

AUGMENTED REALITY ENGLISH STORYBOOK
FOR PRIMARY SCHOOL CHILDREN

MUHILARASAAN A/L ARUMUGAM

A project report submitted in partial fulfilment of the
requirements for the award of the degree of
Master of Education (Education Technology)

School of Education
Faculty of Social Sciences and Humanities
Universiti Teknologi Malaysia

AUGUST 2021

DEDICATION

This project report is dedicated to my sister who taught me the importance of learning and sharing knowledge from the people around me. Not to forget my parents who never stop encouraging me to keep learning and taking up new skills. To all my friends out there a special dedication to them for the support and the endless encouragement.

ACKNOWLEDGEMENT

I would like to express my gratitude to those who was involve in my thesis journey. First, I would like thank to my supervisor. I would like to express my sincere gratitude to my supervisor for the continuous support in my Master studies journey and also for the patience, enthusiasm and immense knowledge. This guidance helped me in every way in completing this thesis. Besides my advisor, I would like to thank my parents for the nonstop support in the terms of financial and spiritually throughout my thesis progress and huge credits goes to my fellow friends who helped me in many ways. So far, what I have done in my thesis could not have been completed without the help of my fellow good company, which I am surrounded with. I am beyond thankful for that. Thank you.

ABSTRACT

The purpose of this study is to look at the effectiveness of the use of augmented reality in storybooks for primary school students from year one to year six. A total of four students were involved in this study using the interview method. The results of this study showed that students are interested in using story books that have augmented reality elements for reading compared to reading story books that are commonly used in school. In addition to that, student's perception of English story books having augmented reality elements is said to be good and very useful to understand the storyline while reading because the characters used in the book will be displayed in 3D through augmented reality application. Hence, this proves using augmented reality English story books can improve the reading culture among students which helps students master the English language.

ABSTRAK

Tujuan kajian ini adalah untuk melihat keberkesanan penggunaan *augmented reality* dalam buku cerita untuk pelajar sekolah rendah dari tahun satu hingga tahun enam. Seramai empat orang pelajar terlibat dalam kajian ini menggunakan kaedah temu bual. Hasil kajian ini menunjukkan bahawa pelajar berminat untuk menggunakan buku cerita yang mempunyai elemen *augmented reality* untuk membaca berbanding dengan membaca buku cerita yang biasa digunakan di sekolah. Di samping itu, persepsi pelajar terhadap buku cerita bahasa Inggeris yang mempunyai elemen *augmented reality* adalah baik dan sangat berguna untuk memahami jalan cerita semasa membaca kerana watak-watak yang digunakan dalam buku itu akan dipaparkan dalam bentuk 3D melalui aplikasi *augmented reality*. Kesimpulannya, dengan menggunakan buku cerita bahasa Inggeris *augmented reality* dapat meningkatkan budaya membaca dalam kalangan pelajar yang membantu pelajar menguasai bahasa Inggeris.

TABLE OF CONTENTS

	TITLE	PAGE
	DECLARATION	iii
	DEDICATION	iv
	ACKNOWLEDGEMENT	v
	ABSTRACT	vi
	ABSTRAK	vii
	TABLE OF CONTENTS	viii
	LIST OF TABLES	xiii
	LIST OF FIGURES	xiv
	LIST OF ABBREVIATIONS	xvi
	LIST OF SYMBOLS	xvii
	LIST OF APPENDICES	xviii
CHAPTER 1	INTRODUCTION	1
1.1	Introduction	1
1.2	Background of study	2
1.2.1	Augmented reality issue	2
1.2.2	Augmented reality in designing language books	3
1.3	Problem Statement	4
1.4	Research Objectives	5
1.5	Research Question	5
1.6	Conceptual Framework	6
1.6.1	Interactive of reading children's storybook	6
1.6.2	Augmented reality storybook	6
1.6.3	The implementation of AR in storybook	7
1.7	Scope and Limitations of the Study	7
1.8	Importance of study	8
1.8.1	Students	8

