

Original Article

Macao, Qatar and Jordan: A Cross-Country Exploration of Three Countries' Literacy Enrichment Programs

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Abstract

When assessing a country's level of education, referring to their Programme for International Student Assessment (PISA) scores can be stated as an overused trend, one that has been criticised as PISA alone is not the most perfect way to judge a country's readiness. To address this weakness, this study will also refer to the Progress in International Reading Literacy Study (PIRLS), another world-class test that specifically focuses on literacy, yet has been underutilised in reading-related research. This paper is a case study on three countries which have shown different levels of performances. Using PISA and PIRLS reports as the main data and general literature review to supplement the contextual details of the reported results, the analysis focused on how Macao, Qatar and Jordan employ diverse strategies to cultivate and elevate literacy skills among their students. Results show that Macao is a leader in government-led efforts that focused on developing teacher competence, Qatar develops their children's literacy through collaboration and competition, and Jordan focuses on all language skills in balance (with few programs exclusively concerned on reading competence). The novelty of the findings is its comparison of two international assessments that have a different scope, as PISA offers a holistic view of contextual factors affecting literacy whereas PIRLS covers information that are crucial for understanding early literacy development.

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1. Introduction

Traditionally, literacy has been narrowly associated with the ability to read and write. However, the 21st century has ushered in a paradigm shift, expanding the definition of literacy to a more critical sense. In this contemporary context, literacy is not confined to mere reading and writing; rather, it challenges individuals to develop a broader skill set that enables them to make meaning in a wider communicative context (Hosman & Comisso, 2020). This evolution necessitates a re-evaluation of the scope of literacy movements, encompassing not only basic reading and writing skills but also the ability to understand, communicate and critically analyse information (Baxtiyarovna, 2021).

One of the most, if not the best, references on the world's literacy level by country is the Programme for International Student Assessment (PISA), which is a worldwide study by the Organisation for Economic Co-operation and Development (OECD) that measures 15-year-olds' ability to use their reading, mathematics and science knowledge and skills. Because PISA provides the world with information about the readiness of students to modern society, this test heavily pressures countries to continuously evaluate

and implement serious revisions in their education systems, though their reforms may be done hastily (Özer, 2020). Countless studies that have been published cite PISA scores of their respective countries, but relying on PISA alone does not justify any claims about the readiness of a nation (Zhao, 2020). As such, this study also uses another world-class reference on countries' literacy, namely Progress in International Reading Literacy Study (PIRLS). Conducted by the International Association for the Evaluation of Educational Achievement (IEA), PIRLS measures the reading comprehension of fourth graders in more than fifty countries as the participants. Stiff et al. (2023) have found that PIRLS has scarcely been used for reading-related research, thus this study has a high novelty value by comparing the findings of both assessments.

Using the PISA and PIRLS reports to discuss each country's literacy progress is justified for several reasons. Both reports provide valuable, comprehensive and internationally comparable data on literacy, but they focus on different age groups and aspects of literacy, offering a well-rounded view of a country's literacy progress. In detail, PISA focuses on real-world applications and critical thinking, while PIRLS evaluates reading abilities and foundational literacy skills. Furthermore, while PISA includes a diverse range of contextual questionnaires that gather data on students' socio-economic background, school environment and attitudes toward learning, PIRLS collects detailed information on home and school reading practices, instructional methods and resource availability.

This study will use PISA and PIRLS reports to examine the literacy enrichment of three countries in particular: Macao, Qatar and Jordan. Macao has been a multilingual and multicultural society over the past four centuries. In addition to the dominant Chinese language, Portuguese and English are also common languages in Macao. Portuguese and Chinese are both official languages in Macao, while English is widely used in commerce and tourism. In Qatar, Arabic is the official language, with Qatari Arabic or Gulf Arabic the local dialect. Qatari Sign Language is the language of the deaf community. English is commonly used as a second language and a rising lingua franca, especially in commerce, those from other countries and the medical community. Similarly, Arabic is Jordan's official language. Everyone in the country, including the minority communities, speak Arabic in their day-to-day dealings. English is the main adopted foreign language. These three countries are selected for this study because they are multilingual and have distinct profiles in terms of the country's literacy level (which will be discussed in the results of the study).

