



## CONCEPTUAL FRAMEWORK OF EDUTAINMENT ANIMATED SERIES FOR CHILDREN: A PIOUS STORY

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### ABSTRACT

The objective of this study was to develop a conceptual framework for edutainment animated series for children taking into consideration a pious story. The conceptual framework has been designed and considered as the first step to ensure attainment of the edutainment animated series. Nowadays, multimedia technology plays an important role to deliver the desired information. Animation is one of the ways used to educate children. Most animations have been brought in which implicitly deliver negative values such as violence and aggressiveness. Due to this factor, local animated series is crucial to be produced to suit with the local moral values. The pious story has been selected and designed to provide the children with the good moral values to be practiced by a good Muslim. Expert review has been conducted with two experts to validate the component in the conceptual framework. The instrument used is questionnaire with 5.00 point Likert scale. The result shows the elements in the conceptual framework are successfully implemented with overall means are above 4.00 of Likert Scale score. The designed framework could be serving as a catalyst to promote good moral value for animated series which could be used worldwide to develop Islamic edutainment.

**Keywords:** edutainment, animation, pious story, moral value.

### INTRODUCTION

Rapid advancement of Information and Communication Technology (ICT) has influenced our daily life especially in the area of education and entertainment. Interactive multimedia application can be used as an instructional tool to learning strategies deliver successfully. There are several popular approaches in learning strategies such as interactive storytelling, simulation, games and animated story (Hussain, Embi & Hashim, 2003). The government of Malaysia has shown a support in edutainment fields by introducing Smart School Program in 1990. The Smart School Program will ensure that the school involved would equipped with computers and educational software (Zin & Nasir, 2007).

The teaching strategies in education have evolved where edutainment has taken its place in the world of education. Edutainment allows the children to learn by using various combination of multimedia elements (text, images, video, sound and animation) by simply using a computer mouse to point and click on a particular word, picture or button. This makes the stories as well as information will come alive on a computer screen (Hussain et al. 2003). In other words, edutainment refers to the teaching and learning process carried out in a fun and less stress classroom environment (Hussain et al. 2003). Buckingham & Scanlon (2005) have defined edutainment as a hybrid genre that relies heavily on visual material, on narrative or game-like formats computer games-education-implication for game developers, and on more informal, less didactic styles of address. Egloff (2004) has stated that edutainment software is a type of software intended to educate children through entertainment.

With the strength and contribution of edutainment, this paper proposes a conceptual framework of edutainment for children in animated series focusing on a selected pious story of a Muslim. This paper is organized as follows: Section 2 describes multimedia and education. This is followed by Section 3 that discusses the animation. Section 4 presents the moral value and the pious story. Section 5 and 6 respectively explains the details of the framework and the methodology. Results of the edutainment animated series are discussed in Section 7 and finally Section 8 sums up the paper with conclusion and future work.

### MULTIMEDIA AND EDUCATION

Nowadays, multimedia technology plays important roles to deliver information. The popular demands among multimedia-based contents are animated stories, digital games and edutainment and have been widely used in education. The children are normally attracted by interactive information presentations and activities. Multimedia with interactive elements allows users to actively interact with a system or software. According to Zin, Nasir & Ghazali, (2010), multimedia-based content for educational purposes create a new dimension for traditional literature. This promotes traditional socio-cultural values by ensuring software is appropriate for young viewers. Good values could be reached if the content of the software is designed to suit their age group.

### Edutainment

The term edutainment is derived from the words "education" and "entertainment" which define the way of teaching and learning process carried out in the enjoyable



and less serious environment. Zin & Nasir, 2007 have defined edutainment as a concept for fun learning and also serves as a tool for teacher or parents to educate learners as well as entertain them at the same time (Wang & Di, 2007).

The purpose of edutainment is to get the attention and increase motivation of the learners using a computer that displays a rich combination of multimedia elements. Edutainment offers the children a way to wander through stories, information or games at their own pace and in their own way. They can connect ideas in paths they choose or investigate one particular idea among many. The difference between edutainment and other applications is that edutainment focuses more on the fun side besides imparting new information to the user (Heinecke, 2002).