1.8.2	Teachers	8
1.8.3	Ministry of Education	9
1.9	Definition of Terms and Operations	9
1.9.1	Mobile Application	10
1.9.2	Mobile learning	10
1.9.3	Storybook	11
1.9.4	Augmented Reality	12
1.10	Summary	13
CHAPTER 2	LITERATURE REVIEW	15
2.1	Introduction	15
2.2	Augmented Reality	15
2.2.1	Concept of Augmented Reality	16
2.2.2	Hardware	17
2.2.3	Computer software	17
2.2.4	Software used for the project	17
2.3	Types of Augmented Reality	18
2.3.1	Marker-based AR	18
2.3.2	Marker-less AR	19
2.4	Device use in augmented reality	21
2.5	Augmented Reality Application	22
2.5.1	Medical application	22
2.5.2	Games	24
2.5.3	Education	26
2.6	Current Mobile Apps of Augmented Reality on Reading storybook	28
2.6.1	Animal Kingdom Education Book	28
2.6.2	An elephant in our garden	29
2.6.3	Sleep Sweet	29
2.6.4	Rocks In My Socks: Children's Story Book with 3D Augmented Reality Activities	30
2.6.5	Tagme3D: Augmented Reality Books	31
2.7	Storytelling in children education	31

2.8	Reading in Primary school Education	32
	2.8.1 The Importance of Reading	33
2.9	Augmented Reality for Primary school	33
	2.9.1 Importance of reading Augmented Reality storybook for primary school education at Malaysia	34
2.10	Summary	36
CHAPTER 3 RESEARCH METHODOLOGY		37
3.1	Introduction	37
3.2	Research Procedure	37
3.3	Research Design	38
3.4	Research Instrument	38
	3.4.1 Pre-test question and post-test question evaluation	39
	3.4.1.1 Pre-Test question	39
	3.4.1.2 Post-Test Question	40
3.5	Data collection procedure	41
3.6	Validity of Study Instruments	43
	3.6.1 Validation of Pre and Post Assessment Test Questions	44
	3.6.1.1 Augmented reality expert validation	44
	3.6.1.2 English teacher validation	44
3.7	Data analysis	45
3.8	Summary	47
CHAPTER 4 DEVELOPMENT		48
4.1	Introduction	48
4.2	Storyboard Design	48
4.3	Project Development Method	55
	4.3.1 Requirement planning phase	55
	4.3.2 User design phase	56
	4.3.3 Construction phase	56
	4.3.4 Cutover Phase	56

4.4	Storybook Design	57
4.5	Character Development	58
4.6	System Development	60
4.7	System description	61
4.8	The Architectural square graph of the created AR above shows the accompanying significant parts:	62
4.9	Steps of development in UNITE AR	64
4.10	Implementation of the application	67
4.11	AR Children's Book in Use	68
4.12	Summary	69
CHAPTER 5	RESULT OF THE STUDY	71
5.1	Introduction	71
5.2	What are the effectiveness of the using an Augmented Reality English storybook as a teaching material in reading session of English subject?	71
5.3	What are the student's perception on reading Augmented Reality English storybook?	72
5.4	What are the teacher's perception on using Augmented Reality English storybook for primary school children in classroom?	72
5.5	What are the effectiveness of the reading Augmented Reality storybook compare to traditional storybook?	72
5.6	Summary	73
CHAPTER 6	CONCLUSION	74
6.1	Introduction	74
6.2	What are the effectiveness of the using an Augmented Reality English storybook as a teaching material in reading session of English subject?	74
6.3	What are the children's perception on reading Augmented Reality English storybook?	75
6.4	What are the teacher's perception on using Augmented Reality English storybook for primary school children in classroom?	76
6.5	What are the effectiveness of the reading Augmented Reality storybook compare to traditional storybook?	76

6.6	Future study	77
6.7	Problem and limitation	78
6.8	Conclusion	78
6.9	Summary	78
REFERENCE		80

LIST OF TABLES

TABLE NO.	TITLE	PAGE
Table 2.1	Device use in augmented reality	22
Table 3.1	Data analysis	47