2. Method

With the aim of exploring the literary enrichment progress with a focus on the English literacy programs of three countries (Macao, Qatar and Jordan), this study is designed as a case study. As Creswell & Creswell (2018) detail, a case study is a qualitative research strategy focused on exploring a concept, phenomenon, or issue. An important aspect of case studies is the use of multiple cases of data. The strongest forms of case studies draw on a variety of data forms to achieve a holistic understanding of the issue, trading off pattern finding and generalisability of experimental and survey designs with the depth of scope (Duff, 2015). Although case studies have been criticised for being unable to generalise their results to other contexts due to its characteristic focus on a limited number of subjects, it should be underlined that case studies produce “analytic generalisations” rather than “statistical generalisations” (Cohen et al., 2007; Yin, 2009). Since the selected three countries were purposefully selected on their own rather than as a sample of a population (i.e. all countries in the world), a case study design is the most appropriate.

To explore these three countries' progress in their students' literacy enrichment, this study uses two of the most respected and widely used international assessments of student literacy, namely PISA and PIRLS. These reports are backed by reputable organisations (OECD and IEA) which makes them highly credible and used robust sampling methods which means the reports are significantly reliable. Since these reports were done annually worldwide, they are excellent key references for how countries have progressed over the years. The study will only refer to PISA's 2022 report, since it includes a comparison of results for previous PISA reports in 2018, 2015, 2012, 2009, 2006. On the other hand, while PIRLS' 2021 report will be the primary reference, the researcher will also use PIRLS' 2016 report as a complement since the latest report does not make any direct comparison for previous years' reports. Table 1 shows a basic comparison between PISA and PIRLS.

Table 1. A Comparison of PISA and PIRLS reports

Aspect	PISA	PIRLS
Organisation	Organization for Economic Co-operation and Development (OECD)	International Association for the Evaluation of Educational Achievement (IEA)
Target age group	15-year-olds, providing insights into the readiness of students to enter higher education and the workforce	4th-grade students (approximately 9-10 years old), focusing on early literacy development
Assessment focus	Emphasises real-world application, problem-solving and critical thinking in reading	Concentrates on reading comprehension and the foundational skills necessary for literacy
Frequency	Every 3 years	Every 5 years
Contextual information	Provides extensive background data on students' attitudes, school environments and socio-economic factors	Offers detailed information on home literacy environments and instructional practices

PISA and PIRLS reports are authoritative works due to their rigorous methodology, extensive coverage and depth of analysis provided, making them an excellent source of secondary data for this case study. However, a limitation of using these reports for the purpose of this study is their focus on providing the “big picture” of each countries’ results. Cultural differences and varying educational contexts can influence results, so the researcher must give careful interpretation when comparing countries. Furthermore, the reports focus on reading literacy as a whole, so additional sources would be required for a more comprehensive understanding of literacy which would include digital literacy. Most importantly, neither reports exclusively focus on the countries’ programmes for English, so mentions of this aspect in the reports are rather limited if the case study only relies on the findings reported in PISA and PIRLS. For this reason, while both reports underpin the results, the researcher also complements the findings with by reviewing the research literature on the English language teaching in Macao, Qatar and Jordan. This case study then triangulates the data from PISA, PIRLS and past literature to highlight the three countries’ English literacy enrichment programs.

3. Results & Discussion

The discussion of the literacy enrichment of each country are underpinned by the official data from PISA and PIRLS reports as they serve as the benchmark starting point for the study. The researcher draw links between the reports to provide an overview of Macao, Qatar and Jordan’s respective national performance and programs, then complemented the official reports’ conclusions with results from the literature review that focuses on the English literacy programs.

4.1 Macao

“Only when a teacher truly loves reading and writing can the teacher better inspire students.”

—Quote from Hsiang et al. (2023, p. 326)

Macao is the first region in Greater China to provide 15 years of free education, starting from kindergarten to senior secondary schooling since the 2007-2008 academic year. The government department in Macao that has the responsibility to develop, administer and evaluate education in Macao is the Education and Youth Development Bureau (DSEDJ). Both public and private schools in Macao are encouraged by the government to develop the curriculum and teaching mode in their own way, as supporting a diverse school system is necessary to nurture more talent for society. According to Article 122 of the Basic Law of Macao, all educational institutions in the Macao shall enjoy their autonomy and teaching and academic freedom and may continue to recruit staff and use teaching materials from outside the Macao (IEA, 2021).

