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JULY 2024

INTEGRATION OF SPATIAL ELEMENTS IN GEOGRAPHY  
SUBJECT USING GIS TECHNOLOGY

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SCHOOL OF GEOMATICS SCIENCE AND NATURAL RESOURCES  
COLLEGE OF BUILT ENVIRONMENT  
UNIVERSITI TEKNOLOGI MARA MALAYSIA

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**Thesis submitted to the Universiti Teknologi MARA Malaysia  
in partial fulfilment for the award of the degree of the  
Bachelor of Surveying Science and Geomatics (Honours)**

**JULY 2024**

## DECLARATION

I declare that the work on this project/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA (UiTM). This project/dissertation is original and it is the result of my work, unless otherwise indicated or acknowledged as referenced work.

In the event that my project/dissertation be found to violate the conditions mentioned above, I voluntarily waive the right of conferment of my degree of the Bachelor of Surveying Science and Geomatics (Honours) and agree be subjected to the disciplinary rules and regulations of Universiti Teknologi MARA.

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## ABSTRACT

The Ministry of Education Malaysia (MOE) is committed to promote 21st-century technology advancements in learning and facility in line with Malaysia's Education Development Plan 2013–2025. In addition, the Perlis Education Transformation Plan outlines goals to increase numbers of competence of teachers and students as well as advance technology in the classroom. Students' interest in geography is dropping because they find it difficult to understand, and teachers are just beginning to use technology, which has little impact on students' learning. Thus, this study i) determine spatial elements to be adopted in geography content, ii) integrate spatial elements into digital geography content, and iii) assess student's understanding using digital geography content by pre-post survey. The Technological Pedagogical Content Knowledge (TPACK) model was applied to assess the students' understanding during hands-on workshop at SMK Dato' Sheikh Ahmad, Perlis to effectively teach and engage students in the digital age. According to result from the paired sample t-test from pre and post survey, respondents had a very positive improvement and shows that Geography storytelling platform statistically significant. All the p-value <0.05 in student knowledge, student comprehension and student application conclude that students' understanding using digital geography content increases at the end of the survey compared to the beginning.

**Keywords:** *Geographical Information System; Geography; Spatial Element; Technology; Digital Learning; TPACK*

## TABLE OF CONTENTS

<b>CONFIRMATION BY PANEL OF EXAMINERS</b>	<b>ii</b>
<b>DECLARATION</b>	<b>iii</b>
<b>ABSTRACT</b>	<b>iv</b>
<b>ACKNOWLEDGEMENT</b>	<b>v</b>
<b>TABLE OF CONTENTS</b>	<b>vi</b>
<b>LIST OF FIGURES</b>	<b>viii</b>
<b>LIST OF TABLES</b>	<b>x</b>
<b>LIST OF ABBREVIATION</b>	<b>xii</b>
<b>CHAPTER 1</b>	
<b>INTRODUCTION</b>	<b>1</b>
1.1 Background Study	1
1.2 Problem Statement	4
1.3 Research Question	6
1.4 Aim of Study	6
1.5 Objectives	7
1.6 Scope and Limitation of Study	7
1.6.1 Study Area	7
1.6.2 Software	8
1.7 Significant of Study	8
1.8 Organization of Thesis	9
<b>CHAPTER 2</b>	
<b>LITERATURE REVIEW</b>	<b>10</b>
2.1 Introduction	10
2.2 Overview of Geography Subject	10
2.2.1 Geography Syllabus in Different Countries	12
2.2.2 Geography Content in Malaysia	14
2.3 Concept of Spatial	17
2.3.1 Spatial Thinking	18
2.3.2 Spatial Elements in Geography Subject	20
2.4 Challenge in Learning GIS Techniques	22
2.4.1 GIS Technology in Integrated Spatial Elements	23