Veenstra (2009) has listed six characteristic in producing powerful edutainment software, which are levels, content, instructions, learning goal, interface and feedback as shown in Figure-1. However many existing edutainment software that have meet the user satisfaction level.



Figure-1. Characteristics of powerful edutainment software.

## ANIMATION

Animations are widely used in various industries such as advertisement, entertainment, education and science. The term of animation in Japan is called as Anime. Anime is an art that can help adolescents to shape and build their identities based on their favourite anime (Mohar, 2003). Anime can also help develop various skills and abilities among children (Frey & Fisher, 2004). For that reason, animation can be use to educate children as well as teenagers about good moral values beside entertain them with interesting stories.

Animation can be divided into two types such as two dimensional (2D) and three Dimensional (3D) animations. The different between 2D and 3D animation is described in Table-1.

Table-1. Different between 2D and 3D animation.

Characteristic\ types	2D Animation	3D Animation
Appearance of depth	x-axis and y-axis	x-axis, y-axis and z-axis
Development time	Less time	Longer time
Outcome of the animation	Cartoon-like	Realistic

Based on Table-1 characteristic, the examples of 2D animated application are simulation, digital games and animated movies. An animated movie is also an edutainment application that can be applied in the teaching-learning system. This will enhance the students' motivation and self-confidence (Hamidi, 2010). The focus of this paper is on the conceptual framework of 2D animated series for edutainment.

In Malaysia, Animation has started in 1980s with the first animation was "Hikayat Sang Kancil" (The Legend of a Mousedeer), followed by "Sang Kancil dan Monyet" (A Mousedeer and A Monkey), "Gagak yang Bijak" (The Wise Crow), "Singa yang Haloba" (A Greedy Lion), "Usop Sontorian" and "Silat Legenda" (Perpustakaan Negara Malaysia, 2001). All these animations were to educate children on moral values that have gain positive effects on many children. Currently, animation industry is growing with the production of local animation such as *Upin and Ipin*, *Kampung Boy*, *Saladin*, *Kacang*, and *Boboiboy*.

In education, an educational tool known as SOTA (Symbol Table Animation) was developed (Gallego-Carrillo, 2005). It aimed at visualizing, from a high level point of view, the symbol table of the source code. Research shows that SOTA promote better student performance in the learning of compilers course by 22% (Urquiza-Fuentes, 2011). In Zin & Zain, 2010 study, it shows 83.8% increment in student understanding, 96.6% promotes interest in teaching and learning process and 94.3% indicates that edutainment software is suitable to be used in the classroom as one of the important teaching aids. From this study, it can be concluded that edutainment software gives a positive impact to students in teaching and learning process.

## MORAL VALUE AND PIOUS STORY

Stories whether being told or read can influence individual emotionally and help in shaping his or her thinking skill (Brand, 2001). Moral value from the stories may encourage the individual to make right decision. The character design so as the moral aspect in any story is important and should be considered. Frequent exposure to stories with active thinking will help youngsters formulate the concept of right and wrong and shape up positive attitudes.

Folktales are the most popular story among children. The term "folktale" usually refers to stories like fairy tale and wonder tale which normally consist of magical elements (Thompson, 1946). Malaysia has numerous folktales story such as Si Tanggang, Bawang Putih Bawang Merah dan Mahsuri. Well known for their moral lessons with regards to concepts such as honesty, diligence, tolerance and other motivational elements, Malaysian folktales can be used as a medium to convey such valuable messages to children either through reading, watching or listening to the stories (Masmuzidin, 2012; Yassin, 1991).

