

# Introduction to Sea Animals With Augmented Reality Based Flashcard for Early Childhood

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**Submission date:** 03-Jun-2021 01:48PM (UTC+0700)

**Submission ID:** 1599503405

**File name:** Article\_Introduction\_to\_Sea\_Animals\_With\_Augmented\_Reality.pdf (385.75K)

**Word count:** 3664

**Character count:** 21137

# Introduction to Sea Animals With Augmented Reality Based Flashcard for Early Childhood

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## ABSTRACT

So far, the subject of knowing sea animals in early childhood education has only been taught by teachers using books, magazines and pictures, so that early childhood still does not show interest in learning. This study aims to provide an overview of the use of augmented reality-based flashcard media in the introduction of sea animals in early childhood, so that later it can provide real pictures of various kinds of sea animals. The research method used is a qualitative approach research method. The data collection method used is the literature study method. The desired data analysis technique is using qualitative descriptive. The research results obtained in this study are augmented reality based flashcard media which is a technology that combines virtual objects with the real world in real time which can provide a real picture of various kinds of sea animals, making it easier for early childhood to recognize various kinds of sea animals. In addition, flashcard media using augmented reality technology as a learning aid can attract children's enthusiasm and focus. From the results of the research obtained, it can be concluded that augmented reality-based flashcard media can make it easier for teachers and parents to provide an understanding of sea animal.

**Keywords:** *Flashcards, Augmented reality, Sea animals, Early childhood.*

## 1. INTRODUCTION

Early childhood education is a deriving an effort aimed at children from birth to the age of six. This coaching effort is carried out through providing educational stimuli to assist physical and spiritual growth and development so that children are ready to enter further education. One of the developmental aspects developed in early childhood education is the cognitive development. Cognitive development affects academic achievement in the future [1]. One of the studies in the aspect of cognitive development is science learning. Science learning is also included in the preschool curriculum [2, 3]. Science learning materials introduced to early childhood include the introduction of sea animals. In introducing marine education, previous researchers [4, 5] states that experiential learning helps children to increase environmental awareness and positive feelings.

Based on the results of interviews conducted by researchers with teachers at PAUD RA Perwanida IV, the knowledge of group B children in RA Perwanida about sea animals is still lacking, because the surrounding environment is far from access to the sea. Children still find it difficult to see or know sea animals

directly. So far, the introduction of sea animals in RA Perwanida IV has been carried out using books or pictures. However, the media is still considered less attractive in introducing sea animal material to children. Children tend to get bored quickly with these learning patterns.

Learning media is an important component of the implementation of learning. With the learning media, the material that is presented will be easier to understand. One of the learning media which creates an effective learning process is flashcard media. Flashcard media is learning media in the form of picture cards.

At present, the rapid development of technology provides benefits in progress in various aspects, one of which is in the aspect of education. Nowadays, many teaching and learning processes have used laptops and smartphones both to collect information and to find information. In addition, the use of technology in education can create a new educational environment. Technology is considered as a potential tool to bring about change in education. The use of technology in education, using internet technology or smart tools as an intermediary medium can increase children's involvement and learning persistence [6]. One of the

technologies that can be used to support children's learning is augmented reality technology [7]. The use of multimedia including augmented reality in learning has a positive impact on the teaching and learning process, the learning process also becomes interactive and more effective than traditional learning methods [8].

In some materials in early childhood education, children often find it difficult to understand the material because the material is difficult for children to understand and in its delivery the teacher is still lacking in using learning media. Moreover, an alternative is needed to overcome these problems, one of which is the use of flashcard media combined with augmented reality technology. Sea animal material is considered suitable for introduction to early childhood using augmented reality-based flashcards. Flashcard media with augmented reality technology makes children more focused and motivated in learning [9]. Augmented reality technology allows a person to see or otherwise sense a computer-generated virtual world integrated with the real world [10].

Throughout this literature study, researchers provide an overview of the use of augmented reality-based flashcard media in sea animal recognition materials for early childhood.

## 2. METHOD

This research is a qualitative research with literature study data collection. Literature study is an activity related to library data collection methods, reading and taking notes and processing research materials [11]. Furthermore, Nazir [12] defines literature study as a data collection technique by conducting study studies of books, literature, notes and reports relating to the problems being solved. Sources of data from this study were taken from textbooks, scientific journals, research results and other relevant sources. Add data analyzed descriptions.

