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CASES/TRENDS

Drawing lessons from PISA: Qatar's use of PISA results

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Abstract Worldwide, the Programme for International Student Assessment (PISA) has emerged as a valid and reliable benchmark for assessing students' performance and for gaining significant influence over educational policy and decision-making. Since 2001, Qatar has engaged in massive educational reform, with high expectations for improving students' achievement. Although significant growth has occurred in Qatar's education system, students' performance in PISA is still lagging. The purpose of this article is to examine PISA against the backdrop of Qatar's education system. It addresses PISA's objectives and limitations and identifies two common factors in high-achieving countries, teachers, and assessment. These factors are analyzed to determine how Qatar is developing in these areas, compared with other nations, raising issues that should be considered when using PISA to create policy. Finally, several recommendations are offered for policy makers.

Keywords Education reform · PISA · Qatar · Policy learning · Education transferring

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Toward the start of the new millennium, the state of Qatar embarked on an ambitious journey of human development and sustainable economic diversification to transform into a knowledge-based society (Ministry of Development Planning and Statistics [MDPS], 2018). The country took bold steps toward this goal by overhauling its education system to improve educational quality and turn the country into a regional hub of education (General Secretariat for Development Planning [GSDP], 2012). However, challenges still lie ahead as Qatar seeks to build a modern world-class education system that provides citizens with "excellent training and opportunities to develop to their full potential, preparing them for success in a changing world with increasingly complex technical requirements. The system will also encourage analytical and critical thinking, as well as creativity and innovation" (GSDP, 2008, p. 13).

Recently, the country's education system has been criticized for not producing graduates equipped with the right skills and attributes to enable them to compete globally. An issue with the Gulf Cooperation Council (GCC) and Qatar's education and labor market landscape is the mismatch between education outcomes and the job market's needs (Al-Ruwaihi, 2017). The World Economic Forum (2017) estimated that of all labor activities in Kuwait (41%), Bahrain (46%), Saudi Arabia (47%), the United Arab Emirates (UAE; 49%), and Qatar (52%) are susceptible to automation. In GCC countries, approximately 21% of core skills were different from required skills in 2015. Because of the "deficit in much-needed science and engineering graduates, and an excess of social science graduates" (Shediac & Samman, 2010, p. 7), the private—and even public—sector has had to resort to foreign labor for the supply of science, technology, engineering, and math (STEM) occupations. The lack of a highly skilled national workforce continues to be a source of concern to Qatar's policy makers because of a shortage of critical skills in STEM, information technology (IT), and medicine fields (Abdulwahed et al., 2013). Therefore, the future of these nations' knowledge-based economies relies on their education systems and ability to develop a national workforce that possesses the knowledge and capabilities required by the labor market (Al-Ruwaihi, 2017). However, students' performance, especially in science-related subjects and STEM fields, has proven to be a challenge for Qatar's education system. While Qatar's expectations for students to perform well in STEM subject areas are very high, their performance in international mathematics and science tests, such as PISA, is still lagging.

The purpose of this essay is to examine how Qatar has performed and responded to PISA testing. First, the essay briefly describes Qatar's education system and its performance on PISA. Then it examines PISA, including PISA's objectives and limitations, and discusses common factors, including teachers and assessment, in high-achieving countries. These factors are discussed against the backdrop of Qatar, raising issues that should be considered when using PISA to develop policy. Finally, several recommendations are offered for Qatari policy makers.

PISA: Objectives and limitations

Every 3 years, the Organization for Economic Cooperation and Development (OECD) tests the knowledge and skills of 15 year-old students worldwide via PISA. The OECD (2013) wrote that the rationale behind PISA is

> Equipping young people with the skills to achieve their full potential, participate in an increasingly interconnected global economy, and ultimately convert better jobs into better lives is a central preoccupation of policymakers around the world. Skills empower people to meet the challenges of everyday life, related to making decisions; solving problems; dealing with unexpected events, such as job loss and family break-up. (p. 2)

PISA measures students' attainment of some of the knowledge and skills essential for full participation in the knowledge society (OECD, 2005a). These results were used to rank participating countries' education systems, providing each country with a comparative analysis of their 15 year-old students (Paine & Schleicher, 2011). These test results aided countries in learning about the quality of teaching and learning in their schools; the quality of school culture and administration; and some demographic, economic, and social data that might contribute to those outcomes (Perry & Ercikan, 2015).

Komatsu and Rappleye (2017) pointed out that one notable advantage of PISA is that it provides essential cross-national and longitudinal data that demonstrate large-scale student learning metrics. The release of the highly anticipated PISA results usually encourages policy makers worldwide to examine other countries' performances and practices and to learn from their experiences (Ercikan et al., 2015).

As of 2015, PISA was used by over 70 countries and was the largest and most influential comparative assessment of educational performance in the world (Lijing & Yingnan, 2017). Over the past decade, PISA has been considered a reliable benchmark for measuring students' performance worldwide and has been embraced as "an almost global standard," influencing policy- and decision-making in many participating countries (Breakspear, 2012).

