



Pedagogical Content Knowledge of Geography Teachers in International Schools

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ABSTRACT

One of the primary needs for all geography teachers is to have ample knowledge to convey the subject matter to the learner. This can be achieved if the teacher is thorough in the subject matter, pedagogy and content. The notion that addresses this dichotomy is called pedagogical content knowledge (PCK), which is essential to all teachers. Hence, this study attempts to investigate to what extent geography teachers possess PCK in international schools, especially in middle school, from years 7 to 9. A quantitative research approach was used. The study involved 60 teachers who were selected from thirty international schools in Colombo using the random sample technique representing two teachers from each school. A survey research design was executed, and a questionnaire was administered to collect the data. The findings of the study show that there are many concerns related to subject matter and pedagogical competencies. Even though teachers teach geography, nearly 40% of them have not studied the subject at a degree level. 25% of the teachers possess a master's degree in Geography and Education. However, only 20% of the teachers own a PGDE. Most teachers have not shown interest in enhancing their professional qualifications. It's also clearly visible that many teachers are unaware of the learner's needs and abilities. Hence, the school management should rethink recruiting

well-qualified geography teachers and invest more in ongoing training sessions to improve their pedagogical competencies.

1. INTRODUCTION

Teachers use pedagogical content knowledge (PCK) to teach a particular subject to a specific audience. It is widely acknowledged that PCK is crucial to high-quality instruction (Smith et al., 2023). According to PCK theory, the intersection of pedagogy and content determines how effectively and efficiently a lesson is taught (Rollnick & Mavhunga, 2017). The Charter on Geographical Education (2016) strongly emphasises the requirement for qualified geography teachers to be present in every school to ensure effective curriculum leadership and implementation. This is because educators are responsible for raising academic standards and are the driving force behind innovation. All teachers must first possess a thorough understanding of the subject matter in order to instruct students effectively. The knowledge teachers acquire during their undergraduate and graduate studies is insufficient for them to succeed as educators. Procedural knowledge and appropriate application are also necessary for teachers to prosper. As a result, educators, in general, should possess a solid foundation in pedagogy, subject matter, and content knowledge. Therefore, policymakers, curriculum designers, and school management boards are responsible for guaranteeing that students receive a valuable, effective geography education. Instead of using generalist teachers who are assigned to teach geography, this study will assist school administration and governing bodies in hiring qualified geography teachers. Students may become even more disinterested in the subject due to a lack of subject knowledge, flawed theoretical concepts, and inaccurate transferable skills. This study will therefore be useful to national and private school policymakers in addition to international schools. Additionally, there have only been a few limited empirical

studies on PCK-G. This is due to the fact that it is a new area of education research. Much research hasn't been conducted on international schools in Sri Lanka. As a result, this study can be used to examine Sri Lanka's viewpoint on international schools.

1.1 Literature Review

Shulman developed the idea of pedagogical content knowledge in 1986 with the goal of enhancing teaching methods by emphasising the subject matter in a manner similar to pedagogy. He believes that rather than focusing on the significance of subject knowledge to effectively deliver a lesson, teacher training and development primarily focuses on pedagogical practice (Hashweh, 2013). According to Shulman (1986), subject matter expertise and pedagogy are considered to be mutually exclusive, meaning they don't align. He emphasised the need for teacher education to incorporate these two areas. He introduced the concept of pedagogical content knowledge (PCK), which includes pedagogical knowledge (PK) and content knowledge (CK), among other categories, to combine these two fields. Every teacher ought to have a fundamental knowledge of the pedagogical content. It is based on how educators connect their subject-matter expertise with their pedagogical knowledge. Combining a teacher's subject matter knowledge and pedagogical knowledge constitutes pedagogical content knowledge. The integrated knowledge which combines PCK and the subject of geography is called PCK-G, which is distinctive only to geography teachers (Cochran et al., 1991). Martin (2005, as cited by Blankmen et al., 2015) suggested that teachers should rework geographic content to teach geography successfully. Based on the knowledge bases from (Turner-Bisset, 1999), he created three questions: What will I teach? How will I instruct? Why did I choose this teaching strategy? So on. A geography teacher should be an expert in the field, according to