The research technique carried out by researchers in conducting this research is to use literature study techniques namely, techniques to collect relevant sources and support the research studied by researchers, namely related to the introduction of marine animals using augmented reality-based flashcards. Sources of data from this study were taken from textbooks, scientific journals, research results, and other relevant sources. Data analysis in this study is a content analysis and uses Miles and Huberman data analysis techniques, namely data reduction, data presentation, and data verification [13].

The results of these various literature reviews will be used to provide an overview regarding the introduction of sea animal material using augmented reality-based flashcards in early childhood.

## 3. RESULT AND DISCUSSION

Media comes from the Latin "medio" which means "between". Media is also the plural form of medium which means an intermediary or an introduction. *The Association of Education and Communication Technology (AECT) in Kustiawan states that media are all forms and channels used to transmit messages/information* [14]. Based on the National Education Association (NEA) in Gandana has a different meaning, media are forms of communication either printed or audio-visual and their equipment [15].

Media is anything which can be used to transmit messages from the sender of the message to the recipient of the message so that it can stimulate thoughts, feelings, attention and interests and attention of early childhood in such a way that the learning process occurs [16]. Heinich et al explained that media is anything that carries information between the informer and the recipient of information [17].

Then, Safira defines media as a tool in conveying information in the world of education where the informant is the educator and the recipient of the information is the student who can influence the effectiveness of the learning process [18].

From some of the opinions above, it can be concluded that media is anything that can be used as a tool in conveying messages/ information. In the learning process, learning media is an integral part of the entire learning system and process, meaning that learning media is an important and determinant element of learning activities.

Furthermore, learning media is a container or tool that is useful in generating new desires and interests, learning media can develop motivation and stimulate students to learn more optimally, learning media can provide a holistic experience of something concrete or abstract [19].

Supposedly it is related to early childhood, learning media means anything that can be used as material or a tool for play that makes early childhood able to acquire knowledge, skills and determine attitudes [20].

The results of Nurtaniawati's research state that learning media has a role in cognitive stimulation in children where the media acts as an introduction, a symbol, because at the age of 4-5 years children are in a concrete Pre operational period so that the media helps cognitive abilities in children develop properly [21].

The use of learning media can make it easier for children to understand the learning material provided. In addition, learning media can generate children's motivation and interest. Learning media can also help develop all aspects of its development.

Flashcard learning media is one of the media produced by printed technology. Revealed that flashcard media is a card containing images or writing related to concepts [22]. Another definition expressed by Arsyad flashcards is small cards that contain pictures, text, or symbols that remind or direct students to something related to pictures [23]. Flashcards are learning media in the form of picture cards [24]. The displayed image can be in the form of a hand drawing or an existing photo which is then attached to the cards. From some of the opinions stated earlier, it can be concluded that flashcard media is a medium in the form of a small card containing images, text, or other symbols related to a concept.

Flashcards can help the right brain's ability to remember and concentrate on images and words on flashcards, besides that flashcards can also be used to help children's cognitive development [25].

In line with the results of Nurwidayati's research which states that flashcards can improve cognitive development in early childhood, besides that flashcards also provide several benefits including developing memory, training concentration skills, and improving vocabulary [26].

Nowadays, along with technological advances, flashcard media can be combined with augmented reality technology so that flashcard media becomes an attractive medium for children. Several previous studies of augmented reality technology can also support learning for early childhood [27]. With the help of augmented reality-based flashcard media, it is intended to make it easier for educators to introduce learning materials that are deemed difficult to present directly in the classroom, one of which is sea animal recognition material.

Augmented reality is a synthesis of real and virtual imagery [28]. Augmented reality as a technology that combines two-dimensional or three-dimensional virtual objects into a three-dimensional real environment and then projects these virtual objects in real time [29]. Augmented Reality is defined as the use of real-time digital computers and other special hardware and software to produce a simulated world or alternative environment, which is believed to be real or true for the user [30].

Augmented reality applications have been widely applied in various aspects of life, one of the most widely used is education. In general, augmented reality is an application concept that combines the physical world (real objects) with the digital world, without changing the shape of the physical object [31]. Object recognition (text and images) that is used to display various information about these objects. Bond, augmented

reality is a cognitive system and is able to fully understand the perceptions of users [32].