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
Figure 1.1	The implementation of AR	7
Figure 2.1	Flow of Augmented Reality Works	16
Figure 2.2	Marker - based AR example	19
Figure 2.3	Marker less AR Based	20
Figure 2.4	AR using Desktop	21
Figure 2.5	AR using Head Mounted Devices	21
Figure 2.6	AR using Mobile Devices	21
Figure 2.7	AR Googles Glasses	22
Figure 2.8	AR Contact Lens	22
Figure 2.9	AR in Medical Application	23
Figure 2.10	Eye Decide App	24
Figure 2.11	Example of AR in Medical Learning	24
Figure 2.12	Google's ingress	25
Figure 2.13	Table Ice Hockey	26
Figure 2.14	Kinect Game	26
Figure 2.15	AR in Education	27
Figure 2.16	Animal Kingdom Education Book	28
Figure 2.17	An Elephant in our Garden	29
Figure 2.18	Sleep Sweet Paperback	29
Figure 2.19	Rocks In My Socks	30
Figure 2.20	Tagme3D: Augmented Reality Book 1	31
Figure 2.21	Reading in Preschool Education	32
Figure 3.1	The research procedure	37
Figure 3.2	Pre-test question	39
Figure 3.3	Post-test question	40
Figure 4.1	Front-page storyboard design	48
Figure 4.2	Storyboard design page 1	49
Figure 4.3	Storyboard design page 2	49
Figure 4.4	Storyboard design page 3	50

Figure 4.5	Storyboard design page 4	50
Figure 4.6	Storyboard design page 5	51
Figure 4.7	Storyboard design page 6	51
Figure 4.8	Storyboard design page 7	52
Figure 4.9	Storyboard design page 8	52
Figure 4.10	Storyboard design page 9	53
Figure 4.11	Shows storyboard design page 10	53
Figure 4.12	Storyboard design page 11	54
Figure 4.13	Storyboard design page 12	54
Figure 4.14	Rapid Application Development	55
Figure 4.15	The story writing process in Power Point	57
Figure 4.16	Peter character in Mixamo application	58
Figure 4.17	Process editing Peter character in Blender application	59
Figure 4.18	Teddy character in Mixamo application	59
Figure 4.19	Process of editing Teddy character in Blender	60
Figure 4.20	Tools development of augmented reality	60
Figure 4.21	The working principle of how Marker-based AR	62
Figure 4.22	The flowchart of augmented reality	63
Figure 4.23	Step 1 of creating augmented reality	64
Figure 4.24	Step 2 of creating augmented reality	64
Figure 4.25	Step 3 of creating augmented reality	65
Figure 4.26	Step 4 of creating augmented reality	65
Figure 4.27	Step 5 of creating augmented reality	66
Figure 4.28	Step 6 of creating augmented reality	66
Figure 4.29	Step 7 of creating augmented reality	67
Figure 4.30	The front Page of Peter and Teddy storybook	67
Figure 4.31	The augmented reality Peter and Teddy storybook	69

LIST OF ABBREVIATIONS

AR - Augmented Reality

LIST OF SYMBOLS

& - And

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
Appendix A	Pre-Test Questions for Children	80
Appendix B	Post-Test Questions for Children	84
Appendix C	Interview Session Pictures	88
Appendix D	Comments and Suggestion by Lecturer	89
Appendix E	Comments and Suggestion by Lecturer	90
Appendix F	Comments and Suggestion by Teacher	91
Appendix G	Comments and Suggestion by Teachers	92
Appendix H	Peter & Teddy Storybook	93

CHAPTER 1

INTRODUCTION

1.1 Introduction

Augmented Reality (AR) is a promising innovation where by the virtual data can see existing together with the genuine climate. These exceptional highlights could be utilized to upgrade an actual storybook by expanding the book pages with the designs, activity and sound. Incorporating AR idea into an actual book will change over to a story adding experience to a dynamic, fun and fascinating perusing experience for the Primary younger students. As indicated by (Cheng, 2017) AR permits client to connect with the actual book using markers, subsequently presenting another learning experience that is persuading, drawing in and fun.

Meaning of Augmented reality allows the eye to see this present reality with virtual articles as its part. These virtual items can compound with this present reality or superimposed upon it. Then, at that point, as indicated by (Gudinavičius and Markelevičiūtė, 2020) AR supplements the truth, virtual and genuine items appear to the client existing in a similar space. Increased Reality works on the view of this present reality and client's association with it.

