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Research Article

The potential of Malaysia in achieving the top-third position in PISA

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ABSTRACT

The article presents some perspectives on the possibility for Malaysia to achieve its aspiration of the top-third place of countries in the program for international student assessment (PISA) for the period 2013-2025. The document study results showed that Malaysia's PISA top-third goal was achievable. There were many factors that affected Malaysia's PISA performance such as school factors, national cultural traits and social communication. PISA's best contribution is to provide a huge source of data that helps participating countries realize their education systems' strengths and weaknesses, thereby establishing appropriate development strategies in the future.

Keywords: *Malaysia; Top-Third of PISA Ranking; MEB 2013-2025*

1. INTRODUCTION

In September 2012, the Malaysian Ministry of Education launched the Malaysia Education Blueprint (MEB) for the period 2013-2025 with the aim to raise international education standards, meeting the Government's aspiration of getting Malaysian students equipped with necessary skills of the 21st century, simultaneously satisfying the increased parental and public expectations of education policy (Ministry of Education Malaysia, 2013).

One of the important goals set out in the MEB 2013-2025 is that Malaysia will be ranked at the top-third of countries in the international assessment programs such as PISA, TIMSS.

This article studies the possibility of achieving Malaysia's aspiration of the PISA top-third place, influential factors to Malaysia's PISA performance and the contribution of PISA to its education quality.

2. BACKGROUND

2.1. Malaysia's Education System

The Malaysian education system includes all levels of education: preschool, primary, lower secondary, upper secondary and tertiary (MEB 2013-2025), which is managed at four levels: federal, state, districts and schools (UNESCO 2011, The Head Foundation, 2019).

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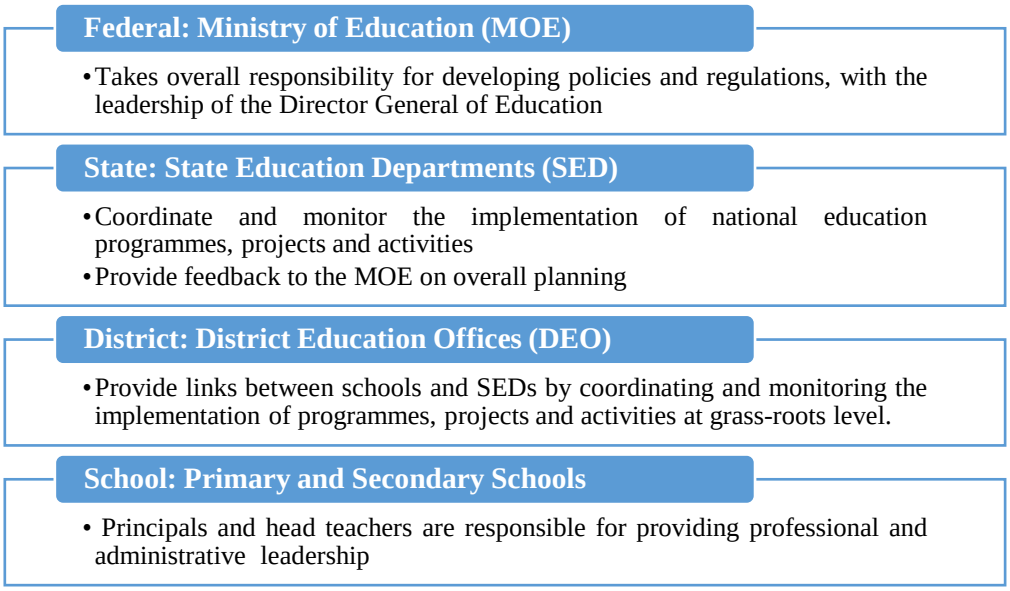


Fig. 1. The four levels of education management in Malaysia

Source: The Head Foundation, 2019

Malaysia has executed education system reforms over years with the philosophy: "Education in Malaysia is an on-going effort towards further developing the potential of individuals in a holistic and integrated manner, so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious, based on a firm belief in and devotion to God. Such an effort is designed to produce Malaysian citizens who are knowledgeable and competent, who possess high moral standards, and who are responsible and capable of achieving high level of personal well-being as well as being able to contribute to the harmony and betterment of the family, the society and the nation at large" (Malaysian Ministry of Education, MEB 2013-2025).

