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A comparative study of Bachelor of Education and Secondary School Standard Curricula for Geography in Malaysia

Mohmadisa Hashim, Hanifah Mahat, Nasir Nayan, Yazid Saleh

Department of Geography & Environment, Faculty of Human Sciences,
Universiti Pendidikan Sultan Idris, 35900 Tanjong Malim, Perak, Malaysia

Correspondence: Mohmadisa Hashim (email: mohmadisa@fsk.upsi.edu.my)

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Abstract

This article examines the extent to which the course structure offered for the Bachelor of Education (B.Ed.) (Geography) honours programme at the Sultan Idris Education University (UPSI) operates in line with the Standards-Based Curriculum for Secondary School (SBCSS) for the subject of geography. Qualitative methods were used to compare the content of geography courses at UPSI and in schools, while qualitative data analysis involved observing, categorizing, scheduling, and incorporating evidence into the initial research proposal. The Standard Document for Curriculum and Assessment (SDCA) of Form 1 to 3 Geography was compared with the 17 courses offered as part of the B.Ed. in Geography by referring to the course's Instructional Plan (IP). ATLAS.ti was used to analyze data from the document. The findings revealed that 14 courses fulfilled the SDCA of Form 1 to 3 SBCSS Geography in secondary schools. However, eight SDCA of Geography SBCSS topics were emphasized to a lesser extent in the existing IP of B.Ed. Geography, namely Position; Sketch Map of Malaysia; Telecommunications in Malaysia; Types and Transportation Development in Asia; Green Technology; Natural Plants in Malaysia; Wildlife in Malaysia; and Recycling. Therefore, a review of the B.Ed. Programme in Geography at UPSI should be undertaken by adding new topics to the existing courses and offering new courses to achieve congruence with the Geography SDCA in schools. The study implies that changes to the curriculum need to be reviewed from time to time so that the existing curriculum is always relevant and meets international standards.

Keywords: Atlas.ti, Geography, Secondary School, Standards-Based Curriculum for Secondary School, Standard Document for Curriculum & Assessment

Introduction

Knowledge or subject curriculum taught at school until university is not static. The curriculum is constantly reviewed and updated from time to time, occurring everywhere in the world. According to the International Institute for Educational Planning (2015), Geography knowledge is always dynamic and evolving as a result of the revision of a curriculum is crucial for enhancing and improving the curriculum in the field reaction between humans and the environment. Therefore, revision of the curriculum is essential so that the curriculum taught is up-to-date, comprehensive, and appropriate to the current global environment, especially concerning the world without borders

(Kocalar & Demirkaya, 2017). Revisions of the curriculum or programmes that are taking place at the school up to the university level are much needed to make them relevant not only in the context of acquiring new knowledge but also for the job market (Acquah et al., 2017; University of Alaska Fairbanks, 2019).

Current developments in the mainstream education system in schools show that geography is still being taught as a core subject at the lower secondary level and as an elective at the upper secondary level (Hanifah et al., 2019). At the Malaysian Certificate of Education level, geography is an elective subject and is not required to be taken during the examination. Geography is also being offered as a subject that can be selected and taken at form six as an optional subject for Malaysian Higher School Certificate (HSC) examination. Meanwhile, several public universities that offer Geography include Universiti Kebangsaan Malaysia (UKM), Universiti Malaya (UM), Universiti Sains Malaysia (USM), Universiti Malaysia Sabah (UMS), and Universiti Pendidikan Sultan Idris (UPSI). UPSI, as a premier university in education and produces graduates in education, needs to equip the fields or courses offered, especially in education, so they are constantly in line with and relevant to the subjects offered in schools. Therefore, the implementation of the Primary School Standard Curriculum (PSSC) was introduced at the primary level in 2011. Subsequently, this educational transformation continued with the implementation of the Standards-Based Curriculum for Secondary Schools (SBCSS) in early 2017 (Mohmadisa et al., 2019).