Mean performance	Reading
PISA 2000	m
PISA 2003	498*
PISA 2006	492*
PISA 2009	487*
PISA 2012	509
PISA 2015	509
PISA 2018	525*
PISA 2022	510
Average 10-year trend in mean performance (2012 to 2022)	+4.4
Short-term change in mean performance (2018 to 2022)	-14.7*
Proficiency levels: Change between 2012 and 2022	
Percentage-point change in the share of top-performing students (Level 5 or 6)	+1.9
Percentage-point change in the share of low-performing students (below Level 2)	+1.2
Variation in performance: Change between 2018 and 2022	
Average change among high-achieving students (90th percentile)	-20.3*
Average change among low-achieving students (10th percentile)	-9.6*
Gap in learning outcomes between high- and low-achieving students	stable gap
Trends by quarter of socio-economic status (ESCS): 2018-22 / average 10-year trend	
Performance among advantaged students (top quarter of ESCS)	-10.6* / +12.0*
Performance among disadvantaged students (bottom quarter of ESCS)	-16.1* / +0.4
Performance gap (top – bottom quarter)	stable / widening

Figure 1. OECD’s PISA snapshot of results for Macao (2023, p. 438)

As can be seen in Figure 1, Macao scored 510 points in reading in 2022, which is a decrease from its 525 score in 2018. Macao and other countries were reported to have low performers in reading, with 15% or less of students performed below baseline proficiency Level 2 in reading. Most of the relatively few low-performing students scored at no lower than Level 1a, indicating that the educational system in Macao is close to achieving universal basic proficiency in reading (OECD, 2023, p. 97).

Despite this, PISA reported that Macao is one of the ten countries and economies that saw a large share of all 15-year-olds with basic proficiency in mathematics, reading and science and achieve high levels of socio-economic fairness. While socioeconomic status remains a significant predictor of performance in these and other OECD countries and economies, education in these countries can be considered highly equitable (OECD, 2023, p. 3). The education system is highly equitable according to PISA’s definition, as the students have achieved high levels of socio-economic fairness together with a large share of all 15-year-olds with basic proficiency in mathematics, reading and science (i.e. high level of inclusion) (OECD, 2023, p. 110).

Table 2. Macao’s special reading initiatives and policy changes (IEA, 2021)

Program	Description
The Education Development Fund	The fund promotes various activities to ensure the stable development of education resources investment. Nonprofit private schools in particular are encouraged to apply for resources to develop students’ reading interests. It aims to cultivate students’ independent and critical thinking, reading and speaking skills in Putonghua, Portuguese and English.
The School-Based Language and Reading Activities Project	This project offers schools subsidies to nurture students’ reading habits, create a positive reading environment and stimulate creative thinking. Collaboration between reading promotion staff and schoolteachers in extracurricular reading activities are incentivised.
Reading Promoters	Special Duty Personnel Subsidy Programme is a scheme that aims to subsidise schools to recruit extra staff to boost standards in key curriculum areas and alleviate teachers’ nonteaching workload. The promoters’ job duties include designing reading promotion plans, exposing students to different writing styles and cooperating with teachers of various subjects to cultivate good reading habits.

The Special Evaluation of the Reading of Secondary and Primary Students	The University of Hong Kong is commissioned to collect information about reading promotion in primary and secondary schools in Macao, assess the effectiveness and challenges of existing policies and make recommendations.
School Operation Guide	The DSEDJ introduced a document on Curriculum and Teaching Proposals in the Event of School Closure in response to the COVID-19 pandemic to help schools suspend classes without suspending learning. Students are guided to maintain good learning habits and interest in learning.
Award Scheme on Instructional Design	Outstanding lesson plans of the award scheme are shared locally and to other regions to support quality teaching.
Online teaching and learning resources for teachers, parents and students	Joining Hands in Fighting the Epidemic, Learning Easily at Home and other learning platforms tailored for different regions.
Smart Campus	A standardised platform to help school management and home-school communication.