In the period of 1960-1970, Malaysia's education reform emphasized much effort on the quantity expansion of the school system with more financial resources allocated to building new schools and training teachers (Nurul-Awanis et al., 2011).

In 1982, the Malaysian Ministry of Education enacted the New Primary Education program, referred to Kurikulum Baru Sekolah Rendah (KBSR). The fundamental philosophy of KBSR is a "child-centered curriculum" that recognizes the importance of individual differences and individual achievement and emphasizes the holistic development of the child (Azizah, 1987; Nurul-Awanis et al., 2011).

In 1988, the Integrated Secondary School Curriculum, called Kurikulum Bersepadu Sekolah Menengah (KBSM), was introduced as a continuation of the curriculum reform efforts at the secondary level. The emphasis of the new middle school curriculum is on "integration", accentuating the teaching of language and values across the curriculum (Abdullah & Kumar, 1990; Nurul-Awanis et al., 2011).

The reform in the early 1990s extended the basic education from 9 years to 11 years and changed an elitist school system into the one that provided mass education (Nurul-Awanis et al., 2011).

In 2012, an education reform plan, referred to the Malaysia Education Blueprint, was launched for the period 2013-2025. The goal of this reform is to transform the education system to place Malaysia in the top third of countries on international rankings, such as the Program for International Student Assessment (PISA) and Trends in International Mathematical and Scientific Research (TIMSS) by 2025 (Ministry of Education Malaysia, 2013).

2.2. Background to the Goal of the PISA Top-Third Ranking for the Period 2013-2025 of Malaysia

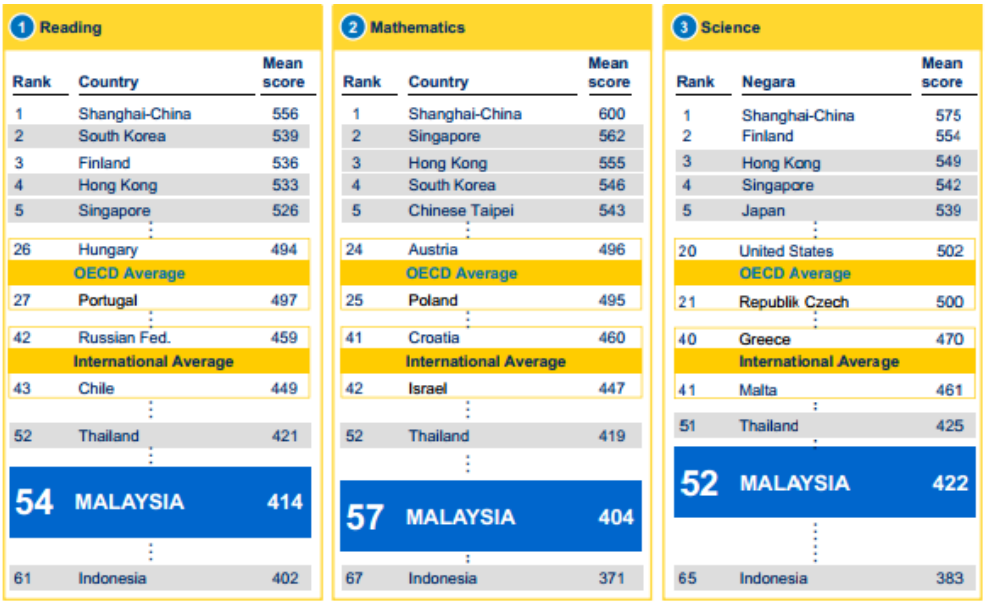
PISA (Program for International Student Assessment) developed by the Organization for Economic Cooperation and Development (OECD) is an approach to assess a country's education system status. PISA assesses the abilities of 15-year-old students from countries and territories within and outside the OECD in three domains: Mathematics, Science and Reading, which aims at measuring students' knowledge and problem-solving skills in everyday life. It has been executed since 2000 with a 3-year cycle. The purpose of PISA is to provide comparative data to help countries improve their education policies and outcomes.

The goal that Malaysia will reach the top third of countries in PISA for the period 2013-2025 is established on the following basis.

First, with the drastic development of science and technology in an ever-changing world, knowledge has become a powerful tool and a key factor for individuals, organizations and the entire economy to gain competitive advantages. As a result, many countries, Malaysia included, are looking for ways to improve their education systems in order to compete more effectively in the knowledge economy (The Head Foundation, 2019).