An augmented reality (AR) English storybook for elementary younger students matured from seven until twelve years of age and on upgrade under distinguishing its potential benefits to further develop kids' understanding ability and better agreement when perusing the storybook. AR is a cutting edge innovation, which these days applied in various circles for instance, driving, games, books. As indicated by (Rasalingam, Muniandy, and Rasalingam, 2014) AR books among others are utilized in training, and by individuals of various ages. Additionally, AR storybooks accommodating for educator as a showing material in study hall for perusing interview in class.

Further, the fundamental factor to advance scholarly execution and learning English through perusing English storybook. This could imply that if the utilization of AR English storybooks in elementary school training could add to a higher commitment and inspiration in perusing English storybook, it could simultaneously prompt better learning results. I accept that if the utilization of AR innovation in English storybooks can decidedly influence commitment and inspiration of the picked crowd it in its turn may prompt a superior view of data and further develop students' understanding expertise.

1.2 Background of study

This augmented reality English storybook develop for primary school children. The issues and background of augmented reality has been discuss in subtopic below.

1.2.1 Augmented reality issue

Language licenses people to pass on. Among them, English has set up an expansion between people. Believe it or not, English is the more typically used overall standard language. For whatever timeframe that you have a respectable request of English, it won't be an issue to get by in this genuine society. By the by, English has reliably been the opening that kids can't fill. In their eyes, English will reliably be an inconvenient issue. This has also made various gatekeepers start focusing. As per (Izzaty, Tolle, Dermawi, and Permana, 2019) issue face by youngsters in learning English like absence of certainty, kids don't try to communicate in English, less to no English establishment that outcomes in unsuitable grades, unfit to speak with others in English, ready to understand English however can't peruse English articles, remember English words yet failing to remember them in a couple of days, absence of premium in English and thick emphasize when communicating in English.

Youngsters who might as of now have the option to examine in their home language generally need to find how to scrutinize in English. They unquestionably acknowledge how to translate words in their home language to get significance from

text and, if not helped with deciphering in English, may move their home language-unwinding techniques and end up scrutinizing English with the home language feature. Before they can unravel English, little children need to understand the 26 letters all together letter names and sounds. As English has 26 letters in any case on ordinary 44 sounds (in Standard English), introducing the remainder of the sounds is better left until youths have greater inclusion with using language and examining.

Beginning examining in English goes adequately if youngsters certainly know the language, they are endeavoring to scrutinize. Various children end up being without any other individual how to scrutinize in English if they have shared picture books with adults or learned rhymes, as they are presumably going to have recollected the language. Examining what they know inside and out is a critical development in sorting out some way to scrutinize as it allows young people opportunities to end up being the means by which to translate clear words without any other individual. As indicated by (A, 2017) when young people have fostered a bank of words they can scrutinize, they feel certain and are then ready for a dynamically coordinated approach.

1.2.2 Augmented reality in designing language books

Elementary younger students experience issues perusing and getting to the miracles of books on the grounds that most storybooks are less alluring. This causes youngsters to feel exhausted when perusing a storybook and accordingly, no interest has displayed in perusing. For an occurrence, youngsters favor books with illustrations, which make them alluring when perusing. Besides, pictures that identified with the content, fill in as a guide for the kids to comprehend the significance and setting of the story. They help in holding kids' consideration and the enormous vivid pictures would certainly interest youngsters' advantage. As per (Akubuilu, 2015) youngsters found that perusing in conventional way is dull and exhausting while there are such countless excitements out there which is substantially more fun than perusing. The present kids go through hours caught under subordinate interruptions such a TV, PCs, and related innovations designated to kids. It then, at that point gets basic to stir perusing society among the kids who are looking with contending relaxation time decisions. To forestall this issue, Preschool instructors should present increased reality English storybook for understudy to peruse during the exercise. This is on the grounds that, kids favor

innovation arranged storybook, which keep them from feeling exhausting. What's more, AR books in pre-school training could add to a higher commitment and inspiration, it could simultaneously prompt better learning results. I accept that if the utilization of AR innovation is executed in books, it can decidedly influence commitment and inspiration for kids to peruse English storybook.