Limitations of PISA testing

There is no shortage of criticism regarding PISA testing and the interpretation and use of the results. Critics suggest a "PISA reasoning" has emerged whereby countries with excellent test scores are inferred to have greater education policies than do other countries (Feniger & Lefstein, 2014). The logic is that nations with a more successful PISA performance should be viewed as models and their model should be adopted by other countries. This logic is termed the "policy and structures assumption" (Feniger & Lefstein, 2014). The international disparity between students' PISA performance is predominantly attributable to their national education policies and structures. This process is termed *educational borrowing* or *transferring* and is defined as "policy makers in one country seek to employ ideas taken from the experience of another country" (Phillips, 2004, p. 54).

Nevertheless, researchers have reported that what seems to work in a particular cultural and educational context might not work in another (Ercikan et al., 2015). The borrowing process implicitly promotes a de-territorialization and decontextualization of policy "challenging the past conception of education as a culturally bounded system" (Steiner-Khamsi, 2004, p. 5). Cross-national policy borrowing becomes ineffective when it is divorced from historical and cultural contexts (Dimmock & Walker, 2000; Phillips & Ochs, 2004; Romanowski et al., 2018; Steiner-Khamsi, 2004). For example, regarding PISA, equity may be an element of a high-scoring PISA country's education system, but that does not mean there is a cause-effect relationship between equity and PISA results (Feniger & Lefstein,

2014). Identifying and examining practices and policies that help high-ranking countries perform consistently well in international assessments may be only half the answer.

Feniger and Lefstein (2014) contended that PISA performance results are one of many indicators of academic performance. Placing such an emphasis on PISA performance reduces education to a restricted test of selected competencies, casting aside cultural, demographic, and economic conditions that directly influence a nation's students (Feniger & Lefstein, 2014). Owen (2017) reported in an open letter to OECD that over 100 academics argued that "the problem is not with the test in principle—having impartial data that show whether education systems are delivering the basics is a good thing—but with the way it has become the dominant metric of success" (para. 4). The academics argued that PISA results distort what is essential in education, creating an overreliance on testing and leading to simple solutions to complex problems. Viewing PISA results from this perspective reduces education to a narrow range of measurable aspects. Other aspects of education are slight (e.g., physical, moral, civic, and artistic development), limiting how education is defined (Andrews et al., 2014).

Moreover, the results themselves can be problematic. Large-scale assessments tend to have little relationship with students' daily challenges inside the classroom (Perry & Ercikan, 2015). PISA assessments have little relevance to the students' context, given that students who take the tests are from all over the world. PISA results do not identify factors that contribute to that performance, "especially in relation to the classroom and the processes of teaching and learning that take place there" (OECD, 2014a, p. 21). For example, Finland is often praised, and its system is emulated for its PISA success. However, PISA tests do not show that Finland's difference between student and school performance is among the lowest in the PISA countries, indicating widespread equity and social cohesion (Salokangas & Kauko, 2015). PISA data are then used to compare students' performance in developed and developing nations (Komatsu & Rappleye, 2021).

PISA has also been criticized for testing some subjects not taught (e.g., problem-solving) at schools in participating countries, while failing to assess others that are taught (Meier & Diefenbach, 2020). Other critics reproached PISA for having awkward and inaccurate translations of tests, and sampling was also an issue when reviewing PISA results (Bray et al., 2020; Ercikan et al., 2015; Sjøberg, 2018). Countries follow somewhat different sampling formulas when participating in international assessments, which usually leads to imbalances in student representation and unfair comparisons (Ercikan et al., 2015).

Qatar's education system

Over the years, concern has grown in Qatar about the low quality of education, its students' poor performance on standardized tests (e.g., PISA/TIMSS) and students underachievement, and a loss of interest in higher education (Romanowski & Du, 2020). In 2003, Qatar embarked on a massive, decentralized education reform, "education for a new era," designed by the RAND Corporation (Romanowski & Du, 2020). RAND provided a critical analysis of the Qatari education system for kindergarten through grade 12 and provided recommendations to improve the system. RAND's analysis "identified the strengths and weaknesses of the existing system and pointed to two main reform priorities: improving the education system's essential elements through the standards-based system and devising a system-changing plan to address the system's overall inadequacies" (Nasser, 2017, p. 3). Other areas considered problematic were the absence of school leadership, the highly centralized top-down educational structure, the existing

curriculum and instruction, and the lack of strategies to evaluate and monitor policies and processes (Brewer et al., 2007; Nasser, 2017). Qatar implemented a decentralized charter-school model based on four pillars: autonomy, variety, choice, and accountability. The reform spawned numerous changes throughout the system. Specifically relevant for this essay are teacher development and assessment, which experienced numerous changes. The specifics of Qatar's accomplishment in each of these areas are addressed here, and Qatar is compared with high-scoring PISA countries.

Qatar and PISA

With the intent to review and benchmark its performance compared with that of other countries, Qatar's first participation in the PISA assessments was in 2006 (Brewer et al., 2007). Qatar has experienced rapid improvement rates since its initial participation, demonstrating a decrease in low-performing students and increase in high-performing students (OECD, 2019a). The highest performance improvements occurred in mathematics and reading, with roughly a 100-point increase from the initial participation (Figure 1). Over the years, the country has witnessed gradual increases in both. However, students in Qatar remain below the OECD average. Consequently, the number of students who scored below level 2 (low-achieving students) decreased, and the number of high-performing students (students who scored at level 5 or 6) increased in the 2018 PISA results. According to the OECD (2019a), the increase could be attributed to "the composition of Qatar's student population, with significant increases in the share of foreign-born students, who tended to score higher than non-immigrant students" (p. 3).