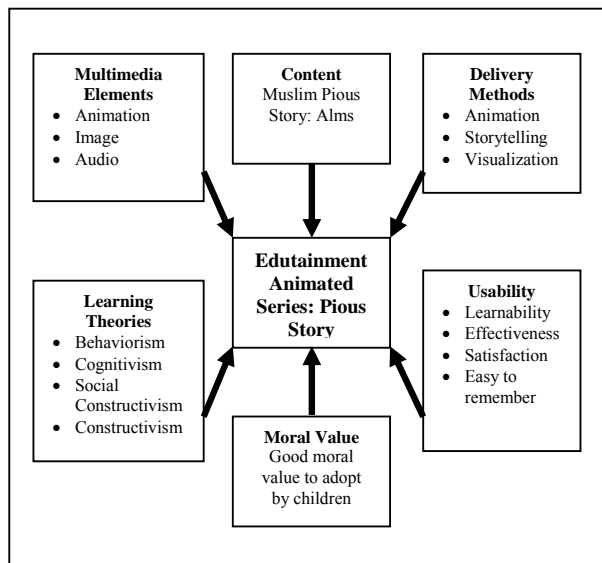
Pious story can be defined as a story about a kind or religious person based on true story. In this study, we



focus on Muslim pious story. There are many moral values that can be learned and adopted from the story such as alms, helping, respect, honesty, tolerance and many more. These values are essential to the children to become person with good attitude. Teaching by example is one of the effective ways to help children developing the moral values. Since the pious story is based on the true story while folktales are imaginative story, pious story is selected to be animated in order to promote good moral value to the children.

## DEVELOPMENT OF CONCEPTUAL FRAMEWORK

In developing process of edutainment animated series, a complete and suitable conceptual framework is important as a point of reference. The conceptual framework is shown in Figure-2.



**Figure-2.** Conceptual framework for animated movies of pious story.

Based on Figure-2, this framework describes the overall elements in the animated series including multimedia elements, content, delivery methods, learning theories, moral values and usability. In the section below, details of the elements will be explained.

### Multimedia elements

Multimedia elements can be classified to five which are text, animation, image, audio and video. For this animated series, three of the elements are chosen. They are animation, image and audio.

A lot of information can be transferred by using moving image called animation because the eye-brains assembles a sequences of image and interprets them as a continuous movement (Izani & Eshaq, 2003). By using animation as an educational tool, children can engage more by learning from the animation and narration instead of from narration alone (Rozaimie et al., 2011). The

theoretical rationale for this principle is that children are better to build mental connections between corresponding words and pictures when both are presented (i.e., animation and narration) and when only one is presented (i.e., narration) and the learner must mentally create the other (Mayer & Moreno, 2002). Based on these advantages, animation is chosen as a core element in this edutainment series in order to show the good moral value to the audience.

Besides animation, image can be used in the edutainment series. Image can be described as digital representation of non-text information such as a drawing, chart or photo (Shelly & Vermaat, 2012). Some studies indicated that including the visual text in the illustration and labelling the illustrations improved learning (Koroghlanian & Klien, 2004). In this edutainment series, vector image has been used as a background. These drawn images are reflected Malay socio culture life so that the audience is easier to accept the lessons of this story.

Main audio in this edutainment series is dialogue of the characters. The audio are recorded based on the scripts that have been set for each character. Audio also used for background music, narration and sound effects.

### Content

The next element is content. Content is one of the important components in developing multimedia application. A good content will attract the attention of the audience to stay keep on watching or using a multimedia application. For this edutainment series, Muslim pious story are selected as the main theme. From the theme, more specific story which has the moral value are chosen such as alms and helping.

### Delivery methods

There are many ways to deliver information such as storytelling, animation, video and games. Delivery methods of this edutainment series are storytelling, animation and visualization. In storytelling, a narrator is utilized to convey the introduction of the story and to emphasize the moral value that can be adopted from the animated series. Then the animation is use as a main approach to deliver the content. Some parts of the animated series are express in visualization.