Second, globalization promotes the trend of international integration and attracts countries into fierce competition, so it requires innovation in education to create workforces who are creative, critical thinkers, capable of living, working and competing well in the international environment (Ministry of Education Malaysia, 2013).

Third, although Malaysia is considered as one of the few countries with the best education in Southeast Asia, there are still shortcomings that have lasted for many years. The Malaysian education system has not been successful in imparting basic skills such as Reading, Mathematics and Science to the average students and promoting academic excellence in talented students (Woo, 2019); Malaysian students are still limited in applying knowledge to solve real-life problems (Ismail et al., 2017). This is demonstrated in Malaysia's PISA results. Out of 74 countries participating in the 2009 PISA survey, Malaysia was ranked 54th in Reading, 57th in Mathematics and 52nd in Science (PISA 2009+).



1 Reading

Rank	Country	Mean score
1	Shanghai-China	556
2	South Korea	539
3	Finland	536
4	Hong Kong	533
5	Singapore	526
26	Hungary	494
	OECD Average	
27	Portugal	497
42	Russian Fed.	459
	International Average	
43	Chile	449
52	Thailand	421
54	MALAYSIA	414
61	Indonesia	402

2 Mathematics

Rank	Country	Mean score
1	Shanghai-China	600
2	Singapore	562
3	Hong Kong	555
4	South Korea	546
5	Chinese Taipei	543
24	Austria	496
	OECD Average	
25	Poland	495
41	Croatia	460
	International Average	
42	Israel	447
52	Thailand	419
57	MALAYSIA	404
67	Indonesia	371

3 Science

Rank	Negara	Mean score
1	Shanghai-China	575
2	Finland	554
3	Hong Kong	549
4	Singapore	542
5	Japan	539
20	United States	502
	OECD Average	
21	Republik Czech	500
40	Greece	470
	International Average	
41	Malta	461
51	Thailand	425
52	MALAYSIA	422
65	Indonesia	383

SOURCE: PISA 2009+

In PISA 2012, out of 65 countries, Malaysia was ranked 59th in Reading, 52nd in Mathematics and 53rd in Science. Malaysia's PISA scores are below the OECD average in all areas (OECD, 2014). In addition, competence of teachers, accountability and school curriculum are also problems of the Malaysian education system (Woo, 2019).

In a nutshell, the context of globalization, the requirements of the knowledge-based economy and the flaws in the education system have prompted Malaysia to reform its education system for the purpose of creating students with international quality, necessary skills to meet the needs of the 21st century and high competitiveness in the global labor market. Therefore, the goal of top third on PISA ranking is viewed as one of the top important in MEB 2013-2025.

3. METHODOLOGY

Data in this study was searched and collected from scientific journals, articles published in scientific conference proceedings through websites. After that, the data was systematized and analyzed to draw argument points related to the PISA top-third goal in Malaysia education blueprint for the period 2013-2025.

4. FINDINGS

4.1. KEY FEATURES IN MALAYSIA EDUCATION BLUEPRINT 2013-2025

Malaysia Education Blueprint for the period 2013-2025 sets out five aspirations for the education system and six aspirations for students. Aspirations for the Malaysian education system encompass: education access, quality, equity, unity and efficiency. Aspirations for Malaysian students comprise of ethics & spirituality, leadership skills, national identity, bilingual proficiency, thinking skills and knowledge (Ministry of Education Malaysia, 2013).

To achieve these goals, the Ministry of Education has proposed 11 strategic shifts to transform the education system, including: provide equal access to quality education of international standards; ensure each child is proficient in Bahasa Malaysia and English; develop value-oriented Malaysian; transform teaching into the profession of choice; ensure high performing school leadership in every school; empower the state departments of education, local departments of education and schools to customize solutions based on needs; leverage information and Communication Technology (ICT) to scale up quality learning; transform ministry delivery capacity and capabilities; partner with parents, community and private sector at scale; maximize student outcomes within the budget, and increase transparency for direct public accountability (Ministry of Education Malaysia, 2013).

The implementation of these 11 shifts will take place over 13 years, divided into 3 waves. Wave 1 from 2013-2015 focuses on supporting teachers and strengthening core skills. Wave 2 from 2016-2020 accelerates the improvement of the education system. Wave 3 from 2021-2025 moves towards excellence with increased operational flexibility. One of key expected outcomes from this transformation is that Malaysia gains the top- third of countries in PISA ranking (Ministry of Education Malaysia, 2013).