In 2018, Qatar's PISA reported a tiny proportion of students performing at the higher levels (level 5 and 6) and a higher percentage of low performers than in other countries (Figure 2). For example, only 3% of students scored at a proficient reading and mathematics level, compared with OECD's average, which was not less than 9 to 11%. Similarly, in science, only 2% of students performed at a proficient level, compared with OECD's average, which was not less than 7%. According to the OECD analysis, the high increases in students' performance could be attributed to the rise in the percentage of foreign students.

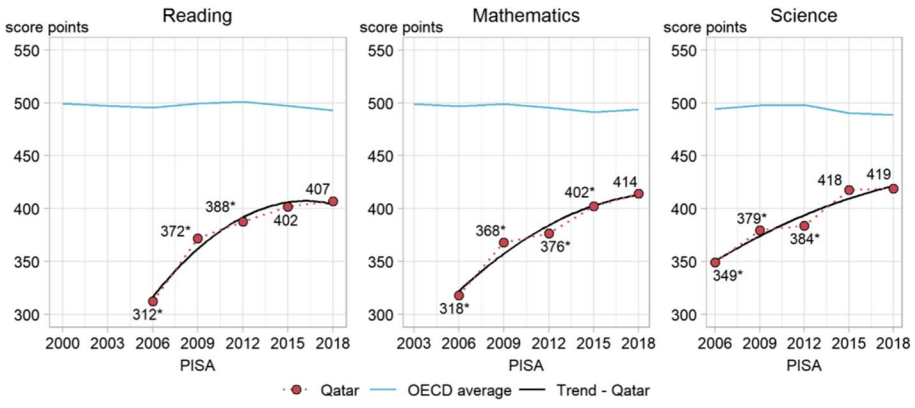

Figure 1 Qatar's PISA performance trends in reading, mathematics, and science
Source:. OECD (2018b).

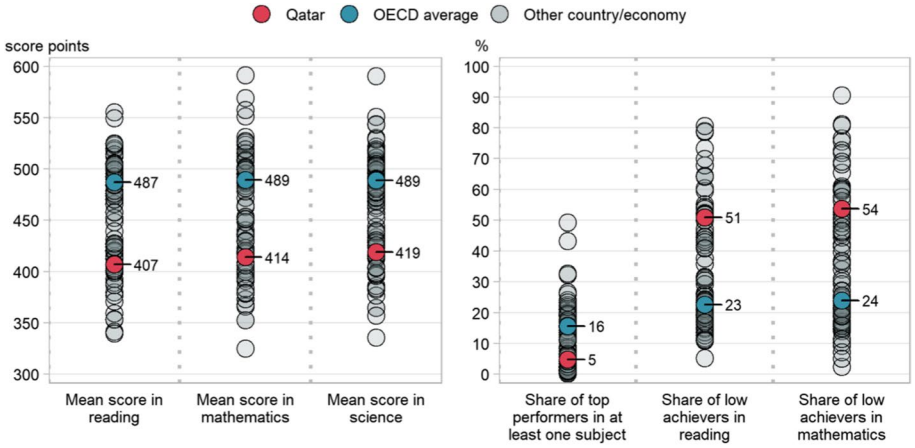

Figure 2 Qatar's 2018 PISA performance
Source: OECD (2018b).

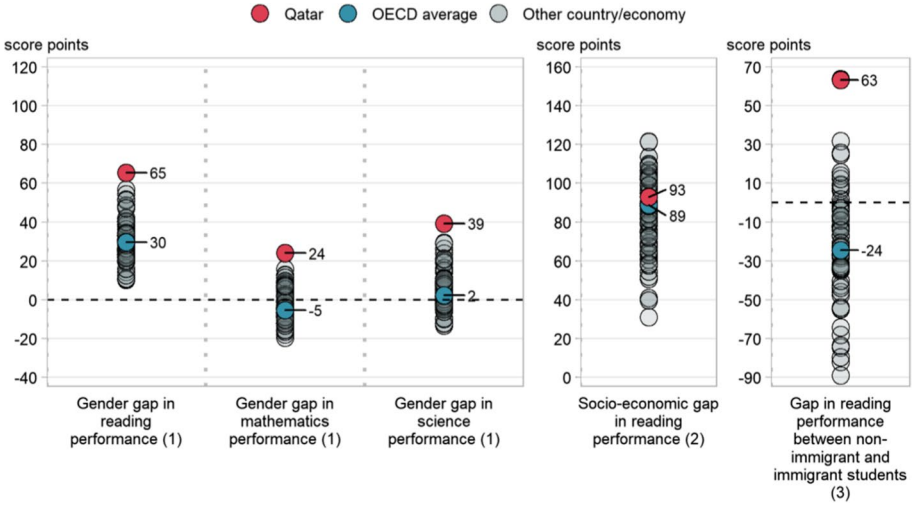

Figure 3 Qatar's differences in performance and personal attributes in the 2018 PISA performance
Source: OECD (2018b).

Finally, the country suffers from a significant gap in performance with respect to gender and nationality (Figure 3). A large gap also exists between students' performance with respect to gender, primarily in reading and science. For example, in reading, the gender gap increased from 2009 (50 score points) to 2018 (65 score points). In 2018, girls outperformed boys, and the gap decreased in mathematics (24 score points) and science (39 score points).