In this regard, SBCSS is formulated to meet the new policy and requirements under the Malaysia Education Blueprint 2013-2025 so that the quality of the curriculum implemented in secondary schools is comparable to international standards (Soon Singh, 2013). The standard-based curriculum applied internationally has been realized in the SBCSS by formulating the Standard Document for Curriculum and Assessment (SDCA) for all subjects, containing Content Standards, Learning Standards, and Assessment Standards (Curriculum Development Division, 2015). SDCA was introduced to replace the syllabus and the syllabus description for all subjects, including geography.

As the geography curriculum in schools has changed, the geography course at the Faculty of Human Sciences (FHS) needs to be reviewed. This change is because the Bachelor of Education (B.Ed.) in Geography programme at UPSI is offered to prospective educators who will teach geography in schools. According to the University of Alaska Fairbanks (2019), the evaluation and revision of the programme are different from one another but have the same goal of improving the quality of the study programme or course. Programme evaluation is a comprehensive assessment of the academic programme and the accountability of the organization or department that implements it. In this regard, the programme revision is critical and must be carried out from time to time. Hence, prospective geography teachers need to master the up-to-date contents that align with focusing on Geography SDCA at school.

An analysis of SBCSS Geography of the lower secondary level showed that the focus was on mastery of basic knowledge regarding spatial and environmental forms to produce students who have positive attitudes toward environmental sustainability (Hashim et al., 2019). This knowledge can be achieved by mastering the knowledge, skills, and values learned through geographical disciplines comprising Geographical Skills, Physical Geography, Human Geography, Regional Geography, and Environmental Issues and Management (Curriculum Development Division, 2015). Thus, this study examined how paralleled the course structure offered in the B.Ed. in Geography programme to the latest geography curriculum in schools.

Method

The scope of this study focused on comparative observations on the courses contained in B.Ed. in Geography at UPSI to align them with SDCA of Geography for Form 1 to 3 in secondary schools. The study was based on the official Form 1 to 3 SDCA published by the Curriculum Development Division, Ministry of Education (MOE) Malaysia. While this research was being done, SDCA Form 4 and 5 had not yet been officially issued by the MoE. The SDCA of Form 4 and 5 were still in the final stage of the purification process at MOE. Therefore, the SDCA for both Form 4 and 5 were not included in the analysis of this study. At the same time, the courses document of the B.Ed. in Geography programme was the Instructional Plan (IP) for each course in the B.Ed. in Geography programme obtained from UPSI.

To analyze the content of Geography courses at UPSI and in schools, qualitative methods through document analysis have been used. The choice of document analysis method is to identify the geographical constructs set out in the SDCA (determined by the MOE) in line with the IP course of the B.Ed. in Geography programme (determined by the university). Two stages of document analysis have been implemented. Firstly, to create a parallel matrix of the main topic content between SDCA and IP. Secondly, to identify the courses at the university, especially UPSI, that is similar to the teaching and learning of geography at school as well as according to SDCA in secondary school.

In order to carry out the analysis of this document, the research will involve examining, categorizing, tabulating, or combining the evidence (Yin, 1994). The ATLAS.ti software has been used to analyze the data from the document IP B.Ed. in Geography and SDCA Form 1-3. Determining the themes at the category level are Geographical Skills, Physical Geography, Human Geography, Regional Geography, and Environmental Issues & Management. The five themes are the same in Form 1 to Form 3, but the content differs for each theme. The Atlas.ti software will assist in analyzing and building the structure of the UPSI's B.Ed. in Geography curriculum with the SBCSS Geography SDCA so that the curriculum review process can be made possible. The software is also directly used to analyze documents categorizing the SDCA of Geography SBCSS (Form 1-3) topics according to the course code of the B.Ed. in Geography programme.

Before the coding process, the SDCA of Geography SBCSS documents of Form 1 to 3 were first incorporated into one document to be uploaded on ATLAS.ti. Next, the coding process was carried out on the SDCA of Geography SBCSS. After the coding had been completed, a display based on the codes was done to clearly present the alignment of SDCA of Geography SBCSS topics and the B.Ed. in Geography courses. In this study, the printed materials used were the FSH's guidebook session 2016/2017, the IP of all 17 major Geography courses of session 2016/2017, and the SDCA of Geography SBCSS of Form 1 to 3.