1.3 Problem Statement

According to (Alkhatabi, 2017), kids nowadays hard to pay attention on learning. This is because, children feel boring when teachers using traditional method always during their classroom session. To prevent this problem the teachers, have to come up with ideas, which attract children's to pay attention on their classroom session. For an instance, in reading session teachers maybe can use augmented reality English storybook to attract children. With use of technology in reading storybook children can explore more and feel excited to reading. Accordingly, students had more interest in experiencing the possibility of AR technology for enhancing their learning. According to, (Gudinavičius & Markelevičiūtė, 2020) the new way of interaction resulting from connecting book content and digital information is likely more attractive for the students. In addition, the students also responded with strong motivation when reading the AR book, especially in the dimension of attention. Finally, this kind of implementation help them to focus more on the learning session.

According to (Ismail and Yusof, 2018), In this time perusing storybook has been the most un-most loved side interest to kids here in Malaysia. This can make kids have or to show less interest on perusing English storybook and by this, it makes lesser storybook be distributed in Malaysia. To defeat this issue, the Government can think of thoughts, which will stand out for children or interest on perusing storybooks to work on their language and understanding expertise. For an occasion, government can execute understanding interview and make it a necessary for Primary younger students. Along these lines, instructors will zero in additional on perusing and could never avoid this interview and furthermore as opposed to giving activities and worksheets. In addition, educators can utilize this increased reality English storybook to spur kids to peruse. In a manner it by one way or another draws in them to have this diversion. students' will have considerably more premium in encountering the chance of AR

innovation for upgrading their learning climate. At the end of the day, the better approach for cooperation coming about because of associating book content and computerized data is reasonable more appealing for the understudies. What's more, as indicated by (Cheng, 2017) the understudies additionally reacted with solid inspiration when perusing the AR book, particularly in the component of consideration. At long last, with the execution of AR English storybook, it improves youngsters' commitment on understanding storybook and to give better comprehension for kids when they read a storybook.

1.4 Research Objectives

- a. To develop an Augmented Reality English storybook for primary school children.
- b. To examine the effectiveness of using an Augmented Reality English storybook as a teaching material in reading session of English subject.
- c. To identify students perception on reading Augmented Reality English storybook.
- d. To identify teacher's perception on using Augmented Reality English storybook for primary school children in classroom.
- e. To investigate the effectiveness of reading Augmented Reality storybook compare to traditional storybook.

1.5 Research Question

- a. What are the effectiveness of the using an Augmented Reality English storybook as a teaching material in reading session of English subject?
- b. What are the children's perception on reading Augmented Reality English storybook?
- c. What are the teacher's perception on using Augmented Reality English storybook for primary school children in classroom?

d. What are the effectiveness of the reading Augmented Reality storybook compare to traditional storybook?

1.6 Conceptual Framework

This conceptual structure will manage the most significant parts of perusing increased reality English storybook for elementary younger students. This sub theme will examine about Interactive of perusing youngsters' storybook, increased reality storybook and clarify its methods of its execution.

1.6.1 Interactive of reading children's storybook

Perusing English storybook further develop kids' understanding abilities. Storybook is one of the method of learning. Perusing is significant for getting information and data for youngsters. Concurring to(Inderjit, 2014), learning English as a second or unknown dialect for youngsters, affirms that perusing is the main expertise to dominate. For example, in this examination, Peter and Teddy storybook likewise assist with further developing perusing ability for kids when they read the storybooks.

1.6.2 Augmented reality storybook

AR books have improved the idea of books by establishing intuitive climate that joins movement, 3D designs, and reenactment. AR books additionally have increased actual paper books with 3D items, video, voice, and sight and sound components created by PC illustrations utilizing AR innovation. As per (Park, 2009), AR books are captivating, along these lines inciting perusers' inspiration and inundation. A wide assortment of AR books goes from those, which empower perusers to just notice the increased 3D items to those, which expect perusers to effectively communicate with the books.

