

# THE EFFECTS OF GOOGLE EXPEDITIONS APPLICATION (VR) ON PRIMARY STUDENT'S DESCRIPTIVE WRITING

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UNIVERSITI PENDIDIKAN SULTAN IDRIS

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THE EFFECTS OF GOOGLE EXPEDITIONS APPLICATION (VR) ON PRIMARY  
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## ABSTRACT

Today numerous innovations have been experienced in the field of technology. These innovations progressively incorporated into education environment. Virtual reality is among the innovation that has been the buzzword among educators and learners over the past few years. The purpose of this research was to explore the use of *Google Expeditions* virtual reality application to enhance English learner's descriptive writing abilities among primary students. A quantitative research method was used in this study. Quasi experimental research design was preferred in this study. A total of 60 participants of Year 4 pupils were selected according to the study purpose. 30 pupils used *Google Expeditions* (VR) application while 30 pupils used static pictures and textbook. Data was collected using results of pre and post tests and analysed using SPSS. Independent and paired sample t-tests were used to compare student's achievement scores among both groups. The independent t-test statistics report that there is a significant difference in the post test scores between the experimental and control group where the report presents the followings: ( $t=4.526$ ,  $df=58$ ,  $p<.05$ ). Also, questionnaire was administered to 30 pupils in the experimental group to obtain their perceptions and feedbacks towards the use of *Google Expeditions* (VR) application. According to the study results from the questionnaire, it was concluded that *Google Expeditions* virtual reality application was liked and beneficial to the participants. The findings from this study can be used as basis for future studies in the field of virtual reality learning by teachers of all language proficiency.



## PENGGUNAAN APLIKASI *GOOGLE EXPEDITIONS* UNTUK MENULIS DALAM KALANGAN MURID SEKOLAH RENDAH

### ABSTRAK

Dewasa ini, banyak inovasi telah dialami dalam bidang teknologi. Inovasi ini telah berkembang secara progresif ke dalam bidang pendidikan. Realiti maya adalah antara inovasi yang menjadi kata kunci dalam kalangan pendidik dan pelajar sejak beberapa tahun kebelakangan ini. Tujuan penyelidikan ini adalah untuk meneroka penggunaan aplikasi realiti maya *Google Expeditions* untuk meningkatkan penulisan deskriptif pelajar dalam kalangan pelajar sekolah rendah. Kaedah penyelidikan kuantitatif digunakan dalam kajian ini. Reka bentuk penyelidikan eksperimental separa lebih digemari dalam kajian ini. Seramai 60 orang murid Tahun 4 dipilih mengikut tujuan kajian. 30 murid menggunakan aplikasi *Google Expeditions* (VR) manakala 30 murid menggunakan gambar statik dan buku teks. Data dikumpulkan menggunakan hasil ujian pra dan pasca dan dianalisis menggunakan SPSS. Ujian-t sampel bebas dan berpasangan digunakan untuk membandingkan skor pencapaian pelajar di antara kedua-dua kumpulan. Statistik ujian-t bebas melaporkan bahawa terdapat perbezaan yang signifikan dalam skor ujian pasca antara kumpulan eksperimen dan kawalan di mana laporan tersebut menunjukkan perkara berikut ( $t=4.526$ ,  $df=58$ ,  $p<.05$ ). Soal selidik diberikan kepada 30 murid dalam kumpulan eksperimen untuk mendapatkan persepsi dan maklum balas mereka terhadap penggunaan aplikasi *Google Expeditions* (VR) dan dapat disimpulkan bahawa aplikasi realiti maya *Google Expeditions* disukai serta bermanfaat bagi para peserta. Dapatan kajian ini boleh digunakan sebagai asas untuk kajian masa depan dalam bidang pembelajaran realiti maya oleh guru dalam semua penguasaan bahasa.