### Learning theories

The learning theories embedded in this edutainment series are behaviourism, cognitivism, social constructivism and constructivism. The theory of behaviourism is a learning which happens through stimulus or motivation (Ratten & Ratten, 2007). In behaviourism, the audience are expected to be motivated in applying alms. Cognitivism means process of learning that combine previous and new information to solve problem (Schiffman & Kanuk, 2000). Therefore, based on the theory of cognitivism, the audience can apply the moral value to the environment after exploiting the application. Social constructivism identifies human behavior as an interaction of personal factors, behavior,



and the environment (Bandura, 1986). This theory emphasizes on the learning interaction between human, behaviour and environment. Constructivism is happening when learners gain their knowledge by their own (Garde, 2007). From this theory the audience can learn new knowledge from the application.

### Moral value

The main purpose of this edutainment series is to promote and educate good moral value among children and adolescents. At same time, it may motivate a good socio-cultural awareness. For this series, the moral value emphasized is alms. In order to educate children with good attitude and moral value, more edutainment applications from local country should be developed based on Islamic concept.

### Usability

Usability concept consists of learn, easy to use, easy to remember, contain few errors, satisfaction, effectiveness, efficiency, safety, utility, learnability and memorability (Nielsen, 1993; Preece & Shrap, 2002). To carry out the usability evaluation for this edutainment series, the usability criteria choose are as follows: effectiveness, easy to remember, satisfaction and learnability. Usability is important feature in order to evaluate an application (Ardito, 2006). The result from the usability testing can be use to evaluate this edutainment series. However the result of the usability test will not be discussed in this paper.

### Comparison on edutainment application framework

In this section, the detail of the framework are compare among others conceptual framework for edutainment includes a conceptual model of MyEduTale edutainment (Zin, Nasir & Ghazali, 2010) and a conceptual framework for edutainment for digital games (Hussain, Embi & Hashim, 2003).

MyEduTale conceptual model was proposed to educate users on socio-cultural values through storytelling by using malay literature of folktales, *syair* and *peribahasa*. The model blended five components such as content, method of delivery, learning theories, multimedia elements and modules. The element of content used can help users identify themselves, motivate children to listen the stories for fun learning environment and they also can build a new experience and the story can be a guideline for children to action in their life. Another element is method of delivery includes animation, poetic narration, interactive games and advance digital game. The method is comprised four types based on the element of module. The module element includes animated story, interactive activities and back story in serious games. The module applied in this conceptual model focused to the students in motivating them to learn and reinforce them in understanding the message behind the animated story. Because of the edutainment, so the stories of learning were considered in this conceptual model. This element of learning theories implemented is to ensure the

effectiveness of learning process using this edutainment software. This is very crucial element to be used because of learning process is different for baby, children, adult and elderly and finally the multimedia elements. In any multimedia application, the multimedia elements are very important to be considered to embed. The use of various multimedia elements tends to attract children in dynamically, colorful and beautiful elements. Because of those reason multimedia elements is the best tool to ensure them into focusing on the content.

A conceptual framework for digital games proposed by Hussain is to focus for non-programming users especially educators for preschool children to develop digital games. This framework has eight factors that reflect the design edutainment environment includes meaningful learning, goal, success, challenge, cognitive artifact, association through pleasure, attraction and stimuli. This framework also considered two domains which is motivation and physiological needs. Another, it is focused on the digital games platform to motivate children to learn in a fun environment. Normally, children like to play a game so this framework is a suitable for the target respondent in order to motivate and meet the psychological needs. In Table-2 below, summarizes the comparison among three conceptual framework of edutainment.

**Table-2.** A comparison among three conceptual frameworks for edutainment.

Criteria	Animated series	MyEduTale	Digital games
Content	Muslim pious story	Malay literature (Folk stories, <i>syair</i> & <i>peribahasa</i> )	Educational games
Learning goals	To promote good moral value	To promote traditional malay literature	To motivate children learn programming
Instruction	2D animation	Hybrid	Games
Interface	TV	CD-I	CD-I
Level	Series	Module	Skill

Based on Table-2, the advantages of the proposed conceptual framework are explained as below:

- i. This framework focuses on the animation module that will be implemented on the TV platform.
- ii. The user can customize the component in the element of the framework based on their content.