Results and discussion

The structure matrix of the Geography and UPSI's B.Ed. in Geography curriculum

The analysis result of the SDCA of Geography SBCSS of Form 1 to 3 with the UPSI's B.Ed. in Geography curriculum has produced three structured matrix tables by form. Table 1 shows each code and subject in UPSI's B.Ed. in Geography curriculum.

Table 1. UPSI's B.Ed. in Geography curriculum

Code	Subject
HGF3013	Introduction to Physical Geography
HGF3023	Natural Resources and Environmental Studies
HGF3033	Principles of Geomorphology
HGF3043	Climatology
HGF3053	Biogeography
HGF3063	Geographical Information System
HGG3013	Studies of Tropical Hydrology
HGG3023	Application of Geographical Information System and Spatial Analysis
HGM3013	Introduction to Human Geography
HGM3023	Geography of Economy and Development
HGM3033	Population Geography
HGM3043	Urban and Metropolitan Geography
HGM3053	Regional Geography of Monsoon Asia
HGM3063	Geography of Malaysia
HGR3013	Techniques and Quantitative Methods in Geography
HGR3023	Research Methodology in Geography

Table 2 shows the matrix table for the UPSI's B.Ed. in Geography curriculum with the SDCA of Geography SBCSS of Form 1. The analysis showed that all topics in the SDCA of Geography SBCSS of Form 1 were available in the UPSI's B.Ed. in Geography curriculum. However, two topics were not emphasized in the UPSI's B.Ed. in Geography curriculum: Position and Sketch Map of Malaysia.

As for the geographical skills section, Directions and Sketch Map were the topics taught in the HGR3013 Techniques and Quantitative Methods in Geography course. In the physical geography section that discussed earth terrain and drainage, the Earth topic was available in two courses of B.Ed. in Geography, namely HGF3013 Introduction to Physical Geography and HGF3033 Principles of Geomorphology. In contrast, the Landforms in Malaysia topic was found in the HGM3063 Geography of Malaysia course. In comparison, the topic of Drainage in Malaysia was taught in the HGF3063 Studies of Tropical Hydrology course. The human geography section, which involved the aspect of population and settlements, the Population in Malaysia topic was available in three courses of B.Ed. in Geography, namely HGM3013 Introduction to Human Geography, HGM3033 Population Geography and HGM3063 Geography of Malaysia. At the same time, the Settlement in Malaysia topic was available in the HGM3013 Introduction to Human Geography course.

Apart from that, in the regional geography section, which is South East Asia, the Landform and Drainage in Southeast Asia topic was available in the HGM3053 Regional Geography of Monsoon Asia course. Similarly, the Population and Settlement in Southeast Asia topic was available in the HGM3053 Regional Geography of Monsoon Asia course and the HGM3033 Population Geography course. As for the environmental issues and management section, the Water Resources topic was available in three courses, namely HGF3013 Introduction to Physical Geography, HGF3023 Natural Resources and Environmental Studies, and HGF3063 Studies of Tropical Hydrology. At the same time, the topic of Domestic Waste exists in the HGF3023 Natural Resources and Environmental Studies course. In addition, the fieldwork guide was taught in HGR3023 Research Methodology in Geography.

Table 2. Comparison between UPSI's B.Ed. in Geography curriculum and form 1 SDCA of Geography

Themes	Content standard	B.Ed. in Geography courses							
		HGF3013	HGF3023	HGF3033	HGF4043	HGF3053	HGF3063	HGG3012	HGG3023
Geographical skills	Directions							√	
	Position								
	Sketch map							√	
	Sketch map of Malaysia								
Physical Geography	Earth	√		√					
	Landforms in Malaysia								
	Drainage in Malaysia						√		
Human Geography	Population in Malaysia								
	Settlement in Malaysia								
Regional Geography	Landform and drainage in Southeast Asia								
	Population and settlement in Southeast Asia								
Environmental Issues and Management	Water resources	√	√				√		
	Domestic waste		√						
	Field work guidance								