Augmented reality is defined as the use of real-time digital computers and other special hardware and software to produce a simulated world or alternative environment, which is believed to be real or true for users. Augmented reality can also be interpreted as the incorporation of the virtual world into the real world [30].

Currently, augmented reality is a technology that is quite popular. Augmented reality technology used in early childhood can help them recognize learning content and understand the material provided faster. Augmented reality is a pretty clever concept because children can learn to use their imagination. Children get material while adding experience and touching objects in the real world [33].

The use of augmented reality aimed at early childhood has been developed by several researchers, including a research conducted by Rasslenda-Rass which resulted in children's interest and motivation using augmented reality compared to conventional learning [34].

The effect of using augmented reality technology on preschool students and parental acceptance of the use of this technology, by analyzing data collected through interviews with parents. This research is based on several components, namely motivation, knowledge, reading and writing, creativity and level of satisfaction. According to parents, research shows that there are many benefits in using augmented reality technology seen from integrating several components in order to achieve common goals [35].

Nincarean examined the adoption of augmented reality technology and mobile augmented reality in education to enhance student learning experiences. In their research, students had never tried mobile augmented reality at all, and from the results of the research students felt motivated and enjoyed and had a positive effect [36].

The results of Saurina's research, showed that by using augmented reality learning media in animal recognition, it was found that 93% of children could recognize animal objects from their environment, 100% of children could repeat the spelling of names of animals in Indonesian, 95% of children could repeat the spelling of names of animals with In English, 95% children can describe the characteristics of animals and 100% of children are more interested in using augmented reality than using educational games as a learning medium [31]. The software used in the augmented reality application design process is Unity 5.3. Applications can display 3D animal objects, so that

children can see objects from all sides. Even though the child rotates around the object, the child can still see the object's form clearly. The shapes and colors that appear on the object are adjusted to the original shape and color, it's just that the size is smaller than the original. Children can also recognize animals based on the characteristics they have.

Augmented reality for interactive learning can make it easier for teachers and parents to provide understanding to children. The augmented reality design is displayed from a marker on the magic book [37]. The design displayed is a 3D object, so that the object can look like a real object. The results of testing the satisfaction of using an android-based augmented reality application for animal recognition in research conducted by Saputra [38] with PAUD teacher respondents and parents also showed very good results.

Research by Karawalla et. al. [39] developing augmented reality applications in science learning to support spatial learning in the relationship between the earth, sun, moon and time. They conducted a comparative study using augmented reality applications and role-playing activities. The results of his research show that augmented reality positively helps children understand concepts. The results of his research show that augmented reality positively helps children understand concepts.

An augmented reality 3D model system on a flashcard is displayed with the help of a smartphone. An example of a 3D model shown is close to real. The developed augmented reality based flashcard system can increase children's learning motivation. The children seemed very enthusiastic and could easily understand the use of the augmented reality based flashcard system independently. The 3D model augmented reality system is displayed with the help of a smartphone. An example of a 3D model shown is close to real [9].

Referring to some of the research results above, flashcard media and augmented reality technology provide benefits in learning, especially in early childhood learning. For this reason, augmented reality-based flashcard media can be used in the material for introducing sea animals in early childhood. Children can see a real picture of sea animal objects, both from the shape, color and characteristics of these sea animals through augmented reality technology that can be displayed on flashcard media. Children can also see starfish from all sides on the 3D sea animal objects that are displayed. So that children will find it easier to recognize various kinds of sea animals. In addition, augmented reality-based flashcard media can help teachers and parents introduce learning materials that are difficult to present directly in the implementation of learning.

#### 4. CONCLUSION

Based on the results of data analysis in the previous part, augmented reality-based flashcard media can provide various benefits in implementing learning for early childhood. Flashcard media based on augmented reality can make it easier for teachers and parents to provide an understanding of sea animal introduction material. With augmented reality technology that can be displayed on flashcard media, early childhood can see sea animal objects in real terms. This makes it easier for children to recognize these sea animals. In addition, augmented reality-based flashcard media can also attract children's attention to the material taught by teachers or parents.

#### AUTHORS' CONTRIBUTIONS

All authors contributed to compiling, designing, carrying out this research. All authors also contribute to the writing of published scientific articles.

#### ACKNOWLEDGMENTS

The author would like to thank LPPM Sriwijaya University for funding this research with Research Contract Number 0163.215/UN9/SB3.LPPM.PT/2020 on the Science, Technology and Arts Research. Scheme.

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