Lane (2011), by having a thorough understanding of the concepts, theories, values, practical skills, contemporary trends so on. According to Al-Nofli (2018), geography focuses on examining the variations in cultures, economies, landscapes, and environments worldwide. Both theoretical and practical knowledge must be mastered to learn geography (Al-Nofli, 2018). It is necessary to consider how geography can be taught to students more interactively and practically due to the wide variety of aspects included in the subject and the increased upgrades that occur daily in the subject content. The ability of students to apply what they learn in class in a real-world setting should come first. Miller et al. (2020) state that it prioritises teacher preparation and development for teaching geography. It goes into more detail about the requirements for a good geography teacher. As a result, teachers need to be educated and thoroughly understand the subject, including pedagogical and content knowledge (Hanifah et al., 2019). On the other hand, international schools are governed by the Board of Investment (BOI) rather than the Ministry of Education as of the early 1980s. The quality of education varies greatly between schools as a result. Gunasekara (2019) claims that these schools are open to anyone with the financial means and willingness to pay their high tuition costs. They are not just for the expatriate community. They adhere to British curricula like Edexcel and Cambridge. Most international schools hire experienced, qualified teachers. Given that English is the primary language of instruction in these positions, teachers must also be proficient in the language. Hence, this study aims to investigate to what extent geography teachers possess pedagogical content knowledge in international schools. In reaching that aim, the following research questions were drawn to guide this study:

1. How well is the geography teacher thorough with the subject content?

2. To what extent are pedagogical competencies found among middle school geography teachers?

2. MATERIALS AND METHODS

The study was conducted based on a survey research design. This is the most fundamental tool for all quantitative research studies, which provides a numeric description of a fraction of a population. The target population in this research was 120 teachers from thirty international schools in Colombo. Sixty teachers were selected as the sample, who teach from Yr 7-9. From each school, two teachers were selected randomly. A self-developed questionnaire titled "Pedagogical Content Knowledge of Geography Teachers in International Schools Questionnaire" was used to get the desired information from these teachers. The questionnaire was divided into two sections. (A and B). Section A was for the collection of information on the personal data of respondents, while section B consisted of statements that elicited responses from the respondents related to the research questions. Twenty statements were given regarding their perception of PCK, especially focusing on the teacher's subject content and their pedagogical competencies. They were asked to judge each statement according to how they felt about the level of their knowledge. A Five-point Likert scale was used to indicate the extent to which they agree or disagree with each statement. 1 referred to Strongly Disagree, and 5 referred to as Strongly Agree. A pilot study was carried out to evaluate the face validity and reliability of the study instrument. The internal consistency was assessed using Cronbach's Alpha coefficient. According to the analysis, Cronbach's Alpha test values for the pilot study were higher than 0.7. Finally, data were analysed using descriptive statistics such as frequency counts and percentages.

3. RESULTS AND DISCUSSION

The findings first and foremost revealed that most international schools recruit graduate teachers to teach geography to the middle school. However, when considering their academic qualifications, only 30% of the teachers have specialised in geography in their BA degree. 33% have studied the subject as a minor for their degree. Even though the other teachers teach the subject, 22% have not studied it up to a degree level. 5% of the teachers possess a Bachelor of Science degree. It's also worth knowing that undergraduates are recruited for the teaching profession in some schools, and none of them are doing a degree related to geography. Figure 1 portrays the professional qualifications of the teachers. 40% of the teachers have completed a Master's degree related either to geography, environmental management or education. Only 20% of the teachers have completed their post-graduate diploma in education. 33% of the teachers do not possess any professional qualifications. This also shows that these teachers lack professional career growth and directly impact the teaching-learning process. It's essential that all geography teachers should be well-qualified and trained to teach the subject more effectively.

Figure 1: Professional qualifications of teachers

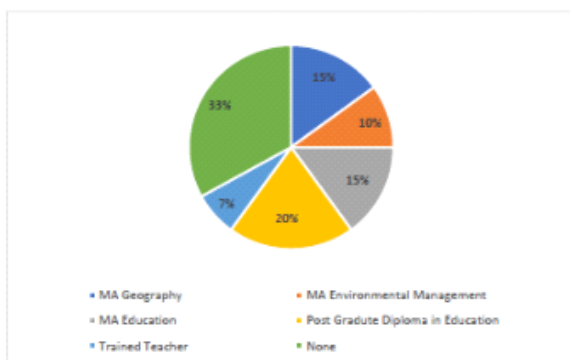


Table 1 indicates some of the selected responses given by the teachers related to their PCK, which mainly comprises their geographical knowledge