4.2. The reality of Implementation of the PISA Top-Third Objective in Malaysia Education Blueprint for the Period 2013-2025

To carry out the vision and goals in MEB 2013-2025, the Malaysian Ministry of Education has planned an elaborate MEB implementation roadmap with drastic actions. According to The Head Foundation, the implementation of MEB has the following positive and negative points.

The positive points are composed of establishing the Education Performance and Delivery Unit (PADU) in 2013 to facilitate, support and deliver the Ministry's vision in transforming Malaysia's education system through MEB 2013-2025; School Improvement Partners (SIPs) to support lower performing schools through principals and teachers coaches and increased monitoring from the District Education Offices; and School Improvement Specialist Coaches (SISCs) to take new curricula and assessments to classrooms, coaching teachers on pedagogical skills, and monitoring the effectiveness of implementation (The Head Foundation, 2019).

With regards to negative points, Malaysia has adopted a top-down communication model, which makes information diluted and stakeholders not fully understand policies; MEB is difficult and complex to read; weak feedback loop; unrealistic policies; change is viewed as imposed rather than owned by stakeholders; teachers and leaders not embracing change; lack of trust in officials and limited resources (The Head Foundation, 2019).

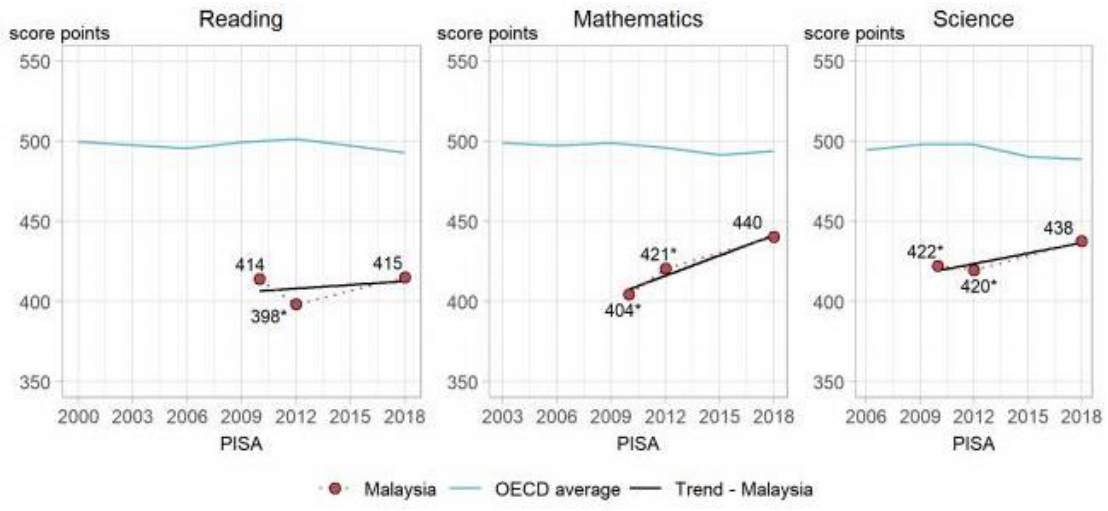
From the above-mentioned views, The Head Foundation (2019) suggested some recommendations:

1. Empower teachers and leaders to interpret and adapt policy rather than simply implementing it
2. Develop alternative communication methods to engage school-level professionals
3. Build in effective feedback loops to enable practitioners to advise policy-makers of the operational aspects of policy reform
4. Allow policy initiatives to emanate from teachers and principals
5. Prioritize initiatives to reduce overloading and to boost the prospect of effective implementation
6. Ministers and senior officials to indicate the intended policy aims but leave it to states, districts and schools to decide the most appropriate ways of achieving these aims; invite schools to participate in pilot schemes.

4.3. Malaysia's PISA Performance After 5 Years of the MEB Implementation.

In 2018, approximately 600,000 15 years old students from 79 countries and economies participated in the PISA. Among them, there were 6,111 students from Malaysia (Thestar, 2019).

The result of PISA 2018 shows that Malaysia's PISA performance has improved notably and positively in comparison with previous years, but the score is still lower than the OECD average in Reading, Mathematics and Science. This is demonstrated in the chart of Malaysia's performance trends as below.