Moreover, socio-economically advantaged students outperformed disadvantaged students in reading by 93 score points in PISA 2018, indicating an equity issue that needs to be addressed. Figure 3 demonstrates that low-performing students are placed in some schools,

whereas high-performing students are placed in other schools. This indicates that the high-performing student clusters enrolled in high-performing international schools, which usually have high tuition costs, have better-educated teachers and educational services.

The above data suggest that Qatar has progressed and improved its PISA performance over the years. However, most countries have room for further improvement. It is essential to acknowledge that large-scale assessments, such as PISA, are flawed and not vigorous enough to facilitate significant policy decisions (Murphy, 2010). No education reform or practice should be based on a single narrow measure of quality, such as PISA. Research suggests that greater care should be exercised in interpreting and using an international comparative testing program, such as PISA. For example, Qatar's mathematics, reading, and science scores remain below average compared with scores in other countries. However, Qatar is considered one of few countries that has improved its results in all three subjects since its first PISA assessments (SESRI, 2012). This indicates growth and development within Qatar's education system. Also, developing alternative and meaningful ways to view and interpret PISA scores, such as using a country's scores over the past four or five PISA cycles, might provide a better indicator of the country's educational development. The following section offers a closer examination of standard practices of high-scoring PISA countries, compared with practices in Qatar's education system.

Qatar's PISA performance compared with that in GCC countries

Efforts that rely exclusively on international test comparisons to learn how to improve education are destined to be futile endeavors, especially when looking solely to high-scoring countries that have different educational histories and distinct social structures, political systems and cultural values and traditions. Focusing on similar contexts instead can be valuable, as these are more likely to provide usable education policy lessons for schools. Therefore, it is sound and useful to draw a comparison between Qatar's performance on PISA, PIRLS, and TIMSS tests and that of its neighboring GCC countries—namely Bahrain, Kuwait, Oman, Saudi Arabia, and the UAE. A comparative perspective is useful since these countries have similar economic and political environments and similar systems of education. Over the past few decades, these countries have also adopted similar education reform models (Al-Fadala, 2015). Table 1 reports scores from the PISA for the GCC countries participating in the testing program.

Looking at the PISA results for 2018, for example, the average score of OECD countries for reading was 487, for math was 489, and for science was 434 (OECD, 2019a). Qatar, the UAE, and Saudi Arabia all scored below the average in these three areas. Regarding gender, across OECD countries, while girls outperformed boys in reading (30 points) and science (2 points), boys outmatched girls by 5 points in mathematics (OECD, 2019a). Within

Table 1 Gulf Cooperation Countries' Mean PISA Test Scores

PISA: Reading/mathematics/science			
	Qatar	Saudi Arabia	UAE
2012	388/376/384	Not Available	442/434/448
2015	402/402/418	Not Available	434/427/437
2018	407/414/419	399/373/386	432/435/434

Source: OECD (2018a, 2018b, 2014b).

the context of the GCC, girls outperformed boys in all six GCC countries. In Qatar, Saudi Arabia, and the UAE, girls performed better than boys in reading, with a difference of 24 points for Qatar, 57 points for the UAE, and 54 points for Saudi Arabia (OCED,). Arguably, these gender-based differences in the reading performance of girls and boys constitute one of the largest between PISA-participating countries.

For mathematics, girls performed better than boys did, with a difference of 24 points (Qatar), 9 points (UAE), and 13 points (Saudi Arabia; OCED,). Again, these differences between the performance of girls and boys in mathematics is among the highest, compared with that of other countries participating in PISA.

Regarding science, girls outperformed boys, with a difference of 39 points for Qatar, 26 points for the UAE, and 29 points for Saudi Arabia (OCED,). As with the other tested areas, differences between girls' and boys' science performance scores represent one of the largest between PISA-participating countries. For example, the UAE's score difference in science between the 10% of students with the highest scores and the 10% the lowest scores is one of the most significant between countries that participated in PISA (OCED, 2019b). Also noteworthy is Qatar's long-term change in science mean performance, which was one of the strongest increases for PISA-participating countries (OCED, 2019a).

Looking at the performance of GCC countries on PIRLS and TIMSS tests, all five participating nations fall within the intermediate and low categories (Table 2). The international benchmarks for 2019 TIMSS science and math achievement for Grades 4 and 8 and 2016 PIRLS tests are advanced 625, high 550, intermediate 475, and low 400. In this respect, several key findings are worth mentioning. As Table 2 illustrates, all six GCC countries scored below the scale center point of 500.

Regarding the PIRLS and TIMSS assessments, roughly two-thirds of students in all participating countries scored between 400 and 600 (NFER, 2018). Across the GCC countries, three-in-ten students did not reach the low international benchmark; this is much higher than is seen internationally (NFER, 2018). As in PISA, girls outperformed boys in all GCC countries.