and pedagogical competencies. It clearly shows that 20 out of 60 respondents, which is 33 % have a deep understanding of how to teach the geographical content to the students. 30 % of the respondents neither agree nor disagree with the statement, which could mean they are unsure how to teach the content more effectively. 42% of the teachers disagree about the awareness of the special educational needs of their students. This indicates that the teachers are unaware of students' disabilities, such as hearing and visual Impairments. Also, they are unable to identify learning difficulties such as autism and dyslexia. 25% of the respondents have a neutral view regarding this statement. 40 out of 60 respondents, which is 67%, agree that they teach new geography concepts by incorporating the learner's prior knowledge into the lesson. This is satisfactory progress. It's vital to link new concepts to what the students already know. However, 20 respondents neither agree nor disagree with the statement. It's visible that 17% of the teachers strongly agree that they change their teaching strategies based on the difficulty of the geography concepts. 8% of the respondents disagree with that statement. This means these teachers use only one teaching style for all lessons.

Table 1: Teacher responses in percentage values related to their pedagogical content knowledge

Statements	1	2	3	4	5
I am equipped with a deep understanding of HOW to teach geographical content to students in middle school.			30	37	33
I'm aware of the special educational needs of the students. (Disabilities, learning difficulties such as Autism and Dyslexia and gifted students)		42	25	33	
I teach new geography concepts which are built on prior knowledge.			33	67	

My decisions about teaching strategies are based on the difficulty of the geography concepts.		8	50	25	17
I plan my lessons considering the learners with different learning styles in my classroom. (visual/auditory/read-write/ kinesthetic)		17	66	17	
I select various teaching aids depending on the geographical content that needs to be taught.			45	30	25
Students are very much engaged during my geography lessons by being interactive and participative.		29	33	25	13

1=Strongly Disagree 2=Disagree 3=Neither Agree nor Disagree 4=Agree 5=Strongly Agree

50% of the teachers neither agree nor disagree with this matter. This also gives the impression that they are unaware of different strategies and the difficulty of the geography concepts. A classroom consists of diverse learners. It's essential that the teachers are conscious of it. Hence, the lessons should be planned considering the different learning styles of the students, such as visual, auditory so on. It's noticeable that only 17% of teachers agree regarding this matter. 67% of respondents neither agree nor disagree, and 17% disagree. This clearly shows that most teachers do not plan their lessons to cater to diverse learners. Simply because it is time-consuming or their unawareness. Teaching aids play a crucial role in making geographical lessons successful. Such as models, paper articles, videos so on. 15 and 18 out of 60 respondents strongly agree and agree respectively that various teaching aids must be used depending on the geographical content that needs to be taught. However, 45% of them neither agree nor disagree with this statement. This can be due to a lack of facilities and resources in their schools. 28% of the teachers disagree that their students are interactive and participative during geography lessons. This shows a lack of interest towards the subject. 33% of teachers neither agree nor disagree, which means students are

partially engaged in the lesson. 25% and 13% of the respondents have given a point of 4 and 5, respectively.

4. CONCLUSIONS AND SUGGESTIONS

According to the study's findings, geography teachers in international schools need to improve their pedagogical competencies and subject knowledge. Less than three-quarters of the teachers have a degree in geography. Even though the others also teach geography, their lack of adequate subject knowledge will have a negative impact on how students are taught and how they learn. The study also showed that a small percentage of teachers had successfully completed their PGDE. This shows that most teachers are unaware of topics like education, child psychology, effective teaching strategies, and so on. The majority of the teachers have not demonstrated interest in enhancing their professional qualifications. When analysing the responses, it becomes abundantly clear that a sizable portion of teachers are ignorant of the needs and aptitudes of their students. In order to accommodate a variety of learners and the subject matter, lessons are not adequately planned. Because of the repetitive nature of the teaching methods, the lessons are less interactive and engaging. Hence, subject knowledge and pedagogical competencies are two essential factors for all teachers. If the teachers do not possess these two factors, it will negatively affect the learner. Eventually, they will lose interest in the subject, which can significantly make students not pick the subject for their O/Ls or A/Ls. Therefore, in line with the findings of this study, the following suggestions are made:

1. It's important that teachers receive proper mentoring and professional development training along with leadership support during their tenure in school. The school management should organise ongoing training sessions to provide teachers with active opportunities to learn and develop their pedagogical competencies.

2. When hiring teachers for their schools, the administrators of international schools ought to exercise more caution. It is necessary to hire educators with subject-specific training and qualifications to teach geography. If not, the learner may suffer significant long-term harm from inadequate subject knowledge, flawed theoretical content, and inappropriate transferable skills. Geography teachers with high levels of training should be hired if they are to help students achieve the goals they have set for themselves.

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