Themes	Content standard	B.Ed. in Geography courses							
		HGM3013	HGM3023	HGM3033	HGM4043	HGM3053	HGM3063	HGR3013	HGR3023
Geographical skills	Directions								
	Position								
	Sketch map								
	Sketch map of Malaysia								
Physical Geography	Earth								
	Landforms in Malaysia						√		
	Drainage in Malaysia								
Human Geography	Population in Malaysia	√		√			√		
	Settlement in Malaysia	√			√				
Regional Geography	Landform and drainage in Southeast Asia					√			
	Population and dettlement in Southeast Asia			√		√			
Environmental Issues and Management	Water resources								
	Domestic waste								
	Field work guidance								√

Table 3 shows the matrix for the UPSI's B.Ed. in Geography curriculum with SBCSS Geography of Form 2. A review of the document found that all topics in SDCA of Geography SBCSS of Form 2 were available in the UPSI's B.Ed. in Geography curriculum, except for the topics of Telecommunications in Malaysia and Types and Transportation Development in Asia, which were not emphasized in the UPSI's B.Ed. in Geography curriculum.

Table 3. Comparison between UPSI's B.Ed. in Geography curriculum and form 2 SDCA of Geography

Themes	Content standard	B.Ed. in Geography courses							
		HGF3013	HGF3023	HGF3033	HGF4043	HGF3053	HGF3063	HGG3013	HGG3023
Geographical skills	Scale and distance							√	
	Topography map							√	
Physical Geography	The influence of earth movement on weather and climate	√			√				
	Weather and climate in Malaysia								
Human Geography	Transportations in Malaysia				√		√		
	Telecommunications in Malaysia								
Regional Geography	Climate diversity and its influence on human activities in Asia				√				
	Types and transportation development in Asia								
Environmental Issues and Management	Global warming	√	√		√				
	Green technology		√						
	Field work guidance								

Themes	Content standard	B.Ed. in Geography courses							
		HGM3013	HGM3023	HGM3033	HGM4043	HGM3053	HGM3063	HGR3013	HGR3023
Geographical skills	Scale and distance								
	Topography map								
Physical Geography	The influence of earth movement on weather and climate								
	Weather and climate in Malaysia								
Human Geography	Transportations in Malaysia						√		
	Telecommunications in Malaysia								
Regional Geography	Climate diversity and its influence on human activities in Asia								
	Types and transportation development in Asia								
Environmental Issues and Management	Global warming								
	Green technology								
	Field work guidance								√

As for the geographical skills section, the HGR3013 Techniques and Quantitative Methods in Geography course taught the Scale/Distance and Topography Map topics. In the physical geography section on weather and climate, The Influence of Earth's Movement on Weather and Climate topic was available in the HGF3013 Introduction to Physical Geography and HGF3043 Climatology courses. In contrast, the Weather and Climate in Malaysia topic was available in the HGF3043 Climatology and HGM3063 Geography of Malaysia courses. Besides that, concerning the human geography section covering transportation and telecommunication, the topic of Transportation in Malaysia was taught in the HGM3063 Geography of Malaysia course.

The regional geography section, which is Asia, the Climate Diversity and its Influence on Human Activities in Asia topic was taught in the HGF3043 Climatology course. In addition, the

environmental issues and management section covered two major topics: Global Warming, which was available in the HGF3013 Introduction to Physical Geography, HGF3023 Natural Resources and Environmental Studies and HGF3043 Climatology courses; Green Technology, which was available in the HGF3023 Natural Resources and Environmental Studies course. As for the guide on conducting fieldwork section, it was taught in the HGR3023 Research Methodology in Geography section.

Table 4 shows the matrix for the curriculum of UPSI's B.Ed. in Geography curriculum with the Form 3 SDCA of Geography SBCSS. A document review found that three topics from the SDCA of Form 3 SBCSS Geography were not emphasized in the UPSI's B.Ed. in Geography, namely Natural Plants in Malaysia, Wildlife in Malaysia, and Recycling.

