

CHAPTER II

REVIEW OF RELATED LITERATURE

2.1 Augmented Reality

Augmented Reality (AR) offers us a new way to interact with the physical (or real) world. This connection is managed by an advanced mobile device, which enables integration with software that adds virtual components (i.e. messages, information) to real images and in real time (Javier Fombona Cadavieco, 2012). Augmented Reality is both interactive and registered in 3D as well as combines real and virtual objects (Furht, 2011). And Augmented Reality is creating a modified version of our reality, enriched with digital (or virtual) information, on the screen of your desktop computer or mobile device (Grasset, 2013). Augmented Reality (AR) is a technology that allows interactive three-dimensional virtual imagery to be overlaid on the real world. Applications of Augmented Reality have been employed in many domains such as education, engineering and entertainment.

AR mobile systems involve the use of wearable mobile interfaces for the user to interact with digital information overlapped on physical objects or surfaces in a natural and socially acceptable way (Furht, 2011). Nowadays most mobile phone are equipped with cameras making mobile phones one of the most convenient platforms on which to implement augmented reality. In order to deliver mobile phones as platforms for implement augmented reality there are several core piece of technology that must be used, including :

- a. Mobile Processor: Central Processing Unit (CPU) for processing user input, video images and running any application simulations.
- b. Graphics Hardware: Graphical Processing Unit (GPU) system for generating virtual images.
- c. Camera: Camera hardware for capturing live video images, to be used for AR tracking and/or for overlaying virtual imagery onto the video images.
- d. Display Hardware: Either a handheld, head mounted, or projected display used to combine virtual images with images of the real world, creating the AR view.

There are 2 major trends of the usage of AR those are optical see-through (OST) and Video see-through (VST) technology.

Optical see-through (OST):

The idea is to still see the real world through a semi-transparent screen and project some virtual content on the screen and the merging of the real and virtual worlds does not happen on the computer screen, but directly on the retina of your eye (Grasset, 2013), as depicted in the following figure:

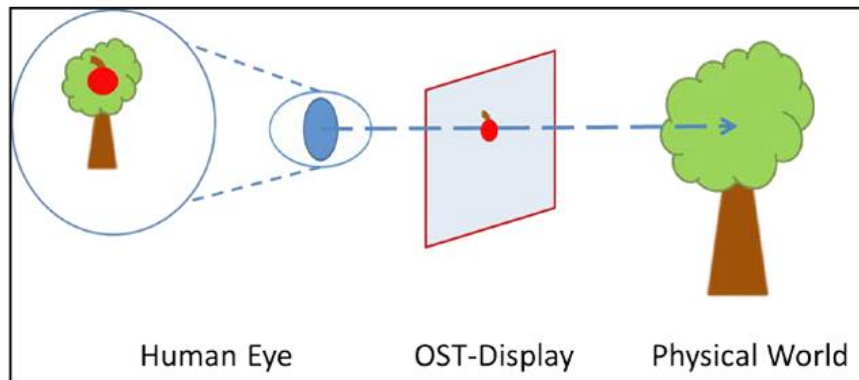


Figure 2.1 Optical see through

Video see-through (VST)

The video image is mixed with some virtual content (as in a movie) and sent back to some standard display, such as desktop screen on mobile phone (Grasset, 2013), as the following figure:

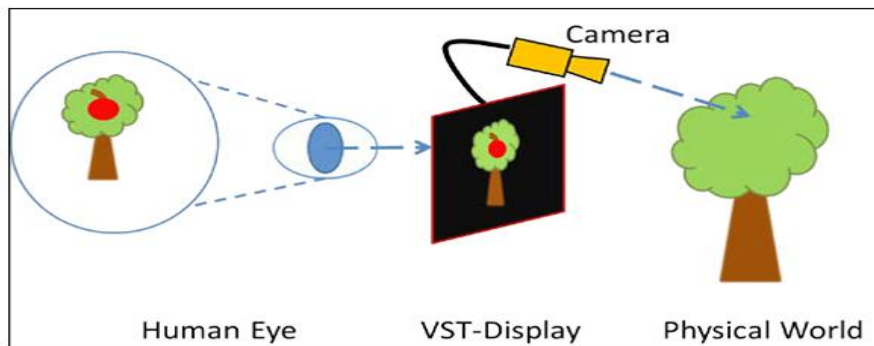


Figure 2.2 video see-through

- e. Networking: Wireless or cellular networking support that will allow the mobile device to connect to remote data sources.
- f. Sensor Hardware (optional): Additional GPS, compass that can be used to specify the user's position or orientation in the real world.

2.2 MALL (Mobile Assisted Language Learning)

In the digital era like nowadays the using of Mobile Assisted Language Learning (MALL) is very helpful in the learning process. Mobile-Assisted Language Learning (MALL) deals with the use of mobile technology in language learning. As with other forms of technology, mobile assisted language learning (MALL) is a branch of technology-enhanced learning which can be implemented in numerous forms including face-to face, distant or on-line modes. It is certainly concerned with learner mobility, in the sense that learners should be able to engage in educational activities without the constraints of having to do so in a tightly delimited physical location (Kulkulka-Hulme, 2005). Especially in the digital era like today, study doesn't have to be done in class or while lessons only. Now we read books do not have through from the library. Now learning process doesn't have to be a teacher to teach in the classroom. Because in digital era, we can easily obtain knowledge. At the moment learning resources such as books, knowledge and the arrival of the teacher can be facilitated with the help of digital technology.