Macao, under the purview of the Macao SAR government, has embarked on a multifaceted journey to enhance reading skills across its educational landscape. The programs detailed in Table 2 show Macao's care for literacy, not only by bringing in extra staff who would focus on developing reading programs but also by involving parents to help maintain children's learning habits. According to PISA 2022 report, parental involvement in students' learning decreased in many education systems. Only in a few countries/economies did parents become more involved during the period, such as Macao, where parents were more involved in parent-initiated discussions with teachers in 2022 than in 2018 (OECD, 2023, p. 232). Macao also made and adapted many learning and teaching resources that can be useful for students and parents in their homes (IEA, 2021). Thanks to this proactive stance, disadvantaged students (i.e. those in the bottom decile of the international distribution of the economic, social and cultural status (ESCS) index) in Macao were found to have outperformed even the most advantaged students in many other PISA-participating countries and economies (OECD, 2023, p. 45, 139), which goes against the typical assumption that advantaged students always perform better than their disadvantaged peers.

The PIRLS report indicates that Macao has mandated regular collaboration between schools. This is supported by Hsiang (2023) who describes that Macao has created a knowledge-sharing ecosystem among schools. The collaborative efforts between the DSEDJ and higher education institutions further underscore Macao's commitment to enhancing the professional knowledge of the staff through annual training courses. This, in turn, has a cascading effect on support teachers, equipping them to provide diverse reading activities for students. This is evidenced by how PIRLS 2021 results affected the country to reform teaching reading and writing (Huang et al., 2020). PISA concluded that Macao is one of the countries that are bucking the trend of long-term decline (OECD, 2023, p. 27), as it improved in all three subjects when considering the results from all PISA assessments through to 2022 (OECD, 2023, p. 183).

Furthermore, Macao embraces immersive reading environments in recognition of the transformative potential of technology in education to increase students' literacy in English. According to Huang et al. (2020, p. 326) who interviewed teachers from Chinese, English and international primary schools in Macao, "focusing on helping students love reading and writing" is one of the main factors that shape the instructional practice, so teachers would leverage new technology such as interactive games.

4.2 Qatar

"Performing strategy solely cannot improve student comprehension."

—Quote from Morsy et al. (2021, p. 508)

The Ministry of Education and Higher Education (MOEHE) in Qatar is the government entity that is charged with regulating education to achieve Qatar's vision of a diversified, knowledge-based economy. Qatar's language curriculum does not teach language skills separately since they are divided into three major

domains (e.g. words and sentences, listening and speaking and reading and writing), though the national tests do have different weightings for the typical four language skills (e.g. listening and responding, speaking to communicate and interact, reading strategies and responding and writing strategies and composing). By giving children formal reading instructions beginning at age 6 as well as other initiatives, Qatar aims to have produce self-reliant critical thinkers.

Mean performance	Reading
PISA 2000	m
PISA 2003	m
PISA 2006	312*
PISA 2009	372*
PISA 2012	388*
PISA 2015	402*
PISA 2018	407*
PISA 2022	419
Average 10-year trend in mean performance (2012 to 2022)	+30.6*
Short-term change in mean performance (2018 to 2022)	+12.2*
Proficiency levels: Change between 2012 and 2022	
Percentage-point change in the share of top-performing students (Level 5 or 6)	+1.2*
Percentage-point change in the share of low-performing students (below Level 2)	-9.8*
Variation in performance: Change between 2018 and 2022	
Average change among high-achieving students (90th percentile)	+8.9*
Average change among low-achieving students (10th percentile)	+20.6*
Gap in learning outcomes between high- and low-achieving students	narrowing gap
Trends by quarter of socio-economic status (ESCS): 2018-22 / average 10-year trend	
Performance among advantaged students (top quarter of ESCS)	+7.7 / +34.0*
Performance among disadvantaged students (bottom quarter of ESCS)	+13.9* / +32.2*
Performance gap (top – bottom quarter)	stable / stable

Figure 3. OECD’s PISA snapshot of results for Qatar (2023, p. 457)

Despite the educational reform initiatives that has taken root for more than two decades, the quality of education is not yet on par with international standards (Koç & Fadlemula, 2016). Figure 1 shows Qatar’s mean performance score in reading consistently rose in every PISA test, currently peaking at 419 (OECD, 2023, p. 225), but the scores remain low. Since the first PISA assessment, Qatar’s performance improved to a similar extent for both high- and low-achievers (OECD, 2023, p. 190).