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## LIST OF ABBREVIATIONS

ESL	English as a second language
GE	<i>Google Expeditions</i>
VR	Virtual Reality



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## CHAPTER 1

### INTRODUCTION

#### 1.1 Background of the Study

Many new applications and approaches are used to enhance the teaching and learning process due to the vast rapid growing of internet (Sujon, 2019). Technological devices such as smartphones, tablets and chrome books have an incremental progress in the field of education and being adopted as tools for learning purposes (Zawachi-Richter & Latchem, 2018). The advancement in technology has changed the role and paved in our lives. It is seen clearly especially among children in this generation. ICT helps children to develop their curiosity, observation and experimenting (Brownridge, 2020). Today the digital world discovers new ways for teachers in designing and developing new and updated educational aids to engage students (Sahrir, Yahaya & Nasir, 2013). Smartphones are one type of technology development that engages students and has different innovation from time to time. There are many applications that can be learned in smartphone. *Google Expeditions* application is an example of application for learning in the smartphone (Brownridge, 2020).

These new technology plays an essential role in current teaching and learning with tremendous availability of various tools, applications and services. *Google Expeditions* is an application that promotes learning via augmented and virtual Reality. It provides users with various 360-degree videos that entail both augmented and virtual reality sceneries (Siegle, 2019; Siti Norzaimalina, 2018). Virtual, augmented, and mixed technology has been available for the past decade, but it is only recently that it has captured a level that could now penetrate the consumers in various fields (Technology, Media and Telecommunications Predictions 2020, 2020). Virtual Reality (VR) is the utmost current technology that had embarked since 2016 and it has been growing till date. It has become the means to provide experiences that combine both play and learn. These tools, applications and services act as one of the effective way in attracting children's attention (Yildirim, 2018).

VR becomes the learning experiences that use technology in classroom as to complement teaching and learning process in Malaysian education. To be in line with the 21<sup>st</sup> learning century teaching and learning trends, the new Malaysian Education Blueprint (2013-2025) had suggested shift that aims to "Leverage ICT" especially in new innovations to scale up the quality of education in Malaysia (Kamalludeen, 2016). As a result to contextualise these efforts for the shift, the *Google Expeditions* is an immersive teaching and learning application that allows learners to go on VR trips and explore augmented objects as well. *Google Expeditions* is an application that takes the learner around the world in VR and making virtual field trips that provides lifetime experiences (Parsons, Inkila & Lynch, 2019). It enables the viewer to venture historical landmarks, get close with underwater creatures and even visit the outer space. The



application replicates real world learning by integrating virtual context on conventional concepts of education (Brownridge, 2020).

The application provides several scenes to experience for the viewer whereby the learners will scroll around to look at the scenes (Ozkan, 2017). The application also provides information about the scenes in which the teachers can read it out aloud as they are viewing it. Finally, teacher can carry out a discussion asking about the scenes and elicit questions based on some examples given in the application (Parmaxi, Stylianou & Zaphiris, 2017). The new technology of virtual learning is paved to transform the teaching and learning of English Language by engaging student's attention and eventually obtain their active participation in the lesson. The immersion of VR is able to transcend a language barrier to both deliver of content and enable to acquire the concept. According to Jordon (2018), virtual reality creates an immersive and interactive experience whereby the students will interact with the content. They will explore the scenes as the teacher guides them. Besides, they will not be just sitting passively but engaging with the content whereby they will be viewing the image in not only looking at one aspect of the scene but literally moving the angles of the image by tilting and turning their head to view the image in a 360-degree panoramic scene.

Although they are immersed in a VR setting, they are still aware of the surroundings as the teacher communicates and controls by allowing them to view the content required for the lesson (Akman & Cakir, 2019). In addition, by using VR, it visually blocks out distractions. When viewers use the VR box, their attention is completely in the box and content shown (Ferriter, 2016). They will not be able to be distracted with other competing visual attention away from the content. Teachers can use the pause button that turns off the scene of the screen to enable pupils to focus on





what the teacher says or questions during the virtual trip. Therefore, pupils will be able to concentrate on the specific content of the visuals.