PISA report: Schools, principals, and teachers

As useful as comparisons between OECD country test scores on PISA may be, they provide an incomplete picture and thus limited information. Similarly, focusing on student data in isolation offers a slice of the information required when measuring educational outcomes. Indeed, reliable indicators of these outcomes must encompass aggregated views and opinions of students, teachers, and school principals, for instance. Looking at teacher data also contributes to "creating shared points of reference" (OECD, 2020) and helps to provide evidence from an alternative perspective. As such, eliciting information from teachers is an

Table 2 Gulf Cooperation Countries' PIRLS and TIMSS test scores

PIRLS 2016	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE
	446	393	418	442	430	450
2019 TIMSS						
Grade 4 math & science	480/481	383/403	431/411	441/443	398/394	481/473
Grade 8 math & science	493/486	392/444	435/457	449/475	402/431	473/473

Source: Mullis et al. (2020); NFER (2018)

important component that needs to be used when measuring educational outcomes, including the study of teachers' views regarding their attitudes toward teaching and beliefs about teaching practices. Equally important are teachers' perceptions of their students' learning, their involvement in school and schooling, as well as their initial training and professional development (OECD, 2020).

PISA testing is not limited to students' performance scores but also includes information about school resources. Demonstrably, of all school resources, teachers play a central role in furthering students' academic achievement and social and emotional well-being (OECD, 2018a). Teachers matter (Alvunger et al., 2020) because they "play a vital role in the lives of their students. They impart knowledge, provide pastoral care, act as role models and, above all, create an effective learning environment" (Mostafa & Pál, 2018, p. 8). According to OECD (2020), schools that have sufficient numbers of teachers who are well qualified and provide a supportive environment and positive working conditions are well placed to enhance the quality and equity of the education they offer.

School principals also play a vital role in creating and maintaining an adequate working environment for students, teachers, and staff members, thus providing the requisite conditions that promote teaching and learning (Hallinger, 2018). As vehicles for the implementation of change at their schools, they shape the quality of the overall school climate (Agasisti & Zoido, 2018). Existing research has shown positive correlations between school principals as school leaders and student achievement (Dieterle et al., 2015; Mora-Ruano et al., 2021). As is noted in the OECD's (2017a) *PISA 2015 Assessment and Analytical Framework* report,

> School principals play a key role in school management. They can shape teachers' professional development, define the school's education goals, ensure that instructional practice is directed toward achieving these goals, suggest modifications to improve teaching practices, and help solve problems that may arise within the classroom or among teachers. (p. 120)

Based on PISA results for 2018, several factors were cited by school principals as impeding the capacity of schools to provide quality instruction (OECD, 2020). For example, results revealed a lack of teaching staff and support for Qatar (11.4%), Saudi Arabia (49.5%), and the UAE (27.7%). Inconsistency in levels of teacher qualifications across the GCC countries was also seen in PISA 2015. Overall, the above data indicate that GCC participants in international testing fell below OECD averages but improvements occurred. That lead many countries to look at the elements of high-performing countries' education systems, as discussed below.

Standard features of high-performing countries

As previously mentioned, policy makers look to high-performing nations to identify standard practices, hoping this knowledge can improve their school systems. Based on a review of 25 articles from the OECD library and the content in Qatar's national reports, several standard features emerged that contribute to the success of countries that consistently scored in the top tier of PISA. In what follows, we discuss two common factors important to Qatar's education system, teachers, and assessment.

Teachers

Research consistently validates the significant impact teachers, teaching effectiveness, and instructional quality have on students' academic achievement, outcomes, and success (Branch et al., 2017; Chetty et al., 2014). The analysis of the factors contributing to the highest-PISA-performing nations revealed that those countries focus on three areas: recruitment, salary and status, and effective professional development.

Teacher recruitment. Nations consistently scoring high on PISA assessments ensure that the teacher recruitment and selection process is highly competitive. Only the best candidates are selected (OECD, 2017b). Candidates who have earned a degree in education are highly sought after and valued in those nations (Paine & Schleicher, 2011). For example, Singapore implements policies and procedures to attract highly qualified candidates to work in their schools (Schleicher, 2018). This includes teachers who must pass a probation period before continuing to work in schools (OECD, 2017b).

Japan, Hong Kong, China, Taipei, and Macao require all teacher candidates to pass a teaching examination (OECD, 2017b). Similarly, Korea has a rigorous preservice teacher training program and selection process to ensure the flow of only competent candidates to its schools (OECD, 2014a). Canada and Finland are no different. Admission to quality preservice teacher training is highly competitive, and only the best graduates earn a position in teacher education schools (Schleicher, 2018). High-scoring PISA countries (e.g., China, Japan, Singapore, Estonia, and Finland) share common elements in the professional development of teachers, including limited access to teaching to suitably qualified candidates with the minimum of a bachelor's degree, the use of quotas of places available for preservice training programs, and demanding pre-selection and assessment of teacher candidates (Tonga et al., 2019).

Salary, status, and advancement. Countries with the highest PISA performance report that teachers are typically paid better than are teachers in other countries, and education credentials are more valued. For example, Japan allocates a high percentage of its spending to paying teachers and incentivizing good performers (OECD, 2012). These countries devote a significant portion of education spending to instructional services (Paine & Schleicher, 2011). Furthermore, these countries are successful in establishing teaching as "an attractive profession often done so not just through pay, but by raising the status of teaching, offering real career prospects, and giving teachers responsibility as professionals and leaders of reform" (p. 12). Concerning career advancement for teachers, Korea adopts a unique approach to promoting excellent teaching by linking career advancement to the teacher's proficiency level in the classroom (OECD, 2014a). In Canada, teacher unions work collaboratively with the Ministry of Education to develop shared goals and address challenges. Teachers feel valued and respected when included in the discussion of plans and policies (Paine & Schleicher, 2011).

