A Glimpse of Mathematics Cambridge Curriculum (IGCSE and A/AS Level) Implementation in Indonesian Secondary Schools

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Abstract. To transform education, one may adopt an existing well-established curriculum. This paper aims to delve into the implementation of IGCSE and A/AS Level curricula in the Indonesian secondary school system. We followed a qualitative descriptive approach in conducting our study. Various curriculum designs are employed by different schools, depending on their circumstances. Moreover, based on our current data, some schools offer only one A/AS Level curriculum pathway, while others allow students to choose one of two pathways. This disparity in adopting the Cambridge curriculum in mathematics can be seen as thoughtful and well-reasoned as the schools consider their circumstances. We further discuss the nuances of Cambridge curriculum adoption in Indonesia and offer some suggestions for practitioners.

Keywords: IGCSE · A/AS Level · Cambridge · Mathematics Curriculum

1 Introduction

Globalization has brought us to the phenomenon of internationalization in every aspect of human life, including the education sector. Within the education sector, one of the ways to look at the internationalization of education can be viewed through the existence of international schools [1]. Schools have adopted other national curricula, especially in less developed countries. Those schools usually brand their school with the title of international. The so-called international schools attempt to supply the demands of the international level of education. The demands often come from individuals who want to taste a "superior western" curriculum without actually studying abroad. Moreover, Bunnell and colleagues [2] stated that these international schools had been operated on a profit basis, intended for wealthy populations, and using English as their communication medium, while English is not their national language.

The internationalization of education trend has resulted in a growing number of international schools globally [3]. Past studies claimed to focus on comparative studies examining different educational systems in different countries [1]. Other studies

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attempted to understand the perspective of being international from students' and teachers' points of view [4, 5]. While the authors acknowledge the multiple meanings and connotations of the term "international" carry with [6], we seek to understand this phenomenon happening locally in Indonesia through the lens of how one of the so-called international curricula is being enacted in different schools.

Cambridge curriculum is one of the most adopted curricula internationally. Cambridge Assessment International Education (CAIE) [7] claimed that the Cambridge curriculum had been implemented in more than 160 countries. There are two common reasons mentioned in the literature why the Cambridge curriculum, especially in mathematics, is widely adopted as an international curriculum. Firstly, the IGCSE and A/AS Level curricula offer certification, which can be used to apply to universities internationally [8]. The second is its accordance with major international educational surveys, namely TIMMS and PISA [9].

There has been growing interest in adopting the mathematics Cambridge curriculum in Indonesia, and researchers have put interest in such phenomena from various angles [9–16]. We have seen numerous studies in Indonesia focusing on the Cambridge Primary curriculum embedded into elementary schools [11, 14]. In this paper, we will focus on IGCSE and A/AS Level curricula being embedded into the Indonesian secondary school system. We aim to understand the intricacy of applying these two curricula to a different system. To exemplify, the Cambridge Primary is originally designed for six years (1–6 grades), and it is the same in Indonesia. Meanwhile, the Cambridge curricula have different pathways in which secondary levels are divided into three stages: lower secondary (7–9 grades), IGCSE (10–11 grade), and A/AS level (12–13 grade). Thus, we are interested in scrutinizing the nuance of implementing IGCSE and A/AS Level curricula into the Indonesian secondary school system.

2 Methods

This study follows a qualitative methodology with a case study approach [17]. We gathered our data from three schools in Indonesia. We chose our subjects purposefully so that they have different ways of implementing the Cambridge curriculum. We collected our data through interviews and documents. Our analysis and data gathering were guided by broad questions of how the Cambridge curriculum had been implemented and why such implementation had been chosen.

The guiding question of this study concerns how the Cambridge curriculum is being implemented in the school. From the authors' point of view, because Indonesia has a different secondary school (junior and senior high school) system than the UK, where the Cambridge curriculum is originally from, we predict that there would be a variety of enactments.

3 Findings

Based on our current data, we have the following result of how different curriculum design is being enacted by the schools (see Table 1). The readers can see how schools are so different in applying their curricula. This finding can be seen as good practice

for applying a curriculum. The authors argue that the various diverse implementation of the Cambridge curriculum in those three schools means that each school considers the current state of the school and the school's needs [7, 18]. As opposed to replicating and following precisely what the Cambridge curriculum offer, those three schools adopt it in a way that works in their best scenario for their own agenda.

Furthermore, the authors also have realized the difficulties of adopting this curriculum in Indonesia. One of the struggles comes from the different nature of the different allocation of how many years students will spend at each educational level. For instance, Indonesia has three years of lower secondary education (SMP/MTs) and three years of upper secondary education (SMA/MA), while the UK has a different system. Moreover, while Indonesian students will finish their pre-university education in year 12, UK students will finish in year 13. Thus, nuances behind these diverse Cambridge curriculum implementations will be further explored.

From Table 1, the readers can see how the three schools have employed different strategies to incorporate the Cambridge curriculum in their schools. School A devoted the junior high school level to the Lower Secondary curricula. Meanwhile, the other schools have a different approach in which they implement a part of IGCSE curricula starting in 9th grade. Another noticeable practice is that School C chose not to implement the Lower Secondary curricula in years 7th and 8th and instead favored the national curriculum.

Furthermore, we will discuss some reasons behind the differences we have seen in Table 1. One of the reasons for school C not using the lower secondary curriculum is the assumption of the similarity between the current national curriculum and the lower secondary curriculum. On the other hand, Schools A and B favored the Cambridge curriculum being implemented because students will be accustomed to the English math earlier, and when they need to take the national exam, the students do not need to adapt

Table 1. Embedding Cambridge Curriculum into the Indonesian Secondary Schools System

Grade	Semester	School A	School B	School C
7th	1	Lower Secondary	Lower Secondary	National Curriculum
	2			
8th	1			
	2			
9th	1		IGCSE	IGCSE
	2			
10th	1	IGCSE		
	2			
11th	1		A/AS Level	A/AS Level
	2	A/AS Level		
12th	1			
	2			

Table 2. Various A/AS Level Pathways Followed by Indonesian Schools

A/AS Level Curriculum Pathways				Schools
Pure Mathematics 1	Mechanics	Pure Mathematics 3	Probability and Statistics 1	School A and School C
Pure Mathematics 1	Probability and Statistics 1	Pure Mathematics 3	Probability and Statistics 2	School A and School B

much due to the similarity between the Cambridge curriculum and the national curriculum. Moreover, school A decided to pack the IGCSE curriculum into three semesters because they claimed that the IGCSE is similar to the lower secondary curriculum to the point that they can skip or just go through fast on some topics.

Delving into the A/AS level curriculum, we have seen three distinct approaches to choosing the desired pathways among the two available pathways students can take (see Table 2). The first is a pathway in which students take Pure Mathematics 1, followed by Mechanics, Pure Mathematics 3, and Probabilistic and Statistics 1, all in chronological order. The second pathway allows students to choose Probabilistic and Statistics 1 instead of Mechanics and Probabilistic and Statistics 2 in addition to Probabilistic and Statistics 1. While Schools B and C offer only one pathway option, School A chooses to allow students to choose from two afforded pathways.

4 Conclusion

Our finding showed that schools implement IGCSE and A/AS level curricula differently depending on schools' circumstances. The nuance of how schools try to overcome difficulties in incorporating the two curricula is intricate. For instance, we will further investigate the rationales behind the fixed and flexible pathways offered by the schools, which may deviate from the versatility of A/AS Level curriculum pathways. A follow-up study that focuses on enacted curriculum may be to investigate different resources (e.g., textbooks) that the schools have selected for teaching and learning activities.

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