## 1.2 Problem Statement

In the English language, writing is considered to be the more difficult skill than the other three skills to learn (Rao, 2019). Majority of English learners are still weak in writing. Presently, many learners find it difficult to write a proper sentence in English. Moreover, learning to write is undermined and to be the least developed skill in English Language (Cloud, Genesse, & Hamayan, 2009). There are several research that were done related to pupils' ability on descriptive writing. A study conducted by Yoandita (2019) revealed that most of the learners are still struggling writers in descriptive writing as they faced difficulty in representing their thoughts and ideas. They are unfamiliar with the content. Also, the lack of vocabulary elicited, and poor organization of ideas are the core reasons that led to difficulties in descriptive writing. Due to the unfamiliarity with the content and lack of sufficient English proficiency such as vocabulary causes English learners not to be able to write or complete even a simple factual or descriptive writing (Olson, Scarcella, & Matuchniak, 2015). Another research conducted by Yaacob and Suriyanti (2016) affirms that writing becomes difficult when learners are unable to connect with the content given. This is because they lack the understanding, knowledge and vocabulary of the content to convey the message accurately for writing. Thus, using *Google Expeditions* virtual trips as a tool for learning has the potential for learners to engage, explore and connect to the content as well as nature in writing (Siegle, 2019). It enables learners to understand the content, describe



and use appropriate vocabulary to provide meaning from the virtual trips in their writing.

Apart from that, the change in classroom teaching adhered as to be in line with the rapid progress of technology in all fields. Hereby, VR provides a visual aid to promote student's engagement with the material or content. It acts as an hands-on, interactive and immersive learning experience that provides a fresh and new learning moments that could draw learner's interest and engage them in any difficult or boring subject areas (Ferriter, 2016). For instance, a research conducted by Costa and Melotti (2012) proved that VR had increased student's interest for the subject of archaeology who were initially had low interest in the subject and lacked motivation to study. As yet, not many research were done in Malaysia on the use *Google Expeditions* application VR in learning English language, as most of the researches were done in different fields like medicine, engineering and science education. Besides, many of it looked at the acceptance or readiness towards using VR, learner's perceptions towards the use of VR, the implementations or issues, benefits and factors. Most research were conducted in Taiwan, Saudi Arabia, Scotland and European countries like Canada, Turkey, United States, Britain and Australia. Very few or literally none was done using primary students and teaching of English Language in Malaysia.

Furthermore, research done in Malaysia was based on tertiary education in universities especially in the field of science, history, engineering and medicine. Henceforth, this research will be essential for primary teachers, students as well as to their parents as to provide awareness on how the new technology of VR can help in students' learning especially in creating a more engaging and exciting material to enhance their writing skills via engaged virtual trips of *Google Expeditions*. Due to the



lack of research conducted in writing skills among primary students in Malaysia, this research shall provide insights on the integration of VR via *Google Expeditions* applications as an alternative teaching aid in a language learning classroom. In short, this study is to be conducted to assess the learning impact of using a virtual reality *Google Expeditions* application as an intervention learning tool that could enhance their descriptive writing performance on year 4 primary students. Incorporating virtual reality into regular English classroom via *Google Expeditions* application, students will be more excited about learning, feel more connected and to familiarise with the material or content to allow them to write better.

### 1.3 Research Objective

The purpose of this study is to explore the use of *Google Expedition* application. The study intends to discover the potentials of *Google Expedition* in facilitating students' writing skills. With this in view, this study has been designed with the following objectives:

- i. To investigate the effects of VR *Google Expeditions* application on students' achievement scores in descriptive writing.
- ii. To explore the perceptions of students who use VR application as learning tool in enhancing descriptive writing skills.

## 1.4 Research Questions

RQ1: Is there any significant difference in terms of descriptive writing scores of students in experimental group (using VR *Google Expeditions* application) and control group (students without the VR *Google Expeditions* application)?

RQ2: What are students' perceptions toward the use of *Google Expeditions* application in enhancing with their descriptive writing?

## 1.5 Research Hypothesis

In conduct of the research purpose and objective, the following hypothesis is formulated for testing.

H01: There is no significant difference in the achievement scores of descriptive writing skills of students' using *Google Expeditions* application in an English Language learning classroom.

## 1.6 Significance of Study

First and foremost, this study would be significant to educators and researchers who intend to obtain insights and explore how the emerging VR technology helps in the process of learning towards descriptive writing skills. The VR *Google Expeditions* application provides enhanced learning experiences via authentic virtual trip. It will provide understanding about how the application is used in an English Language writing lesson and its implications of using virtual reality in schools. The study is significant as it will provide how teachers are able to use and implement this budding technology. It aimed to determine the role of how students responded to VR





technologies on developing descriptive writing skills among primary students. By creating a virtual reality classroom whereby the students will use VR box to view the content, this research could play a significant role to introduce new learning tool as a platform for other schools to be interested in enhancing pupils writing abilities through virtual reality.