E-learning can mean many things to many people and at its core simply means electronically supported learning, which can be online, on desktop computer, or even on mobile device. In practice e-learning often means delivery of information and content to learners through accompanied by image, audio, and video.

Collaboration between the using of mobile devices in teaching and learning process is very effective because the applications in mobile devices currently supported in learning process. Mobile device also offer the opportunity to move beyond current ideas of teaching and learning, and to devise new methods, practices and formats that draw on their unique technical characteristics (Traxler, 2005).

The principles of Universal Design have been used as tools for discussion of the range of factors involved the accessibility of mobile learning devices. These principles of Universal Design are must be equitable use, flexibility in use, simple and intuitive use, perceptible information, tolerance for error, low physical effort and size and space for approach and use (Rainger, 2005).

The design of mobile learning device must be equitable to use. The design must be useful and marketable to people with diverse abilities. For example, the learning content must be such that older students, students with disabilities and students with English as a second language could all use it. Also the design must be flexibility in use, The design must accommodate a wide range of individual preferences and abilities. An example would be content that allows a student to choose different text sizes.

Simple and Intuitive Use, the design must be easy to understand, regardless of the student's experience, knowledge, language skills or current concentration level. An example of this principle would be clear and intuitive control buttons and on-screen icons. And also Perceptible Information, The design must communicate necessary information effectively to the student, regardless of ambient conditions or the student's sensory abilities. An example of this principle would be a text-based description provided for all videos or animations.

Tolerance for Error, The design must minimize hazards and the adverse consequences of accidental or unintended actions. An example would be asking the student to confirm all file deletions. Low Physical Effort, The design must be used efficiently and comfortably, and with a minimum of fatigue. An example would be the control of an application using the hardware or software buttons alone. And the size and space for approach and use, appropriate size and space must be provided for approach, reach, manipulation, and use regardless of the student's body size, posture, or mobility. An example would be a mobile device that can be operated comfortably with one hand.

2.3 Cooperative learning

Cooperative Learning is children learning together in groups, which are structured so that group members have to cooperate to succeed (World Education, 2009). Cooperative learning is a time for, as the name suggests, students to learn together (Kagan D. K., 2009). Students can adopt cooperative learning through a process that involves working together in groups, developing a product at the end and examining both the product and cooperative learning skills. Students learn and solve the problems together in a group. In cooperative learning students learn to share information, helps students to consider other's people's point of view and shows their critical thinking ability.

From Traditional learning to cooperative Learning (Kagan D. K., 2009) :

From..	→	To.....
“ A good class is a quite class”	→	“ Learning involves healthy noise”
“Keep your eyes on your paper”	→	“Help your partner solve it”
“Sit quietly”	→	“Get up and look what others did”
“alking is cheating”	→	“verbalize to learn”

There are some purposes in cooperative learning (World Education, 2009) :

1. More Children actively learning

The method of teacher learning as usual, the teacher is one source of information but in cooperative learning the resources not only from teacher but the group's role have a role. Students are usually only heard, take a note and observe but in cooperative learning for students activity to share information and do the tasks together in a group more develop.

2. Children learn to help one another

In a group each students changing the theirs information and knowledge. They can combine their's ability. In a group each students exchange information on can they can combine their's ability.

3. Child to child learning support

Co-operative Learning provides the opportunity for students who has higher-achieving to help students who are slower learners.

4. Improved motivation through success

Cooperative Learning helps to improve the motivation of many students by offering the opportunity to more students to experience the joy of winning. In classrooms where the students are divided into cooperative teams, each with its high and low a chieving students, the opportunity to succeed is more evenly distributed.

2.4 Teaching Writing

Writing is the most difficult skill and involved highly complex in writing for L2 learners to master (Raimes, 2002). The difficulty lies not only in generating and organizing ideas, but also in translating these ideas into readable text with planning and organizing skills of spelling, punctuation, word choice, and etc. Writing is a powerful means of communicating with diverse audiences in different genres and media (Cooper, 2015).

Writing is not just about putting spoken language down on the page or screen. It is also about composition and construction of texts that can communicate without their author's presence. So it is a more complex and demanding process than reading and consequently harder to learn. Writing is used for a wide variety of purpose it is produced in many different forms (Harmer, 2004).

Because of the nature of the writing process and also because of the need for accuracy in writing, the mental processes that a student goes through when writing differ significantly from the way they approach discussion or other kinds of spoken communication (Harmer, 2004) .

In the context of education, it is also worth remembering that most exams, whether they are testing foreign language abilities or other skills, often rely on the students' writing proficiency in order to measure their knowledge (Harmer, 2004).