Notes:*indicates mean-performance estimates that are statistically significantly above or below PISA 2018 estimates for Malaysia.
The blue line indicates the average mean performance across OECD countries with valid data in all PISA assessments. The red dotted line indicates mean performance in Malaysia. The black line represents a trend line for Malaysia (line of best fit).
Source: OECD, PISA 2018 Database, Tables I. B1.10, I. B1.11 and I. B1.12.

Fig. 2. Trends in performance in reading, Mathematics and Science

In Malaysia, 54% of students attained reading proficiency at least level 2 (OECD average: 77%), some 59% of students achieved level 2 or higher in Mathematics (OECD average: 76%) and about 63% of students reached level 2 or higher in Science (OECD average: 78%) (OECD, Country Note, 2018).

5. DISCUSSION

The discussion focuses on the possibility for of Malaysia to achieve the PISA top-third goal, influential factors to Malaysia's PISA performance and the contribution of PISA to Malaysia's education quality.

5.1. THE POSSIBILITY FOR MALAYSIA TO ACHIEVE THE PISA TOP-THIRD GOAL

After 5 years of the MEB implementation, Malaysia's scores in Mathematics, Reading and Science in the PISA 2018 increased significantly compared to previous years but still below the OECD average. With this result, the education Director-General, Datuk Dr Amin Senin believes that Malaysia is approaching the OECD average and its education system is on the right track (Kannan, 2019). Thus, the Ministry of Education confidently sets the target that Malaysia will achieve above the global average score and be ranked the top-third place among participating countries by end of another two cycles (PISA 2021, 2024) within MEB's 13-year roadmap (Kannan, 2019). The Minister of Education, Dr. Maszlee Malik, stated that although Malaysia's PISA results had improved, it was still at the bottom of the list among the 11 developed countries participating PISA 2018 (Thestar, 2019). This fact requires Malaysia to put more efforts in reform actions as well as learn more from other countries so that its aspirations of PISA can be reached. Typically, the case study of China is worth being considered.

In 2015, China was not listed in the top 5 countries on the PISA ranking. However, within the next three years, China soared to the first place in the PISA 2018 in all domains: Reading, Math and Science (OECD, 2019).

	READING	MATHEMATICS	SCIENCE
B-S-J-Z* (CHINA)	555	591	590
SINGAPORE	549	569	551
MACAO (CHINA)	525	558	544
HONG KONG (CHINA)	524	551	517
ESTONIA	523	523	530
CANADA	520	512	518
FINLAND	520	507	522
IRELAND	518	500	496
KOREA	514	526	519
POLAND	512	516	511
SWEDEN	506	502	499
NEW ZEALAND	506	494	508
UNITED STATES	505	478	502
UNITED KINGDOM	504	502	505
JAPAN	504	527	529
AUSTRALIA	503	491	503
CHINESE TAIPEI	503	531	516
DENMARK	501	509	493
NORWAY	499	501	490
GERMANY	498	500	503

Fig. 3. A snapshot of the PISA ranking of countries

Source: OECD, 2019

Furthermore, China's achievement is even more remarkable since the income level of Shanghai, Beijing, Jiangsu and Zhejiang are well below the OECD average but the students from these Chinese regions outperformed their peers in all of the other 78 countries in PISA 2018 (OECD, 2019).

So, with perseverance and on-going efforts, Malaysia can completely achieve the PISA top-third goal in the remaining time of MEB 2013-2025 as set out by the Malaysian Ministry of Education.

5.2. Influential Factors on Malaysia's PISA Performance

Regarding the factors that affect Malaysia's PISA performance, according to Abdullah, A. & Peters, R.F. (2015), firstly, the awareness of teachers and students about PISA is still very limited and inaccurate because PISA has not been disseminated broadly in schools and on mass media. As a result, Malaysian students tend to focus and put more efforts on the PT3 national assessment than on the PISA. Secondly, the national vision of educating Malaysian students with international quality has not been widely shared to the whole society. Consequently, Malaysians just see PISA as another assessment, they do not understand the benefits brought by joining PISA (Abdullah, A. & Peters, R.F., 2015). The authors agree that if Malaysia's PISA participation is strongly promoted nationwide, it will make students enthusiastic and determined, which helps them gain better results.