Professional development. OECD (2005b) reported that professional development should be redefined, and a professional development system be implemented into a country's education system. Tonga et al. (2019) stated that OCED considers teachers' professional development as consisting of several dimensions, "including prospective teacher selection, pre-service education, teacher training practicums, monitoring and processing, in-service training, rewards, resources, and support" (p. 1). Furthermore to be more effective, teachers need to work in a supportive and professionally nurturing system, with ongoing professional development to enhance their performance (Greatbatch & Tate, 2019). The OECD (2017b) report affirmed that high-ranking countries share a common practice of inviting specialized experts to provide continuous professional training for teachers and

conduct hands-on collegial teacher development sessions. In Finland, teachers work and learn in professional communities and help each other improve their instructional practices (Schleicher, 2018). Shanghai continually improves its teachers by providing ongoing teacher training for all its teaching force, with a heavy reliance on educational action research for improvement (Schleicher, 2018).

Teachers in Qatar

Qatar has a unique teaching cadre, wherein the majority of teachers are expatriates. With less than 30% of nationals working in government schools, Qatar is faced with the challenge of recruiting teachers from different countries to address the continuous demand.

Teacher qualifications and recruitment. In Qatar, teachers are recruited to work in government schools locally and outside Qatar. The Ministry of Education and Higher Education (MEHE) has reviewed its selection criteria to accept Qatari candidates with a bachelor's degree in a specified subject area, other than a college of education, with educational qualifications. Non-national candidates, in addition to following the rules applied to national candidates, should have no less than a "good" rating if graduating from a college of education. Those who graduated from a college other than a college of education or have a related educational qualification must have no less than a "very good" rating and completed at least 3 years of teaching experience in a scarce specialty.

Some additional efforts have been implemented to increase the flow of specialized teachers into public schools, including the College of Education's reopening at Qatar University in 2007 and implementing a sponsorship program for nationals interested in teaching. Today the College of Education is positively contributing to preparing teachers for schools, as witnessed in the increasing number of graduates. However, efforts are hampered because of the scarcity of quality candidates interested in teaching. This problem is evident in the number of male students who graduated from the college's programs in 2018, which did not exceed 25 students, of whom only three were Qatari nationals (Qatar University, 2019). In the PISA 2018 surveys, school principals in Qatar reported that 76% of their teachers in advantaged schools and 97% of teachers in disadvantaged schools were fully certified. The percentage of teachers with at least a master's degree was more significant in advantaged schools than in underprivileged schools, emphasizing the point highlighted earlier.

Salary and status. Regarding teacher salaries in Qatari government schools, 82% of teachers are satisfied with their salary, which is higher than the percentage of teachers satisfied with their salary level in private Arabic and international school, both below 50% (MEHE, 2017). The increasing number of students interested in joining the College of Education at Qatar University over the past 5 years reveals a general interest in working in the teaching profession. In the 2018 PISA surveys, school principals reported less staff shortage and less material shortage than the OECD average, indicating Qatar's efforts to ensure the teaching staff's availability in government schools. Regarding the status of the teaching profession in Qatar, as with many countries, Qatar's status is low, and the country experiences a high turnover rate of teachers, reflecting the challenges teachers face (Nasser, 2017). However, Qatar continues to improve the status of teachers, recently establishing the Advisory Committees for Teachers and School Leaders, which engage in continuous dialogue with policy makers and deliver the voice of the educators working in schools to officials to ensure their participation in decision-making.

Professional development. To achieve its goal of having high-quality teachers, the Supreme Education Council launched the Qatar National Professional Standards for School Teachers and Leaders (QNPSTL) in 2006 (Nasser, 2017). The Qatar Office of Registration, Licensing, and Accreditation (QORLA) was established to issue full licenses for government and private school staff to implement the standards. The QNPSTL is a set of professional standards that describe what teachers and school leaders need to know, understand, and do. It illustrates the full range of capabilities and knowledge educators must possess to provide high-quality instruction and support improved student learning (Supreme Educational Council, 2007). The licensing process centers on measurable practices that can be assessed inside classrooms, including teachers' planning, classroom management, formative assessments, and sufficient follow-up on students' performance inside and outside the school (MEHE, 2020). The newly revised licensing policy links the license acquisition with career advancement to ensure quality instructional leaders' progress in schools. Today, approximately 12% of government school teachers are licensed after 3 years of implementing the revised policy (MEHE, 2019), which indicates the policy needs some time and consistent implementation to lead to the gains intended.

Concerning teacher professional development in Qatar, the Training and Educational Development Center (TEDC), the entity responsible for training teachers and school leaders within the MEHE, provides basic and specialized training courses and workshops for educators. These courses are based on the QNPSTLs. Since its establishment, the TEDC has developed partnerships with other training centers, including The National Center for Educators Development at Qatar University, Qatar Leadership Centre, and Arabic Center for Educators Training. More than 9,168 teachers and school leaders were trained in the academic year 2018–2019 (MEHE, 2019). Moreover, academic vice principals and coordinators are expected to develop their teaching staff through in-school professional development sessions, classroom observations, and action research through their annual plans.