1.6.3 The implementation of AR in storybook

The idea of AR can be effectively characterized through the blended reality continuum. AR is blended reality that is nearer to the genuine climate. AR permits clients more drenching and presence via flawlessly combining the virtual climate and the genuine climate. As indicated by (Milgram and Kishino, 1994), Mixed Reality Continuum AR offers a practical encounter because of its multi-tangible 3D models and momentary interface, which permit clients consistent communication between the genuine and virtual universes and items.

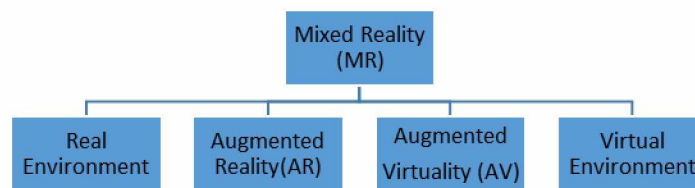


Figure 1.1 The implementation of AR

1.7 Scope and Limitations of the Study

This study will be talk about the augmented reality English storybook. The target audience of this study from age seven to twelve. The total respondent of this study is four children. This storybook title as Peter and Teddy. This storybook theme is friendship and healthy life style. From reading this storybook children able to learn about the value of friendship and tips to be healthy. Moreover, reading storybook can improve children's reading skill and their vocabulary. Augmented reality in this storybook make children feel the realism of story when children read this Peter and Teddy storybook. The 3D model character in this story using as augmented reality so, student can see the action of the character for each page along with the audio. Finally, after complete this augmented reality English storybook for primary school children, then bring this storybook to children for observation. The observation has been done with pre-test question and post-test question with children. From this researcher able to know the perception of children towards this augmented reality English storybook. Lastly, this augmented reality English storybook attract children to read more storybook and the augmented reality use in this storybook should be related to the story and children able to read easily.

1.8 Importance of study

This study helps children to make them read storybook with the application of augmented reality. This augmented reality helps children understand the story with the support audio and 3D motion character. This way they are more exposed on the use of technology which gives the better benefits than just watching videos on You tube which have been the most used way by parents in this era. The findings in this study helps to show in the existence of augmented reality and when it is being applied in storybook, specifically in children's book, in a way to prove there are better options in making education for children much more fun then it use to be.

1.8.1 Students

For children, learning materials that might be gotten to whenever and from any area. Duplicates, for example, paper reading material, actual models, banners, and composed manuals may all be supplanted with expanded reality. The purpose for this is that it gives learning assets that are both versatile and reasonable. Thusly, the instruction turns out to be more available and versatile accordingly.

In addition, there is no need for any specific equipment. Unlike virtual reality, augmented reality does not necessitate the purchase of pricey hardware. Because it is proven that all parents own a smartphone therefore, AR technologies are immediately accessible to the bulk of the target population.

Third adds up to another advantage as it is able to increase children's attention and involvement. AR learning that is interactive and can have a big positive impact on the education system today. It keeps them interested throughout their learning session and encourages them to ask questions as a part of the learning process.

1.8.2 Teachers

As for with teachers, this sure to be a much better way to include in the education system. According to English teacher in an international school here in Malaysia stated

“If this way of education was introduced and are used, it shall be a much better way to start to introduce technology to students”. However, there is a deficiency of necessary training. Some teachers may find it difficult to implement these new technology since their prior training lacks the requisite skills. Only the most open-minded teachers and forward-thinking educational institutions are willing to use augmented reality apps in the classroom, therefore a proper training and efforts should be taken in order for teacher’s to get more into this technology.

1.8.3 Ministry of Education

To advance the measure of perusers development in elementary school the service of instruction can execute numerous perspectives for perusers. As indicated by the newhouse (2002) reports that ICT is a middle person of learning in the multi segments learning conditions and ICT have been displayed to help understudies and educators in further developing learning results. The Ministry had created an assortment of educating and taking in materials going from sound CD, video CDs, intelligent CD ROMs, electronic interactive media substance and furthermore by giving great admittance to web based instructing and learning materials. This have been expressed as the idea for the utilization of innovation among grade younger students. Additionally, one could have enjoy better benefit with the utilization of innovation to acquire understanding experience. Moreover, currently the new technology that can use in school like augmented reality for teaching and learning. In this case, ministry of education should encourage school to use augmented reality English storybook for primary school children by teachers for their reading session in classroom.