The writing proces approach involves the process-steps necessary to produce a good quality final piece of writing (Nunan, 2005). As a teacher of writing need to balance the role of the process and the important of the writing result. There are 5 steps in writing process:

a. Prewrite

The students are given an opportunity to prepare to write and to collect their thoughts and ideas.

b. Write

The students write down all of their ideas.

c. Revise

The initial piece of writing is examined and reworked so that the ideas are logical and flow together.

d. Edit

The students with the help of their teacher and classmate need proofread their work to make sure that there are not any content errors or grammatical or spelling errors.

e. Publish

The writing piece is rewritten in a published or presentable form, in a student-made book, on paper so that it can be displayed or shared.

2.5 Writing Report Text

Report text is a kind of text which describes the way things are, with a reference to a range of natural, manmade and social phenomenon in our environment. Report text has elements: general classification and description. General classification and description part tells about what phenomenon under discussion is. Description part tells about what phenomenon under discussion, is like term of part, qualities and habit or behavior for living and non living things (Wignell, 1994).

There are some language features of report text (English First, 2018). It may be seen below:

2.5.1 Using conditional connectors: Connector aims to connect two clauses, sentences or paragraphs that still have an affinity for time. This is because the report text is the process that is described in runut time and it happens so as to connect a single sentence with the other sentence it needs connector.

2.5.2 Using Simple Present Tense : Because the report text is a description of a headline or current research, then it is necessary to use the present tense.

2.5.3 Using Common Noun : common nouns is referring to the objects mentioned in General (general). This is in accordance with the guidelines of writing a report or report text that requires the authors generalize a problem so the report text will use a common noun in writing.

2.6 Previous Studies

The writer has found three previous studies related to this study. The first was taken from (Ozean, Ozkan, Sahim, 2017), who did the study entitled “The influence of the augmented reality application on students’ performances in Ottoman Turkish reading”. The similarity between this study and researchers’ study is as same as used Augmented Reality app as a media of teaching and learning of English. The differences between this study and the researcher’s study are Ozcan’s study have aimed to determine students’ academic succes

levels and their satisfactions through the use of augmented applications in Ottoman Turkish reading which students have difficulties in learning. This research used class experimental and control to take the data. The concluded from this research, it has been observed that the use of augmented reality in education and training environment has positive contributions to student success and satisfaction. Meanwhile, the researcher used Augmented Reality as a media of learning and teaching for teach writing ability in report text at eleventh grade. The researcher used classroom action research (CAR) to analyse the data. The researcher used two cycles to observe teacher and the students.

The second was taken from (Safar, Al-jafar, Al-Yousefi,2016). Who did the study entitled “The effectiveness of Using Augmented Reality Apps in Teaching the English Alphabet to Kindergarten Children: A Case Study in the State of Kuwait”. This research about analysis of the effectiveness of using augmented reality (AR) applications (apps) as a teaching and learning tool when instructing kindergarten children in the English alphabet in the state of Kuwait. The similarity between this study and researcher’s study is as same as used Augmented Reality app as a media of teaching and learning of English. The differences between this study and the researcher’s study are in this study compared two groups; (a) experimental, taught using AR apps, and (b) control, taught using traditional face-to-face methods. This researchers concludes that (1) there were statistically significant differences between the control group (traditional group) and the experimental group (AR group) in their degrees of interaction with the English alphabet lesson in favor of the experimental group; (2) there were statistically significant differences between the control group and the experimental group in their scores on the English alphabet test in favor of the experimental group; (3) there was a very strong linear relation or correlation between the children’s interaction with the English alphabet lesson and their scores on the English alphabet test in the AR group. The study concludes with relevant proposals and recommendations regarding the implementation of AR technology in education and suggests undertaking further studies on this interesting topic. Meanwhile, the researcher used Augmented Reality as a media of learning and teaching for teach writing ability in report text at eleventh grade in senior high school students.

The third previous study was “language learning via an android augmented reality system” by Pawel Beder, student of school of computing Blekinge Institute of Technology. The similarity between this study and researcher’s study is as same as used Augmented Reality app in language learning. The differences between this study and the researcher’s study are in Pawel’s research about experiment on a vocabulary learning by displaying 3D

objects along with their spelling and providing audio of pronunciation. Participants were divided into an equal control group and test group. The control group learned new vocabulary through classic flashcard while the test group used the previously designed AR language learning tool. The study concludes from performing statistical analysis with student's t-test on gathered data it was discovered that there is a positive improvement in long term recall rate in the AR language learning tool group when compared with the flashcards learning group. Participants also provided feedback about their quality of experience and enthusiasm for new learning methods. Meanwhile, the researcher used Augmented Reality as a media of learning and teaching for teaching writing ability. The researcher used classroom action research (CAR) to analyze the data. The researcher used two cycles to observe teacher and the students. The researcher concluded that there is an improvement between first cycle and second cycle and using AR app as media was effective to improve students' writing ability of the eleventh grade students' at SMK Satya Widya Surabaya. The result of the study was from observation sheet, field note, questionnaire and interview with the teacher. All the research is experimental research, while this research using classroom action research (CAR) for the senior high school student in writing ability.