Table 4. Comparison between UPSI's B.Ed. in Geography curriculum and Form 3 SDCA of Geography

Themes	Content standard	B.Ed. in Geography courses							
		HGF3013	HGF3023	HGF3033	HGF4043	HGF3053	HGF3063	HGG3013	HGG3023
Geographical skills	Tables and graphs Pie charts								
Physical Geography	The influence of physical environment on the diversity of natural plants and wildlife Natural plants in Malaysia Wildlife in Malaysia	√				√			
Human Geography	Natural resources in Malaysia Economic activity in Malaysia		√						
Regional Geography	Natural plants and wildlife in the World Main natural resources and economic cooperation in the world								
Environmental Issues and Management	Forest resources Recycling		√						
	Field work guidance								

Themes	Content standard	B.Ed. in Geography courses							
		HGM3013	HGM3023	HGM3033	HGM4043	HGM3053	HGM3063	HGR3013	HGR3023
Geographical skills	Tables and graphs Pie charts							√ √	
Physical Geography	The influence of physical environment on the diversity of natural plants and wildlife Natural plants in Malaysia Wildlife in Malaysia								
Human Geography	Natural resources in Malaysia Economic activity in Malaysia	√	√				√ √		
Regional Geography	Natural plants and wildlife in the World Main natural resources and economic cooperation in the world		√			√	√		
Environmental Issues and Management	Forest resources Recycling								
	Field work guidance								√

The geographical skills section, covering the Tables and Graphs Pie Charts topic, was available in the HGR3013 Techniques and Quantitative Methods in Geography course. As for the physical geography section, comprising natural plants and wildlife, the topic of The Influence of the Physical Environment on the Diversity of Natural Plants and Wildlife was taught in HGF3013 Introduction to Physical Geography and HGF3053 Biogeography courses. In the human geography section on natural resources and economic activities, the topic of Natural Resources in Malaysia was available in the HGM3063 Geography of Malaysia course. In contrast, the topic of Economic Activity in Malaysia was found in the HGM3013 Introduction to Human Geography, HGM3023 Geography of Economy and Development, and HGM3063 Geography of Malaysia courses.

Apart from that, in the regional geography of the world, it was found that the topic of Natural Plants and Wildlife in the world was being taught in the HGF3053 Biogeography course. In contrast, the topics of Main Natural Resources and Economic Cooperation in the world were available in the HGM3023 Geography of Economy and Development and HGM3063 Geography of Malaysia courses. As for environmental issues and management, the Forest Resources topic was being taught in the HGF3023 Natural Resources and Environmental Studies course. In addition, the fieldwork guide section was being taught in the HGR3023 Research Methodology in Geography course.

Based on this matrix, it has shown that the topics in the SDCA of Geography SBCSS Form 1 to 3 are not available in courses conducted in the B.Ed. Geography. It seems that only a few topics that are not available in the SDCA of Geography SBCSS, namely Position and Sketch Map of Malaysia (Form 1), Telecommunications in Malaysia and Type & Transportation Development in Asia (Form 2), Natural Plants in Malaysia, Wildlife in Malaysia and Recycling (Form 3). In this regard, a revision of the B.Ed. of Geography course at UPSI should be carried out by incorporating the topics mentioned in the existing courses or offering new courses to meet the needs of prospective teachers while teaching the subject.

Structure of UPSI's B.Ed. In Geography Curriculum with SDCA of Geography SBCSS

The number of courses that UPSI's B.Ed. in Geography students needed to learn was 16 courses, not including one course, which was HGR3996 Final Year Project. The results of the analysis stated that 14 out of 16 courses of B.Ed. in Geography were in line with the Form 1 to 3 SDCA of Geography SBCSS (Figure 1). This issue has been considered by recent work by Mohd Mustamam et al. (2010), that a programme and syllabus must meet the current needs in line with a national goal of aiming to produce more quality scholars. Ismail and Othman (2018) wrote that a high level of comparability between the curriculum contents could positively impact prospective teachers in preparing themselves to become excellent new teachers and ready to carry the responsibility as an agent in implementing national education transformation.