1.9 Definition of Terms and Operations

Itemized clarification of the specialized terms and estimations utilized during information assortment. This is done to normalize the information. At whatever point information is being gathered, it is important to unmistakably characterize how to gather the information.

1.9.1 Mobile Application

A portable application, most generally alluded to as an application, is a sort of use programming intended to run on a cell phone, for example, a cell phone or tablet PC. Versatile applications habitually serve to give clients comparative administrations to those got to on PCs. Applications are for the most part little, singular programming units with restricted capacity. This utilization of application programming was initially promoted by Apple Inc. also, its App Store, which offers a huge number of utilizations for the iPhone, iPad and iPod Touch. A portable application likewise might be known as an application, web application, online application, iPhone application or cell phone application.

In this study, mobile application that use to develop augmented reality features in this Peter and Teddy storybook is Unite AR application which can get from playstore. Researcher has been develop the 3D model character with animation and upload in Unite AR application to develop the augmented reality features in the storybook. After upload user render animation with the audio and put the QR code in the storybook to scan by the user.

1.9.2 Mobile learning

M-learning or portable learning will be "learning across numerous specific situations, through friendly and content communications, utilizing individual electronic gadgets". A type of distance schooling, m-students utilize cell phone instructive innovation at their helpful time.

In this research, Peter and Teddy storybook need mobile devices to see the augmented reality. For instance, parents should give mobile phone to children to scan the QR code on each page through Unite AR application. Then, through the mobile phone, children can see the augmented reality 3D animation character on the mobile phone screen.

1.9.3 Storybook

Storybook is a source of happiness which is shared everywhere around the world. Globally there are many writers who spend time writing beautifully, interesting, imaginative story books which brings us to a point in our life where we could never imagine enough. There are many kinds of genres for every age group starting from toddlers, to adults. Each book has its own content of suitability for the specific readers. This counts in the words usage (vocabulary) the type of storyline and also if its involve pictures or non picture. For an example, if its were to be a novel, the pages goes up to 100 and above. The ideas behind every storybook could be from a documentary of a real life tale, fairy tale like which comes from fables across the world and some even comes from imagination from writers themselves, not to forget movie inspired types of books which being brought up by writers from a certain type of movies. The author of every storybook has their own reason and dedication towards the book they write. This study is about the storybooks for children specifically at the primary range. The storybook written have its very own moral values and theme which somehow get to allow children to use it and surely to learn for their own benefit. An example of a book very close to my heart is ‘ The baby monkey who wants the sun’. This story is about how the mother monkey does everything what the baby monkey wants and never deny anything. It teaches us that sometimes, listening to our mom and dad is very important. This simple message could lead to a huge difference in children life. The same way, the storybook written here is about friendship which will be teaching children on the kind gestures and the little playfulness and happiness that you could share with someone.

In this research, researcher select action and adventure genre to write the storybook. Researcher title the storybook Peter and Teddy and this storybook mainly for primary school children. The storyline is about Children sports, Health lifestyle, love and care. This storybook have two main character which is Peter and Teddy. Reason why this theme is chosen and how they can benefit from this is children these days have seen to be minimizing the time of their physical play. Children are sitting around a lot more than they used to. They spend hours every day in front of a screen (TVs, smartphones, tablets, and other devices) looking at a variety of media (TV shows, videos, movies, games). Too much screen time and not enough physical

activity add to the problem of childhood obesity. Therefore if parents buy them books as such it will give them an idea of doing what the book character told them to do. This indirectly helps them to live a healthier life by reducing the screen time, maximizing reading habits and also increasing a healthy life by moving around.

Besides that, Children needs to learn the true meaning of love. Love comes on many form. Here we show children it is important to also love your friends as they are a part of their life. This way, children will learn the importance of helping and caring. Children should be exposed to such environment, that way they learn fast and it teaches them to protect what they love. The existence of friends in one's life teaches us some of the many things that is essential in life. Values such as helping one another, taking good care of them, communicating together about random things are things that are pretty much needed. Therefore love and care for a friend should be taught to your children.