According to the analysis results of the OECD (2018), social-economic status and gender were the factors influencing Malaysian students's PISA performance. In Malaysia, social-economically advantaged students outperformed disadvantaged students by 89 score points. Girls outperformed boys in Mathematics by 7 score points, in science by 6 score points and in Reading by 26 score points.

Meanwhile, in researches by Jerrim, (2015) and De Philippis & Rossi (2016), it was found that cultural factors really had a profound impact on a country's PISA performance. To catch up with the PISA performance of East Asian nations, Western countries needed to make widespread cultural change, promoting a culture of hard work, a strong belief in the value of education in every child, every family (Jerrim, 2015). Cultural factors had an influence upon parents' investment in their children's education (De Philippis & Rossi (2016). These points of view are similar to the statements by Andreas Schleicher, OECD Education Directorate when he talks about Vietnam's PISA performance. In 2012, Vietnam participated in PISA for the first time and was ranked 17th in Mathematics, 8th in science and 19th in Reading. It scored above the OECD average in all domains. With that result, Vietnam outranked the United States, Australia, the United Kingdom and was considered to be on par with the achievement of Finnish and Swiss students. This fact surprises many other countries in the world because PISA rankings often correspond to GDP and national prosperity, while Vietnam is still a less developed economy than Western countries; the level of corruption is higher than Thailand, Malaysia, Indonesia, Philippines (Asadullah & Perera, 2015) but Vietnam's PISA performance is very good. Andreas Schleicher stated that Vietnamese students attained such amazing achievement stemming from a national culture that encourages hard work, viewing teaching as a highly respectable profession, parental strong commitment and high expectations for their children's education, forward-thinking government officials, a focused curriculum, and an investment in teachers. In addition, Javier Luque of the Inter-American Development Bank argued that extra learning activities and high levels of parental pressure on school academic standards were attributed to Vietnamese student's amazing PISA results. Out of 65

countries participating in PISA 2015, Vietnam was ranked 8th in terms of parental pressure, reflecting a high level of commitment and aspirations of parents for their children's education (Asadullah & Perera 2015). Thus, it can be seen that cultural factors have positively contributed to Vietnam's high PISA performance. Can Malaysia reach the PISA target in a way that takes the advantages of the positive influence of cultural factors?

As countries in Southeast Asia, Vietnam and Malaysia have some similarities of cultural characteristics. First, Vietnam and Malaysia are collectivist societies (Hofstede Insights, 2022), they share common values such as the role of family, interdependence, politeness, respect for elders, values of education, parents' high expectations and willingness to make sacrifices for their children's education (Winskel et al., 2013; Mestechkina et al., 2014; Painter, 2022; Masiran, 2022). Second, Vietnam and Malaysia adopt centralized policy making and a top-down policy delivery process (The Head Foundation, 2019; Shanks et al., 2004). These similarities should be taken into account when building policies that use cultural factors to positively influence Malaysia's PISA target implementation.

To sum up, based on the above-mentioned findings and the researchers' comments, it is noted that cultural features encompassing attitudes, beliefs, expectations, commitment and investment of parents in their children's education are the root formulating students' attitudes, beliefs, and inner motivation which have effect on their academic achievement and are the key to success in PISA. Asadullah et al., (2020) assume that if Malaysia, Indonesia and Thailand merely concentrate on school factors alone, it will not be enough to help them improve their rank in PISA, instead, more attention should be paid to cultural values when making education policies.

5.3. PISA's Contribution to Malaysia's Education System Quality

What does PISA contribute to the quality of an education system? This is an issue that has been hotly debated by many scholars and education experts.

First of all, it is necessary to review the original purpose of the PISA development. In 1997, the OECD launched PISA in response to the need for comparable evidence on student performance across OECD countries. International assessment and comparison will help countries position where their education systems are in terms of the quality of educational outcomes as well as the equitable distribution of learning opportunities in a larger context, working out their strengths and weaknesses of the education system and building education reform policies that are suitable to the country's conditions (OECD, 2009).