Assessment for improvement

Paine and Schleicher (2011) contended that PISA high-performing countries develop high academic standards and implement these within curriculum and assessment policies. Some countries (e.g., Germany, Japan, and some US states) have embedded components of the PISA assessments in their national curricula and assessments (OECD, 2014a). Despite the differing nature of the evaluation policies and practices in PISA high-performing countries, a single dimension navigates assessment—that is, assessment and evaluations are being used to guide improvement efforts. Evaluation data are disaggregated by every level possible to understand their academic reality and identify achievement gaps and patterns.

Research indicates that rigorous data analysis is considered the cornerstone for policy reviews and new interventions (McColskey & Lewis, 2007). Shanghai uses three tools for a comprehensive evaluation system: national standardized assessments, students' emotional and physical health assessments, and teachers' and school leaders' evaluations. Those evaluations are an integral part of the system's inspection scheme, and results feed into the development and monitoring of their strategic plans. Shanghai aims to develop excellent schools that use formative assessments to enhance learning and improvement efforts (Tan, 2019). Japan practices a proactive approach regarding international assessment results to inform the review of its evaluation system. For instance, it incorporates findings from a thorough analysis of its PISA performance to reform the national curriculum, reevaluate its instructional practices, and improve its information and communication technologies

environment (Tasaki, 2017). Additionally, Japan adopted PISA-related questions and tasks and included them in its national assessments (Schleicher, 2018).

Limited grade repetition rate

OECD (2018a) contended that "research has found mainly negative effects of grade repetition on academic achievement and attainment" (p. 16). High-performance systems make an effort to limit grade repetition rates, and teachers work hard to maximize students' learning. For example, Korea has no grade repetition, resulting in no grade variation between 15 year-olds taking the PISA assessment (OECD, 2014a). Additionally, a strong emphasis is placed on formative assessment and learning activities, rather than on summative assessments, to guide schools and teaching efforts in Shanghai (Tan, 2019). Those assessments trigger extra and achievement-remedial measures to support lagging students and to reduce their grade repetition.

High-performing countries take full responsibility for bringing all students to higher levels of performance. High-quality education systems organize afterschool academic support programs and supplementary resources to address performance gaps (OECD, 2012). For instance, schools in Japan allocate more instruction hours for core subjects (e.g., math and science) and supplemental materials for all schools. Similarly, Korea offers many afterschool supplementary classes and remedial sessions for low-achieving students (OECD, 2014a).

Assessment for improvement in Qatar

In 2004, the Qatar Comprehensive Educational Assessment (QCEA) was developed as the first national standardized, standard-based assessment in Qatar. The QCEA measures students' learning and performance according to the curriculum standards requirements, using multiple-choice and open-ended question formats. Today, the national assessments have replaced the QCEA. According to (Gonzalez et al., 2009), the standard-based assessment was developed

> to provide (1) information about school performance to the public to motivate school improvement and promote informed parental choice; (2) feedback to teachers, helping them tailor instruction to support the needs of student bodies; and (3) detailed information to policymakers about the education reform's progress in general and, precisely, about schools' performance for accountability purposes. (p. xii)

Besides the national assessments, teachers regularly develop formative classroom-based tests to monitor student's performance.

Qatar has been participating in three International assessments (i.e., TIMES, PIRLS, and PISA) since 2006 to have comparable data to assist in improving its education policies and outcomes (Gonzalez et al., 2009). Private school assessments differ according to the curriculum (Supreme Education Council., 2012). It is important to note that the key is not the amount of assessment data but how those data are used. Data collected from all student assessments are rendered useless if they do not result in changes to areas of critical importance that have a significant negative impact on students' achievement.

Qatar has no consistent practice in reporting or discussing students' performance at the school level. Annual announcements about schools' performance data are made in official press conferences and at meetings with principals. However, the analysis of the students' performance data is handled at the school level. Additionally, little discussion regarding students' performance occurs in private schools, which is a gap that needs to be addressed immediately.

Grade repetition in Qatar

In Qatar, students are asked to repeat a grade when they have not successfully acquired the skills and knowledge of the grade level they just completed. Grade repetition is designed to enable students to learn the material they failed to grasp. According to the World Bank (2020), Qatar has a relatively high incidence of grade repetition. In 2018, the total number of repeaters in lower secondary general education, at all grades and of both genders, in Qatar was 2904 students (World Bank, 2020). Grade repetition was highest among males in government schools. Given that students who repeat grades are likely to have repeated due to poor academic results, they would be expected to have lower academic results on the PISA tests. This pattern of grade repetition, poor academic performance, and low PISA test results was evident in both government and private schools. Those who had repeated a grade performed significantly below those who had not repeated a grade in mathematics, science, and reading. The average student who repeated a grade in private schools was likely to perform at a level 2 years below their peers who had not repeated a grade. The frequency of repetition was higher for government school students (15%) compared with private school students (10%). The more significant gap for private school students may be due to reluctance in private schools to make students repeat a grade unless they are well behind their peers. Still, no evidence suggests that students who repeat a grade are likely to catch up to their peers (Supreme Education Council, 2012).