Qatar is a unique participant in PISA 2022 as the test selected all eligible schools to participate in the test due to the inherently too small education systems (OECD, 2023, p. 274). Students with non-immigrant background typically have more advantages socio-economically than students with an immigrant background (OECD, 2023, p. 209), but PISA 2022 has more share of disadvantaged students. The fact that Qatar’s 2022 score is made up by a majority of disadvantaged students among non-immigrant students by more than 10% (OECD, 2023, p. 275) is interesting because one of the indicators in PISA’s background questionnaire signalled that Qatar has a large proportion of students with low reading proficiency, i.e. some of these students did not fully understand the questionnaire items (OECD, 2023, p. 303).

Table 3. Qatar’s initiatives and policy changes to increase children’s literacy (IEA, 2021)

Program	Description
My Library is the Heart of My School	This program aims to foster the value of books, promoting the culture of reading through the implementation of two special reading classes every month for students.
Reading Olympiad	This Olympiad is one of the most important national activities in Qatar. This event is geared to spread the culture of reading in Qatari schools.
Annual Spelling Bee competition	This competition is designed to align with the national curriculum grade as it is one of the main ways to encourage children to use Arabic correctly.
Annual book fairs	Qatari schools held book fairs annually and all students are encouraged to participate.

Qatar National Library (QNL) visitations	Schools organise regular visits to QNL to give children different and inspirational learning spaces. The itinerary of these visits is tailored to provoke children's curiosity by engaging with the library's space and collections.
Distance Learning Portal	In response to COVID-19 pandemic, the ministry launched this portal to support all distance learning services (e.g. students are given access to audited question banks, teachers can receive direct inquiries from students). Schools are instructed to use Microsoft Teams in tandem with the portal.
Free-to-air educational television channels	The ministry collaborated with telecommunications networks (Qatar TV) in Qatar to set up two free-to-air educational shows (Education 1 and Education 2) to ease students' transition to learn from home.
Qatar's Distance Learning YouTube channel	The Ministry established this new educational channel to help Grades K to 12, consisting of 19 YouTube subchannels for all subjects and grades, including materials for adult learners and children with special needs or disabilities.

When the PIRLS report on Qatar is examined independently, the findings show a very progressive take from Qatar in their mission to promote the culture of reading. The government not only hold a variety of annual competitive programs but also invested in creating brand new channels to supplement the children's learning progress at home. According to [IEA's \(2021\)](#) data, all schools in Qatar have access to projectors, televisions and computer in addition to books to teach reading. Qatar also gives children an early start for reading instruction and actively keeps an eye on learners who struggle to read in order to provide early interventions. Any student who has been identified to struggle in reading is referred to reading specialists, as teachers with special education training are not likely trained specifically to help students with reading struggles ([IEA, 2021](#)).

However, Qatar's level of English proficiency remains a concern. Studies show that Qatari students who are studying abroad and recently-employed graduates reported problems in English reading comprehension ([Golkowska, 2013](#); [Ahmed, 2019](#)). During the PISA reading test, Qatari students' show large declines in their score in the second hour compared to the first hour of testing ([OECD, 2023, p. 302](#)), which also implies that the students may not have been taught reading strategies efficiently. The fault has been attributed early on by [Al-Khwaiter \(2001\)](#) who state that English teachers in Qatari schools have a negative attitude towards the communicative approach. This remains true according to [Nasser \(2013\)](#) who found even the extracurricular reading interventions to be lacking in contributing reading-comprehension strategies, and is further confirmed by [Morsy et al. \(2021\)](#) who surveyed 754 Qatari EFL teachers and found that the majority of them demonstrate moderate use of reading comprehension strategy instruction. Parents are more involved mostly when teachers initiated the discussions ([OECD, 2023, p. 232](#)), but English teachers in Qatar may have not been effectively trained to provide excellent reading instructions ([Palmer et al., 2016](#)). The new initiatives made to mitigate the negative effects of the pandemic seems promising, but Qatar will have to wait for concrete evidence of their results until PISA 2025 and PIRLS 2026.

4.3 Jordan

"[Many] still suffer a lot in determining which reading strategy is more useful than another."

