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Geography Interactive Map Integrated to Spatial Element in Assessing Student Cognitive Levels

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AUTHOR'S DECLARATION

I declare that the work in this thesis/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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Abstract

The presentation of maps in geography syllabus is lacking the spatial thinking elements, which encourage students to visualise and able to critically thinking that can stimulate higher-order thinking skills (HOTS). This study aims to propose an interactive map and assess the student's cognitive level, which integrates spatial elements. The objectives of this study are to i) investigate spatial elements that can be integrated into current geography syllabus, ii) propose interactive map by combining the selected spatial element into current geography map presentation iii) evaluate the student connective levels through the suggested interactive map. The chosen study area for this research is in SMK Arau, Arau, Perlis. Observation in geography class and a discussion with geography teacher need be undertaken to investigate current geography syllabus can be integrated to the spatial thinking and to integrate the spatial thinking skills in the study domain of geography standard in the existing curriculum domain. Based on the selection of spatial elements the proposed map is created involve cartography elements. Five maps produced in this research, the interactive map with spatial thinking elemnets. The maps produced by using ArcGIS software to help the student to stimulate their HOTS and improve their spatial thinking ability based on the investigation in the current geography syllabus. The results show that a good percentage of students anwers the question correctly by referring to the proposed maps, based on all four cognitive levels which are knowledge, comprehension, application and analysis. Students can gain numerous advantages from mastering the skills of spatial thinking, such as better control of their own learning. The proposed interactive graphic maps can be applied by teachers to increase student's cognitive levels.

Keyword: Spatial thinking, Geography education, GIS, Cognitive Level

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