Model Canvas developed to suit students	2.00	.000
The information on the teaching aid Kit Mini Model Canvas developed easy to understand by students	1.89	.333
The components of the teaching aid Kit Mini Model Canvas developed easy to disassemble if misused or installed	2.00	.000
The components of the teaching aid Kit Mini Model Canvas developed using materials that are easily available and cheap	2.00	.000
The user manual included with the model teaching aid Kit Mini Model Canvas developed have innovative value (QR code scan and video)	2.00	.000
The user manual included with the teaching aid Kit Mini Model Canvas developed interesting and clear	1.89	.333
The instructions in the user manual or installation of the teaching aid Kit Mini Model Canvas developed clear	2.00	.000
The writing on the user manual or installation of the teaching aid Kit Mini Model Canvas developed clear and easy to read	2.00	.000
The visuals and audio used in the video on how to use or install the teaching aid Kit Mini Model Canvas developed interesting and appropriate	2.00	.000

3.4 Expert Perception on Usability of Teaching Aids Kit Mini Model Canvas

The finding result answer the third objectives of the study, which is to identify the experts' perceptions on the usability of the Teaching Aids Kit Canvas System for Aquaculture courses. Table 4 presents means and standard deviations of expert perception on usability of teaching aids Kit Mini Model Canvas. Data interpretation is made based on the mean value obtained, whether weak (0.0-0.1.86), moderate (1.87-1.93) and good (1.94-2.00). The overall mean perception rating was 1.89, implying perceptions were moderate. The highest mean for usability of teaching aids Kit Mini Model Canvas was the of teaching aids developed achieved learning objectives, works well, fun and easy way to introduce and illustrate the concept of canvas system and increase student involvement in teaching and learning activities in the classroom online.

Table 4: Means and standard deviations of expert perception on usability of kit mini model canvas

Item	Mean	SD
Teaching aids Kit Mini Model Canvas developed achieved learning objectives	2.00	.000
Teaching aids Kit Mini Model Canvas developed facilitates teaching and learning	1.89	.333
Teaching aids Kit Mini Model Canvas developed works well	2.00	.000
Teaching aids Kit Mini Model Canvas developed can elicit students' creative and critical thinking	1.89	.333
Teaching aids Kit Mini Model Canvas developed can replace hands-on activities during online learning	1.89	.333
Teaching aids Kit Mini Model Canvas developed can hone students' practical skills during online learning	1.89	.333
The level of usability of the teaching aids Kit Mini Model Canvas mini model teaching aid kit developed is at a high level	1.89	.333
The use of teaching aids Kit Mini Model Canvas developed does not require lecturers or teachers to work overtime to build teaching aid	1.89	.333
The use of teaching aids Kit Mini Model Canvas developed in teaching and learning is more time saving	1.89	.333
The use of teaching aids Kit Mini Model Canvas developed in aquaculture teaching will help students learn to relate real equipment with cage system	1.89	.333
The use of the teaching aids Kit Mini Model Canvas developed is a fun and easy way to introduce and illustrate the concept of cage system	2.00	.000
The use of teaching aids Kit Mini Model Canvas developed is very important to cultivate students' curiosity	2.00	.000
The use of teaching aids Kit Mini Model Canvas developed is very important to increase student involvement in teaching and learning activities in the classroom online	2.00	.000
The use of teaching aids Kit Mini Model Canvas developed is very important to increase students' understanding of the concept of cage system	1.89	.333

4. Discussion and Conclusion

The study's findings have proven expert perception on needs of analysis study development of the Teaching Aids Kit Mini Model Canvas System between at good and moderate level. Creativity in teaching aids Kit in the classroom and outdoors should pique students' attention and participation in the teaching and learning process (Ridwan, 2021). The innovative use of Teaching Aids Kits can nourish and develop the power of his student creativity. Using just old and conventional techniques, such as whiteboards, movies, and images, on the other hand, will not aid in enhancing students' ability to think and will not be flexible in controlling students' thinking inclinations (Jančaříková & Jančařík, 2017). As a result, a creative educator will function as a motivator in learning for students by assisting in a better way of thinking. The teaching aids Kit stimulates students' interests and gives fresh experiences that are not easily gained through other means, resulting in more in-depth and diversified student learning. The teaching aid Kit can pique students' enthusiasm in learning a subject. The equipment utilized in the delivery of instruction is also a motivator. Teaching aids can help to establish a welcoming environment for students. When teaching aids are employed in an organized manner during concepts explanation the lessons offered pique students' attention. Using suitable tools will pique students' interest in participating in an enjoyable learning process (Noor Azlan & Nurdalina, 2010).

Besides, expert perception on development of teaching aids Kit Mini Model Canvas System (Design and Layout) at good level. The development of mini models must be based on appropriate and accessible materials for students to find (Sri Mulyani et al., 20021). This is because materials that are difficult to install and unsuitable will not attract students' interest in following the learning but will cause the learning to be ineffective and ineffective. If the educational materials chosen and employed are inappropriate, it might stifle rather than promote effective learning. Therefore,

according to Bukoye (2019), instructional materials and teaching aid Kit must be connected to the lesson objectives and any instructional material that is not directed toward assisting in the attainment of the lesson objectives is unsuitable for inclusion in the lesson. The use of easy-to find and low-cost teaching aids such as recycling is equipment that teachers can use to deliver lessons to students in the classroom.

In this study show, expert perception on analysis usability of teaching aids Kit Mini Canvas System Model is at a moderate level. The use of the teaching aids Kit during the Covid-19 pandemic is much needed for online learning-based learning for students. Therefore, to encourage student involvement, the use of teaching aids is an appropriate method during this pandemic. According to Basiran et al. (2021), teaching aids are a perfect supplement for teachers when they need to validate a technique or a concept during pandemic Covid-19 and MCO. Teaching aids give students more time to practice and deliver knowledge to give students a new way to interact with communication, skill, and understanding with the content. Besides, teaching aids help make the learning experience fun and stimulating (Arya & Maul, 2016). As a result, educators are focusing more on and incorporating students in the classroom with innovations. In Science subject, the teaching aids must be unique so it is easy to attract the attentions of student and can foster student interest following the learning process (Oktafiani et al. 2017). According Rosenberg (2001), E-learning and teaching can reduce learning time by at least 25% to 60% compared to traditional classrooms. This is because there is only one-way communication, which means teachers submit content.

The findings of this study offer an overview of the development and usability of the teaching aids Kit Mini Model Canvas System to learn aquaculture. The results demonstrate that students are interested in teaching aid Kit. The teaching aid Kit used by the teacher during the teaching process is visible to the student. The use of the teaching aid Kit Mini Model Canvas System would also improve the smooth functioning of the teaching process and activate student involvement in learning, as students would perceive the usage of teaching aids. As a result, creating of a teaching aid Kit Mini Model (Canvas System) is required.

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