The use of technology in classroom could initiate and activate cognition that enables meaningful learning (Jonassen, 2000). VR technology presents the learning material in an immersive, realistic visuals that can be beneficial for teaching subjects where it is important to visualize the learning material. It can improve learner's capacity to perceive and imagine as to create a sense of understanding about the concepts based on the stimuli given (Burdea & Coiffet, 2003). In addition, VR increases learner's capacity to learn and reduces cognitive load (Wetzel, Radtke, & Stern, 1994). At the beginning stages of teaching writing skills in an English language classroom, pictures and videos are the most commonly used 2D visuals as a pre-writing activity to provide background information and acts as a learning tool to elevate learner's writing abilities. Allcoat and Muhlenen (2018) conducted research to compare the impact of VR enhanced learning with video learning and textbooks. The results demonstrated that VR learning showed improved progress outcomes in knowledge scores and reported a higher self confidence among the users. This is because the users are provided with a more immersive and complete experience than watching a regular video (Dragani, 2019). Moreover, a 360-degree view of any content gives a more realistic feel to students as they find themselves within the environment. Henceforth, this study is essential to discover the impact of virtual reality as it targets to evaluate the effects of 360-degree VR scenes using *Google Expeditions* application on teaching and learning.



Thus, to determine whether or not learner would be able to retain information, describe on a given topic and its reflections on their descriptive writing performance.

Secondly, this study investigates if there is a need of technology in terms of advanced tools and applications in the process of teaching and learning. In fact, this study could be among the early emerging studies to study and test on VR as an ESL descriptive writing learning tool in Malaysia. Till date, virtual reality is scarce in Malaysia especially among primary education. Most of the research conducted on VR were done in countries such as Taiwan, United States, Canada, Turkey, Japan and Italy. Moreover, many game based Virtual Reality applications were researched on but only few were done on *Google Expeditions* application. As for Malaysia, this would be among the first few research to be conducted on *Google Expeditions* application on primary students. *Google Expeditions* application transports students to new places via virtual trips to explore the authentic places, animals, and much more as to learn and acquire new words or vocabulary that will assists in their writing. Therefore, this study acts as a lead to generate a learning tool and resource for any schools looking to integrate virtual reality in their teaching and learning. Nevertheless, providing meaningful insights towards the changes to instruction and learning, this research has the potential to foster the evolving 21<sup>st</sup> century learning.

## 1.7 Conceptual Framework

A conceptual framework explains the structure and the way the research is studied in a natural progress (Camp, 2001). It is an integrated representation that presents

researcher's point on how the research problem will be explored under the study (Liehr & Smith, 1999). Besides, it describes the relationship between the main concepts and how the issue is addressed about the study. It is arranged, sequenced and structured in a logical manner as to provide a visual representation to display how ideas in a study is related to one another (Grant & Osanloo, 2014). Thus, conceptual framework is the easiest and simplest way that the research presents his/her ideas to the problem or issue stated (Liehr & Smith, 1999; Akintoye, 2015).