It is quite a surprise to find that two B.Ed. in Geography courses were not in line with the Form 1 to 3 SDCA of Geography SBCSS, namely Geographical Information System (GIS) and Application of Geographical Information System and Spatial Analysis since the GIS element was not available in the Malaysia school's geography education curriculum. It was found that GIS is an information system used to store, display, analyze, also manipulate spatial-related data in geospatial (Soon Singh, 2013). This fact is supported by the findings of Acquah et al. (2017); GIS is a software or tool that integrates spatial data and attributes data that are represented. Among the challenges MOE Malaysia faces for not integrating GIS into geography education are the lack of

skills among teachers and the lack of ICT facilities in schools (Habibah & Muniandy, 2011; Soon Singh, 2013).

The limitations in capabilities lead to the conclusion that no apparent advantage exists in human resources and ICT facilities in schools, which will result in students being unable to master the GIS skills well. Further support is given by Kocalar and Demirkaya (2017) explain that geography laboratories that are equipped with standardized facilities, fully qualified teachers, teaching materials, and student enrolment increase teachers' competency allowing students to have more efficient teaching and learning.

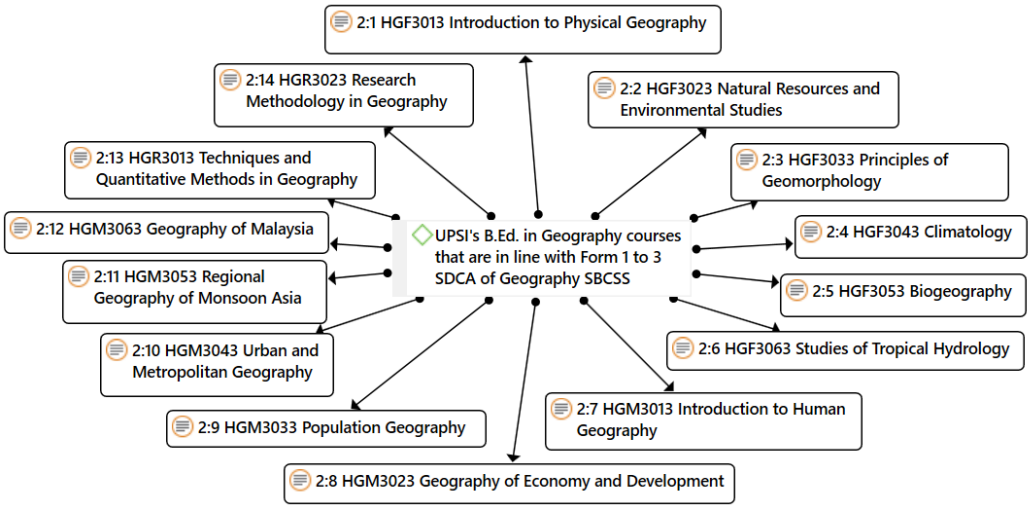

Figure 1. UPSI's B.Ed. in Geography courses that are in line with form 1 to 3 SDCA of Geography SBCSS

The suggestion to improve the existing courses of B.Ed. in Geography

This section outlines the results of the study showed that eight SDCA of Geography SBCSS topics were not emphasized in the IP of B.Ed. in Geography. Based on Figure 2, three topics were from Form 2, namely Telecommunications in Malaysia, Types and Transportation Development in Asia, and Green Technology, as well as three topics from Form 3, namely Natural Plants in Malaysia, Wildlife in Malaysia, and Recycling two topics were from Form 1, namely Position and Sketch Map of Malaysia. In the course of this work, we discovered that there are topics that are not being emphasized in the B.Ed. in Geography IP; therefore, improving on the existing curriculum of B.Ed. in Geography is required to produce quality prospective teachers who possess Geography and teaching knowledge. This situation increased the standards and improved the quality of the education system in the current country (Hanifah et al., 2016).