## METHODOLOGY

The methods in this study are carried out to obtain the feedback from the expert views in order to validate the conceptual framework of pious story. It involve of follows:

### A. Questionnaires testing

Number of respondents for expert review in this study involved 2 respondents from expert. the respondents are selected based on the experience and qualification respondents in the multimedia fields. respondents were given the time to use and play the animated series of the pious story.

#### i. Questionnaires design

The questionnaire was divided into three (3) sections: (A) Demographic, (B) Experience and (C) Framework of the Application. Section (A) collected information about experts' organization, gender, age, race, highest qualification and area of expertise. Meanwhile section (B) contained questions about the experts' experiences in terms of computer skills, Information Communication and Technology (ICT), Multimedia and Education fields. Section C comprises of the experts' feedbacks on the proposed framework. This section was divided into five (5) sub-sections based on the elements in the framework. The first sub-section (C1) is the Multimedia element with the purposed to acknowledge animations, still images and audio either it exist or not in the demonstrated application. The second sub-section (C2), Contents represent the storyline of "Alms" and it is highlighted in the application. Delivery method for the application is included in the third sub-section (C3), with the details on animation, storytelling and visualization. Behaviorism, cognitivism, social constructivism and constructivism are covered in the learning theories sub-section (C4). This sub-section aimed to verify the learning theories embedded in the application. The final sub-section (C5) in the questionnaire is Moral Values element to ensure good moral value is embedded in the application and the suitability of the application for adults and children. Questionnaire design is illustrate in Figure-3.

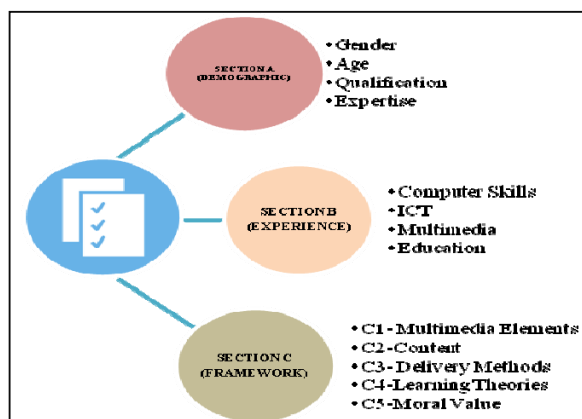


Figure-3: Items in the questionnaire.

A scale based has been chosen as evaluation approach in evaluating expert reviews. Likert scale with the range from 1 to 5 is adapted in the questions, refer Table-3. According to Nielson (1993) criteria for the subject to be measured must show the average value of at least 4 on a Likert scale of 1 to 5. This means at least 50% of users chose a scale of four or five and not more than 5% who chose a scale of one.

Table-3. Likert scales.

Score	1	2	3	4	5
	Strongly disagree	Disagree	Fair	Agree	Totally agree

An expert review is one of the common methods of usability testing. This method brings in experts user in the related field to evaluate a product. This type of evaluation can be carried out by setting an experiment with at least an expert user. The evaluation in this research involves two expert users using the instrument of questionnaire.

### B. Procedure of expert review testing

Expert review testing conducted through offline activities where the animated series of Pious Story prototype is uploaded into desktop Personal Computer (PC) in the Multimedia Lab of School of multimedia. The procedure of the evaluation consists of following steps which are (1) explanation of the survey purposes; (2) demonstration of the application; (3) obtained expert views based on the distributed questionnaire. Implementation of expert review testing procedure is as follows:

#### 1) Offline invitation

A prototype installed in the PC at Multimedia Lab. Instruction is given, that they should use animated series prototype until finished the story. Next, the user must answer the questionnaire.

#### 2) User feedback

After finished the movies, respondents have read the instructions and answer the questionnaire manually by selecting a scale of 1 to 5, which has been declared.