—Quote from [Smadi and Alshra'ah \(2015, p. 77\)](#)

The Ministry of Education of Jordan enacts the Education Reform for the Knowledge Economy programs (ERfKE I and II) to prepare citizens with the challenges of the future. In achieving their vision of "Education for All," Jordanian schools centralise the general planning and monitoring, while the administration is decentralised. This is the principle of Jordan's educational policy to mitigate the influx of Syrian students into the schools and the on-going infrastructure challenges. According to the PIRLS 2021 report, Jordan has achieved universal basic education for all with high attendance rates, but are still grappling with challenges in providing quality education to all children.

Mean performance	Reading
PISA 2000	m
PISA 2003	m
PISA 2006	m
PISA 2009	m
PISA 2012	m
PISA 2015	m
PISA 2018	m
PISA 2022	342
Average 10-year trend in mean performance (2012 to 2022)	m
Short-term change in mean performance (2018 to 2022)	m
Proficiency levels: Change between 2012 and 2022	
Percentage-point change in the share of top-performing students (Level 5 or 6)	m
Percentage-point change in the share of low-performing students (below Level 2)	m
Variation in performance: Change between 2018 and 2022	
Average change among high-achieving students (90th percentile)	m
Average change among low-achieving students (10th percentile)	m
Gap in learning outcomes between high- and low-achieving students	
Trends by quarter of socio-economic status (ESCS): 2018-22 / average 10-year trend	
Performance among advantaged students (top quarter of ESCS)	m / m
Performance among disadvantaged students (bottom quarter of ESCS)	m / m
Performance gap (top – bottom quarter)	m / m

Figure 4. OECD’s PISA snapshot of results for Jordan (2023, p. 432)

As the country is transitioning from a paper- to a computer-based assessment, Jordan is still participating in the PIRLS 2021 cycle in paper format and their PISA 2022 reading score is calculable at the expense of the country’s 3-year trend comparison (OECD, 2023, p. 282). In the latest cycle, the country scored 342 in reading.

Table 4. Jordan’s initiatives and policy changes to increase children’s literacy (IEA, 2021)

Program	Description
Queen Rania Teacher Academy (QRTA)	An independent nonprofit institution, in collaboration with Columbia University, specialised in training teachers, supervisors, and school principals to excel at both the classroom and school level. QRTA has recently includes newly appointed teachers.
National Center for Curriculum Development (NCCD)	NCCD is founded to develop and disseminate best practices in the country’s textbooks and curricula.
Education During Emergency Task Force	In response to COVID-19 pandemic, this committee implemented and evaluated the Education Digital Emergency Plan (EDEP). This plan includes schemes of digital content development to make sure that the students’ learning process continues in online channels, primarily the newly introduced Darsak Learning Platform.
Remedial and enrichment programs for all grades	Students who struggle to access e-learning or have not passed the e-assessments are identified and signed up to these programs which used blended approaches to address the students’ learning gaps caused by the 323 days of complete school closure.

It can be seen in Table 4 that Jordan’s programs are not only few but also have rather broad goals. PIRLS 2021 have not identified any programs that exclusively specialise in enhancing Jordanian’s literacy. Of the two special reading initiatives, the QRTA is designed to model approaches for the enrichment of Arabic and English language education that is interactive and accessible, and the NCCD is focused on textbook quality improvement. This finding does not necessarily mean that Jordan has not carried out any other reading-focused programs, considering that several studies in Jordan have identified English reading programs, such as reading for pleasure program known as We Love Reading for 4-8-year-old Jordanian children (Dajani et al., 2019) and Printed Extensive Reading meant to improve eleventh graders’ English proficiency (Smadi & Al-Zawahreh, 2013). However, these kinds of programs are often based locally rather

than nationally and seldom published in international journals, as majority of existing studies indicated that Jordan mainly have reading instructed programs integrated with writing activities (Al-Tamimi et al., 2018; Alsharayri & Rahman, 2023; Hmeidan, 2021).