1.9.4 Augmented Reality

Augmented reality (AR) is an innovation that improves client discernment and experience, and permits clients to see and experience this present reality with virtual substance inserted into it. The greater part of examination identified with AR books has been zeroing in on working on hidden innovation instead of investigating regions inside the examination field of human-computer connection (HCI).

In this Peter and Teddy storybook, the augmented reality apply on Peter and Teddy character. In this process, 3D model character animation has been created using mixamo application. After that, upload in Unite AR application to the create augmented reality features in the storybook. Children can see the character animation according to the storyline via the augmented reality. Children can see the real world of story when use augmented reality and the augmented reality character display in mobile phone screen.

1.10 Summary

Augmented reality began as an amusement instrument. In any case, in the present homeroom climate alongside new students has changed the sort of informative devices that can be utilized in instruction. In general, the fate of AR in instruction is brilliant. The design of these sorts of utilizations gives special learning conditions that can address the issues of various learning styles. They are ruling as informative devices in the instructive setting. An audit of the writing gave proof that upheld the utilization of AR in study halls. While the facts might demonstrate that AR won't ever supplant this present reality climate, the encounters understudies can acquire, or the information they will grow, the present students are more open to new advances with new, improved freedoms given by new gadgets and quick Internet speeds. There is a need to think about AR in instruction.

REFERENCE

- AHMED LOQMAN MUSTAFA ALYOUSIFY. (2019). AUGMENTED REALITY CHILDREN'S BOOK.
- Alberto, G., & Pineda, M. (2016). STORYBOOK READING AS A STRATEGY TO PROMOTE VOCABULARY TO.
- Alkhatabi, M. (2017). Augmented reality as e-learning tool in primary schools' education: Barriers to teachers' adoption. *International Journal of Emerging Technologies in Learning*, 12(2), 91–100. <https://doi.org/10.3991/ijet.v12i02.6158>
- Almoosa, A. S. (2019). A qualitative case study in augmented reality applications in education: Dimensions of strategic implementation. *Dissertation Abstracts International Section A: Humanities and Social Sciences*, 80(1-A(E)). Retrieved from <http://ezproxy.library.ubc.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2018-52505-023&login.asp&site=ehost-live&scope=site>
- Eiksund, O. (2012). Children's Interaction with Augmented Reality Storybooks.
- Gudinavičius, A., & Markelevičiūtė, G. (2020). Using Augmented Reality in Book Publishing from a Small Language Market Perspective. *Publishing Research Quarterly*, 36(1), 43–54. <https://doi.org/10.1007/s12109-019-09704-1>
- Ibáñez, M. B., Uriarte Portillo, A., Zatarain Cabada, R., & Barrón, M. L. (2020). Impact of augmented reality technology on academic achievement and motivation of students from public and private Mexican schools. A case study in a middle-school geometry course. *Computers and Education*, 145(May 2019). <https://doi.org/10.1016/j.compedu.2019.103734>
- Inderjit, S. (2014). Reading Trends and Improving Reading Skills among Students in Malaysia. *International Journal of Research In Social Sciences*, 3(5), 70–81. Retrieved from http://www.ijsk.org/uploads/3/1/1/7/3117743/6_reading_skills.pdf
- Lim, C., & Park, T. (2013). Exploring the Educational Use of an Augmented Reality Books. *ProQuest LLC*, 172–182.

- Masmuzidin, M. Z., Azah, N., & Aziz, A. (2018). THE CURRENT TRENDS OF AUGMENTED, *10*(6), 47–58. <https://doi.org/10.5121/ijma.2018.10605>
- Nafizah. (2020). Presenting a History of Malacca Name Using Augmented Reality (Informatics Media) With Honours.
- Parhizkar, B., Shin, T. A. N. Y. I., Lashkari, A. H., & Nian, Y. A. P. S. (2011). Augmented Reality Children Storybook (ARCS). *2011 International Conference on Future Information Technology*, *13*(January 2011), 1–4.