#### 3) Submission

The questionnaire submitted manually to researcher after finished answering the questionnaire.

## RESULTS AND DISCUSSIONS

Result from demographic section shown that the respondents' highest qualifications are Master in multimedia field with specialized in Visual Informatics and Multimedia as for them to be considered as expert users. Respondents also possess more than 10 years experiences in ICT, multimedia and education.

Overall result from the evaluation is summarized in Figure-4.

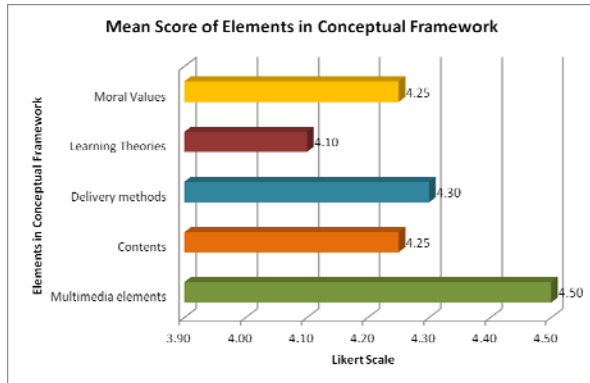


Figure-4. Mean score of every element in conceptual framework.

Generally Figure-4 shows the mean scores for the five (5) sub sections of the element in the conceptual framework. The mean score for each sub-section of the framework in edutainment animated series are relatively high which achieved more than 4.00 score. The mean scores for multimedia elements and moral values gained 4.50 while delivery method 4.30, content 4.25 and learning theories 4.10. From the result, respondent agree the selected elements are appropriate to be include in the conceptual framework.

In C1 sub-section, object and character movement, still images and audio respectively acquire the mean score of 4.50 as illustrated in Figure-5 below. The results indicate that the selected multimedia elements are appropriate to be included in the conceptual framework.

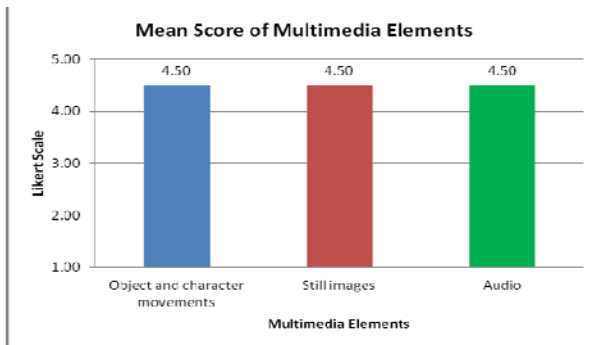


Figure-5. Mean score for multimedia elements.

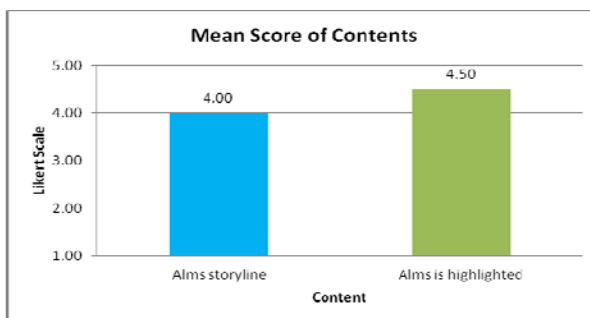


Figure-6. Mean score for content.

As shown in the Figure-6, the C2 sub-section contained items on whether the application shows alms storyline and whether the alms value is well highlighted. The mean score 4.00 and 4.50 indicated that the storyline of this animation series was well design and the audience can understand the values that are highlighted in this application.

The C3 sub-section obtained the mean scores of 4.50 for animation and storytelling attribute, while 4.00 for visualization of “Alms” story. As shown in Figure-7 below, these values are consistent with the proposed delivery method in the framework.