Meanwhile, the other two programs are created to respond and mitigate Jordan's concern of the national learning loss caused by the pandemic, which include but do not necessarily focus on language skills and literacy. In the PISA 2022 assessment, the Jordanian students gave contradictory responses across several items in the background questionnaire, which indicate that a large proportion of the students have low reading proficiency and did not fully understand the questionnaire items (OECD, 2023, p. 303). This is in line with Smadi and Alshra'ah (2015, p. 77) who echoed an aged quote that "the majority of the Jordanian students are slow readers and have many bad reading habits" and Alkhalaf (2015, p. 962) who said that Jordan's Ministry of Education reported that "100,000 basic grade students exhibit a weakness in English and mother tongue literacy." However, Jordan as a country reflects on their condition and is invested in studying international strategies of early grade reading interventions, as proven by how 43 schools adapted Egypt's Early Grade Reading Program, and their demonstrated led to a national rollout in Jordan's 2,651 public primary schools and the creation of a remediation program (Gove et al., 2017).

4.4 Cross-country comparison of the countries' literacy level and programs

Macao, Qatar and Jordan have shown differing levels of investment in the way they have enriched their students' reading ability. While PIRLS report exclusively focused on each of the participant countries, PISA made comparison trends between countries and between the yearly reports for within countries (except for Jordan due to their transition from paper to computer testing). Of the three countries, Macao and Qatar (along with Colombia and Peru) improved their nation's mathematics, reading and sciences, while other countries are reported by PISA to show a trend of long-term decline, as indicated by the OECD countries' mean performance falling by 15 points in mathematics and by 10 score points in reading, an unprecedented drop of performance (OECD, 2023, p. 27). Analysis revealed that the COVID-19 pandemic is a red-herring of the root of the problem, because the countries' performances have been declining well before the pandemic (scores across countries peaked in 2012 for reading), indicating longer-term issues (OECD, 2023, p. 44). For instance, the low frequency of times when primary students in Macao are taught writing (only once every 2-4 weeks) according to Hsiang and Graham (2016). This study found that Macao have clearly made significant investment in enriching students' literacy, however, their current direction seems to be not balanced with similar investment in writing—the actual production of what students' read (Ng et al., 2024). Other contextual information is important to be considered before simply taking the PISA reports' conclusions as fact, such as social demographic profile of the population which can affect the countries' performances. In this case, Macao and Qatar (as well as United Arab Emirates) are outliers since more than 50% of their student population are immigrants (OECD, 2023, p. 214).

Based on the assessment results of PISA and PIRLS of the selected three countries, it can be interpreted that each country has taken different paths to enrich their children's literacy with different results. First is Macao, whose literacy programs all show a clear priority on teacher empowerment, is one of the leaders in global literacy. Their status as a leader is supported by Luyten (2022), whose study on online chatting, reading literacy and awareness of reading strategies confirmed that Macao-China showed the largest improvement, with the country showing the strongest decline being Indonesia. Second, Qatar mainly provided a two-fold platform to encourage reading (both competitively and collaboratively), but does not improve significantly in their national PISA reading scores over multiple cycles. And third, Jordan's mission on providing education for all students are realised through programs that broadly address all aspects children's education, thus they seem to have fewer literacy-focused enrichment programs and does not perform as well as the other two countries. Moreover, Middle East education systems in particular are still grappling with how political differences, colonialism, missionaries and ethnics conflicts have coloured their education systems since entering the 21st century (Kanalani & Celep, 2011). Nevertheless, Qatar and Jordan both show adaptive and resilient educational frameworks despite their lower rankings.

6. Conclusion

Literacy is a fundamental cornerstone of education, shaping the cognitive and socio-economic landscapes of nations. This discourse delves into the distinctive literacy enrichment initiatives undertaken by three different countries (e.g. Macao, Qatar and Jordan), who recognise the role of literacy in fostering intellectually curious individuals that can excel and contribute to societal growth. All countries have a shared

commitment to adapt to the evolving educational landscapes and integrating innovative methods, and they only vary in terms of the quality of how they cultivate a love for reading in their students. This study has made a unique contribution in the body of research on literacy programs across multiple countries with through its coverage of both PISA and PIRLS. By exploring both reports, this study detailed the quantitative performances of the selected countries and the quality of their national programs. However, this study is not without its limitations. Replicability of the study may be difficult as the literature review that supplemented the case study comparison of PISA and PIRLS reports are not done systematically. But, the researcher highly encourages future research to explore and adapt the initiatives detailed in the results in improving literacy outcomes of their respective local contexts. Teachers are, of course, encouraged to take inspiration from these programs and adapt it for their own local contexts.

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