More detailed analysis showed that Position and Sketch Map of Malaysia needed to be given more attention in the HGR3013 Techniques and Quantitative Methods in Geography course as this topic is part of the geographical skills. In addition, the topic of Telecommunications in Malaysia should be emphasized in the HGM3023 Geography of Economy and Development course. In contrast, the topic of Types and Transportation Development in Asia should be improved in the HGM3053 Regional Geography of Monsoon Asia course by focusing on the element of transportation. Apart from that, the topics of Green Technology and Recycling should be given attention in the HGF3023 Natural Resources and Environmental Studies course. This

topic is because green technology and Recycling is one of the methods of environmental management in non-legislative measures.

As for the topics of Natural Plants in Malaysia and Wildlife in Malaysia, these two topics need to be improved in two courses, HGF3053 Biogeography and HGM3063 Geography of Malaysia, by including the aspects of natural plants and wildlife in Malaysia. This issue reviews the existing curriculum in observing students' academic needs and improvements for future curriculum so that effective curriculum can be achieved (Zainudin et al., 2015). Furthermore, a study by Robiah (1998) also emphasizes that university programmes evaluation needs to be implemented to ensure that the education services meet the goals and can serve as a tool to determine the overall effectiveness of the programmes.

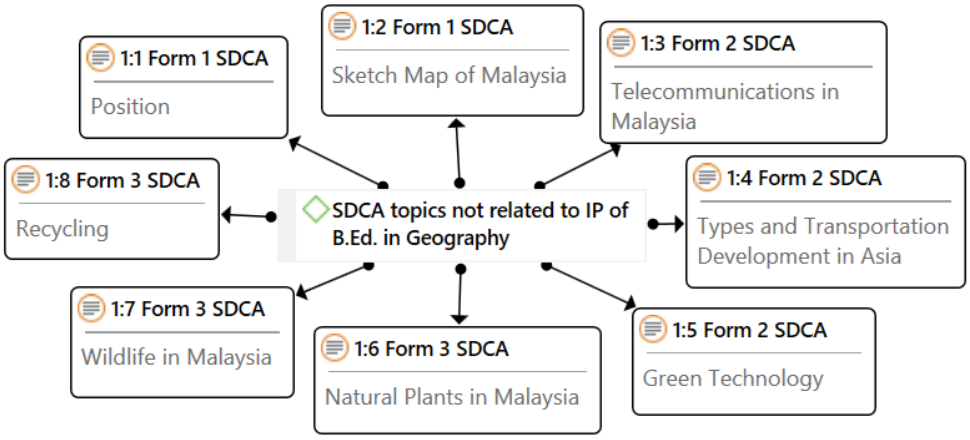

Figure 2. Codes for the SDCA topics that are not being emphasized in the IP of B.Ed. in Geography

Conclusion

Overall, it can be concluded that 14 courses offered in B.Ed. in Geography be suitable and meet the SDCA of Form 1 to 3 SBCSS Geography in today's secondary schools. However, there were eight SDCA of Geography SBCSS topics less emphasized in the existing IP of B.Ed. in Geography, which were Position, Sketch Map of Malaysia, Telecommunications in Malaysia, Types and Transportation Development in Asia, Green Technology, Natural Plants in Malaysia, Wildlife in Malaysia and Recycling. When topics are not emphasized in the B.Ed. in Geography, an improvement on the existing curriculum of B.Ed. in Geography is necessary to produce quality teachers with the needs today knowledge.

However, the evaluation of the SBCSS Geography is limited to Form 1 to 3 as at the time of writing this article, SBCSS for Form 4 to 5 was not officially issued to the Curriculum Development Division, MOE. For future studies, revisions to these B.Ed in Geography courses should also see the Geography SBCSS Form 4 and 5. This situation is intended for any course offered at the education university.

Therefore, reviewing the existing curriculum to observe students' academic needs and improve future curricula is vital to achieving an effective curriculum. Apart from reviewing the existing courses, several new courses are also suggested through this study. Hence, three relevant courses have been proposed for UPSI's B.Ed. in Geography, namely Transportation Geography,

Industrial Geography, and Tourism Geography. This new course offers curriculum requirements and is relevant to current and future job markets.

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