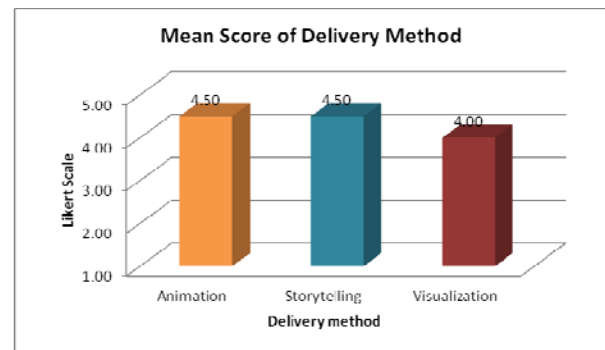


Figure-7. Mean score for delivery method.

The C4 sub-section contains of four (4) questions related to behaviourism, cognitivism, social constructivism and constructivism. As illustrated in Figure-8, the mean score for motivation of the audience to apply alms after watching the application is 4.00. Meanwhile, the mean score for the audience to apply the moral value in the real environment is also 4.00. The audiences can benefit from the interactions between human, behaviour and environment in the application gains 4.00 for its mean score. The audience can learn new knowledge from the application acquires 4.50 of its mean score.

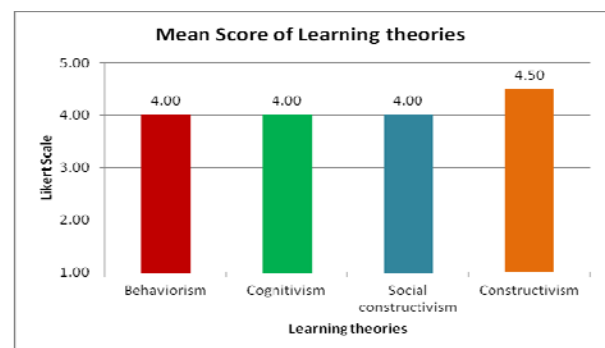
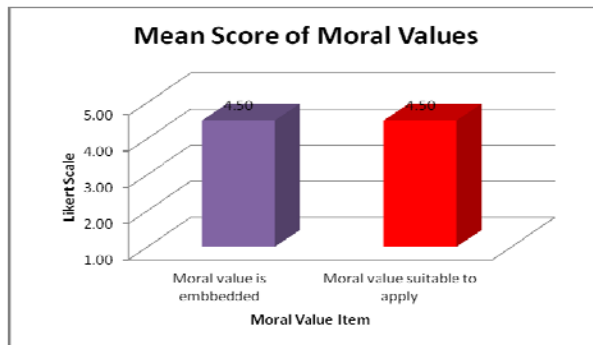


Figure-8. Mean score for learning theories.

From Figure-9, the mean score show that moral value is embedded and it suitable to by the target audience with the score 4.50. These two attribute values indicate that the significance of the moral values embedded in the application.



**Figure-9.** Mean score for moral value.

From the above result, it shows that all of the elements that are embedded in the conceptual framework of edutainment animated series are successfully implemented. The result from this evaluation by expert users also show the positive impact of the conceptual framework of edutainment animated series in educating children with good moral values.

## CONCLUSIONS

This paper discusses in detailed the construction of a conceptual model of edutainment animated series focusing on Muslim's pious story. Evaluation has been conducted with two expert users to validate the conceptual framework.

The element in the conceptual framework that comprise multimedia elements, contents, delivery methods, learning theories and moral values with the overall result 4.50, 4.25, 4.30, 4.10 and 4.50. From this result, it is proved that the elements in the conceptual framework are successfully implemented. By using the conceptual framework, more edutainment animated series can be developed and it may help in delivering and educating young children to adopt good values and behaviours.

For future works, other edutainment animated series focusing on Muslim's pious story such as helping each other, trust, sincerity and so forth using the proposed framework. Usability evaluation will be conducted to the target user such as children and parents. Hopefully, this edutainment animated series will enrich the edutainment series which is teaching good moral values, and at the same time will give impact to society especially for children and parents.

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