The PISA results focus on providing a basic profile of knowledge and skills among 15-year-old students; contextual indicators showing how such skills are linked to demographic, social, economic and educational variables; trend indicators showing how results change over time; and a valuable knowledge base for policy analysis and research (OECD, 2009). These lay the groundwork for the OECD to make recommendations and at the same time indicate the direction of education system reform, however, the implementation of the recommendations is up to the voluntariness of countries. The primary purpose of PISA is

not to affirm the quality of an education because it only reflects a few measurable subjects, not those that are difficult to measure quantitatively (physical education, ethics, arts, etc.) and generally speaking, it has not given a paramount picture of all the important aspects of an education system. As a consequence, Sheng, (2017) argues that PISA is really a limited measure of educational quality. The purpose of the PISA survey is to help countries understand the causes of the current state of their education systems, thereby finding appropriate solutions to improve it.

The reality also improves that PISA results are not certain enough to ensure the quality of an education system on a large scale. Associate Professor Ph.D. Nguyen Thi Lan Phuong, a senior expert of the Vietnam Institute of Educational Sciences, said that Vietnamese students performed very well with high rankings in three PISA terms, but in the same period of time, they did not meet the national assessment standards in Mathematics, Biology and English. Specifically, Vietnamese students were in the top 5 regions with the highest results in PISA 2015, but in the 2014-2015 school year, only 44% of lower secondary students met the state standards in science, 45% in Mathematics and 52%-53% in English and 40% of high school students met the state standards in Biology, 52% in Mathematics (Vnexpress, 2021).

With the case of the United States, it is well-known as a powerful nation which has the world leading economy and education. It participated in all PISA terms, yet its results were always below the OECD average (Dobbins & Martens, 2010) (as cited in Bieber, T. & Martens, K., 2011). Students' lack of motivation was attributed to be one of the reasons for the United States' low PISA achievement. The data analysis from the PISA 2018 (OECD, 2019a) showed that two third of students in OECD countries did not give their best on PISA tests, of which the United States made up 63%, Finland 70%, Australia 73% and Canada 79% (Sahlberg, 2021), which may have a great impact on the internationally-comparative value of students' capabilities in Reading, Mathematics and Science across countries. With these two cases, it seems that there is a sizable mismatch between PISA performance and student achievement in schools as well as the reputation of an education. In other words, it is not sure that a country with a high PISA score has a good quality of general education or a prestigious education can assure high PISA achievement. Therefore, Ms. Tang Thi Thuy, a PISA expert in Vietnam, stated that the comparison of PISA scores and rankings did not reflect the quality of an education system (Dantri, 2017).

In line with the authors' points of view, the greatest contribution of PISA is to produce a huge, rich and systematic source of data helping countries realize strengths as well as weaknesses in their education systems so that they can make a plan for appropriate development policies in the future. This should be something worth being concerned about more than the place on PISA rankings since the rank is just the surface of an iceberg. If countries fail to understand thoroughly the meanings of the indicators from the results of PISA analysis, they will not be able find the relationship between those indicators and socio-economic factors such as investment for education, socio-economic status, gender, learning environment, teachers' roles, students' learning motivation... then, they will hardly understand the actual state of their education systems, which may lead to

inaccurate policy orientation and difficulties in education quality improvement accordingly. As a consequence, the authors agree with Sahlberg, (2021) that PISA is just a means, not an end.

In general, even though PISA arouses much controversy, it is undeniably the best international assessment tool for comparing school systems at present (Sahlberg, 2021), an instrument that measures students' performance authentically and reliably (OECD, 2009), a tool that assists governments in choosing education policies (Angel Gurria, OECD Secretary-General). PISA has had tremendous effects on global education reforms and national education policies in participating countries. PISA has become an important base for educational development in Asia, Europe and North America and is gaining attention of the rest of the world (Sahlberg, 2021). Therefore, the number of countries and regions participating in PISA is forecasted to increase from 32 countries in 2000 to about 88 countries in 2022 (The Irish Education Journal, 2022).

6. CONCLUSION

In brief, the results of the PISA 2018 and the comprehensive education reform plan along with a closely monitored implementation roadmap provide the positive groundwork for the belief that Malaysia's aspiration of the top-third place on PISA rankings by 2025 is achievable. To obtain that, apart from school factors, Malaysia needs to pay more attention to cultural aspects, promoting values on mass media to raise students' awareness and boost their inner motivation in getting national goals accomplished.

Yet, whether reaching the aspiration of the PISA top-third ranking really mirrors the quality of the education system and the international quality of students on a large scale as expected by Malaysia, it is still a big question that requires more in-depth researches conducted by educators and the Malaysian Government to give a well-founded answer and prove to the public that Malaysia's target of "Race to the top" is right and worth pursuing.

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