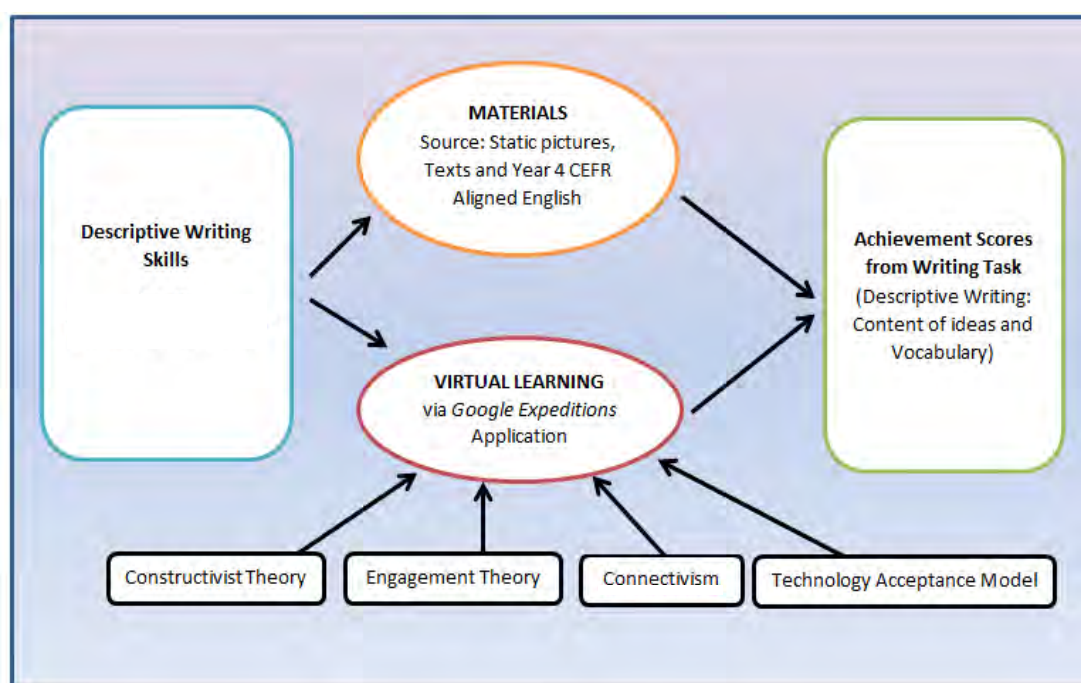


Figure 1.1. Conceptual Framework

The study aims to determine the effects of the integration of VR via *Google Expeditions* applications as an alternative teaching aid in a language learning classroom. In this study, there are three main elements to be considered which are the topic or skill, method and impact. The first element in the conceptual framework represents the skill chosen in language learning. The basic four main skills involved in English language learning are listening, speaking, reading, and writing skills.

Therefore, the focus of this study is on descriptive writing skills. The second element represents the process of teaching and learning that is involved. In this study, *Google Expeditions* the virtual learning is used as an alternative teaching tool to teach writing. The use of materials like static pictures and textbooks are used upon the controlled group while the virtual learning using *Google Expeditions* application as the treatment is used upon experimental group. The use of virtual learning embeds constructivist theory, engagement theory, connectivism and technology acceptance model. The final element of the framework is the achievement scores from the descriptive writing task conducted in this study. From this element, the researcher will be able to achieve the research objective by the end of the study. It is to determine the effects of Virtual Reality *Google Expeditions* application by looking at if the learning tool could enhance students' abilities in descriptive writing focussing on if they are able to develop content of ideas and vocabulary.

## 1.8 Definition of terms

### 1.8.1 Descriptive Writing

Descriptive writing is a style of writing that offers a vivid description of a particular subject. The purpose of descriptive writing is to describe a particular person, place or thing (Fitriyeni, 2020). It explains how it looks, sounds, feels, smells or tastes. Sufatmi Suriyanti and Aizan Yaacob (2016) referred descriptive writing as a type of writing which requires the pupils to add in sensory details, vivid words, and figurative language. In descriptive writing, pupils should be able to portray people and places, and



capture things, moments and share experiences vividly so that the reader can create an imaginative picture of what is being described.

### 1.8.2 *Google Expeditions* (VR) application

*Google Expeditions* is an immersive educational virtual reality application that allows teachers and students to explore more than 1000 virtual field trips around the world (Brownridge, 2020). Teacher and students will use mobile devices and VR viewers to virtually explore places, scenes, swim underwater or navigate outer space without leaving the classroom. It brings the lesson to life with expeditions developed by Google for Education team to support teaching and learning from anywhere, anytime on any device. The *Google Expeditions* application allows user to explore the world virtually and teachers are no longer limited by the space of only the classroom. It brings abstract concepts to life allowing teachers to guide students through collections of 360-degree scenes and 3D objects, pointing out interesting sites and artifacts along the way (Lynch, 2018).

## 1.9 Summary

This chapter gave an introduction and overview about the study. It looked at the new technology of VR *Google Expeditions* application describing about virtual reality and how it has penetrated into the field of education especially in classrooms. Besides, this chapter discussed on writing skills that is considered the more difficult skill than the



other three skills in language learning. Apart from that, this chapter outlined the research objectives and hypothesis. Also, the conceptual framework of the study was laid out. Finally, the important terms such as descriptive writing skills and the *Google Expeditions* VR application were defined.