Discussion

Owen (2017) states that PISA rankings, in theory, "should encourage innovative; in practice, it is easier to copy the approach of the league leaders" (para. 4). Research has reported that using other nations' teaching and learning approaches as a blueprint do not necessarily provide positive results. Dimmock and Walker (2000) pointed out that those adopting so-called best practices from high-scoring PISA countries may fail to carefully consider their cultural fit. For example, equity may be a common element of a country's education system. That country's success in PISA does not mean a cause-and-effect relationship can be assumed between a particular element and the country's PISA results (Feniger & Lefstein, 2014). This is often the case with PISA, as educational leaders have at times unquestionably accepted PISA results, assuming that common problems in nations require standard solutions, and have used this information to develop and implement national educational change.

There is little doubt that integrating some of the practices used by successful-PISA-scoring countries into Qatar's education system would be helpful. For example, improving teacher quality in any country would improve the education system. Duplicating educational policies and structures of high-attaining systems may be very attractive and efficient.

However, any policy implemented to achieve this goal must be considered in the context of how the policy and culture interact with one another, since cross-national policy transferring will prove ineffective without serious consideration of the cultural contexts in which those policies operate (Alexander, 2012). However, examining the chosen high-ranking countries' educational experiences may reveal repeated patterns and standard features that influence their excellence; nations can review and learn from these policies and practices.

This calls for a shift from policy transferring to policy learning. Stone (2004) stated policy learning "may result in a more coherent transfer of ideas, policies, and practices whereas mere copying may well be ad hoc and piecemeal" (p. 548). The policy-learning model considers the context of learning in the formation and implementation of policies and practices. Educational policy makers devise an approach that considers the contexts, practices, and processes conducive to successful educational policy borrowing. However, breaking from conventional models of policy transfer, Scott et al. (2017) argued that the resolution of identified problems or needs is accomplished not through arbitrary policy transfer but by policy makers, school leaders, educational officials, and practitioners actively learning from the educational practices of other countries. For example, Chinese officials interpret and reinterpret the PISA data and correlate those data with other local indicators to understand their reality and challenge their understanding so they can develop better practices in the future (Tan, 2019).

Recommendations

There is no PISA silver bullet for educational reform. Enduring changes in education take decades to come to fruition. However, we know that formal and informal pressures from PISA create difficulties and demands for policy makers. With that in mind, some of Qatar's recent education initiatives have adapted similar approaches to those used in high-achieving countries, which emphasize contextualization, consistent review and improvement, and improved educational outcomes over time. Considering Qatar and the practices addressed above, we have several recommendations. We argue that a high-quality education that improves learning and student achievement and has an indirect benefit in terms of improvement in PISA scores is essential. However, the local context is also vital. We provide the following recommendations based on the above discussion.

Quality teachers

The following recommendations are proposed to continue the support of the training center for educators and further enhance the work of MEHE to support teachers working in local schools.

The MEHE should consider strengthening the collaboration with Qatar University's CED to ensure future teachers' proper preparation, focusing on improving practicum courses in preservice teacher programs.

The MEHE should provide specialized, context-based professional development to teachers, especially in teaching strategies, advanced assessment methodologies, project-based teaching, and problem-solving. External expertise should be brought in to develop and implement programs using advanced facilitation strategies and technolo-

gies, with possible collaboration with OECD for teacher development. However, local experts must be actively involved to provide insights into the local culture and indigenous frames of reference.

Assessment for improvement

Qatar has an advanced student evaluation system designed by external agencies aligned with international standards used in high-performing countries. However, some have suggested that constant changes in the system, with little consideration to systematic reviews and evidence-based improvements, dilute government schools' evaluation practices. The current system can improve, based on accumulated experience and documented history, to form a baseline for improved evaluation policies and procedures.

(1) The MEHE should conduct annual reviews of schools' performance data, with more aggregation and rigorous analysis of students' performance, according to nationality, gender, school stage, and area. Such research should be linked to students' socioeconomic status, nationality, level of experience with their teachers, and other factors. These reviews must be conducted with high levels of objectivity and transparency in the partnership, including key stakeholders (e.g., policy makers, school principals, teachers, and parents).
(2) The MEHE should consider annually identifying low-performing schools and providing support interventions for those schools. The focus should be on providing targeted professional development and support materials to address performance gaps.
(3) The MEHE should consider replacing grade repetition, which harms students' motivation and international indicators, with practices that can make up for grade repetition, lower the incidence of grade repetition, and improve educational support for struggling students. These practices may include remedial classes, school academic programs, and supplementary courses.
(4) The MEHE should collaborate with the OECD and other international organizations to review its student evaluation policies and build local capacity to develop assessments and reporting processes that align with the ones applied in international examinations.

Conclusion

Over the years, Qatar has continued to improve its PISA scores. PISA assessments provide valuable information on several key issues of interest to educational systems at the local and international levels, including the following questions:

- Do they have the skills of analysis, logic, and communication that will enable them to present their views and ideas to others?
- What is the effect of the quality of a school's resources on student outcomes?
- What educational structures and practices maximize opportunities for students from low-income backgrounds?

- To what extent does students' performance depend on their social and cultural background?
- How equitable is the education provided to students from all backgrounds? (MEHE, 2012).

Qatar should consider these questions and interpret the information gained from PISA linked to the local indicators—and more importantly, to the local culture—to develop effective policies and practices. This requires Qatar to balance the importance of PISA scores and the investment and development of a quality education that is effective and ensures that a sustainable high-quality education is provided to all.

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